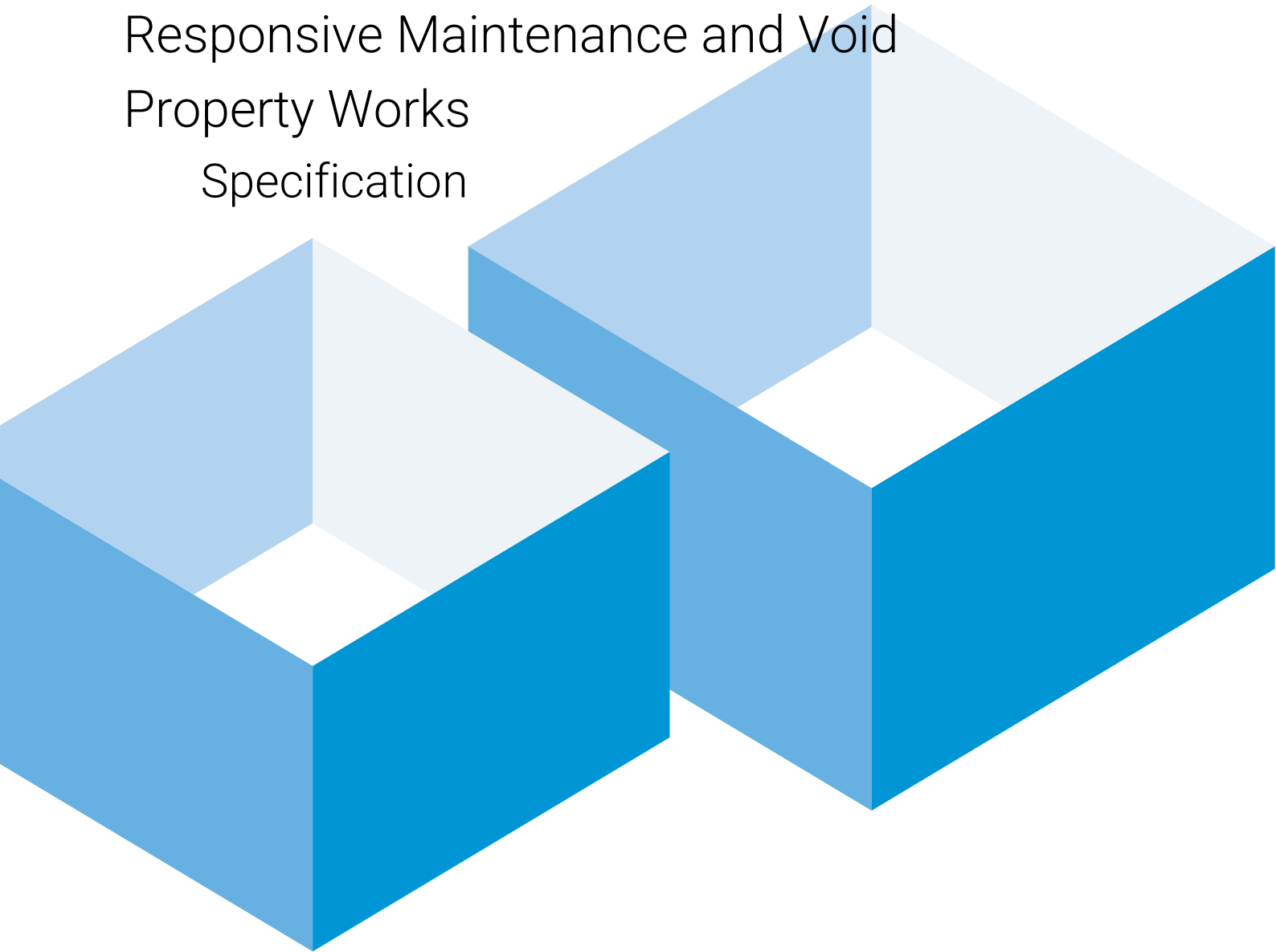




M3NHF Schedule of Rates

VERSION 7.2

Responsive Maintenance and Void
Property Works
Specification



**M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS –
SPECIFICATION – VERSION 7.2**

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Your challenges
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SPECIFICATION OF WORKMANSHIP AND MATERIALS

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GENERAL

GENERAL

Applicability

- 001 This initial general section applies to all subsequent sections of this Specification of Workmanship and Materials ("**this Specification**").
- 002 This Specification is drafted as a series of instructions that the Service Provider must ensure are complied with in relation to the Works. Each instruction includes all tasks necessary to comply fully with the instruction and the Schedule of Rates item(s) to which it relates.
- 003 The Schedule of Rates payments, as adjusted by the Service Provider's tendered Rates, include for carrying out all tasks required by this Specification including detailed requirements as may be described or delineated on the Client's standard detail drawings as may be appended to this Specification. No further payment is due to the Service Provider in respect of any such tasks beyond the payments provided for in the Schedule of Rates.
- 004 Specifications across several trades may be relevant to each Schedule of Rates item. The Service Provider must comply with all requirements of this Specification applicable to the specific type of Works to be undertaken.
- 005 References to Paragraphs and Sections in this Specification are to the applicable Paragraph and Section of this Specification. If any contradiction appears within the Specification sections, Schedules of Rates, the Client's Policy documents etc., the most rigorous standard takes precedent.

Standards of workmanship and Materials

- 006 Carry out and complete all Works as required by this Contract including:
in accordance with Law including Health and Safety Law;
in accordance with Good Industry Practice;
in accordance with the Client's Policies;
in accordance with the Client's standard drawings and details;
in accordance with any specific requirements for those Works in this Specification; and
to the satisfaction of the Client's Representative (acting reasonably).
- 007 To the extent that the standard of any Works has not been specified in this Contract, agree the relevant standard for the Works with the Client's Representative before their execution. Where particular Works or working methods are to be "approved by" "agreed with" or are indicated to be "subject to the approval of" the Client's Representative, give the Client's Representative adequate notice when such approval or agreement is needed and retain evidence of all approvals given, and items that have been agreed, by the Client's Representative.
- 008 To the extent that it is necessary to Design any aspects of the Works, in preparing those Designs the Service Provider hereby warrants that the services have been and will be performed with such skill, care, diligence and expedition as would be reasonably expected of a prudent experienced contractor with Design obligations having experience in carrying out projects similar in size, scope, nature, complexity and value to the services.
- 009 Maintain all existing lines and levels at all times and carry through new Work to the same lines and levels unless otherwise Instructed by the Client's Representative.

European and British Standards & Codes of Practice

- 010 Ensure all Works undertaken and all Materials used in those Works comply with all applicable Standards and Codes of Practice that are current at the time of their use.

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- 011 References in this Specification of Workmanship and Materials to any Standards and Codes of Practice are to be construed as references to the version current at the time the Order is undertaken.
- 012 Where a specific Standard or a Code of Practice is referred to, this sets out the minimum acceptable standard of Materials or workmanship.
- 013 Any requirement in this Specification of Workmanship and Materials to use Material or an article or follow a process which is defined by reference to a specified Quality Assurance Scheme, British Board of Agrément Certificate, Standard or other approval, may be met by a Material, article or process (as applicable) which has received equivalent approval in another Member State of the European Union or an equivalent international standard recognised but not yet adopted in the UK.
- 014 A Service Provider offering a product or following a process on the basis of compliance with any such approval shall notify the Client's Representative of all such substitutions in advance of placing any order and will be required to provide, in English, technical or other details of the approval and its qualifying tests.

Materials

- 015 The Client wishes to standardise the use of Materials across its Properties. This is in order to simplify parts requirements and van stock loads, to improve its repairs processes and to reduce maintenance costs. Wherever possible, match all Materials used to materials currently used in the Properties, particularly in terms of their parts requirements and repair procedures. In this Specification the Client has set out details of its current Materials to which the Service Provider is required to standardise.
- 016 Where this Specification indicates that Materials are to be "approved by the Client's Representative", provide samples of the proposed Materials to the Client's Representative for approval. Any Materials that comply with the functionality and compatibility (including aesthetic compatibility) requirements of this Specification may be proposed. No further approval is required for any Materials listed in this Specification as being the Client's currently used Materials. The purpose of the Client's Representative's decision on the use and approval of such Materials is to ensure that they meet the Client's requirements for functionality and compatibility. The decision of the Client's Representative on this is final. No future precedence will be set by individual Client's Representatives, with exception to those authorised to do so by the Client. A 'common sense' and 'best practice' approach it is the recommended method of approval.
- 017 Where this Specification requires Materials to be matched to existing Materials or finishes, this match is subject to the approval of the Client's Representative.
- 018 Do not use any Prohibited Materials in carrying out the Works. Prohibited Materials are those materials which are generally accepted or (having regard to Good Industry Practice) are reasonably suspected of:
- being harmful in themselves;
 - being harmful when used in a particular situation or in combination with other Materials;
 - becoming harmful with the passage of time; or
 - being damaged by or causing damage to the structure in which they are to be affixed.
- Prohibited Materials also include those materials which are generally considered to be deleterious within the building design professions in the UK.
- 019 Materials are to be regarded as harmful if, in the context of their use in the Works (whether alone or in combination with other materials) they:
- are prejudicial to health and safety;
 - may pose a threat to the structural stability or the physical integrity of any Property; or
 - could materially reduce the normal life expectancy of any part of the Property.
- 020 Sustainable Timber: All timber and wood derived products referred to throughout this document and which are supplied to the Client, or used Works, must be procured in accordance with all applicable Law.

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- 021 CE/UKCA Marked Products: All products referred to throughout this document and supplied to the Client, or used in the Works, must be supplied with a Declaration of Performance (DoP) and carry the appropriate CE/UKCA conformity assessment marking.

Performance Standards on the CE/UKCA mark must comply with relevant Building Regulations as required.

The CE/UKCA mark must be fixed visibly, legibly and indelibly either to the product or to a label attached to the product. If this is not possible or not warranted, then it must be fixed to the packaging or within the accompanying documentation.

The DoP must be made available by the manufacture (this may be via a website).

- 022 Use, fix and apply all Materials strictly in accordance with the manufacturer's recommendations, directions or technical data sheets.
- 023 Participate in joint initiatives with the Client and other contractors to establish supply chain agreements.
- 024 Where appropriate suggest (economically viable) amendments to this Specification where those amendments may lead to an improvement in environmental performance or sustainability.
- 025 Provide all information the Client's Representative reasonably requests regarding the environmental impact of the supply and use of any Materials the Service Provider selects for use in the Works.

026 [optional clause] This Specification incorporates the Client's Codes of Practice in respect of the following:

- **[insert details]**

In the event of any conflict or disparity between the requirements and obligations contained in the Codes of Practice and this Specification, the Codes of Practice will have precedence.

- 027 Client's Standard Details as may be appended to this Specification are to be referred to by the Service Provider to amplify both this Specification and the descriptions in the Schedule of Rates. The Schedule of Rates descriptions are deemed to be fully inclusive of any requirements delineated, described or illustrated in such Client's Standard Details. It should be noted that the Client's Standard Details may contain a referencing system that relates to an alternative Client's Specification, which does not form part of this Contract, and where this type of referencing occurs it should be considered as a reference to a comparable item of equal quality and performance within this Specification and Schedule of Rates.
- 028 **[optional clause]** If the Service Provider considers that decanting elderly, vulnerable, people with disabilities and other occupiers and carers from a Property whilst intrusive Works or disruption to washing and sanitary facilities are required to be undertaken, the Service Provider may be required to provide (at no extra cost) the following facilities:

Decant Mobile - Daytime Decant

Temporary Accommodation shall conform to all applicable Standards.

If it is agreed, prior to a scheme start, that daytime facilities are required this may either be a touring caravan used outside homes between 9am and 5pm and then removed, or a mobile unit located in a fixed position supplied with at least the following:

- External door;
- Bedroom;
- A toilet compartment with wc suite, wash-handbasin and shower unit;
- A flued gas fire/electric heater (note: gas is the preferred option);
- A flued gas fire multi-point water heater or electric water heater;
- Electrical installation complying with the IET Wiring Regulations;

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- Mattresses with fireproof removable covers (which shall be thoroughly cleaned and changed after each decant);
- A cooking appliance and fridge;
- Warning notice for health and safety advice to users;
- Fire blanket (to be located by the cooking appliance);
- 1kg-powder fire extinguisher (to be located by the main door);
- Smoke Detector;
- Carbon Monoxide Detector; and
- User's handbook (to be used by Service Provider when demonstrating the mobile to new occupants).

The Service Provider shall also supply the following:

- A security cabinet for two 13kg bottles of propane gas if gas is to be used (red gas bottle);
- Entrance steps, handrails, level access ramp (maximum 1:12) to be provided for people with a disability to the satisfaction of the Client's Representative;
- Water supply; and
- Mains sewerage connection.

Daytime decanting must be as agreed by the Customer, the Client and the Service Provider including as to the hours required for the daytime facility, its location and siting. The provision of car parking by Customers of adjoining dwellings must be considered in all circumstances. The form of provision may vary in different situations.

The daytime facility is not required to provide laundry and storage facilities, telephone connections or television aerials or a dedicated car parking facility.

A chemical toilet compliant with all Standards for portable chemical closets may be used where no sewer connection is feasible.

All Temporary Accommodation must conform to the Health and Safety Law, which includes installation and checking. This is the responsibility of the Service Provider.

The Service Provider must comply with any Code of Practice for the transportation, siting and commissioning of caravans published by the National Caravan Council.

The location of the day-time mobile decant facility must conform to Health and Safety Law and be as agreed with the Client's Representative.

Service checks are to be carried out by suitably qualified personnel after each decant. These checks should cover:

- Electrical;
- Gas;
- Water;
- Fire prevention equipment;
- Warning Notices; and
- Steps and Handrails.

The facility is to be cleaned between each change of user.

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The following notice not less than 200mm x 130mm with the heading printed in red is to be fixed in a prominent position in the Temporary Mobile Accommodation.

ADVICE TO CUSTOMERS

Ventilation

Do not obstruct the ventilators, which are fitted; your safety depends on them.

In Case of Fire

Get everyone out.

Turn off the outside gas valve

Raise the alarm and call the Fire Brigade

Do not stay behind to put the fire out yourself

Do not put yourself at risk

Fire Precautions

Children - must not be left alone in the caravan.

When cooking never leave a cooker unattended

Do not use multi-adaptors.

If you smoke use metal or glass ashtrays-not plastic.

Make sure cigarettes are put out properly

Do not smoke in bed.

Means of Escape

Make sure you know the location and operation of the emergency windows and doors,

Keep door and window keys handy.

Keep all escape routes clear.

If there is smoke, keep low where the air is clearer

Do not go back into the caravan.

Combustible Materials

Keep them clear of all heating and cooking appliances.

Fire Fighting Equipment

In addition to the 1kg powder fire extinguisher by the main exit door, a fire blanket is provided next to the cooker. Make yourself familiar with the instructions on your fire extinguisher and fire blanket and the fire precautions arrangements on site. Do not stay behind to put the fire out yourself. Do not put yourself at risk.

The use of chip pans in mobiles is strictly prohibited.

EXCAVATION AND EARTHWORK

**M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS –
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EXCAVATION AND EARTHWORK

Excavation

- 001 Leave excavations for the foundations of walls and similar structures exposed until they have been inspected and approved by Building Control. Do not fill in trenches or holds or cover up the concrete until dimensions have been taken by the Client's Representative.
- 002 Refill any excessive depth to the proper level with concrete (*Gen1*) as specified in the "Concrete work" Section. Excavate the formation level to such further depth as the Client's Representative Instructs where the bottom of any excavation is found to be soft or otherwise unsound. Fill any extra depth with concrete (for which additional payment is to be made).
- 003 Any rubble, salvageable building materials and antiquities from the excavations belong to the Client.
- 004 Check in advance the location of any pipes, cables or any other services when excavations are to be carried out.

Weed killer

- 005 Use an organic weed killer approved by the Client's Representative and applied in accordance with the manufacturer's technical data sheet. All products must be used and distributed by or under the direct supervision of a person holding a Recognised Certificate of Competence.

All material used, and all methods of application and tank mixes shall be in accordance with the legislation arising from the Food and Environmental Protection Act 1985, The Control of Pesticides Regulations 1986, the Health and Safety Agencies Code of Practice for "The Safe Use of Pesticides for Non –agricultural Purposes" and the "Control of Substances Hazardous to Health Regulations" – (COSHH Regulations).

The application of weed-killer is to be confined to designated areas, and the Service Provider is to supply the Client's Representative with written records showing dates of application, the location of the work, the chemical and the rate of application.

The use of residual herbicides of hard surfaces is strictly prohibited.

Disposal of excavated material

- 006 Remove from site any surplus excavated material from the site in accordance with the Service Provider's Site Waste Management Plan (SWMP).

Filling

- 007 Use only clean subsoil free from vegetable soil, roots and rubbish for backfilling around foundations or to make up levels, lay in layers not exceeding 200mm thick and consolidate each layer as required.

Pumping and baling

- 008 Keep the bottom of excavations free from storm or percolating water by pumping or other means during and throughout the progress of the Works until their completion.

Supporting excavations

- 009 Support all excavations using earthwork supports to ensure the safety of Staff and the Works to the satisfaction of the Client's Representative.

Work in cold weather

- 010 Protect excavations against freezing. Do not use frozen materials for backfilling.

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Hardcore

- 011 Use for hardcore only hard dry crushed brick or hard broken rubble stone, or limestone quarry waste, free from mud, dirt, clay, ashes, clinker, asbestos, timber or any other deleterious matter, broken to pass a 75mm diameter ring in all directions, well rolled and consolidated in 100mm layers.
- 012 Crushed rock under solid floor slabs, sub-bases and road bases shall be sound clean rock when tested in accordance with the requirements of BS EN 1097, the material shall not be frost susceptible when tested under BS EN 1367-1. Sampling and testing of crushed rock is to be in accordance with BS EN 1097-1 and BS EN 1097-2. Crushed rock must be tested prior to the start of a project and evidence of the tests made available to the Client’s Representative when requested.
- 013 Crushed rock sub-bases material to roads and shared surfaces are to be graded in accordance with the following table:

100mm CRUSHED ROCK:RANGE OF GRADING FOR SUB-BASE MATERIAL	
BS Sieve Size	Percentage by Mass passing.
125.00mm	100
100.00mm	90-100
90.00mm	82-100
37.50mm	25-52
28.00mm	10-30
14.00mm	0-10
6.30mm	0-6
3.35mm	0-2

- 014 Crushed rock road-base material to roads, shared surfaces, bases to footpaths/paved areas are to be graded in accordance with the following table:

65mm CRUSHED ROCK:RANGE OF GRADING FOR ROAD-BASE MATERIAL	
BS Sieve Size	Percentage by Mass passing.
65.00mm	100
50.00mm	67-100
37.50mm	52-70
28.00mm	30-45
14.00mm	10-28
6.30mm	6-10
2.36mm	0-6
1.16mm	0-2

- 015 Crushed rock under solid floor slabs is to be graded as the table in clause 014 above, spread and levelled in layers not exceeding 150mm thick, with each layer thoroughly compacted with a vibrating roller, vibrator plate compactor, vibro tamper, power rammer or other approved means.
- 016 Crushed rock filling behind retaining walls is to be accordance with clause 012 above, graded in accordance with the table below and thoroughly compacted to the satisfaction of the Client’s Representative.

BS Sieve Size	Percentage by Mass passing.
63.00mm	100
37.50mm	85-100
20.00mm	0-20
10.00mm	0-5

- 017 Sub-base material is to be spread evenly on the blinded formation. Where the total depth of sub-base is less than 250mm, this shall be spread in one layer so when it is compacted the total depth shall be as required or specified within a =10mm to -30mm tolerance and compacted in accordance with the table in clause 20 below.

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018 Road base material is to be laid in layers, the minimum compacted depth of material in one layer shall be 110mm and the maximum compacted thickness in one layer shall be 225mm, compaction shall be in accordance with the table in clause 20 below, the finished levels of the compacted road base material shall be within a +10mm to -15mm tolerance.

019 Base material to footpaths and paved areas shall be spread evenly and compacted with a roller of not less than 2.5 tonnes weight and blinded with just enough stone dust or fine granular material to give a close textured surface.

020 The compaction requirements for Granular sub-base and Road base material are as tabled below:

Type of compaction plant	Category	Number of passes of compaction equipment for layers not exceeding the following compacted depths			
		110mm	150mm	225mm	250mm
Smooth-wheeled roller (or vibratory roller operating without vibration)	Mass per metre width of roll: Over 2700kg up to 5400kg	16	N/A	N/A	N/A
	Over 5400kg	8	16	N/A	N/A
Pneumatic-tyred roller	Mass per wheel: Over 4000kg up to 6000kg	12	N/A	N/A	N/A
	Over 6000kg up to 8000kg	12	N/A	N/A	N/A
	Over 8000kg up to 12000kg	10	16	N/A	N/A
	Over 12000kg	8	12	N/A	N/A
Vibratory roller	Mass per metre width of vibrating roller: Over 700kg up to 1300kg	16	N/A	N/A	N/A
	Over 1300kg up to 1800kg	6	16	N/A	N/A
	Over 1800kg up to 2300kg	4	6	10	N/A
	Over 2300kg up to 2900kg	3	5	9	10
	Over 2900kg up to 3600kg	3	5	8	9
	Over 3600kg up to 4300kg	2	4	7	8
	Over 4300kg up to 5000kg	2	4	6	7
Vibrating plate compactor	Mass per sq. metre of base plate; Over 1400kg/sqm up to 1800kg/sqm	8	N/A	N/A	N/A
	Over 1800kg/sqm up to 2100kg/sqm	5	8	N/A	N/A
	Over 2100kg/sqm	3	6	10	N/A
Vibro-tamper	Mass: Over 50kg up to 65kg	4	8	N/A	N/A
	Over 65kg up to 75kg	3	6	10	N/A
	Over 75kg	2	4	8	N/A
Power rammer	Mass: 100kg up to 500kg	5	8	N/A	N/A
	Over 500kg	5	8	12	N/A

Blinding

021 Use for blinding only sand, fine gravel, pulverised fuel ash or other fine materials that are free from dust, spread in one layer, and compacted, well rolled and consolidated., Stone dust blinding to roads and sub-bases is to be compacted to the required thickness by 4 passes of a smooth wheeled roller weighing not less than 8 tonnes.

022 Do not use shale either as hardcore or blinding to hardcore.

023 Use sufficient blinding material to fill the surface to provide a close smooth surface for hardcore.

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Topsoil Areas

- 024 Subsoil to be graded to landforms in appropriate weather conditions to avoid compaction and to suitable concave/convex profiles according to the Client's Representative's requirements. All landforms shall be suitable compacted.

Excavate locally as necessary, areas of thicker topsoil. Small planting beds located in general landscape areas may be excavated separately at a later date.

Grade subsoil to achieve the specified finished levels of topsoil especially at kerb edges.

- 025 Loosen subsoil up to a minimum depth of 150mm immediately prior to top soil, obtain approval from the Client's Representative for the sub-base before any top-soiling begins on site.

- 026 Undisturbed topsoil which is to be landscaped is to be prepared as necessary for cultivation operations, in particular:

- Where the ground is hard, break up with a ripper;
- Where the ground is covered with turf or a thick sward, plough or dig over to the full depth of the top soil;
- Treat with a suitable herbicide to prevent seeding of weeds

Imported Topsoil

- 027 Topsoil is to comply with BS 3882; general purpose grade, it must be free from aggressive weeds and hazardous foreign matter, with less than 10% volume of stones, maximum diameter 50mm, maximum organic content 35% by volume/minimum 10% and a pH range 5.0 to 8.2.

The areas to be top soiled shall be cultivated to break up any compaction before being covered by topsoil 400mm thick, provided and spread by the Service Provider. The quality and depth of topsoil must be approved by the Client's Representative before commencing planting operations.

Where the Client's Representative has deemed that the quality of imported topsoil does not meet the minimum grade specified. Remedial treatment may include improvement by the addition of organic matter, lime and fertiliser, to be carried out at the expense of the Service Provider.

Should any dispute arise, it is the responsibility of the Service Provider to either provide a declaration of analysis from the supplier detailing the classification of the topsoil or, have laboratory tests undertaken on samples of the topsoil.

Where requested by the Client's Representative, topsoil delivered to the site must be weighed at a public weighbridge and official dockets produced.

The Service Provider is responsible for ensuring all necessary compliance with the Environmental Agency declaration of compliance and providence of all greenfield soil.

The Service Provider is not to use topsoil contaminated with sub-soil, rubbish, oil based products or other materials toxic to plant life. Disposal of contaminated topsoil is to be in accordance with the Service Provider's Site Waste Management Plan (SWMP).

Topsoil Cultivation

- 028 The Service Provider is to eradicate all existing annual and perennial weeds prior to commencing any cultivations. Any compacted topsoil is to be broken up to its full depth. Cultivate by rotovating to a minimum depth of 150mm in order to produce a fine tilth, any undesirable material brought to the surface including all stones, clay balls over 25mm size, tufts of grass, rubbish and other foreign matter are to be removed from site.

Where topsoil is reasonably dry and workable, grade to smooth flowing contours, with falls for adequate drainage removing all hollows, ridges and sharp changes of levels.

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Unless otherwise Instructed by the Client's Representative, finished levels of topsoil after settlement are to be 30mm above adjoining paving kerbs, manholes and other horizontal surfaces.

Topsoil levels may be adjusted by blade grading ensuring that there is nowhere less than 100mm of topsoil, if the required levels cannot be achieved by the movement of existing soil, the Service Provider is to seek Instructions from the Client's Representative.

After grading and fertilising the Service Provider is to carry out a further cultivation to reduce top 25mm to a fine tilth, a balanced fertiliser base dressing approved by the Client's Representative for grassing works, is to be applied at the area to be grassed at a rate of 30g/m² and lightly cultivated in.

Rake to a true lightly firmed surface, removing all stones and clay balls more than 25mm in any dimension on general areas.

Extend cultivations into any adjacent existing grass area to ensure full marrying of levels.

Obtain the approval of cultivations and seed bed preparation from the Client's Representative before sowing is carried out.

Finished Levels of Topsoil

029 Finished levels of topsoil after settlement unless otherwise Instructed by the Client's Representative are to be:

- 30mm above adjoining paving or kerbs;
- Not less than 150mm below damp proof course of adjoining buildings;
- Graded to give suitable surface drainage away from buildings and to avoid ponding;
- Any slight depressions are to be filled with topsoil and graded appropriately;
- Married-in with adjoining soil areas;

Geotextile

030 Non-woven geotextile material manufactured from synthetic or other fibres and shall comply with the requirements of BS 13251 and sustain a load of not less than 2.5KN/m at 5% axial strain determined in a wide strip tensile test, it shall also allow water to flow in either direction at a rate of not less than 10 litres/m²/s under a constant head of 100mm, the material should have a pore opening size distribution between 100*10-6m and 300*100-6m.

Geotextile material is to be laid in accordance with the manufacturer's technical data sheet with a minimum lap of 500mm.

The geotextile membrane will be part of the permanent Works to separate earthworks materials to form a permeable membrane. The Service Provider shall provide evidence to the Client's Representative, before the geotextile is incorporated into permanent Works that the geotextile will be sufficiently durable, when installed in contact with materials to be separated to maintain its integrity for at least 20 years. Geotextile shall be protected at all times against mechanical and chemical damage, materials susceptible to light shall not be uncovered between manufacture and incorporation into the permanent Works, temporary exposure shall not exceed 5 hours.

Generally

031 Remove from the Property any imported filling Materials deemed unsuitable by the Client's Representative.

032 Keep excavations and areas to be filled free from soil and rubbish.

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Client's current manufacturers/suppliers/products

033 Ensure all Materials are compatible with and standardised to the Client's current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand Name	Manufacturer's Details

[complete table as appropriate]

DEMOLITION

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

DEMOLITION

GENERAL

Generally

- 001 Execute all demolition Works and alterations in the most careful manner to avoid damage to the surrounding structures in accordance with BS 6187. Make good any damage caused.
- 002 Do not allow dangerous portions of any structure to remain standing during idle periods or overnight except where this is unavoidable. Where this is unavoidable, adequately strut and prop such portions to ensure their stability until Works recommence.
- 003 Load and remove from site all materials (including debris) arising from the demolition or alterations. Do not allow these materials to accumulate. Ensure the care and protection of any Materials to be re-used.
- 004 Bear the risk of any damage in removing, re-fixing and storing old Materials that are set aside for re-fixing. Replace any damaged or defective Materials or missing parts.

Survey

- 005 Before starting the Works, examine all available information, survey the structure(s), site and surrounding area. When requested by the Client's Representative provide a survey report with a method statement covering all relevant matters listed in the Health and Safety Executive (HSE) guidance in relation to development of safe working practices (www.hse.gov.uk) for further information.

The Report and method statements should describe:

- Form, condition and details of the structure or structures, the site, and the surrounding area;
- Type, location and condition of features of historical, archaeological, geological or ecological importance;
- Type, location and condition of adjoining or surrounding premises that might be adversely affected by removal of the structure or structures, or by noise, vibration and/ or dust generated during deconstruction/ demolition;
- Identity and location of services above and below ground, including those required for the Contractor's use, and arrangements for their disconnection and removal;
- Form and location of flammable, toxic or hazardous materials, including lead-based paint, and proposed methods for their removal and disposal;
- Form and location of materials identified for reuse or recycling, and proposed methods for removal and temporary storage;
- Proposed programme of work, including sequence and methods of deconstruction/ demolition.
- Details of specific pre-weakening required;
- Arrangements for protection of personnel and the general public, including exclusion of unauthorized persons;
- Arrangements for control of site transport and traffic; and
- Any special requirements.

Bench marks

- 006 Report to the Client's Representative any bench marks or other survey information found on the structure(s) to be demolished. Do not remove or destroy unless so Instructed in writing.

Existing features and adjacent works to be retained

- 007 Keep in place and adequately protect from any damage all features and adjacent work/Properties that are to be retained. Trees are to be protected in accordance with the requirements of BS 5837.

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UTILITIES AFFECTED BY DEMOLITION

Regulations affecting utilities

- 008 Carry out any Works affecting new or existing services in accordance with all applicable Regulatory Requirements.

Location of services

- 009 Locate and mark the positions of services affected by the Works. Arrange with the appropriate Utility Providers for the location and marking of the positions of mains services.

Disconnection of services

- 010 Before starting demolition, arrange with the appropriate Utility Provider(s) for the disconnection of services and removal of fittings and equipment unless the drawings provided by the Client's Representative state otherwise.

Disconnection of drains

- 011 Locate and disconnect all disused drains connections. Seal within the site all the connections to existing sewers to the approval of the Utility Provider.

Drains in use

- 012 Protect drains, manholes, gullies, vent pipes and fittings still in use. Keep them free of debris at all times. Make good any damage arising from demolition. Leave them clean and in working order on completion of the demolition works.

Bypass connections

- 013 Provide bypass connections as necessary to maintain continuity of services to occupied areas of the Property and adjoining properties. Give a minimum of 72 hours' notice to Customers if shutdown is necessary during changeover.

Services which are to remain

- 014 Notify the Client's Representative, Utility Provider and Customer of any damage. Repair such damage to the satisfaction of the Client's Representative and Utility Provider.

WORKMANSHIP

Generally

- 015 Demolish structure(s) in accordance with the Health and Safety Executive (HSE) guidance notices and BS 6187. Staff undertaking demolitions are to be appropriately skilled and experienced for the type of demolition work and hold or are being trained to obtain relevant CITB Certificates of Competence. Staff responsible for supervision and control of demolition work are to be experienced in the assessment of risks involved and methods of deconstruction/demolition to be used.

Equipment

- 016 Use suitable types and standards of cutting and demolition Equipment for the location and type of Works.

Gas or vapour risks

- 017 Take adequate precautions to prevent fire or explosion caused by gas or vapour.

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Flammable liquids & gases

- 018 When removing tanks and pipes which may have contained flammable liquids or gases:
- inform the appropriate officer of the Statutory Authority and follow any advice given;
 - display danger notices;
 - prohibit smoking and the use of naked lights;
 - use only non-ferrous tools and equipment, with an ample supply of water, to reduce the risk of sparking;
 - empty tanks and dispose of their contents to ensure that none enters any drainage system or watercourse;
 - clean tanks and pipes and make them inert as described elsewhere in this Specification or as Instructed by the Client's Representative

Dust

- 019 Reduce dust by for example periodically spraying demolition Works with water (with suitable mitigation to prevent run off entering the drainage system). Use dust sheets and temporary screens.

Health hazards

- 020 Take adequate precautions to protect Staff and the public from health hazards associated with any dangerous fumes and dust arising during the Works. It is expected this will include suitable consideration of/testing for lead contamination in existing painted surfaces.
- 021 Perform all Works in such a manner to ensure the safety of the Works and the public and so as to cause the minimum inconvenience to the public.

Adjoining properties

- 022 Leave adequate temporary support and protection for adjoining properties at each stage and arrange for inspection by the Client's Representative when demolishing structure(s).
- 023 Maintain and alter temporary supports and protection as necessary as the Works progress.
- 024 Demolish structure(s) causing a minimum of damage to adjoining properties. Leave no unnecessary or unstable projections.
- 025 Do not disturb any support to the foundations of any adjoining property unless otherwise Instructed.
- 026 Report to the Client's Representative any defects exposed or becoming apparent in any adjoining property.
- 027 Promptly repair any damage caused to any adjoining property by demolition work. Make good to ensure safety, stability, weather protection and security.

Structure(s) to be retained

- 028 Adequately protect all parts of existing structure(s) which are to be kept in place.
- 029 Cut away and strip out with care the minimum amount necessary so as to keep the amount of making good to a minimum.
- 030 Prevent debris from overloading any part of the structure which is not to be demolished.

Services which are to remain

- 031 Notify the Client's Representative and Utility Provider of any damage. Make arrangements for repair to the satisfaction of the Client's Representative and Utility Provider.

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Partly demolished structure(s)

- 032 Leave partly demolished structure(s) in a stable condition, with adequate temporary support at each stage to prevent the risk of uncontrolled collapse.
- 033 Prevent debris from overloading scaffolding platforms.
- 034 Prevent access to partly demolished structure(s) by unauthorised persons.
- 035 Leave safe whilst not working at the Property.

Dangerous openings

- 036 Illuminate all openings as necessary, provide guarding and barriers at all times, including outside of normal working hours, and prevent access by unauthorised persons.

Asbestos-based materials

- 037 Where asbestos-based materials are known to be present in the structure(s) to be demolished, ensure they are removed in accordance with the Client's Policy for asbestos removal and the Health and Safety Executive's (HSE) Control of Asbestos Regulations 2012 where possible before any demolition works commence.

Unknown hazards

- 038 Inform the Client's Representative of any unrecorded voids, tanks, chemicals, etc. discovered during demolition works. Agree with the Client's Representative the methods for safe removal, filling, etc.

New openings

- 039 When forming new openings or altering existing openings:
- cut away existing arches, lintels or sills;
 - provide temporary strutting and supports and shoring;
 - cut away for hoist and insert new lintels, including cutting and pinning ends;
 - cut away for, and insert new sills, including cutting and pinning ends;
 - make good floors up to levels for new thresholds, sills etc., including latex levelling screed;
 - wedge and pin up to existing work and build up jambs as described;
 - extend and make good finishings to match existing as necessary;
 - remove all debris from the Property and site; and
 - retain supports until the new Works have adequate strength to support the existing structure.

Taking down

- 040 When taking down:
- provide temporary support;
 - remove all applied finishes;
 - make good finishes and match to existing as necessary;
 - make good floors up to levels with latex levelling screed; and
 - remove all debris from the Property and site.

Building up existing openings

- 041 When building up existing openings:
- build up in Materials to match existing or as described for the full thickness of the wall;
 - cut out existing thresholds, sills, arches, lintels, etc;
 - hack off finishings from jambs or reveals before building up;
 - prepare surfaces for raising, including lead core or similar damp proof course;
 - cut toothing;
 - wedge and pin up to existing work as required; and
 - extend and make good finishings to match existing as necessary.

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Extending finishings

- 042 Match all extensions to finishings, plasterwork, ceilings, flooring etc., and any making good exactly to the existing finishings.

MATERIALS

Ownership

- 043 Components and materials arising from demolition (other than any found during excavations) belong to the Service Provider. Remove them from site as the Works proceed.

The Client's Representative will indicate to the Service Provider whether certain components and materials are to remain the property of the Client, these components and materials are to be maintained and protected until they are removed by the Client or instructed to be reused in the Works.

Material and components other than brick, stone and concrete rubble or other hard material, arising from the deconstruction and demolition works can be recycled or reused elsewhere on the Contract, subject to compliance with the appropriate specification and in accordance with any site waste management plan, The service Provider would be required to submit full details and supporting documentation as evidence of compliance with the specification, and to allow adequate time in his programme of Works for verification of compliance.

Hardcore

- 044 Reuse brick, stone and concrete rubble or other hard materials arising from demolition as hardcore, subject to compliance with this Specification.

Bricks

- 045 Use whole, sound bricks arising from the Works for replacing cracked or defective bricks or filling to existing openings.

Infected Timber

- 046 Inform the Client's Representative when infected timber is encountered. Remove timber infected by fungal/insect attack from the Property in a way which will minimise the risk of infecting other parts of the building. Destroy it as soon as possible.

Commencement condition survey

- 047 Before starting the Works:
- survey the existing state of the Property to be kept in place;
 - record the magnitude and extent of all cracks, spalling, flaking and other irregularities of the fabric of the Property; and
 - agree the commencement condition survey record with the Client's Representative.

Extent of support work

- 048 Where necessary, provide support systems to those elements of the Property which are to be retained.
- 049 Submit detailed proposals including drawings and calculations for all systems to the Client's Representative for approval, and resolve any amendments proposed. Service Provider is responsible for procuring structural engineering services for drawings and calculations for support systems.
- 050 Provide adequate and stable support systems and thereby maintain the integrity of supported structure for the period of erection to completion of dismantling support systems.

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Workmanship

- 051 Carry out all work in accordance with the Order or any design brief issued with it.
- 052 Use Staff experienced in the methods of erecting and maintaining support systems to supervise and control the Works.

Erecting support systems

- 053 Locate the positions of existing and new services which may be affected by support systems and provide any necessary temporary diversions.
- 054 Prevent excessive loadings from foundations of support systems being imposed onto foundations of structure to be kept in place.
- 055 Erect and connect support systems to structure to be kept in place. Take:
- all necessary precautions to prevent damage; and
 - due account of movement of the structure which may occur before, during and after demolition.
- 056 Promptly repair any damage caused to adjoining properties by the erection or connection of support systems. Make good to ensure safety, stability, weather protection and security.
- 057 Report to the Client's Representative any damage caused to retained features or works by the erection or connection of support systems. Agree the methods of repair with the Client's Representative.
- 058 Check support systems at agreed stages during erection for compliance with design proposals.

Unknown hazards

- 059 Inform the Client's Representative of any unrecorded voids, flues, services, etc., discovered during the erection of support systems. Agree with the Client's Representative methods for infill, making good, relocation of support connections, etc.

Loading support systems

- 060 Complete the erection and connection of the support systems before starting the demolition of any adjoining structures.
- 061 Inform the Client's Representative when support systems are erected and all connections are made to the structure to be kept in place. Obtain any required permissions to load systems.

Maintaining support systems

- 062 Provide safe access and safe places of work in the support systems for inspection and maintenance.
- 063 Regularly inspect and maintain support systems, making good ties, wedges, connections, corrosion protection, etc., as necessary.
- 064 Adequately protect support systems from impact by vehicles, plant and site operations. Prevent access by unauthorised persons. Leave safe when not working at the Properties and outside the Service Provider's Working Hours.

Dismantling support systems

- 065 Inform the Client's Representative when all permanent connections between the supported structure and new construction have been made. Obtain permission before disconnecting and dismantling support systems.

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Making good

066 Repair any connection holes made in the structure kept in place, using Materials to match those existing. Repair damage caused to buildings, roads or pavements.

Site clearance

067 Clear away all debris, excess materials and temporary Works and leave the Property and its site in a tidy condition on completion of the Works.

Client’s current manufacturers/suppliers/products

068 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

ASBESTOS WORKS

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ASBESTOS WORKS

GENERAL

- 001 Removal of licensed asbestos can only be carried out by an Asbestos Licensed Contractor.
- 002 The Service Provider shall employ the services of an Asbestos Licensed Contractor before undertaking any Asbestos Works. All works classed as Asbestos Works should be undertaken in accordance with the Control of Asbestos Regulations (CAR) and the general procedures listed in this Specification.

Removal

- 003 Asbestos should be removed when: deemed by the survey Risk Assessment to be:
- A high risk material i.e. Insulation materials;
 - In a damage state;
 - It is breaking away from the substrate base; or
 - The asbestos is likely to be abraded or otherwise damaged.

As there is a possibility that non-asbestos materials may become contaminated from adjacent asbestos, consideration may need to be given to the removal or cleaning of adjoining materials and belongings.

Encasing

- 004 Encasing is constructing an airtight barrier around the asbestos, and is suitable where the cost of removal would outweigh the benefit or risk posed.
- 005 An encasement can be constructed from wood, metal or sheetrock, all joints must be sealed completely and be air tight.

Encapsulation or sealing

- 006 Encapsulation is suitable for use when the asbestos present is in a hard to reach place(s).
- Encapsulation is the application of an impervious materials, which is secured over or around an ACM and is designed to prevent the release of fibres under foreseeable conditions, such as vibration, impact and age degradation.
- 007 For large areas the cost of encapsulation or sealing may approach the cost of removal. Any eventual removal may be more difficult and costly. Continuing assessment on a periodic basis will be defined by the asbestos survey risk assessment will also be required if the encapsulation or sealing option is taken. Not all paints and other surface coatings on the market are suitable. In particular, the sealant should not increase the fire hazard properties of the material being treated. If the asbestos is poorly bonded to the substrate, the application of a coating may result in large sections of the asbestos breaking away from the substrate. The surface to be encapsulated or sealed should be cleaned with an approved "H" type vacuum cleaner to remove all debris and dust particles ensuring good adhesion of the coating to be applied.

Removal and maintenance work

- 008 Where Asbestos Works is being performed, the Service Provider is required to notify the Health and Safety Executive or other enforcing authorities using Form FODASB5 14 days in advance of the works commencing, except in emergency situations where shorter notice with their agreement can be given.
- 009 Reasonable notice shall be given to any adjacent Client Party, Customers and Staff that Asbestos Works is to be carried out, and when it is to be carried out. The notification should also include an explanation of the general procedures and equipment involved and the precautions to be taken in accordance with CAR Regulations. Waste asbestos products shall be disposed of in accordance with the Hazardous Waste Regulations having given at least 3 days' notice to Environment Agency.

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Notifiable Non Licensed Work

- 010 Notifiable non licensed Works (NNLW) is the removal of asbestos materials that would not normally require the Service Provider to give notification prior to commencement of Works, an example would be the removal of damaged or broken asbestos cement products, when the condition or the quantity of the material may give rise to significant quantities of dust and debris. This would mean this Work would be notifiable but not subject to full requirements of licensable Asbestos Works. In such instances it is advisable for the Service Provider to consider if the quantity of Work being carried out to asbestos containing materials would mean the Works are notifiable, in such scenarios use of an Asbestos Licensed Contractor may be necessary subject to the results of risk assessments.
- 011 Where NNLW is being performed, the Service Provider is required to notify the relevant enforcing authority using Form ASB NNLW1, with additional requirements and obligations being placed upon the Service Provider in respect of medical surveillance and maintenance of health records for each employee exposed to asbestos.

The Service Provider should contact www.hse.gov.uk for further information and guidance on NNLW.

In considering whether the works will require notification of non-licensed Works consideration needs to be given as to whether the Works are:

- **Maintenance** e.g. drilling holes to attach fittings or pass cables through, painting, cleaning etc. Maintenance includes some removal where it is incidental to the main task, e.g. removing an asbestos ceiling tile to allow inspection.
- **Removal** e.g. as part of a refurbishment or redesign project.
- **Encapsulation** e.g. work to enclose or seal asbestos materials in good condition.

And whether Air monitoring and control, and the collection and analysis of samples will be required.

Consideration will need to be given to the asbestos type

Is it friable? Friable means easily crumbled or reduced to powder. The more friable a material is, the more likely it will release asbestos fibres when worked on and the greater the risk of exposure. Work which disturbs more friable materials, e.g. asbestos pipe insulation, will tend to be notifiable non-licensed work and work which disturbs the least friable materials, e.g. asbestos cement, can normally be treated as non-licensed work.

How firmly is the asbestos bonded in a matrix? (For removal work only). Bonded in a matrix means the asbestos is coated, covered or contained within another material, such as cement, paint or plastic. ACMs of this type in good condition can usually be treated as non-licensed work. If the ACM's are significantly damaged, and so more likely to release fibres, they will need to be treated as notifiable non-licensed work.

Consideration will need to be given to the Asbestos material's condition

Has the material been damaged or is it in poor condition? Removal of ACMs in poor condition e.g. due to flood or fire damage, will normally need to be treated as notifiable non-licensed work.

Will the materials' matrix be destroyed when worked on? e.g. using gel or steam to remove deteriorating textured decorative coatings such as 'Artex' will normally need to be treated as notifiable non-licensed work.

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Examples of notifiable non-licensed work (NNLW) with asbestos

- Using steaming or gelling methods large-scale removal of textured decorative coatings (e.g. beyond that required for maintenance activities such as installation/replacement of smoke alarms and fittings);
- Minor short duration work to remove asbestos insulating board as part of a refurbishment project;
- Minor short duration involving asbestos insulation (e.g. repairing minor damage to a small section of pipe insulation where the exterior coating has been broken or damaged);
- Removal of asbestos cement products (e.g. roof sheeting) where the material has been substantially damaged or broken up (e.g. as a result of fire or flood damage);
- Removal of asbestos cement products (e.g. roof sheeting) where the removal activity will mean that the material will be substantially broken up, creating significant quantities of dust and debris (e.g. 'dropping' an asbestos cement roof); and
- Removal of asbestos paper and cardboard products if not firmly bonded in a matrix

All non-licensed and notifiable non-licensed work with asbestos needs to be carried out with the **appropriate controls** required by the Health and Safety Executive or other enforcing authorities in place, and those carrying out the work must have had the correct level of **information, instruction and training**, to protect themselves (and others in the area) from the risks to health that exposure to asbestos causes.

If the Service Provider determines that the Works, they are about to do is notifiable non-licensed work (NNLW), the section below on notification explains how the Service Provider is comply with the additional requirements.

Notification

The Service Provider will need to notify the relevant enforcing authority of any NNLW with asbestos:

- Notification is to be use of the **online notifications form** (via either a computer or Smartphone);
- all three possible regulators can be notified via this database - the Health and Safety Executive, Local Authorities and the Office of Rail and Road (see table below);
- notice is required before the work starts - there is no minimum notice period;
- the Service Provider does not need to wait for permission from the enforcing authority – the database will provide a PDF copy of the notification;
- if the Service Provider is are doing a project or contract with multiple NNLW jobs you can notify once for the whole project or contract;
- if the Service Provider is a licensed asbestos contractor carrying out NNLW work, a notification will still have to be submitted; and
- the **online notifications form** is the only method of notification accepted.

Type of premises/activity	Enforcing Authority
Shops, offices, separate catering services, launderettes, sport, entertainment and recreational activities, exhibitions, church or religious meetings, hotels, camping and caravan sites, wholesale and retail storage	LA (Local Authority)
Factories and factory offices, civil engineering, construction and demolition sites, hospitals, research and development establishments, local government services and educational establishments, fairgrounds, radio, television and film broadcasting, sea going ships, docks, transport undertakings, domestic premises, quarries, farms (and associated activities), horticultural premises and forestry's, mines or quarries and offshore installations, licensed nuclear sites	HSE (Health & Safety Executive)
Railways, railway lines, signal boxes	ORR (Office of Rail and Road)

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Designating areas

All areas where there is NNLW taking place must be designated and marked with a suitable warning notice. These areas must be restricted to those carrying out the work.

Food and drink must never be consumed in designated areas.

Medical surveillance

All Service Provider's operatives carrying out NNLW will need to have had a medical examination **at least every 3 years**, as long as the operative continues to do NNLW. Service Provider's operatives carrying out NNLW for the first time will have to have an examination before they can start such work:

- medical examinations must include an examination of the chest and a lung function test;
- they need to be carried out by a licensed medical practitioner, e.g. a GP;
- those operatives already under surveillance via a licensed asbestos contractor and in possession of a valid certificate do not need to have the NNLW medical;
- medical examinations should be carried out in work time at the Service Provider's expense; and
- the GP must issue a certificate to confirm the examination has taken place and on what date - the Service Provider needs to keep this certificate for 4 years.

Record keeping

The Service Provider need to keep a register (health record) of NNLW with asbestos for each operative exposed to asbestos:

This must include:

- the nature and duration of work with asbestos and estimated exposure for each individual operative; and
- dates of the operative's medical examinations.

Registers of work (health records) must be kept for 40 years (and offered to the Health and Safety Executive or other enforcing authorities or the individual concerned should the business cease trading).

The need to record exposure does not mean that every non licensed task must have air sampling. There will often be published exposure figures or knowledge within the industry about exposures found at similar lower risk work done in the past. If a task is unusual, then sampling may be required.

Non Notifiable Non Licensed Work

012 Removal of non-licensable asbestos containing materials is deemed to be included within the rates contained in the Schedule of Rates (with the exception of the rates in the Asbestos Works section of the Schedule of Rates which are only for the removal and/or encapsulation of licensed asbestos or non-licensed asbestos that may have been contaminated by adjoining licensed asbestos) together with the Service Provider's tendered percentage adjustment.

013 Non licensed asbestos works are deemed to be:

Sporadic and of low intensity – to be considered sporadic and of low density the concentration of asbestos fibres in the air should not exceed 0.6f/cubic centimeter measured over 10 minutes;

Carried out in such a way that the exposure of workers to asbestos will not exceed the legal control of 0.1 asbestos fibres per cubic centimeter of air (0.1f/cm³) (averaged over a four (4) hour period);

Meet at least one of the four following conditions:

1. It is a short non-continuous maintenance task, with only non-friable materials (friability describes how likely a ACM is to release asbestos fibres when worked on, so non-friable materials will only release a small number of fibres during work);

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2. It is a removal task, where the ACMs are in reasonable condition and are not being deliberately broken up, and the asbestos fibres are firmly contained in a matrix e.g. the asbestos is coated, covered or contained within another material, such as cement, paint or plastic;
3. It is a task where the ACMs are in good condition and are being sealed or encapsulated to ensure that they are not easily damaged in the future: and
4. It is an air monitoring and control task to check fibre concentrations in the air, or its condition and analysis of asbestos samples to confirm the presence of asbestos in a material.

Examples of non-licensed asbestos work:

- Cleaning of small quantities of loose/fine debris containing ACM dust (where the work is sporadic and of low intensity, the control limit will not be exceeded and it is short duration work);
- Drilling of textured decorative coatings for installation of fixtures/fittings;
- Encapsulation and sealing –in work on asbestos containing materials (ACMs) that are in good condition;

Maintenance Works involving:

- Asbestos cement products (e.g. on roof sheeting, tiles and rainwater goods);
- Asbestos in ropes, yarns and woven cloth;
- Asbestos gaskets or asbestos rope cord (including removal as part of the repair and upkeep of equipment) if this can be done without substantial breakage;
- Asbestos containing thermoplastic and vinyl floor tiles, bitumen roof felt, shingles, damp-proofing coatings and mastics;
- Asbestos-containing felt and paper;
- Plastic paint coatings, PVC floors, panels and sealing compounds;
- Asbestos-containing conveyor belts/drive belts, bonded rubber, electric cables;
- Resin-based ACMs such as friction products (e.g. brake linings)
- Painting/repainting Asbestos Insulating Board) (AIB that is in good condition;

Removal of:

- Asbestos cement products (e.g. roof sheeting and rainwater goods) providing the material is carefully handled/removed without breaking up, this includes work with asbestos cement which is weathered but not otherwise substantially damaged;
- Small areas of textured decorative coatings using suitable dust-reducing methods, to support other activities such as installation/replacement of smoke alarms and light fittings;
- Textured decorative coatings provide that this can be done without deterioration of the material (e.g. if the backing board is carefully cut around to achieve virtually intact removal);
- Loosely fixed (e.g. screwed) asbestos insulating board (AIB) panels in order to gain access to areas for other Maintenance activities (e.g. under a bath to carry out pipework maintenance, or for access to a ceiling void for repair of lighting) This also includes re-attaching the panels after the work is done;
- An AIB door with asbestos fire proofing;
- Asbestos cement products (e.g. roof sheeting) where the material will be substantially damaged or broken up (e.g. as a result of fire or flood damage);
- Asbestos cement products (e.g. roof sheeting) where the material will be substantially broken up, creating significant quantities of dust and debris (e.g. dropping an asbestos cement roof);
- Asbestos paper and cardboard products if not firmly bonded in a matrix)

Short duration work:

- To repair minor damage to AIB;
- Involving drilling holes in AIB (e.g. installing shelving);
- To remove asbestos insulating board as part of a refurbishment project;
- Involving asbestos insulation e.g. repairing minor damage to a small section of pipe insulation where the exterior coating has been broken or damaged;

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Other work on:

- On other materials containing asbestos (such as paints, bitumen, resins, rubber etc.,) where the fibres are bound in a matrix which prevents most of them being released (this includes, typically, aged/weathered AC);
- Associated with collecting and analyzing samples to identify the presence of asbestos;
- Large scale removal of textured decorative coatings using steaming or gelling methods (e.g. beyond that required for maintenance activities such as installation/replacement of smoke alarms and fittings)

014 Certain of the operations listed in 013, dependent upon the circumstances in which the Works will be undertaken, will also be notifiable to the Health and Safety Executive or other enforcing authorities on form ASB NNLW1, with additional requirements and obligations being placed upon the Service Provider in respect of medical surveillance and maintenance of health records for Staff exposed to asbestos.

Demolition and structural alterations involving restricted work

015 Demolition and structural alteration of buildings or other structures containing asbestos material should be in accordance with the Regulations. All asbestos products, including asbestos cement sheeting, must be removed before demolition is commenced. In some circumstances, partial removal, followed by partial demolition to allow access to previously obstructed asbestos material, may be necessary. In such cases, the partial demolition operation should be conducted under conditions appropriate to the removal Work. The techniques for handling and removal of non-friable asbestos-cement products are detailed later in this Specification.

REMOVAL OF ASBESTOS

016 This section provides guidelines for undertaking the planned and safe removal of asbestos-based materials from buildings, equipment/plant and structures, and outlines the equipment that could be used, removal techniques and general safety and hygiene requirements.

017 This section applies to the removal or work on:

- Friable asbestos, including sprayed asbestos coatings used for thermal and acoustic insulation in buildings.
- Decorative coatings in buildings;
- Asbestos-based lagging on boilers and other industrial plant;
- Asbestos cement products;
- Roof coverings;
- Asbestos Insulation Panels;
- Ropes, felts, papers and the like; and
- Other non-asbestos materials that have been contaminated with asbestos.

018 Working with asbestos and asbestos-based products is hazardous. It is the Service Provider's duty under the Health and Safety at Work Act to provide a healthy and safe place of work. To achieve this it will be necessary to plan the work and adopt good work practices.

019 In any activity involving the removal of asbestos-containing materials the procedures adopted must allow for the containment of asbestos. All practicable steps must be taken to ensure that Staff and any Client Party in the area are not exposed to asbestos fibres.

NOTE: Removal of friable asbestos that has been used for thermal or acoustic insulation and other stated applications may only be carried out by a competent person(s) with a valid asbestos removal license from the Health and Safety Executive using appropriate guidance, restricted work must be at all times be under direct supervision.

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SAFE REMOVAL OF FRIABLE ASBESTOS

- 020 This section applies to the removal or work on:
- Friable asbestos, including sprayed asbestos coatings used for thermal and acoustic insulation in buildings.
 - Decorative coatings in buildings;
 - Asbestos-based lagging on boilers and other industrial plant.

Information to be provided by the Client

- 021 The Client will provide the Service Provider with access to the Client's Electronic Asbestos Register where they can obtain (if available) a copy of the asbestos survey (or suitable representative survey) giving details of the ACM identified to the Service Provider prior to commencement of any work.

It is recognised that in some cases the full extent of the asbestos material is not known until removal is under way.

In the preparation of job specifications by the Service Provider's Asbestos Licensed Contractor the following considerations should be addressed:

Location and Status of ACM:

- Internal;
- External but protected.
- External exposed to weather;
- Enclosed in ducts; "Confined Spaces Considerations"
- Difficult or unusual site conditions, which will influence the selection or application of removal methods, particularly in regard to transport, scaffolding or weather protection.
- Removal from roof space areas or areas or Working at Heights, confined spaces, or areas with other constraints within a property.

Technical description of the material to be removed with details of the type of asbestos present and any special or unusual materials or circumstances.

- 022 The extent of the removal Work should be adequately detailed on the Order (subject to Clause 020 above), to indicate areas for removal, otherwise, information of the following nature should be provided where available. If necessary, the Service Provider should contact the Client's Representative where his risk assessment states a sample is required, requesting that additional sampling and testing of potential ACM's is necessary.
- Surface dimensions of flat or large curved areas, thickness of insulation, external diameters of pipes, length of each size pipe, and number and type of pipefittings, e.g. flanged joints, valves, tees, expansion bends. Particular detail is to be provided if asbestos is to be removed from any part of the building's air-conditioning system;
 - Details of any pipe work sections that are steam or electrically heated and the arrangement of its insulation;
 - Details of any section or materials to be left in place;
 - Confirmation and details of residual heat that will remain in pipe work, boilers, etc.;
 - Any unusual or specific hazards associated with the removal Works;
 - Temperature considerations — normal working temperature for each portion of the plant concerned, ambient temperature at the removal area;
 - Conditions of substrate surfaces — special requirements, such as the removal or otherwise of protective paint or lacquer from pipe work or for the application of paint or other protective coatings to the substrate from which the asbestos-based material has been removed;
 - Types of fittings and supports and whether or not these may be removed or disposed of with the waste;
 - Type of finish required or specification for re-insulation;
 - Special service requirements, for example, where there is any potential hazard from contact with live electrical equipment in use in the removal area; attention should be drawn to this fact;

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- Where electrical switchgear or panels are to be sealed, consideration should be given to the provision of supplementary ventilation to dispose of potential heat build-up and consequent fire risk;
- Site occupancy restrictions and conditions;
- Adjacent area cleaning (adjacent areas which are to be cleaned or are to be protected from airborne dust and are to be cleaned on completion);
- Safety practices to be followed under relevant legislation; and
- Location of any relevant electrical cables;

Information to be supplied by the Service Provider

- 023 Restricted Work involving asbestos must be notified to the Health and Safety Executive 14 days prior to abatement activities commencing.
- 024 The Service Provider (or his appointed Asbestos Licensed Contractor) should provide a detailed plan of Work and all method statements with specifications or drawings showing details as require under CAR regulations as follows:
- Type, quantity and extent of isolation required at the asbestos removal area and location of restricted access borders;
 - Particular methods to be adopted when removing material, including detail of the contamination control programme, for example, provision of negative air pressure and the location of the exhaust unit;
 - This should include specifications of size, capacity and type of filter, location of decontamination unit and where it is to be discharged;
 - Detailed risk assessment for both asbestos and all other perceived risks;
 - Waste disposal programme including;
 - On-site storage system;
 - Method of removal from the building;
 - Detailed risk assessment; and
 - Waste disposal site to comply with Hazardous Waste Regulations 2005
 - Any other information required to ensure compliance with CAR Regulations and Health and Safety Executive guidance
 - Where the risk assessment requires that removal operations be undertaken under controlled conditions the Service Provider will request the Client to appoint a Health and Safety approved analyst to provide assurance that his operations have been completed in accordance with the Service Provider's plan of Work and other management duties including air testing, 4 stage clearances and issue certificate of reoccupation.

This information is to be uploaded to the Client's Electronic Asbestos Register by the Service Provider on completion of the Works.

Guidelines for Service Providers for planning and programming:

- 025 Consideration should be given to the removal of all asbestos from a Property at the same time. Decanting (if necessary) and/or other management issues to be agreed with the Client prior to commencement of Works.
- 026 Conversely, the work of other Client Parties should be scheduled to preclude them working near to, or accidentally breaking into the asbestos removal area. The Service Provider is given access to the Client's Electronic Asbestos Register so he can download survey data if available, in a situation where no relevant sample or survey data exists and his risk assessment requires that samples should be taken, the Service Provider should bring this to the attention of the Client's Representative who will either, issue an Order with the Service Provider or through the Client's own analyst, get a sample or survey completed and uploaded to Client's Electronic Asbestos Register.

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- 027 The following are the major points to which early consideration should be given:
- Safety and Health of personnel;
 - Safety and Health of Customers;
 - Most appropriate work methods for the work;
 - Identification of types of asbestos involved;
 - Programme of commencement and completion dates. However, it should be recognised that unforeseen problems with removal or the extent of the asbestos cannot always be ascertained prior to removal Work commencing;
 - Responsibility for the supply and application of isolating materials, e.g., ropes, barriers, plastic screens, waste containers and warning signs;
 - Preparation of surfaces (pre-removal) cleaning;
 - Precise information on extent of the work covered by the Contract;
 - Limitations of access to the removal area;
 - Conditions of employment on the site, including the labour and supervision required and agreed working hours;
 - Transport facilities;
 - Protected storage area pending the removal of asbestos-based materials;
 - Availability of water, power, heat, light and drainage;
 - Accommodation, decontamination and canteen facilities;
 - Provision of access equipment, such as scaffolding or ladders;
 - Protection of adjacent areas, plant and machinery;
 - Waste disposal methods and responsibilities and cleanup requirements;
 - Temporary sealing of asbestos where necessary;
 - Notification to the Health and Safety Executive;
 - Responsibility for air monitoring, including clearance monitoring;
 - Customers furniture store;
 - Decanting arrangements;
 - Analyst work area
 - Transit routes waste disposal facilities

Training

- 028 All asbestos removal Staff must be instructed in the relevant aspects of working with or on asbestos to ensure compliance with CAR Regulation 9 and associated Approved Codes of Practice: the health hazards associated with asbestos, safe working procedures, and the wearing and maintenance of protective clothing and equipment. The level of training may vary according to the requirements of a job but all Staff should be given detailed information on the reasons for safety and health precautions.

The Service Provider is to provide evidence that his Staff have received training for task specific removal of non- notifiable, non-licensed, and notifiable non-licensed asbestos containing materials including use of special PPE, cleaning materials, disposal procedures etc.,

Supervisory personnel

- 029 The Service Provider shall ensure that supervisory personnel have a detailed knowledge of the precautions and procedures outlined in the CAR Regulations, ACOP HSG 247 and in this model Specification. With this knowledge and personal experience, they should assume the following responsibilities:
- To plan the total removal procedure;
 - To select the most appropriate technique for removal of asbestos;
 - The pre-removal setting up;
 - Reassurance Air Tests
 - The actual removal and final cleaning operation, 4 stage clearances and certificate of reoccupation as applicable;
 - To ensure that all necessary measures are taken to reduce the airborne concentration of asbestos dust to the lowest practicable level;
 - To ensure that asbestos fibres and asbestos-containing material do not contaminate adjacent areas;

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- To ensure that all Staff under their supervision are adequately trained in the safe working practices outlined in HSWO and in CAR Regulations;
- To ensure that the removal is continually supervised by Staff and that the operation is carried out in a safe and proper manner, in accordance with the precautions listed in the CAR Regulations;
- To ensure that personal protective equipment is used and maintained in good condition;
- To ensure that the removal site is maintained in a clean condition, that waste is quickly and properly disposed of in accordance with process detailed in Service Provider's Plan of Work
- To ensure personal hygiene procedures are continually observed;
- To maintain copies of all records and a site log detailing all site operations on a daily basis and can be signed off by all parties on site; and
- To supply all information to the Client's Representative (electronically uploading to Client's Electronic Asbestos Register) on completion of the Works.

Site preparation for the removal of friable asbestos from buildings and other structures

030 The plan of Work issued to the Health and Safety Executive or other enforcing authorities will set out the procedures adopted for the removal of friable asbestos must be designed to contain the asbestos and minimise airborne exposure. The steps required will vary from job to job but in all cases will include the following:

- Access to the asbestos removal area must be restricted to those involved in the removal work. A thorough pre clean must be undertaken prior to work area preparation and commencement of abatement activities;
- Contamination of flooring and furnishings with asbestos containing dust must be avoided';
- The drift of airborne fibres must be restricted by ensuring that the removal area is effectively screened off from adjacent areas. This is usually achieved by extracting air from the removal area to ensure that it remains at negative pressure with respect to surrounding areas;
- The precautions taken must be sufficient to ensure that any asbestos contamination in the air or surrounding areas is maintained below 0.01 fibres/ml (for a sample volume of at least 480 litres passed through a filter with an effective diameter greater than 20mm) at all stages during and after the asbestos removal work. The steps to be taken will be determined the likelihood of asbestos fibre release and the size of the job in terms of the time taken to complete it and the area involved. In the following sections, the site preparation that is considered appropriate for three commonly performed removal tasks are specified;
- The removal of fireproofing, thermal or acoustic insulation applied to structural steel or ceilings, or other similar major asbestos removal jobs;
- The removal of decorative coating containing relatively low percentages of asbestos; and
- Small-scale jobs such as the removal of minor amounts of asbestos pipe lagging.

Preparation of a site for a major removal programme.

031 Where total enclosure of the removal area is required, isolation of the area can be achieved by the installation of low-density polyethylene sheeting (not less than 1000 gauge) on the floor and walls of the structure. It may be necessary to erect a temporary timber or metal frame to which the plastic barrier can be attached. All joints should be overlapped and taped to ensure that the area is completely sealed off. In some circumstances the use of adhesives may supplement the use of tape.

032 Existing floor coverings should be removed where practicable. A double layer of plastic sheeting (suitably fixed by double-sided tape or adhesive to prevent movement between layers) should be used on the floor of the containment area, and a turn-up should be used where the floor joins the sidewalls. Plywood 6mm should be used between layers to prevent accidental penetration of sheeting.

033 Vertical shafts should be properly sealed off to prevent the thermos-syphon effect spreading asbestos fibres throughout the building.

034 Where asbestos is removed from an entire floor of a multi-storey building, all passenger and goods lifts should be prevented from stopping at the floor from which asbestos is being removed. Asbestos removal Staff may gain access to the floor via the fire stairs or from an elevator dedicated for this purpose. Where a lift is used for access, all exit doors to other floors should be sealed. It is important that emergency escape exits are available when blocking off such areas

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- 035 All movable furniture, plant and fittings shall be removed from the asbestos removal area. The immovable items should be fully wrapped and sealed in suitable plastic sheeting and stored in lockable container on site to facilitate involvement of the Client's loss adjuster; an inventory (including photographs) of all items removed should be taken and where possible their condition agreed with the Customer (signed copy) so that they are effectively isolated from the removal area. In regions of heavy traffic or high wear, additional masking or barricading may be necessary.
- 036 Where masking operations may liberate asbestos fibres, all Staff in the removal area should wear respiratory protective devices approved for asbestos. This precaution is particularly applicable when removing existing barriers or partitions such as false ceiling tiles. Where asbestos materials may have fallen on to a false ceiling, the ceiling should only be removed under full controlled removal conditions. Any utility or service pipework, which penetrates into the ceiling space, is to be sealed.
- 037 Except for the Negative Pressure Units ("NPU") all ventilation and air-conditioning networks servicing the removal area should be closed down for the duration of the removal job. All vents should be thoroughly masked to prevent the ingress of asbestos fibres into the duct network. Upon completion and after final cleaning of the removal area, all mechanical ventilation filters for re circulated air should be replaced.
- 038 Additional care must be taken to ensure that asbestos fibres cannot escape at points where pipes and conduits pass out of the removal area. Greater attention to masking and re-assurance testing should be given in these regions, particularly if service riser-shafts pass through the removal area.
- 039 To prevent the escape of airborne asbestos fibres from the removal area enclosure, an exhaust extraction fan should be installed in a position so as to create a negative air pressure of approximately 5 Pascal's (water gauge) within the removal area. While accepting that the measurement of this pressure is not always possible, a good guide to the effectiveness of the system can be gauged from the inwards effect on the plastic tenting. It is a requirement that clear viewing panels be installed at strategic locations throughout the enclosure to allow inspection from outside the enclosure, if clear viewing panels cannot be provided, then the Service Provider is to install a close circuit TV system with external monitors. If there is a visible bellowing inwards, there is a good negative pressure. In this arrangement, the major and usually only route of air into the removal area would be through the three-stage unit. The correct flow of air should be verified using the smoke testing method.
- 040 The air extracted by this system should pass through an appropriate High Efficiency Particulate Air ("HEPA") filter to remove any asbestos fibres. Ideally, air extraction units should be so situated that access to the filters can be gained from the removal area. This expedites the otherwise difficult decontamination of these units and allows another unit to be brought into service in the event of a breakdown. Where it is not possible to change the filter within the removal area, a temporary enclosure should be constructed around the unit to allow for filter replacement.
- 041 The HEPA filter should comply with the minimum 99.997 percent efficiency requirement detailed in BS EN 1822. A coarse pre-filter should be installed prior to the HEPA filter to prolong the useful life of the high efficiency filter. Where practicable, the discharge point for this extraction unit should be to the outside air, distant from other working areas, air-conditioning inlets or breathing air compressors. Where this is not possible, testing of the exhaust air should be carried out.
- 042 Extraction equipment should be operated continuously whilst the removal enclosure is in place. Such equipment should be DOP tested every six months.
- 043 When installing the asbestos removal area containment, extra consideration should be given to the alteration of the fire rating of the building and to the provision of the fire-fighting facilities, emergency exits and emergency lighting.
- 044 Warning notices stating "Asbestos Hazard Area, Keep Out" shall be placed at entrances to the removal area. These signs are to be placed so they are clearly visible. Other more general signs may be used elsewhere in the Properties to indicate that Works are in progress.

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Compliance testing of removal area containment prior to commencement of work.

- 045 Before any asbestos removal begins in an enclosure, a visual inspection to check the integrity of the structure must be carried out. Smoke testing should also be used to detect leaks and observed by the asbestos analyst.
- 046 Attention should be given to the bellowing inward of the plastic sheeting. At the beginning of each working period the inspection should be repeated and any defects remedied immediately.

Decontamination facilities.

- 047 To prevent the escape of asbestos as Staff enter and leave the removal area a specially constructed transit route and mobile or on-site decontamination unit will be required. In all cases where it is deemed necessary to totally enclose the removal area, a decontamination unit consisting of at least three compartments should be used. It is recommended that a 4:1 shower to the Staff member ratio be used for calculating the appropriate size of decontamination unit to be used on any particular project. Where a friable asbestos removal programme is being undertaken, a decontamination unit must be provided that incorporates the following elements or achieves the same or better protection:
- .1 A dirty area having provision for:
 - Removal of contamination from protective clothing, footwear and respirator;
 - Washing footwear in footbath;
 - Storage of contaminated clothing and footwear; and
 - Airflow towards the removal area;
 - .2 A Shower Area with hot water adjustable at the source. Body soap liquid and shampoo, nail brushes, mirror, and clean disposable towels.
 - .3 A clean area having provision for:
 - Storage of individual respirators in containers or lockers;
 - Storage of clean clothing; and
 - Airflow towards dirty area;
- 048 Spring-loaded doors between the areas should be used to ensure that an airlock is maintained as the person passes through the unit.
- 049 The decontamination unit should be sited immediately adjacent to, or joined to the enclosed asbestos removal area where possible. Where it is not physically possible to locate the decontamination unit adjacent to, and joined to, the removal enclosure transit procedures to minimise asbestos contamination should be implemented, such procedures are outlined in the Health and Safety Executive guidance HSG 247.
- 050 Decontamination procedures should be followed whenever the Staff member leaves the enclosure. While the protocol to be followed will vary with the design of the decontamination unit, it is recommended that:
- The respirator should be worn and operating until the person has removed all contamination from outer garments and equipment;
 - Personnel should not smoke, eat or drink in any part of the decontamination facility;
 - The decontamination unit should be regularly cleaned by persons wearing protective clothing
 - Standard entry and decontamination procedure to be adopted as part of this Specification.
 - The decontamination unit must have a copy of certificate of reoccupation when it arrives at the Property and a 4 stage clearance completed at the end of operations before it leaves the Property which will be completed by the asbestos analyst.

Entry to the Work Enclosure

- 051 Staff shall enter the clean room of the decontamination unit in groups of no more than two. Staff shall remove all street clothing and store it safely in their assigned locker. The Staff member will remove his or her respirator from its protective sealed bag and fit it. Battery packs will be held by hand until the the Staff member has suited up.

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- 052 When the Staff member has properly fitted and tested his or her respirator a clean stripping suit will be donned or carried through the shower room into the dirty end of the decontamination unit. At this time with the respirator on, the Staff member will don work clothes and the clean stripping suit. When these items of clothing have been put on, a transit suit shall be put on over all other clothing for transit to the work area. Work clothes that are worn into a contaminated area must be bagged up at the end of each project. Clothing may be laundered utilizing a washing machine equipped with a 5-micron water filter. This washing machine must be a dedicated unit, no other clothing to be laundered in this unit.
- 053 Transit to the work area shall be by the shortest possible route. Staff will be familiar with the transit route prior to participating in any transit procedure. When the Staff member arrives at the three-stage air lock he/she will enter the clean or exterior chamber and remove the blue transit suit. The Staff member will then pass into the interior or dirty stage of the airlock where boots and gloves will be collected and put on.
- 054 The Staff member is ready to begin tasks that have been assigned to him/her by the site supervisor.
- 055 When the Staff member is ready to leave the work area, the Staff member will adhere to the following.
- .1 Staff will wait inside the work area until permission to exit is given by the site supervisor. When permission to exit is given Staff will inspect each other while still inside the work area. Any visible debris found shall be removed prior to commencing transit procedure. Boots will be thoroughly inspected at this time and washed.
 - .2 When the inside visual examination is complete the first Staff member may enter the dirty end of the three-stage unit to begin transit out. When the Staff member is completely inside the dirty stage he/she must inspect their Personal Protective Equipment ("PPE") and Respiratory Protective Equipment ("RPE") and wipe it down or vacuum where necessary, boots and gloves will be removed and stored safely to one side of the unit. The stripping suit shall then be removed and disposed of in a labelled red asbestos bag provided.
 - .3 When the Staff member has completed these steps he is free to step into the clean end of the three stage and don a transit suit. After transit suit has been donned the Staff member may proceed to the decontamination unit via the transit route.
 - .4 After arriving at the decontamination unit the Staff member will enter the dirty end making sure to close the door behind them. The transit suit shall be removed first followed by any other clothing. RPE must not be removed or stored in the dirty end of the decontamination unit at any time.
 - .5 The Staff member is now ready to enter the shower unit of the decontamination unit. With his or her RPE- respirator still fitted the Staff member shall enter the shower unit. Water shall be turned on and temperature adjusted to a comfortable level. Before the Staff member steps under the water stream the battery pack must be turned off and the filter covered. When these steps have been completed the Staff member may step under the water stream allowing water to soak the head and the exterior of their RPE. The Staff member may then remove the RPE and thoroughly clean it making sure not to get water into the motor or battery connections. When the respirator "RPE" is clean it may be hung on a hook while the Staff member thoroughly showers and cleans his/her body.
 - .6 When the Staff member has finished showering he may then enter the clean room remembering to bring RPE with him. RPE shall be bagged prior to the Staff member drying off and getting dressed back into street clothes.

Equipment

- 056 All tools and electrical equipment, such as H type vacuum cleaners and power tools, should be left in the removal area until the completion of the removal job. When the equipment is removed it should be vacuumed thoroughly and all accessible surfaces wiped over with a damp cloth. When decontamination is not possible, the item should be wrapped in plastic and sealed and only opened in another removal area.
- 057 Any asbestos contained in the H type Vacuum cleaner should be disposed of as asbestos waste.
- 058 The H type Vacuum should be cleaned, tested and calibrated at least every month.

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Removal techniques for buildings and structures

- 059 The removal of asbestos-based materials from buildings and other structures should be carried out by methods, which will minimise the release of asbestos fibres into the atmosphere both during and after removal operation. The choice of method is determined by the nature of the asbestos material, the quantity of insulation and its location.
- 060 Breaking through the finishing compound and cutting the reinforcing wire in the lagging are operations, which can liberate considerable quantities of dust. Care should therefore be taken in the selection of tools and in keeping the insulation wet. Tools should allow cutting of the insulation into small sections while keeping asbestos fibre levels in the removal area to a minimum.
- 061 Power cables, telephone cables and fire alarms may lie beneath asbestos insulation. These cables must be clearly identified prior to the commencement of any cutting as severe damage and/or hazard to the Staff member could result.
- 062 As the techniques used for the removal of sprayed thermal insulation from buildings are not dissimilar from those used for removal from steam pipes and boilers, the following removal methods may equally be adapted to the removal of asbestos from industrial plant and machinery.

Protective clothing and equipment

- 063 Respiratory devices "RPE" and protective clothing "PPE" are required during all abatement activities, adequate rest breaks should be provided for Staff during removal to take into account the physical strain caused by the use of such equipment.
- 064 The degree of respiratory protection required is determined by the nature of the removal job, the type of asbestos and the potential for exposure to asbestos fibres.
- 065 A guide to the selection of appropriate respiratory protection for various operations involving asbestos is presented in paragraph's 99 to 115 inclusive later in this Specification.
- 066 Face masks are to be checked and tested at least every 6 months.

Dismantling of asbestos removal area

- 067 The asbestos removal Work ordered should only be considered to have been completed when the Service Provider and/or the Asbestos Licensed Contractor has complied fully with the clearance criteria.
- 068 On completion of the asbestos removal job, all tools and equipment not used for cleaning should be removed from the removal area so that efficient vacuuming of the inside of the removal area enclosure can be undertaken. In taking these tools and equipment from the removal area, appropriate decontamination procedures should be observed.
- 069 After clearance has been given, any sealing plastic used should then be dismantled, folded inwards and placed in appropriate disposal bags and sealed. The sealing plastic should not be reused, but must be treated as asbestos waste. Safety barricades and warning signs should not be removed until the complete area has been thoroughly cleaned.

HANDLING OF NON-FRIABLE ASBESTOS -FRIABLE ASBESTOS

- 070 Works of removal and disposal of non-notifiable non licensed, and notifiable non licensed materials in accordance with this Specification are deemed to be included in the rates in the Schedule of Rates and in the Service Provider's Tendered Rates and as defined in the NHF Schedule of Rates Measurement Preambles – Generally as stated below;
- .3 The removal of all non-licensable asbestos containing materials such as but not limited to artex, vinyl floor tiling, disposal off site of all non-licensable asbestos containing material is to undertaken by a licensed asbestos waste carrier.

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- .4 Working in conjunction with all non-licensable asbestos containing materials such as but not limited to artex, vinyl floor tiling.

General

- 071 Non-friable asbestos products have been compounded from asbestos mixed with cement or other hard bonding materials "asbestos is firmly bound in the matrix of the material". This section recommends precautions to be observed when working with non-friable asbestos products.
- 072 These products include, but are not limited to:
- Flat or corrugated, compressed asbestos-cement sheeting;
 - Asbestos-cement pipes for water, drainage and flue gases;
 - Roofing slates;
 - Floor or wall coverings;
 - Asbestos gaskets;
 - Pump and valve packings;
 - Asbestos bonded into bituminous products;
 - Reinforced plastic products;
 - Thermoplastic products and backings;
 - PVC floor tiles and backings;
 - Asbestos-cement ducts and the like; and
 - Asbestos-cement drip trays and tank covers.
- 073 So long as these products are maintained in good order and are not worked on with abrasive cutting or grinding tools they are not likely to present a health risk.
- 074 New building materials incorporated since 1999 should not contain asbestos.
- 075 The Service Provider shall ensure that precautions are observed during structural alteration or demolition involving asbestos-cement materials and removal of floor and wall coverings containing asbestos.

General precautions to be observed for non-friable asbestos products can be found in the Health and Safety Executive guidance "Asbestos Essentials Task Manual"

- 076 Work procedures must be designed to minimise the generation of dust. Action should be taken to avoid the spread of asbestos fibres. In particular, the following principles should be adopted:
- Abrasive cutting or sanding power tools should not be used on asbestos-containing products. These may generate large amounts of dust containing asbestos;
 - Non-powered hand tools such as handsaws should be used;
 - Wetting down the material further reduces the release of asbestos fibres when cutting;
 - High pressure water jets/guns shall not be used because of the potential to spread asbestos waste over the surrounding environment;
 - Work with asbestos-containing products in well ventilated areas and, where possible, in the open air;
 - Good work hygiene principles shall be observed. This may entail the use of plastic drop sheets to collect off-cuts and coarse dust or the use of appropriate vacuum cleaning equipment when necessary;
 - Suitable respiratory protection should be used when airborne asbestos fibres is likely to be present; and
 - All off-cuts and collected dust should be disposed of as asbestos waste. (See section 116-126 of this Specification.)

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Removal and disposal of asbestos cement sheeting (Hazardous Waste Regulations)

- 077 The Service Provider should ensure that the following precautions are observed when removing asbestos-cement roofing, wall sheeting or other asbestos cement products from buildings or other structures:
- The asbestos-cement sheets should be sprayed with a sealing solution or wetted with water, but not with high-pressure water jets. Roofing sheets should not be wetted during freezing weather if it is anticipated that this could create a risk of slipping or falling from the roof;
 - Power tools should not be used during removal with the exception of a low RPM drill to remove roofing screws; this method should be used in conjunction with shadow vacuum techniques. Fixings may vary from job to job but in most cases a modified bolt cutter can be used to detach roofing material from substrates. Concrete saws including all electrical grinding equipment must not be used to detach asbestos cement products from substrates;
 - Damaged asbestos-cement should be kept wet to reduce levels of dust;
 - Asbestos-cement sheets should be removed whole where possible and should be lowered to the ground, not dropped;
 - The removed sheets should be stacked on a plastic sheet and not allowed to lie about the site where they may be further broken or crushed by machinery or site traffic;
 - All asbestos-containing waste should be wrapped in plastic or otherwise sealed and removed from the site as soon as possible, using covered skips or on a covered lorry;
 - The asbestos-containing waste should be disposed of in a manner, and at a site licensed for the storage, labelling and disposal of asbestos waste;
 - Asbestos-cement sheets must not be reused or offered for sale;
 - Any asbestos-cement residues remaining in the roof space or around the removal area should be cleaned up, using a "H" type vacuum cleaner or suitable wipes if necessary;
 - Customers should be decanted or relocated (where appropriate);
 - As far as practicable there should be no spread of contamination beyond the work area;
 - All windows and doors in the building should be closed or in buildings where there is no ceiling the area below or adjacent to the work should be barriered off; and
 - Staff should wear disposable overalls and either a disposable suitable RPE respirator or half-face mask fitted with appropriate dust filters.

Working on brittle roofs

- 078 Asbestos-cement sheeting is liable to shatter without warning under a person's weight and for this reason roofs that are sheathed in asbestos cement sheeting are included in those roofs known as "brittle roofs".
- 079 Persons who have the knowledge, experience and resources necessary to allow them to work at heights safely should only undertake the removal of asbestos-cement sheeting from a roof.
- 080 The Service Provider should consider what hazards are involved and how they can be overcome. In the planning and execution of the Work, a system of Work should be established, taking into consideration the Work to be done, relevant statutory requirements, the type of equipment necessary, the training and experience of the Staff involved and the instruction and supervision required. The system of Work should allow for not only those directly involved in the Work, but also other persons who could be affected.

Removal of vinyl floor and wall coverings containing asbestos

NOTE: Dry sanding of vinyl asbestos floor coverings is **prohibited**.

- 081 Vinyl-asbestos coverings (usually asbestos-backed floor coverings) may still be encountered. They do not usually present a risk on site but breaking up to prepare the surface for replacement, or removal operations, may create a hazard.
- 082 The Service Provider in working with products that may contain asbestos should ensure that all practicable steps are taken to confirm whether or not asbestos is present. If there is any doubt about the product being asbestos free after the Service Provider has completed a risk assessment he should inform the Client requesting an Order for the asbestos analyst to have samples taken and laboratory tested to ISO/ICE 17025 undertaken. The product is more likely to contain asbestos if it was installed between 1960 and 1999.

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- 083 Where the vinyl-asbestos coverings are found (or assumed) to contain asbestos the provisions set out in 059 to 062 above should be followed.
- 084 Significant release of asbestos fibres can result when vinyl-asbestos products are abraded by sanding. The work methods and control procedures used when working with vinyl-asbestos products must be designed to limit Staff' exposure to asbestos and the spread of asbestos into the surrounding environment.
- 085 In deciding the approach that is to be taken in replacing asbestos-backed vinyl products, the following option may be considered:
- Removing the product with a spade or other flat instrument in accordance with the Health and Safety Executive guidance.

MONITORING ASBESTOS IN AIR LEVELS AND CLEARANCE PROCEDURES

General

- 086 The analytical service in monitoring asbestos in air levels and clearance procedures will be undertaken by Asbestos Consultants and Analysts (Specialist Subcontractors) appointed directly by the Service Provider whose fees and expenses are deemed to be included in the rates in the Schedule of Rates and in the Service Provider's Tendered Rates.
- 087 The measurement of airborne asbestos fibre levels may be required to verify that asbestos exposure standards have not been exceeded and to check that practices set out in the Health and Safety Executive guidance and these guidelines have been met. The main objective of sampling should be to ensure that the potential for personal exposure has been minimised. Air sampling should always be undertaken by competent laboratory as set out in the Health and Safety Executive guidance HSG 248.
- 088 The type of monitoring that is applicable will depend on the exposure circumstances and removal methods employed. Advice should always be sought from a competent laboratory that conforms with HSG 248.
- 089 The determination of airborne asbestos fibre concentrations in air must be carried out in accordance with HSG 248.

Selection of laboratories

- 090 As set out in the Health and Safety Executive guidance all involved in asbestos must be competent and the Client's Representative must satisfy himself that those employed in asbestos management or removal are competent to standards laid down in CAR Regulations. To demonstrate such competence the laboratory should demonstrate the meet requirements of International Standards Organisation "ISO/ICE 17025" that covers the whole organization in terms of quality systems, control of records, training, test calibration methods etc.

Air sampling

- 091 The Service Provider will be issued with an Order to appoint a Health and Safety Executive approved analyst to witness and sign off all test and clearance operations and issue of certificate of reoccupation.
- 092 Air sampling forming part of the overall asbestos management will include some/all of the following:
- Background sampling to establish the conditions that exist before work is commenced;
 - Leak testing to check the integrity of the enclosure deployed in removal or encapsulation activities;
 - Personal monitoring to verify that action level predictions are accurate and to facilitate internal risk assessments and control;
 - Clearance air monitoring to verify that the area is safe for normal occupation following the removal of asbestos materials;
 - Reassurance sampling — sampling after the working enclosure has been removed or other works in the vicinity of asbestos have been completed;

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Visual inspections

- 093 The appointed analyst will examine the Service Provider's appointed Asbestos Licensed Contractor's plan of work (method statements) to familiarise themselves with the scope of Works. The first stage in the 4-stage clearance process is for the asbestos analyst to ensure the Works ordered have been completed, what was removed; is there any asbestos remaining in the Work area and the actual asbestos materials that were removed.
- 094 The visual inspection second stage of 4 stage clearance is conducted after the removal area has been meticulously cleaned and prior to clearance air monitoring. Inspections, prior to clearance monitoring, will be the responsibility of the Service Provider, but the asbestos analyst must duplicate this function. The asbestos analyst may request that the Asbestos Licensed Contractor's supervisor accompany him during this exercise. Any asbestos remaining (i.e. that not visible to the naked eye) will be removed rapidly in the normal cleaning process. In some circumstances sealant may be applied to work surfaces and plastic sheeting after the visual inspection and initial monitoring (see Guideline for the Removal of Enclosure Area Sheeting). Any dust present in the removal area must be treated as if it contains asbestos. If asbestos is not completely stripped from an area because of access difficulties, then it should be sealed, and the location noted.

Clearance indicator air sampling Stage three of 4 stage clearance

- 095 Following a satisfactory visual inspection, clearance monitoring will be required. The area must be dry, and the negative air switched off and the inlet capped before sampling is started. As far as is practicable the decontamination unit must be isolated from the area being cleared. Clearance air monitoring should be carried out to HSG 248 and a written report issued by the laboratory.
- 096 Guideline for the removal of enclosure area sheeting
- Clean all internal surfaces including plant cover. Run exhaust air fan to clear area. Switch off fan and cap exit;
 - Visual inspection. Carry out clearance monitoring. Is result 0.01 fibres/ml or below? Strike tenting. Dispose of waste;
 - Reoccupation is this the first clean? Seal all inner surfaces with spray on sealant. Carry out clearance monitoring;
 - Is result 0.01 fibres/ml or below? Assess where fibre contamination is coming from and take appropriate action; and
 - Before tenting is struck, a result below 0.01 fibres/ml is required or confirmation that fibre contamination has not come from the asbestos removal job.

Final Assessment post enclosure/ work area dismantling stage four of 4 stage clearance

- 097 On satisfactory completion of all previous stages the final stage of the clearance process can commence, the analyst can be present during this process and all PPE, RPE should be worn. All polythene sheeting used in enclosure is disposed of as asbestos waste. In some situations, the asbestos analyst may take a further air test as an additional safety precaution or reassurance air test" after work area is fully cleared.
- 098 When all stages are completed satisfactorily the certificate of reoccupation is issued for the Work area and before removal from site at the end of the project but after use the decontamination unit is tested and certificate of reoccupation is issued. On completion of removals the Service Provider shall upload all details of removals on the Client's electronic asbestos register on a Property by Property; room by room basis including inventory of customer's items, waste documentation and copy of certificate of reoccupation and waste notices.

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RESPIRATORY AND PERSONAL PROTECTION FOR ASBESTOS WORK

General

- 099 Service Providers and others involved in work involving asbestos or abatement procedures must be fully conversant with the appropriate control measures necessary to protect against exposure to asbestos fibres. There is a legal requirement placed on Service Providers to ensure that their Staff and others in the vicinity are adequately protected from the effects of asbestos.
- 100 Good occupational hygiene practice requires that all practicable efforts be made to prevent asbestos fibres from entering the air of the workplace. In circumstances where it is impracticable to prevent asbestos from entering the atmosphere, suitable respiratory protective equipment should be worn.
- 101 An information sheet on approved types of respiratory protection devices is available from the local office of the Health and Safety Executive.

Standard respirator programme

- 102 It is essential for all contractors required to use respirators in their work to develop and run a comprehensive respiratory protection programme. There are seven elements to a successful programme, which include:
- The administrative system;
 - Knowledge and assessment of the risks involved;
 - Control processes;
 - Correct selection of respiratory protection Equipment (RPEs);
 - Staff training and supervision
 - Medical assessment in compliance with CAR Regulations; and
 - Inspection, fit tests and maintenance and storage of RPEs.

Administrative system

- 103 Written standard operating instructions must be available. These should provide information on the Service Provider's policy in respect of the issue and use of RPEs. One person should be responsible for the coordination and direction of this policy. Each RPE programme will vary according to the peculiarities of the work being carried out.

Knowledge and assessment of risks involved.

- 104 The degree of respiratory protection required for asbestos work is determined by:
- The nature of the work;
 - The type of asbestos;
 - The work methods; and
 - Potential for exposure to asbestos.
- 105 It is essential that a full appraisal of the Work using the above criteria be carried out to assess the likely risk factors and to identify the appropriate safety measures. It may be necessary to undertake environmental background or personnel monitoring to assist with the assessment and this is a responsibility of the Service Provider and the Asbestos Licensed Contractor (removal contractor).
- 106 Air contaminated with asbestos fibres will be the major hazard to Staff and the most appropriate control methods will need to be considered in the assessment process. Because the greatest risk is from the inhalation of asbestos fibres, stringent protection measures must be used. Therefore, all Staff likely to be exposed to asbestos must wear approved RPEs for the whole period exposed.

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Correct selection of respiratory protection Equipment (RPEs)

- 107 To determine the correct selection of the most appropriate RPE for asbestos work, the following issues must be addressed:
- Fit to the wearer: If a proper fit cannot be achieved with one type, model or size of respirator, another, which does fit, must be provided;
 - Face seal: The presence of facial hair (beard, stubble growth, or sideburns), wearing of spectacles, or facial characteristics may affect the face seal adversely. Positive pressure powered equipment with full-face piece copes better with these problems than non-powered devices;
 - Freedom of movement: The need for a Staff member to move freely about a job will influence the type of RPE. While airline respirators offer higher protection the restrictions imposed by the airline may be prohibitive;
 - Physical and thermal stress: The wearing of RPE can cause severe problems during asbestos removal because of the physical activity required. In addition, this type of work is often carried out in hot environments. The cooling effect of air-supplied respirators will make them more acceptable and condensation on the visor will not be a problem; and
 - Other factors: These could include:
 - The need to communicate;
 - Ease of cleaning; and
 - Availability of replacement parts.

Staff training

- 108 The correct and proper use of RPE must be taught to all users. No person should be required to use respirators without first being given training in correct use, operation, care and maintenance, emergency procedures, cleaning and storage requirements.

Medical assessment

- 109 Any type of respirator may impose undue stress on some users. Persons required to routinely wear respirators should be given the opportunity of a medical assessment to determine if they are able to safely wear them.

Inspection, maintenance and storage of RPE

- 110 Proper inspection, maintenance and repair of RPDs are an essential part of the respirator protection programme. Face-pieces should be cleaned, dried and stored properly after each use. Regular checks of the diaphragms, valves and face-piece parts will reveal any defect, which should be repaired. The batteries for powered air RPE will require recharging.

Protective clothing - General

- 111 Appropriate protective clothing will afford protection to asbestos Staff and prevent spreading contamination or health risk to others. All protective clothing used to carry out restricted work must be disposed of as asbestos waste. During other work involving asbestos protective clothing may be reused but appropriate measures must be taken to ensure cleanliness (see section on laundering).

Types of protective clothing

- 112 Persons involved in working with asbestos should always wear protective clothing which:
- Is made of material that resists penetration by asbestos fibres, such as nylon or treated synthetic material;
 - Covers the body and fits snugly at the neck, wrists and ankles. It should also cover the head by having an attached hood; and

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- Is maintained in good condition and if torn or damaged, immediately repaired or replaced.
NOTE: Because of the impervious nature of this type of clothing the wearer may become affected by heat stress. The Service Provider should ensure that Staff are knowledgeable on the signs and symptoms of heat disorders and the means to prevent illness caused by heat. There are three types of overalls in general use for asbestos work. Each type of overall has its advantages and disadvantages. The use of disposable or single-use overalls for all asbestos work is advisable because laundering is not required. Where the use of alternative types is necessary the full implications of how they will be cleaned or laundered need to be considered.
- Disposable or single-use protective clothing which is generally used for one job and discarded as asbestos waste. These are particularly suitable for all types of asbestos work;
- Overalls made from lightweight synthetic material such as nylon, which is also waterproof, or PVC waterproof clothing should be chosen as an option for the removal of non-friable materials only. The light nylon overall is particularly suitable for large ongoing jobs because they can be washed under a shower when leaving the contaminated area. Laundering is necessary primarily for hygiene. The PVC type overalls can be used in a similar way; however, they are heavy, cumbersome and too hot for longer jobs;

Laundering of asbestos-contaminated clothing

- 113 The laundering of contaminated overalls presents some difficulties to comply with CAR Regulations Regulation 14
- The transfer and handling of contaminated overalls may put other people at risk from asbestos. For this reason contaminated overalls should never be washed in a home laundry and Staff in a laundry handling asbestos-contaminated clothing must take special precautions;
 - While the washing process removes asbestos fibres, the spin-drying cycle deposits the fibres on to the garment again; and
 - During the mechanical drying process asbestos fibres are released into the air. International standards require that clothing which has been used in asbestos work be "... laundered in accordance with the following requirements;
 - The clothing is, wherever practicable, laundered at the place at which the work involving asbestos has been carried out; and
 - If it is not practicable to launder the clothing at that place, the clothing is, before being taken to the place where it is to be laundered, damped and placed in a closed container impermeable to asbestos dust and conspicuously marked with the words "ASBESTOS CONTAMINATED CLOTHING"; and
 - Wherever the clothing is laundered, it is laundered in such a manner as to clean the clothing and to suppress the release of asbestos dust into the air; and
 - Every employee to whom the clothing is given for laundering receives, before being given the clothing, instructions on the precautions to be taken to ensure that the clothing is laundered and handled in such a manner as to protect the safety of every employee coming into contact with it during the laundering process; and
 - The clothing is not laundered by an employee at an employee's home."

Footwear

- 114 Footwear should be adequate for the type of work being undertaken and where possible have no laces.

Gloves

- 115 If gloves are provided they should be made of impervious material for ease of cleaning. To assist with manual dexterity disposable type gloves may be more acceptable. On health grounds, there are few reasons to require people handling asbestos casually to wear gloves, however, extended contact with asbestos can lead to asbestos corns or "warts".

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STORAGE, LABELLING AND DISPOSAL OF ASBESTOS

General

- 116 This section outlines the steps necessary for the Service Provider to ensure, as far as is practicable, the prevention of contamination by asbestos from any workplace or property; to ensure that asbestos-containing materials are stored, labelled where agreed with the Client's Representative and disposed of correctly.

Storage and disposal of asbestos

- 117 The Service Provider should take all practicable steps to ensure that asbestos waste products are not received into, stored, distributed or dispatched from any place of work unless in suitably sealed and labelled receptacles. The receptacles should be designed, constructed, maintained and closed so as to prevent any of the contents escaping when subjected to the stresses and strains of normal handling.
- 118 It is the Service Provider's duty to ensure all dangerous substances are properly packaged and labelled and all asbestos waste shall be sealed in plastic bags (500 gauge thick) and labelled "Asbestos hazard – Wear respirator and protective clothing while handling contents".

In addition bags shall be transported for disposal in UN approved and labelled double layered (red bag on inside clear bag) and have a specified means of closure (PVC tape and swan neck and tape) and are to be placed in a sealed skip when on site and subsequently disposed of in accordance with Hazardous Waste Regulations.

- 119 Sealed Asbestos skips are only to remain on site for the duration of the Works, and once the Works are complete and 4 stage clearance achieved are to be immediately removed. Sealed Asbestos skips remaining more than 24 hours after achievement of 4 stage clearance will be removed by a Client Party and all costs incurred by the Client will be set-off against the valuation of the Asbestos Works including an administrative fee of 100% of the cost of the skip removal.
- 120 The Service Provider shall update the Client's Electronic Asbestos Register system after removal of asbestos, putting information against specific locations where asbestos has been removed in each room in each specific property, including uploading details of any pertinent certificates and waste documentation within 10 days of completion of the Order.

Handling

- 121 The Service Provider should ensure that asbestos waste received into or dispatched from any workplace is packed in sealed plastic bags and FIBC's, the following practices applied:
- Pallet loads should be securely fastened by banding (in order to not cut the bags) and covered;
 - Pallet loads should be securely mounted on suitable pallets, which can be moved by hoist, forklift truck or other mechanical handling means without damage. Hooks or other sharp equipment should not be used for handling the bags; and
 - A supply of suitable adhesive tape should be made available by the Service Provider to repair any damaged bags. Where the damage cannot be repaired to prevent the release of asbestos during handling, the damaged bag should be placed inside another receptacle, which can be effectively sealed;
- 122 Asbestos cement sheets and pipes or insulating board should not be broken or cut for disposal in plastic bags. The Service Provider should ensure that these materials are suitably sealed in plastic and transferred to a labelled truck or skip for safe storage prior to being transported to an approved disposal site. The vehicle transporting the waste should be appropriately identified in accordance with the Regulations.
- 123 The skip or other container should be cleaned thoroughly after use.
- 124 Manufactured goods containing asbestos, such as boilers, should be sealed or suitably packaged (e.g. by shrink wrapping) to prevent asbestos fibres arising from abrasion during transport.

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Disposal at designated landfill of transfer station

- 125 Asbestos waste may only be deposited at a suitably licensed landfill facility or received by a suitably licensed transfer station prior to onward shipment to a licensed landfill. 3 days' notice must be given to the Environment agency before moving waste and consignment note process as defined in Hazardous Waste Regulations must be followed. Producers /Licensed Waste carriers of asbestos waste should ensure they receive written confirmation of a facilities status to accept such material to ensure compliance with their responsibilities under the Hazardous Waste Regulations.

Reuse of abated asbestos containing products

- 126 The reuse of abated asbestos containing products, such as corrugated roofing and slates is not permitted.

INSTRUCTION AND TRAINING

General

- 127 This section applies to all Staff who are exposed to and required to work with asbestos including supervisory and maintenance personnel.

Type and scope of instruction and training required

- 128 The Service Provider must provide instruction and training to all such Staff (including those with supervisory functions) on the hazards, risks and controls as assessed for their particular work, and satisfy himself that any Asbestos Licensed Contractor appointed by the Service Provider meets the requirements of Regulation 10 CAR Regulations in terms of competence. the Health and Safety Executive guidance L143 and HSG 247 provides a list of requirements for persons who work with asbestos.
- 129 The Service Provider must as a minimum provide all such Staff, including such temporary Staff with:
- Training and assessment in line with the CAR ACOP L143 AND HSG 247 for the Training of Asbestos Removal Operatives.
 - Safe Pass Training: Where Staff or supervisors are required to operate plant or equipment covered by specific training requirements of Regulations, ACOPS or guidelines then such training should also be provided. The Service Provider must maintain, on site, proof that training has been provided in accordance with the above.

Training in maintenance of control equipment

- 130 The Service Provider must ensure that any person carrying out any maintenance or servicing of exhaust ventilation equipment or other control equipment is competent to carry out the task.

Training in the use of respiratory protective equipment

- 131 All employees shall be provided with training on the correct use and maintenance of respiratory protective equipment.

MEDICAL MONITORING

General

- 132 Health and Safety Executive regulations require among other things that service providers monitor the health of their employees in relation to significant hazards and it requires medical examination of employees exposed to significant hazards. The Service Provider shall assure themselves that their Staff have where applicable had medical examinations in compliance with CAR Regulations (every 3 years for NNLW) and (every 2 years for licensed asbestos removal workers).

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Initial medical CAR Regulations (Regulation 22)

- 133 Any Staff directing employees to undertake Asbestos Works must ensure that the employee has:
- A full work history;
 - A medical examination, relevant to persons who work with asbestos including specific examination of the chest and other tests that may be appropriate prior to starting employment in restricted work;
 - The Service Provider should ensure that the employee has this asbestos medical thereafter bi annually; and
 - The cost of the medical examinations shall be the responsibility of the Service Provider.
- 134 Notwithstanding the above provision, the Health and Safety Executive may direct any person undertaking work involving asbestos to have a medical examination.
- 135 While the employee remains in the employment of the Service Provider:
- The Service Provider shall ensure that the employee has a medical examination in accordance with the Regulations.
 - The cost of the medical examination shall be met by the Service Provider.

Personal medical information

- 136 The personal medical information, of the employee remains the property of that employee. The Service Provider will receive certification from the medical practitioner stating whether the employee is fit or otherwise for the restricted asbestos work. The employee should be encouraged to share their medical information, where appropriate, with the Service Provider.
- 137 Where an employee leaves the company, the Service Provider should ensure that the employee is aware of the need to continue with bi annual medical examinations.
- 138 The Service Provider should retain all medical records relating to asbestos for a period of 40 years.

Medical examinations

- 139 The asbestos medical examinations shall be performed by qualified medical practitioners with specialist qualifications in occupational or respiratory medicine it is essential that all practitioners have experience in asbestos-related diseases and conditions.

Asbestos Exposure Register

- 140 Staff who may have been exposed to asbestos should ensure that their names and appropriate details are entered in the Asbestos Exposure Register administered by the Health and Safety Executive.

SPECIALIST EQUIPMENT

Controlled Wetting Equipment

- 141 Equipment for the controlled wetting of asbestos containing materials is to be in accordance with BS 8520 Part 1, it should effectively wet asbestos –containing materials and suppress asbestos fibres both during and after the asbestos removal process, by multi-point injection of sprayed coatings, insulating board, thermal insulation and coatings on pipes, tanks and vessels, or spraying with low-pressure spray heads of liquid on to insulating boards and other material less than 10mm thick to suppress the release of airborne asbestos.

Negative Pressure Units (“NPU”)

- 142 Portable and/or transportable negative pressure units are to be in accordance with BS 8520-2, they are to incorporate HEPA filters to BS EN1822 for use in the controlled removal of asbestos containing materials. This requirement also applies to negative pressure units designed to create negative pressure within a portable contamination unit facility or working enclosure and two part negative pressure units.

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Class H Vacuum Cleaners

143 The operation, cleaning and maintenance of Class H (high hazard) vacuum cleaners is to be in accordance with BS 8520-3, they are to incorporate a filter conforming to BS EN 1822 in the controlled removal of asbestos containing materials.

Client’s current manufacturers/suppliers/products

144 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

EXTERNAL WORKS

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EXTERNAL WORKS

MATERIALS

Hardcore

- 001 For hardcore in beds and when filling to make up levels under paving, use only good clean hard brick, concrete, hard tiles, stone or ballast, broken before placing to pass a 75mm ring and free from all rubbish and deleterious material.
- 002 Thoroughly consolidate hardcore to the required levels and contours with a roller, vibrating roller or mechanical punner. Take care that no damage is done to adjacent work.
- 003 Blind surfaces of hardcore with sand, ashes or other fine material approved by the Client's Representative.

Sub-bases to Roads.

- 004 Type 1 Sub-base to be unbound mixture made from crushed rock, crushed slag, crushed concrete, recycled aggregates or well burnt non-plastic shale and may contain up to 10% by mass of natural sand that passes a 4 mm test sieve.

Type 2 Sub-base to be unbound mixture made from crushed rock, crushed slag, crushed concrete, recycled aggregates or well burnt non-plastic shale, natural gravel and natural sand that passes a 4 mm test sieve.

Precast concrete paving flags

- 005 Use only precast concrete paving flags of a standard and quality to BS 7533-4, approved by the Client's Representative, made from natural and crushed aggregate, hydraulically pressed, of uniform natural colour throughout and with a non-slip surface finish. Tactile paving flags are to be in accordance with BS EN 1339 and laid in accordance with BS EN 7533-4.
- 006 Lay flags true and square on cement mortar (1:3) dabs with 6mm joints, to BS EN12620 or sand filled joints to BS EN1260 pointed up with cement and sand to BS EN 13139 (1:6) mortar and cleaned off on completion.

Precast concrete edgings and kerbs

- 007 Lay precast concrete edgings and kerbs on edge with top 6mm below the finished level of the adjacent surface and laid in accordance with BS 7533-6. All precast concrete edgings and kerbs are to be to BS EN 1340.

Bond Coat

- 008 Bond coats should comply with BS 594987, BS EN 13808, BS EN 15322 or BS EN 13588. The minimum target rate of spread to existing substrates should not be less than 0.3kg/m² of residual binder. For application to newly laid substrates the minimum target rate of spread should not be less than 0.2kg/m² of residual binder.

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Asphalt Concrete

009 Asphalt concrete is to be in accordance with BS EN 13108-1 and PD 6691 for Category B traffic and laid and compacted to BS 594987.

Binder to be petroleum bitumen conforming to BS EN 12591 Table 1.

	Surface Course	Binder Course
Asphalt Concrete Paving for Carriageways and Shared Surfaces	Thickness: 40mm Material: AC14 Close Surf to PD 6691 Table B14 Column 1	Thickness: 60mm Material: AC20 Dense Bin to PD 6691 Table B11 Column 3
Asphalt Concrete Paving for Carriageways and Shared Surfaces – Basecourse Trafficked	Thickness: 30mm Material: AC14 Close Surf to PD 6691 Table B14 Column 1	Thickness: 70mm Material: AC20 Dense Bin to PD 6691 Table B11 Column 3
Asphalt Concrete Paving for Carriageways and Shared Surfaces – Surface Course only	Thickness: 30mm Material: AC14 Close Surf to PD 6691 Table B14 Column 1	
Asphalt Concrete Paving for Carriageways and Shared Surfaces and Humps		Thickness: 40mm Material: AC20 Dense Bin to PD 6691 Table B11 Column 3
Asphalt Concrete/Hot Rolled Asphalt to Carriageways and Shared Surfaces	Thickness: 40mm Material: HRA 30/10F Close Surf to PD 6691 Table C2.A Column 4 Surface Treatment: Uncoated chippings	Thickness: 60mm Material: AC20 Dense Bin to PD 6691 Table B11 Column 3
Asphalt Concrete/Hot Rolled Asphalt to Footpaths	Thickness: 25mm Material: HRA 15/10F Close Surf to PD 6691 Table C2.A Column 3 Surface Treatment: Uncoated chippings	Thickness: 50mm Material: AC20 Dense Bin to PD 6691 Table B11 Column 3

Asphalt concrete shall be laid by machine on carriageways and may be laid by hand on footpaths.

Hot Rolled Asphalt

010 Hot rolled asphalt is to be in accordance with BS EN 13108-04 and PD 6691 for Category B traffic and laid and compacted to BS 594987

	Surface Course
Hot Rolled Asphalt to Carriageways and Shared Surfaces (surface Course only)	Thickness: 40mm Material: HRA 30/10F Close Surf to PD 6691 Table C2.A Column 4 Surface Treatment: Uncoated chippings
Hot Rolled Asphalt to footpaths	Thickness: 25mm Material: HRA 15/10F Close Surf to PD 6691 Table C2.A Column 3 Surface Treatment: Uncoated chippings

All aggregates used for bituminous surfacing materials shall be sound, clean, hard broken rock graded to BS EN 13108-1 and BS EN 13108-7 and conforming to BS EN 13043. Aggregates in the wearing course in contact with the wheels of vehicles shall have a maximum aggregate abrasive value of 16 and a minimum polished stone value of 45. Hot rolled asphalt to be transported and tested to BS 594987.

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Mastic Asphalt to existing Walkways/Flooring

- 011 Existing concrete surfaces are to be cleared of any possible contaminates and loose chippings/sections to be removed with minor repairs undertaken to allow coating to act as suitable basecoat. Existing outlets and up-stands should be securely fixed and cleaned of any possible contaminates.

Mastic asphalt is to be in accordance with BS 8204-5 and BS EN 13108-04 and laid and compacted to BS 594987, amount of reclaimed asphalt to be 10% by mass of the total mixture.

Binder to be paving grade petroleum bitumen conforming to BS EN 12591 Table 1.

	Surface Course
Mastic Asphalt to Walkways and Flooring	Thickness: 20mm Material: Fine aggregate to BS EN 13043 Surface Treatment: Uncoated chippings Movement Joints: Proprietary within topcoat, at 6 metre centres or above existing structural expansion joints

Chippings

- 012 Pre-coated Chippings to comply with BS EN 13108-4 and applied in accordance with BS 594987.

Chippings to Asphalt Wearing Surface to Carriageway	Pre-coated nominal size 14mm , maximum aggregate abrasion value at 12 and a minimum polished stone value of 55
Coloured Chippings to Asphalt Wearing Surface to Carriageway	Pre-coated Hardened red pigmented 20mm, maximum aggregate abrasion value at 12 and a minimum polished stone value of 55 coated with escorey red epoxy resin
Un-coated Chippings to Asphalt Wearing Surface to footpaths	Clean dry granite chippings of a light colour, nominal size 10mm, distributed at the rate of 1kg/m2 and rolled in

Thermostatic Road Marking

- 013 To be hot thermos-plastic road marking to BS EN 1871 applied as detailed in Traffic Signs Manual Chapter 8, Traffic Safety Measures and Signs for Roadworks and Temporary Situations.

Interlocking brick/block paving

- 014 Ensure concrete block paving is of uniform colour throughout and of a size, shape and colour to match existing. Block paviors to be in accordance with BS EN 1338 and laid in accordance to BS 7533-3 in either herringbone or stretcher bond.
- 015 Sand for bedding to be sharp sand or crushed rock fines, not more than 10%, retained on a 5mm BS sieve and evenly graded as BS EN 12620 GF85)/4/(MP) fine aggregate with clay, silt and fine dust content not more than 3% by mass, and free from deleterious salts and contaminates.

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WORKMANSHIP

Formation

- 016 Thoroughly compact the bottom of stripped or excavated areas to receive base. Remove any obstructions or soft spots and add and compact suitable additional Material to provide level or graded surfaces of equal bearing capacity.

Bases for paving

- 017 Immediately after compaction of the earth formation, lay a limestone base with limestone dust blinding in a consolidated layer not exceeding 150mm thick compacted with a vibrating roller or mechanical rammer.

Concrete paving flags

- 018 Unless specified otherwise elsewhere, lay flags to BS EN 1339:2003 on a prepared stone base to match existing bonding and on a 25mm thick consolidated bed of semi-dry mortar. Use joints 5-10mm wide pointed with cement mortar (1:3) as the Works proceed. Protect completed paving until the pointed joints have set and then brush off and leave clean.

Asphalt Concrete and Hot Rolled Asphalt

- 019 Lay asphaltic concrete and hot rolled asphalt paving to a standard and quality approved by the Client's Representative.
- 020 Lay and compact asphaltic concrete and hot rolled asphalt in restricted areas by methods that produce a compacted finish equivalent to the thickness achieved by heavy rollers.

Kerbs and edgings

- 021 Bed kerbs and edgings on concrete and haunched half way up on the back. Form fine open joints between units. Full height upstand is to be 125mm above road or channel level.
- 022 Drop kerb upstand shall be 0-10mm for pedestrian crossings, and 25mm for vehicular crossings.

Interlocking brick/block paving

- 023 Ensure that sub-bases are suitably accurate and to the specified gradients before laying paving.
- 024 Lay block paving on a well graded sand bed vibrated to provide a thoroughly interlocked paving of even overall appearance with regular sand filled joints and accurate to line, level and profile, and thoroughly compact block paving's with vibrating plate compactor as laying proceeds.
- 025 Cut blocks/paviors neatly and accurately without spalling to give neat junctions at edge restraints and changes in bond.

Stopcock Pits

- 026 Construct stopcock pit to specified size, including excavation, disposal, earthwork support, backfill, lay 75 mm concrete base and concrete common bricks to BS EN 771-3 to form half brick wall in cement mortar (1:3 30N/mm²) in stretcher bond, form 2 number holes each not exceeding 55mm nominal size diameter, and fix only surface box supplied by Water Authority, bedded in cement mortar (1:3)

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Lighting Column Bases

- 027 Construct lighting column base to specified size, including excavation, disposal, earthwork support, backfill, place mass concrete base with cable recess, base size as table below:

Lighting Column Height	Base Size
5m	600mm x 600mm x 750mm deep
6m	600mm x 600mm x 1000mm deep
8m	600mm x 600mm x 1200mm deep
10m	600mm x 600mm x 1500mm deep
12m	600mm x 600mm x 1800mm deep

Pipe Ducts

- 028 Pipe ducts are to be laid straight to line, true to gradient or level on the specified bedding material, provide 50mm minimum clearance between pipe ducts when they cross, materials to be:

PIPE DUCT FOR:	
General Use	Unplasticised PVC to BS EN1401-1 complete with drawlines and flexible joints
Street Lighting Cables in Footways to Footpaths	32mm diameter Orange alkathene ducting made from polythene or PVC-u marked with name of Street lighting Authority and Year of Manufacture in 6mm high blue lettering along its entire length, no joints allowed
Street Lighting Cables in Carriageways or Parking Areas	160mm diameter PVC-u to BS EN1401-1 complete with flexible joints

Identification Tape

- 029 During backfilling of trenches for electricity service cables, lay continuous colour coded, heavy gauge polythene identification tapes, 300mm below the surface along the route of the cable. Marker tape for street lighting cables shall be 150mm wide coloured yellow and printed its length in 100mm high black lettering with the words caution – street lighting Cable below”

Tree Felling/Removal

- 030 Felling shall consist of the removal of the complete tree, including the stump to below ground level.

If the stump is not to be ground out, the Service Provider will be required to leave the stump as low to the ground as possible, unless otherwise Instructed by the Client’s Representative.

When felling trees in open spaces, if there is a delay between felling and stump removal, the Service Provider shall leave the stump at a height of at least 1m above ground level to prevent people tripping over it.

The resultant hole following stump removal is to be backfilled and consolidated with topsoil to ensure a finish level with the surrounding area. For trees in hard surfaces, the hole shall be backfilled with topsoil to 7cm’s below the surrounding area. Before leaving the site unattended, the Service Provider must reinstate the surface to match the surrounding area and leave the area safe and level with the surrounding area.

Advance warning notices must be delivered by the Service Provider at his own expense at least one week prior to the removal of any tree to neighbouring households where trees adjoining dwellings are required to be removed. The format of the advance warning notice is to be agreed with the Client’s Representative.

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The Service Provider must take due care when felling or removing trees to avoid damage to property, ground surfaces, animals, people, vegetation and surrounds. The Service Provider must ensure that branches, limbs, trees and stumps are removed using a safe system which complies with recognised procedures. The Client's Representative will require the Service Provider, in certain cases, to provide a method statement of procedure. Before the Work can be undertaken in such cases, the Client's Representative must approve the working system outlined in the statement.

All damage resulting from the felling or removal of trees is the responsibility of the Service Provider. The Service Provider must carry out all rectification and reinstatement to the satisfaction of the Client's Representative.

The Service Provider shall remove all arising's from site.

Stump Removal

- 031 The Client's Representative will specify to the Service Provider whether stumps are to be grubbed up or ground out.

Where trees are removed from streets (hard paved and bitumen macadam areas), the surface must be reinstated and left safe before moving on to the next operation on site.

Any hollow remaining after stump removal shall be backfilled and consolidated with a layer of topsoil, 70mm below the surrounding ground level and the original surfacing reinstated. Great care must be taken by the Service Provider not to damage any services.

Where trees are removed from lawns, shrub areas etc., and the location shall be reinstated before proceeding to the next operation. Reinstatement shall consist of backfilling with topsoil and then consolidation. The backfill shall be mounded sufficiently to allow for settlement. Where the surrounding area is grass the Service Provider must sow the new topsoil with an adequate amount of amenity grass seed.

Grubbing up of the stump shall consist of the complete removal of the tree stump and roots over 4cms in diameter by hand, machine excavation, winching or other means, trees used as an anchorage for winching operations shall be adequately protected by rubber ties, cordwood or other suitable material in accordance with BS 3998 "Tree work"

Site/Street Furniture

- 032 Rotary Driers are to be constructed from:
Clothes line; 2.6mm diameter, minimum 24m plastic coated line;
Non-folding arms; 3 or 4 no 25mm diameter aluminium tubes or 25mm x 13mm painted galvanised steel section;
Non-folding stays; 3 or 4 no 20mm diameter aluminium tubes or 13mm x 13mm painted galvanised steel section;
Brackets: zinc die cast;
Centre Pole: galvanised hot finished welded hollow section made from steel to BS EN 10219-2, minimum 34mm diameter, minimum 1.7m length;
Excavate 450mm deep hole for 300mm x 300mm x 375mm concrete (Gen 3) base, with aluminium tube cast in, backfill and disposal off site;
- 033 Tubular clothes posts are to be constructed from:
50mm heavy duty steel tube 2050mm long;
Top cross member; 750mm long, twice bored and fitted with 5mm guide rings of 15mm diameter;
Hitch handles; 5mm diameter bent to butterfly shape with no sharp projections, fitted 1100mm from top of post;
Fixing lugs; 2 no 200mm x10mm inserted through post at right angles to each other and welded Galvanised after manufacture;
Excavate 450mm deep hole for 300mm x 300mm x 450mm concrete (Gen 3) base, with post cast in, backfill and disposal off site;

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- 034 Precast concrete clothes posts are to be constructed from:
Post; 125mm x 125mm at base tapered to 90mm x 90mm at top with pyramid top, post 3050mm long, twice holed 75mm from top, and 1500mm from top to accommodate fittings;
Galvanised hook to top hole, and galvanised "D" shaped tying ring to mid hole;
Excavate 550mm deep hole for 450mm x 450mm x 450mm concrete (Gen 3) base, with post cast in, backfill and disposal off site;
- 035 Litter bins are to be constructed from:
Hardwood slats on galvanised steel frame, and galvanised steel liner fixed with a security chain;
Ground fixed to insitu concrete (Gen 3) foundation 300mm x300mm x200mm, or post or wall fixed as manufacturer's technical data sheet;
- 036 Footpath Bollards are to be comply with BS EN 12899-1 and to be constructed from:
Galvanised tubular steel painted black with bands
Bollards to be set in concrete (Gen 3) base 300mm x 300mm x 375mm concrete base, with high intensity retro-reflective bands set back 500mm from face of kerb to centre of bollard. Excavate, backfill and disposal of excavated materials off site;

Cleaning Existing Paving

- 037 Clean existing paving with high pressure washer, the Service Provider is to determine the pressure and any chemical additive necessary to achieve the required level of cleaning. The Service Provider is to ensure that the pressure washing does not displace any jointing sand/fine aggregate during the cleaning process.

Topsoil and soil ameliorants

- 038 Preparation of undisturbed topsoil is to be in accordance with BS 4428. Break up hard ground thoroughly, remove visible roots and large stones with a diameter greater than [75 mm]. Areas to be covered with turf or thick sward are to be rotavated or dig over to full depth of topsoil. At appropriate times treat with a suitable translocated nonresidual herbicide.
- 039 Imported topsoil for multi-purpose use accordance with BS 3882 Figure 1: Loamy sand. •
- 040 Imported low fertility topsoil for specific purpose - Low fertility. - soil textural class to BS 3882, Figure 1: Sandy loam
- 041 Sanitised and stabilised composted materials is to be certified to PAS 100 with horticultural parameters: -
- pH (1:5 water extract): 7.0-8.7;
 - Electrical conductivity (maximum, 1:5 water extract): 200 mS/m;
 - Moisture content (m/m of fresh weight): 35-55%;
 - Organic matter (minimum): 25%;
 - Grading (air dried samples): 99% passing 25 mm screen, and 90% a 10 mm screen mesh aperture;
 - Carbon:Nitrogen ratio (maximum): 20:1;
 - Texture: Friable;
 - Objectionable odour: Not permitted; and
 - Quality Compost Protocol certification: Required.
- 042 Green compost for soil amelioration to be in accordance with BSI PAS 100:2011 or current revision, obtained from a PAS 100 compliant facility.

Spreading Topsoil

- 043 Spreading topsoil is to be in accordance with BS 3882 and the following requirements:
- Temporary roads or surfacing: Remove before spreading topsoil. •
 - Spreading: Spread when reasonably dry, maintaining crumb structure. Do not compact. •
 - Layers: - Depth (maximum): 150 mm. - Gently firm each layer before spreading the next. •
 - Depth after firming and settlement: No greater than 400 mm.

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- 044 The finished levels of topsoil after settlement is to be:
- Above adjoining paving or kerbs: 30 mm.
 - Within the root spread of existing trees: Unchanged.
 - Below dpc of adjoining buildings: Not less than 150 mm.
 - Shrub areas: Higher than adjoining grass areas by 30 mm.
 - Within root spread of existing trees. Unchanged.
 - Adjoining soil areas. Marry in.
- 045 Final cultivation of topsoil is to be:
- Compacted topsoil: Break up to full depth.
 - Tilt: Loosen, aerate and break up topsoil to a tilt suitable for blade grading.
 - Depth: maximum 400 mm.
 - Particle size (maximum): 25 mm.
 - Timing: Within a few days before planting or sowing.
 - Weather and ground conditions: Suitably dry.
 - Surface: Leave regular and even.
 - Levels: 30mm above surrounding surface.
 - Undesirable material brought to the surface:
 - Remove visible weeds. –
 - Remove roots and large stones with any dimension exceeding 25mm.
- 046 Grading of topsoil:
- Contours: Smooth and flowing, with falls for adequate drainage.
 - Hollows and ridges: Not permitted.

Seeding/ turfing

047 General Information/Requirements

Seeded and Turfed Areas

Growth and development: Healthy, vigorous grass sward, free from the visible effects of pests, weeds and disease.

Appearance: A closely knit, continuous ground cover of even density, height and colour.

Climatic conditions: Carry out the work while soil and weather conditions are suitable.

Watering:

- quantity: wet full depth of topsoil;
- application: even and without displacing seed, seedlings or soil;
- frequency: as necessary to ensure the establishment and continued thriving of all seeding/turfing;

Water restrictions:

- timing: if water supply is or is likely to be restricted by emergency legislation do not carry out seeding/turfing until instructed. if seeding/turfing has been carried out, obtain instructions on watering;

Notice, give one week's notice before to the Client's Representative at the following stages:

- setting out;
- applying herbicide;
- applying fertilizer;
- preparing seed bed;
- seeding or turfing;
- visiting site during maintenance period;

Setting out:

- boundaries: mark clearly.
- delineation: in straight lines or smoothly flowing curves as shown on drawings.

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048 Preparation

Soil Requirements

- Wildflower seeded areas: 100mm dressing of low fertility topsoil.
- Lawn areas: Existing topsoil, incorporated with compost.

Wildflower Seed Mixture for Wildflower Meadows:

- Supplier: Emorsgate or other equal and approved. –
- Mixture reference: EM4 or other equal and approved.
- Origin of each species (as defined in Flora Locale's Code of practice for collectors, growers and suppliers of native flora): UK origin.
- Application rate: 4 g/m².

Flowering Lawn Seed Mixture for Flowering Lawn

- Supplier: Emorsgate. –
- Mixture reference: EL1.
- Origin of each species (as defined in Flora Locale's Code of practice for collectors, growers and suppliers of native flora): UK origin.
- Application rate: 4 g/m².

Quality of Seed for all Grassed Areas:

- Freshness: Produced for the current growing season.
- Certification: Blue label certified varieties.
 - Standard: EC purity and germination regulations.
 - Official Seed Testing Station certificate of germination, purity and composition: Submit when requested.
- Samples of mixtures: Submit when requested.

Quality of Wildflower Seed for Wildflower and Flowering Lawn:

- Standard: In accordance with Flora Locale's 'Code of practice for collectors, growers and suppliers of native flora'.
- Germination testing: Not required.
- Freshness of seed: Produced for the current growing season.
- Samples: Submit when requested.

Sowing

- General: Establish good seed contact with the root zone.
 - Method: Seed drill, Distribution: 2 equal sowings at right angles to each other.
- Season • Grass seed generally: April to October.

Cleanliness

- Soil and arisings: Remove from hard surfaces.
- General: Leave the works in a clean, tidy condition at Completion and after any maintenance operations.

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Client’s current manufacturers/suppliers/products

049 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand Name	Manufacturer’s Details

[complete table as appropriate]

FENCING AND GATES

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FENCING AND GATES

MATERIALS

Generally

- 001 Follow any timber sizes stated in the Schedule of Rates items, in preference to those stated in any European or British Standard.
- 002 Use only galvanised/shotblasted ironmongery and fixings.
- 003 Where the Schedule of Rates refers to posts “not exceeding” a particular size in Orders and for Valuation use the Schedule of Rates item closest to actual post sizes used in the Works.
- 004 Use cement, water, aggregates and sand as defined in the “Concrete Work” Section.
- 005 Note that different fencing types exist amongst the Properties in a variety of heights and with concrete and metal posts set in earth or concrete.

Timber gates

- 006 Construct frames with ledge and bracing joints. Bracing shall rise up from the hinged side of the gate.

Metal gates

- 007 Properly weld together metal gates and grind all welds to a smooth finish, before undertaking galvanising.

Pressure impregnating

- 008 Where Works are described as ‘pressure impregnated with preservative’ use pressure pretreated timbers for fencing and gates with organic, solvent-based preservative treatment approved by the Client’s Representative. All timber shall receive a double vacuum treatment in accordance with BS 8417 after machining. This treatment shall be a modern, industrial, organic, solvent based wood preservative containing no “red list” biocides. Application must be by low pressure impregnation, giving highly effective protection against wet rot fungi and having a 30 year warranty.
- 009 Carry out deep cutting, planing and other fabrication before treatment. Where any crosscutting or notching of the pressure impregnated timbers is necessary, liberally treat all new surfaces exposed with a preservative approved by the Client’s Representative.
- 010 Produce a certificate of treatment to cover all timbers processed indicating that the timber has been procured from sources which can independently be verified as being either: from a legal and sustainable source or from a FLEGT licensed or equivalent source. This shall comply with the EU timber Regulation (EUTR) and the UK Timber Procurement Policy (TPP).

Wood preservatives

- 011 Thoroughly clean all woodwork to be treated and ensure it is perfectly dry before application. Apply (by brush, trowel, injection or gravity irrigation treatment) the preservative in two coats and work it into all joints. Follow with the second coat before the first coat has dried out. Use only products registered by the Health and Safety Executive (HSE) and listed on the HSE website under non-agricultural pesticides.

Concrete mix

- 012 Ensure all concrete used for bedding in posts is Gen1 as defined in the “Concrete Works” Section.

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Nails and screws

- 013 Ensure nails, screws, clips, wire and other ancillaries and fixings are galvanised and as defined in the "Woodwork" Section.

WORKMANSHIP

Fence route

- 014 Clear vegetation or other obstructions along fence routes. Remove any humps and fill any hollows with compacted soil to provide a clear way, permitting unobstructed passage on both sides of the fence, approximately level or with smooth undulations.
- 015 Identify any services in the ground before excavations commence and take appropriate precautions to avoid any damage.

Fence erection

- 016 Erect fences as follows:
- with posts truly vertical and tops to line;
 - with struts uniformly angled to give maximum support;
 - with straining posts in strained wire fences located at each end, at each change in direction and at each acute change in level;
 - with struts to all straining posts in the direction of the line of the fence; and
 - with posts fixed, but if the ground is soft or a post or strut cannot be securely fixed in the manner specified, set in concrete (or additional concrete) or otherwise as approved by the Client's Representative, to make the fence secure.

Fixing posts

- 017 Fix posts as specified in BS 1722 for the type of fencing involved and in accordance with the following:
- in concrete:
 - use appropriate size and depth for size of post; and
 - use appropriate size and depth for size of struts;
 - using holes with vertical sides; and
 - where using:
 - concrete in holes: half fill the hole with concrete with earth above, both well rammed;
 - earth filled holes: keep the hole as small as possible consistent with refilling and compacting with earth (Cleft Chestnut Pale Fencing only); or
 - driven posts: drive without damaging the posts. (Cleft Chestnut Pale Fencing only)

Post spurs

- 018 Use metal post spurs, where Instructed by the Client's Representative.

Painting

- 019 Ensure decoration specified in the Schedule of Rates matches the existing unless Instructed otherwise.

Maintaining protective treatments

- 020 Avoid cutting on site. Make good any damaged protective coatings (e.g. galvanising) to the standard of protection given by the specified coating. Do not cut timber treated with preservative where it will be in the ground. Apply preservative coating to any cuts to treated timber.

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Chain-link Fencing

021 Chain-link fencing shall consist of:

Galvanised steel chain link: 50mm mesh, 3.5mm galvanised, fixing to line wire with crimping rings at 300mm centres

Line wire: 3mm nominal diameter galvanised plain mild steel wire.

Posts: for 900mm high fencing, post to be 100mm x 100mm x 1450mm long, parallel sided, weathered on top, reinforced with 4 Nr 6mm diameter mild steel, bars laced with binding wire at 200mm centres, intermediate posts, three times holed, corner and end posts, three times holed both ways, and once holed one way with 12mm diameter holes. End and corner posts to have mortice and 10mm diameter bolt holes to engage stays. Three number line wires at 430mm centres. Excavation for corner and end post holes 450mm x 450mm x 675mm, excavation for intermediate post holes 250mm x 250mm x 675mm, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth.

Posts: for 1200mm high fencing, post to be 125mm x 125mm x 1870mm long, parallel sided, weathered on top, reinforced with 4 Nr 6mm diameter mild steel, bars laced with binding wire at 200mm centres, intermediate posts, three times holed, corner and end posts, three times holed both ways, and once holed one way with 12mm diameter holes. End and corner posts to have mortice and 10mm diameter bolt holes to engage stays. Three number line wires at 580mm centres, nominal 3.5mm diameter. Excavation for corner and end post holes 450mm x 450mm x 675mm, excavation for intermediate post holes 250mm x 250mm x 675mm, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth.

Posts: for 1800mm high fencing, post to be 125mm x 125mm x 2620mm long, parallel sided, weathered on top, reinforced with 4 Nr 6mm diameter mild steel, bars laced with binding wire at 200mm centres, straight run posts, five times holed, corner and end posts, five times holed both ways, and once holed one way with 12mm diameter holes, End and corner posts to have mortice and 10mm diameter bolt holes to engage stays. Three number line wires at 880mm centres, nominal 4mm diameter. Excavation for corner and end post holes 450mm x 450mm x 850mm, excavation for intermediate post holes 300mm x 300mm x 850mm, 100mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth.

Stays: for chain-link fencing fixed to end and corner posts in-line with fencing, size and length of stay to match height of fence:

900mm Fence = 75mm x 75mm x 1500mm stay
1200 mm Fence = 100mm x 75mm x 1830mm stay
1800mm Fence = 100mm x 85mm x 2590mm stay
Or to BS 1722 -1 Table 3

Stay parallel sided, splayed and holed at top for stay bolt fixing to posts on top, reinforced with 4 Nr 6mm diameter mild steel, bars laced with binding wire at 200mm centres, three times holed with 12mm diameter holes, bolts for fixing stays 125mm long x 10mm diameter with nut and washer, eye bolts to all cut ends. Excavation for stay holes 600mm x 300mm x 525mm, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth.

Vertical Board Fencing

022 Vertical timber boarded fencing shall consist of:

950mm Vertical board (rounded top with bull wire):

2 nr. 44mmx 69mm splayed horizontally softwood runners bolted with 200mm x 10mm diameter bolt with nut and washer at connection of runner and post;
900mm long x 94mm x 20mm board with rounded top, fixed vertically at 114mm centres to runners;
Bull-wire 3.15mm diameter (10SW) galvanised mild steel to BS 4102 stapled to horizontal runners;

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1050mm Vertical board (rounded top):

2 nr. 44mmx 69mm splayed horizontally softwood runners bolted with 200mm x 10mm diameter bolt with nut and washer at connection of runner and post;
1000mm long x 144mm x 20mm board with rounded top, fixed vertically at 164mm centres to runners;

1050mm Vertical board (square top):

2 nr. 44mmx 69mm splayed horizontally softwood runners bolted with 200mm x 10mm diameter bolt with nut and washer at connection of runner and post;
1000mm long x 144mm x 20mm board with splayed top, fixed vertically at 164mm centres to runners;

1050mm Vertical board (square top with bull-wire):

2 nr. 44mmx 69mm splayed horizontally softwood runners bolted with 200mm x 10mm diameter bolt with nut and washer at connection of runner and post;
1000mm long x 144mm x 20mm board with splayed top, fixed vertically at 164mm centres to runners;
Bull-wire 3.15mm diameter (10SW) galvanised mild steel to BS 4102 stapled to horizontal runners;

1250mm Vertical board (square top):

2 nr. 44mmx 69mm splayed horizontally softwood runners bolted with 200mm x 10mm diameter bolt with nut and washer at connection of runner and post;
1200mm long x 144mm x 20mm board with splayed top, fixed vertically at 164mm centres to runners;

1675mm Vertical board (square top):

3 nr. 44mmx 69mm splayed horizontally softwood runners bolted with 200mm x 10mm diameter bolt with nut and washer at connection of runner and post;
1600mm long x 144mm x 20mm board with splayed top, fixed vertically at 164mm centres to runners;

1675mm Vertical board (square top with bull-wire):

3 nr. 44mmx 69mm splayed horizontally softwood runners bolted with 200mm x 10mm diameter bolt with nut and washer at connection of runner and post;
1600mm long x 144mm x 20mm board with splayed top, fixed vertically at 164mm centres to runners;
Bull-wire 3.15mm diameter (10SW) galvanised mild steel to BS 4102 stapled to horizontal runners;

1875mm Vertical board (square top):

3 nr. 44mmx 69mm splayed horizontally softwood runners bolted with 200mm x 10mm diameter bolt with nut and washer at connection of runner and post;
1800mm long x 144mm x 20mm board with splayed top, fixed vertically at 164mm centres to runners;

1875mm Vertical board (square top) with bull-wire:

3 nr. 44mmx 69mm splayed horizontally softwood runners bolted with 200mm x 10mm diameter bolt with nut and washer at connection of runner and post;
1800mm long x 144mm x 20mm board with splayed top, fixed vertically at 164mm centres to runners;
Bull-wire 3.15mm diameter (10SW) galvanised mild steel to BS 4102 stapled to horizontal runners;

1050mm Vertical board (double narrow board):

2 nr. 44mmx 69mm splayed horizontally softwood runners bolted with 200mm x 10mm diameter bolt with nut and washer at connection of runner and post
Wide board - 1000mm long x 144mm x 20mm splayed top board, fixed vertically at 204mm centres;
2 nr narrow boards – 1000mm long x 72mm 20mm splayed top and fixed vertically to form evenly spaced infill (20mm spaces between all boards);

1050mm Vertical board (triple narrow board)

2 nr. 44mmx 69mm splayed horizontally softwood runners bolted with 200mm x 10mm diameter bolt with nut and washer at connection of runner and post
Wide board - 1000mm long x 144mm x 20mm splayed top board, fixed vertically at 420mm centres;
3 nr narrow boards – 1000mm long x 72mm x 20mm splayed top and fixed vertically at 92mm centres to form infill (20mm spaces between all boards);

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1050mm Vertical board (picket):

2 nr. 44mm x 69mm splayed horizontally softwood runners bolted with 200mm x 10mm diameter bolt with nut and washer at connection of runner and post

1000mm long x 72mm x 20mm splayed top board, fixed vertically at 144mm centres; (72mm spaces between all boards);

1050mm Vertical board (staggered height picket):

3 nr. 44mm x 69mm splayed horizontally softwood runners bolted with 200mm x 10mm diameter bolt with nut and washer at connection of runner and post

Alternate 1000mm/650mm long x 72mm x 20mm splayed top board, fixed vertically at 144mm centres (72mm spaces between all boards);

1800mm Diagonal board:

3 nr. 44mm x 69mm splayed horizontally softwood runners bolted with 200mm x 10mm diameter bolt with nut and washer at connection of runner and post;

144mm x 20mm splayed top edge, fixed diagonally (45% to horizontal) at 175mm centres, splayed ends to board;

1800mm Diagonal board (with bull-wire):

3 nr. 44mm x 69mm splayed horizontally softwood runners bolted with 200mm x 10mm diameter bolt with nut and washer at connection of runner and post;

144mm x 20mm splayed top edge, fixed diagonally (45% to horizontal) at 164mm centres, splayed ends to board (20mm spaces between all boards);

Bull-wire 3.15mm diameter (10SW) galvanised mild steel to BS 4102 stapled to horizontal runners;

Posts: for 1050mm high fencing, post to be 100mm x 100mm x 1350mm long, parallel sided , weathered in one direction, reinforced with 4 Nr 6mm diameter mild steel, bars laced with binding wire at 200mm centres, twice times holed both directions with 12mm diameter holes, Posts at 1800mm centres.. Excavation for post holes 300mm x 300mm x 425mm, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth.

Posts: for 1250mm high fencing, post to be 100mm x 100mm x 1550mm long, parallel sided , weathered in one direction, reinforced with 4 Nr 6mm diameter mild steel, bars laced with binding wire at 200mm centres, twice times holed both directions with 12mm diameter holes, Posts at 1800mm centres.. Excavation for post holes 300mm x 300mm x 425mm, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth.

Posts: for 1675mm high fencing, post to be 125mm x 125mm x 2250mm long, parallel sided , weathered in one direction, reinforced with 4 Nr 6mm diameter mild steel, bars laced with binding wire at 200mm centres, three times holed both directions with 12mm diameter holes, Posts at 1800mm centres.. Excavation for post holes 300mm x 300mm x 725mm, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth.

Posts: for 1800mm and 1875mm high fencing, post to be 125mm x 125mm x 2440mm long, parallel sided , weathered in one direction, reinforced with 4 Nr 6mm diameter mild steel, bars laced with binding wire at 200mm centres, three times holed both directions with 12mm diameter holes, Posts at 1800mm centres.. Excavation for post holes 300mm x 300mm x 800mm, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth.

Garden Rail Fencing

023 Garden rail fencing 450mm high consists of:

225mm x 50mm softwood horizontal rail with splayed top edge bolted with 150mm long x 9mm diameter bolts with nuts and washers to posts;

Concrete posts 750mm long x 75mm x 75mm with splayed top edge with two 11mm diameter holes, Excavation for post holes 300mm x 300mm x 425mm, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth.

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Cleft Chestnut Pale Fencing

- 024 1200mm high to BS 1722-4, type CW120 with 3 lines of (4 strands) twisted wire at 450mm spacing between wire and 75mm spaces between 1200mm long pales. 125mm x 125mm x 2050mm long wooden intermediate posts at 2250mm centres, 125mm x 125mm x 1870mm long wooden corner posts, 100mm x 75mm x 1830mm long wooden straining posts, post driven into earth, minimum 300mm deep

Open Mesh Steel Panel Fencing (General Purpose Grade)

- 025 Open mesh panel fencing 2000mm high consisting of:
50mm x 50mm mesh welded at each intersection, 4mm diameter wire, each mesh panel to be 3025mm wide x 2000 mm high with minimum of 2 horizontal "v" rails to provide rigidity, fixings and clamps to posts as manufacturer's technical data sheet, all wire to be green organic powder coated to BS 1722-1;
Posts: galvanised rectangular hollow section, powder coated to match mesh panels;

Metal Fencing

- 026 900mm High Steel Bow Topped Fencing constructed from:
2 no 40mm x 10mm mild steel horizontal rails with top rail holed at 112mm centres with 13mm diameter holes;
540mm girth x 40mm x 10mm intermediate mild steel support once bent and welded centrally to lower horizontal rail with 150mm x 150mm x 10mm mild steel base plate welded on;
13mm diameter mild steel Uprights with bow tops overall height 815mm welded to the 2 no horizontal rails, Uprights at max 112mm centres;
Each end of horizontal rail fixed to lug of post with 1 no 6mm diameter x 50mm long mild steel bolt with lock nut and washer.
1175mm long x 40mm x 40mm x 3.2mm mild steel hollow section intermediate posts with 4no 40mm x 10mm x 3.2mm x 50mm long lugs welded on, each lug with 6mm diameter hole, 150mm x 150mm x 10mm mild steel base plate welded on the base and solid mild steel capping welded to top of posts. Posts at 2600mm centres;
1175mm long x 40mm x 40mm x 3.2mm x 50mm long mild steel hollow section end posts with 2no 40mm x 10mm x 3.2mm lugs welded on, each lug with 6mm diameter hole, 150mm x 150mm 10mm mild steel base plate welded on and solid mild steel capping welded to top of posts;

All components to be galvanised after manufacture and assembly;

Excavation for intermediate and end post holes 300mm x 300mm x 600mm deep, and 300 x 300mm x 300mm for intermediate supports, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

- 027 1200mm High Steel Bow Topped Fencing constructed from:
2 no 40mm x 10mm mild steel horizontal rails with top rail holed at 112mm centres with 13mm diameter holes;
540mm girth x 40mm x 10mm intermediate mild steel support once bent and welded centrally to lower horizontal rail with 150mm x 150mm x 10mm mild steel base plate welded on;
13mm diameter mild steel uprights with bow tops overall height 815mm welded to the 2 no horizontal rails, Uprights at 12mm centres;
Each end of horizontal rail fixed to lug of post with 1 no 6mm diameter x 50mm long mild steel bolt with lock nut and washer.
1650mm long x 40mm x 40mm x 3.2mm mild steel hollow section intermediate posts with 4no 40mm x 10mm x 3.2mm x 50mm long lugs welded on, each lug with 6mm diameter hole, 150mm x 150mm x 10mm mild steel plate welded on the base and solid mild steel capping welded to top of posts. Posts at 2600mm centres;
1650mm long x 40mm x 40mm x 3.2mm mild steel hollow section end posts with 2no 40mm x 10mm x 3.2mm lugs welded on, each lug with 6mm diameter hole, 150mm x 150mm 10mm mild steel base plate welded on and solid mild steel capping welded to top of posts;

All components to be galvanised after manufacture and assembly;

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Excavation for intermediate and end post holes 300mm x 300mm x 600mm deep, and 300 x 300mm x 300mm for intermediate supports, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

- 028 970mm High Steel Double Bow Topped Fencing constructed from:
2 no 40mm x 10mm mild steel horizontal rails with top rail holed at 103mm centres with 13mm diameter holes;
13mm diameter mild steel Uprights with bow tops overall height 885mm welded to the 2 no horizontal rails, Uprights at 103mm centres;
Extra bow tops, 13mm diameter mild steel extra bow tops to match profile of bow tops on uprights, both ends welded to bow tops on uprights;
Each end of horizontal rail fixed to lug of post with 1 no 10mm diameter x 50mm long mild steel bolt with lock nut and washer.
1325mm long x 40mm x 40mm x 3.2mm mild steel hollow section intermediate posts with 4no 40mm x 10mm x 3.2mm x 50mm long lugs welded on, each lug with 12mm diameter hole, 150mm x 150mm x 10mm mild steel plate welded on the base and solid mild steel capping welded to top of posts. Posts at 2000mm centres;
1325mm long x 40mm x 40mm x 3.2mm mild steel hollow section end posts with 2no 40mm x 10mm x 3.2mm x 50mm long lugs welded on, each lug with 6mm diameter hole, 150mm x 150mm 10mm mild steel plate welded on the base and solid mild steel capping welded to top of posts;

All components to be galvanised after manufacture and assembly;

Excavation for intermediate and end post holes 300mm x 300mm x 600mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

- 029 1010mm High Steel Bow Topped Fencing Fixed to wall constructed from:
2 no 40mm x 10mm mild steel horizontal rails with top rail holed at 112mm centres with 13mm diameter holes;
13mm diameter mild steel Uprights with bow tops overall height 590mm welded to the 2 no horizontal rails, Uprights at 112mm centres;
Each end of horizontal rail fixed to lug of post with 1 no 6mm diameter x 50mm long mild steel bolt with lock nut and washer.
975mm long x 40mm x 40mm x 3.2mm mild steel hollow section intermediate posts with 4no 40mm x 10mm x 3.2mm x 50mm long lugs welded on, each lug with 12mm diameter hole, solid mild steel capping welded to top of posts. Posts at 1900mm centres; post grouted into prepared mortice in brickwork with cement mortar (1:4)
1325mm long x 40mm x 40mm x 3.2mm mild steel hollow section end posts with 2 no 40mm x 10mm x 3.2mm x 50mm long lugs welded on, each lug with 12mm diameter hole, solid mild steel capping welded to top of posts, end post supported by extended wall foundations;

All components to be galvanised after manufacture and assembly;

- 030 1000mm High Steel Vertical Bar Railings with separate top rail constructed from:
3 no 50mm x 30mm x 2.5mm mild steel rectangular hollow sections horizontal rails;
16mm diameter mild steel bars 610mm long, both ends welded to horizontal bars, Bars at maximum 115mm centres;
Ends of horizontal rails welded to posts;
1325mm long x 50mm x 30mm x 3.25mm mild steel rectangular hollow section post, mitre cut and butt welded to horizontal rails, with 150mm x 150mm x 10mm mild steel plate welded on base, posts to have 2 no 12mm diameter holes drilled for M10 x 75mm long galvanised steel fixings, and 3 no 12mm diameter galvanised drain holes all on the centreline of post and on both sides of panel, posts at 2000mm maximum centres;

All components to be galvanised after manufacture and assembly;

Excavation for intermediate and end post holes 300mm x 300mm x 400mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

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- 031 1000mm High Steel Vertical Bar Railings with separate top rail constructed from:
1 no 50mm x 30mm x 2.5mm mild steel rectangular hollow section horizontal rail set into sliding sockets of posts;
2 no 40mm x 12mm mild steel horizontal intermediate rails, both ends once drilled with 6mm diameter hole and bolted to lugs of posts with 6mm diameter bolts 40mm long with lock nuts and washers;
16mm diameter mild steel bars 580mm long, both ends welded to horizontal bars, Bars at maximum 115mm centres;
1325mm long x 50mm x 30mm x 3.25mm mild steel rectangular hollow section intermediate post with 4 no 40mm x 10mm x 3.2mm x 50mm long lugs welded on, each lug drilled for 6mm diameter hole, 2 no 60mm long mild steel hollow sections welded on to form sliding socket to carry 50mm x 30mm x 3.2mm mild steel hollow section top rails, with 150mm x 150mm x 10mm mild steel plate welded on base and solid mild steel capping welded to top of post, posts at 2000mm maximum centres;
1325mm long x 50mm x 30mm x 3.25mm mild steel rectangular hollow section end post with 2 no 40mm x 10mm x 3.2mm x 50mm long lug welded each lug drilled for 6mm diameter hole, 1 no 60mm long mild steel hollow sections welded on to form sliding socket to carry 50mm x 30mm x 3.2mm mild steel hollow section top rails, with 150mm x 150mm x 10mm mild steel plate welded on base and solid mild steel capping welded to top of post;

All components to be galvanised after manufacture and assembly;

Excavation for intermediate and end post holes 250mm x 250mm x 400mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

- 032 1100mm Steel Barrier Railings constructed from;
50mm x 25mm thick mild steel horizontal top rail;
50mm x 10mm mild steel horizontal bottom rail;
15mm x 15mm vertical mild steel bars 990mm long, both ends welded to horizontal rails, bars at maximum 114mm centres, Central vertical bar to extend down into concrete base;
Ends of horizontal bottom rails welded to posts, top rail welded to posts as continuous length for length of barrier – all joints in top rail welded to obtain a smooth, continuous finish;
1525mm long x 50mm x 50mm mild steel bar intermediate post welded to horizontal rails, posts at 1800mm centres;
1525mm long x 50mm x 50mm mild steel bar end post welded to horizontal rails;

All components to be galvanised after manufacture and assembly;

Excavation for centre support, intermediate and end post holes 250mm x 250mm x 400mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

- 033 1100mm High Steel Barrier Railings Fixed to Wall constructed from:
50mm x 25mm thick mild steel horizontal top rail;
50mm 10mm mild steel horizontal bottom rail;
15mm x 15mm vertical mild steel bars 990mm long, both ends welded to horizontal rails, bars at maximum 114mm centres, Central vertical bar to extend down and be grouted into 40mm x 225mm deep pocket drilled into top of existing or new 215mm thick masonry retaining wall;
Ends of horizontal bottom rails welded to posts, top rail welded to posts as continuous length for length of barrier – all joints in top rail welded to obtain a smooth, continuous finish;
1525mm long x 50mm x 50mm mild steel bar intermediate post welded to horizontal rails, intermediate posts at 1800mm centres, posts grouted into 75mm diameter x 450mm deep pockets drilled into top of existing or new 215mm thick masonry retaining walls;
1525mm long x 50mm x 50mm mild steel bar end post welded to horizontal rails, posts grouted into 75mm diameter x 450mm deep pockets drilled into top of existing or new 215mm thick masonry retaining walls;

All components to be galvanised after manufacture and assembly;

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- 034 1800mm High Steel Post Chain Link Fence constructed from:
Plastic coated steel chain link heavy pattern wire to be Grade "A" (wire core to be zinc coated) 1800mm wide fixed securely to line wires with 2mm nominal plastic coated wire ties Grade "A";
3 no strands, plastic coated zinc coated mild steel wire;
Intermediate posts, 2450mm long, 50mm x 50mm x 3.2mm mild steel rectangular hollow section with plastic insert cap, 3 times drilled for 3mm diameter plastic coated line wire, Posts at 3000mm centres;
Straining posts 2325mm long x38mm x 38mm x 2.6mm rectangular hollow section;
End posts 2450mm long x 50mm x 50mm x 3.2mm mild steel rectangular hollow section with plastic insert cap, 3 times drilled for 3mm diameter plastic coated line wire;
Stay, 2200mm long x 25mm x25mm x 2mm mild steel hollow section, 2 times obliquely drilled for 3mm diameter plastic coated line wire;
Strut, 500mm long x 25mm x25mm x 2mm mild steel hollow section, one end welded to post, other end obliquely welded to stay;

All posts, stays and struts galvanised after manufacture;

Excavation for intermediate and end post holes 450mm x 450mm x 750mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

Excavation for stay and strut post holes 700mm x 450mm x 450mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

- 035 2440mm High Steel Paladin Type Fencing constructed from:
Panels, 2440mm x 3025mm long welded mesh (6.0mm diameter horizontal wire, 5.0m diameter vertical wire), each panel having 3 "V" beams built into mesh which span horizontally acting as reinforcing rails, green coloured mesh size 200mm x 25mm;
Posts 60 x 60mm mild steel rolled hollow section, green coloured, resistance to bending 8.30m³, with threaded inserts fitted to front face, fitted with plastic insert cap, supplied with 25mm x25mm slotted clamp bars and 7 no M8 tamper resistant bolts, Posts and clamp bars polyester powder coated green at 2975mm centres;

Excavation for post holes 300mm x 300mm x 700mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

- 036 2000mm High Steel Paladin Type Fencing constructed from:
Panels, 2000mm x 3025mm long welded mesh (6.0mm diameter horizontal wire, 5.0m diameter vertical wire), each panel having 3 "V" beams built into mesh which span horizontally acting as reinforcing rails, green coloured mesh size 200mm x 25mm;
Posts 60 x 60mm mild steel rolled hollow section , green coloured, resistance to bending 8.30m³, with threaded inserts fitted to front face, fitted with plastic insert cap, supplied with 25mm x25mm slotted clamp bars and 7 no M8 tamper resistant bolts, Posts and clamp bars polyester powder coated green at 2975mm centres;

Excavation for post holes 300mm x 300mm x 700mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

Steel Palisade Fencing

- 037 2400mm High Steel Palisade fencing constructed from:
Pales, corrugated "D" section, 3mm thick galvanised steel, fixed at 152mm centres, with rounded tops to pales if adjacent to over-hanging trees or buildings, otherwise triple pointed and splayed, bottom of fence with 50mm ground clearance;
2 no 50mm x 50mm x 2.75mm galvanised steel rails, bolted with shear-nuts;
Posts, 102mm x 44mm x 7.4mm rolled steel joist (RSJ), Posts at 2.75m centres;
Fixings; Galvanised steel

All to be hot dipped galvanised to BS EN ISO 1461

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Excavation for post holes 350mm x 350mm or 450mm diameter x 750mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth; Submit manufacturer's and installer's certificates to BS 1722-12 Clause 9;

- 038 2000mm High Steel Palisade fencing constructed from:
Pales, corrugated "D" section, 3mm thick galvanised steel, fixed at 152mm centres, with rounded tops to pales if adjacent to over-hanging trees or buildings, otherwise triple pointed and splayed, bottom of fence with 50mm ground clearance;
2 no 50mm x 50mm x 2.75mm galvanised steel rails, bolted with shear-nuts;
Posts, 102mm x 44mm x 7.4mm rolled steel joist (RSJ), Posts at 2.75m centres;
Fixings; Galvanised steel

All to be hot dipped galvanised to BS EN ISO 1461

Excavation for post holes 350mm x 350mm or 450mm diameter x 750mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth; Submit manufacturer's and installer's certificates to BS 1722-12 Clause 9;

Timber Gates

- 039 Timber single leaved Gates 844mm x 1000mm high constructed from:
2no 44mm x 69mm softwood runners splayed horizontal;
5 no 1000mm long x 144mm x20mm softwood vertical boards at 175mm centres;
1 no 44mm x 69mm softwood brace splayed horizontally and fixed diagonally (upwards from hinged side);
All nailed together with 51mm long x 3.3mm galvanised plain headed nails (or 55mm x 2.1mm Ring shank galvanised nails);
Hinges, 2 no 300mm x 40mm x 4mm bat and band hinges, coach bolted with nut, and with 3 no 4.1mm diameter countersunk holes at 100mm centres and screwed;
Hook Plates, 2 no 100mm x 50mm x4mm with 12mm diameter solid mild steel pin welded on face to suit hinge, plate four times holed with 4.1mm diameter holes and screwed to vertical timber rail, top pin to pint upwards, bottom pin to point downwards;
Catch, bright zinc coated mild steel trip catch;
Gate stop, 2 no 1000mm long 20mm softwood fence boards returned to meet gate at both sides, nailed to vertical rail and end of runners. ;
Softwood 850mm long x 50mm x 100mm vertical rail bolted to side of gate post with 2 no 200mm long x 10mm diameter bolts with nut and washer, bolts trimmed flush with nut after fitting and touch painted;

If Required:

Gate Posts; 2 no 1350mm long x 100mm x 100mm precast concrete gate post, weathered in one direction, reinforced with 4 no 6mm diameter mild steel bars laced with binding wire at 200mm centres, twice holed in each direction with 12mm diameter holes;

Excavation for post holes 300mm x 300mm x 550mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

- 040 Timber single leaved Gates 855mm x 1600mm high constructed from:
3 no 44mm x 69mm softwood runners splayed horizontal;
5 no 1600mm long x 144mm x20mm softwood vertical boards at 175mm centres;
2 no 44mm x 69mm softwood brace splayed horizontally and fixed diagonally (upwards from hinged side);
All nailed together with 51mm long x 3.3mm galvanised plain headed nails (or 55mm x 2.1mm Ring shank galvanised nails);
Hinges, 2 no 300mm x 40mm x 4mm bat and band hinges, coach bolted with nut, and with 3 no 4.1mm diameter countersunk holes at 100mm centres and screwed ;
Hook Plates, 2 no 100mm x 50mm x4mm with 12mm diameter solid mild steel pin welded on face to suit hinge, plate four times holed with 4.1mm diameter holes and screwed to vertical timber rail, top pin to pint upwards, bottom pin to point downwards;

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Bolt: 250mm bright zinc mild steel padlock bolt, two vertical boards cut to form a 100mm diameter hole allow access to bolt from outside;
Gate stop, 2 no 1600mm long x 20mm softwood fence boards returned to meet gate at both sides, nailed to vertical rail and end of runners.;

Softwood 1500mm long x 50mm x 100mm vertical rail bolted to side of gate post with 3 no 200mm long x 10mm diameter bolts with nut and washer, bolts trimmed flush with nut after fitting and touch painted;

If Required:

Gate Posts; 2 no 2250mm long x 125mm x 125mm precast concrete gate post, weathered in one direction, reinforced with 4 no 6mm diameter mild steel bars laced with binding wire at 200mm centres, three times holed in each direction with 12mm diameter holes;

Excavation for post holes 300mm x 300mm x 550mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

- 041 Timber single leaved Gates 855mm x 1800mm high constructed from:
3 no 44mm x 69mm softwood runners splayed horizontal;
5 no 1800mm long x 144mm x 20mm softwood vertical boards at 178mm centres;
2 no 44mm x 69mm softwood splayed horizontally and fixed diagonally (upwards from hinged side) brace;
All nailed together with 51mm long x 3.3mm galvanised plain headed nails (or 55mm x 2.1mm Ring shank galvanised nails);
Hinges, 2 no 300mm x 40mm x 4mm bat and band hinges, coach bolted with nut, and with 3 no 4.1mm diameter countersunk holes at 100mm centres and screwed;
Hook Plates, 2 no 100mm x 50mm x 4mm with 12mm diameter solid mild steel pin welded on face to suit hinge, plate four times holed with 4.1mm diameter holes and screwed to vertical timber rail, top pin to pint upwards, bottom pin to point downwards;
Bolt: 250mm bright zinc mild steel padlock bolt, two vertical boards cut to form a 100mm diameter hole allow access to bolt from outside;
Gate stop, 2 no 1800mm long x 20mm softwood fence boards returned to meet gate at both sides, nailed to vertical rail and end of runners.;
- Softwood 1700mm long x 50mm x 100mm vertical rail bolted to side of gate post with 3 no 200mm long x 10mm diameter bolts with nut and washer, bolts trimmed flush with nut after fitting and touch painted;

If Required:

Gate Posts; 2 no 2250mm long x 125mm x 125mm precast concrete gate post, weathered in one direction, reinforced with 4 no 6mm diameter mild steel bars laced with binding wire at 200mm centres, three times holed in each direction with 12mm diameter holes;

Excavation for post holes 300mm x 300mm x 550mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

- 042 Timber single leaved Gates 855mm x 1750mm high Diagonal Boards constructed from:
3 no 44mm x 69mm softwood runners splayed horizontal;
144mm x 20mm softwood diagonal boards at 175mm centres;
2 no 44mm x 69mm softwood braces splayed horizontally and fixed diagonally (upwards from hinged side);
All nailed together with 51mm long x 3.3mm galvanised plain headed nails (or 55mm x 2.1mm Ring shank galvanised nails);
Hinges, 2 no 300mm x 40mm x 4mm bat and band hinges, coach bolted with nut, and with 3 no 4.1mm diameter countersunk holes at 100mm centres and screwed;
Hook Plates, 2 no 100mm x 50mm x 4mm with 12mm diameter solid mild steel pin welded on face to suit hinge, plate four times holed with 4.1mm diameter holes and screwed to vertical timber rail, top pin to pint upwards, bottom pin to point downwards;
Catch, bright zinc coated mild steel trip catch;
Bolt: 250mm bright zinc mild steel padlock bolt, one diagonal board cut to form hand grip;
Gate stop, 2 no 20mm x 95mm softwood fence boards returned to meet gate at both sides, nailed to vertical rail and end of runners.;
- Softwood 1600mm long x 50mm x 100mm vertical rail bolted to side of gate post with 3 no 200mm long x 10mm diameter bolts with nut and washer;

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If Required:

Gate Posts; 2 no 2250mm long x 125mm x 125mm precast concrete gate post, weathered in one direction, reinforced with 4 no 6mm diameter mild steel bars laced with binding wire at 200mm centres, three times holed in each direction with 12mm diameter holes;

Excavation for post holes 300mm x 300mm x 550mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

- 043 Timber two leaved Gates each leaf 1205mm x 1000mm high constructed from:
2 no 44mm x 69mm softwood runners splayed horizontal;
7 no 1000mm long x 144mm x 20mm softwood vertical boards at 175mm centres;
2 no 44mm x 69mm softwood braces splayed horizontally and fixed diagonally (upwards from hinged side);
All nailed together with 51mm long x 3.3mm galvanised plain headed nails (or 55mm x 2.1mm Ring shank galvanised nails);
Hinges, 2 no 300mm x 40mm x 4mm bat and band hinges, coach bolted with nut, and with 3 no 4.1mm diameter countersunk holes at 100mm centres and screwed;
Hook Plates, 2 no 100mm x 50mm x 4mm with 12mm diameter solid mild steel pin welded on face to suit hinge, plate four times holed with 4.1mm diameter holes and screwed to vertical timber rail, top pin to pint upwards, bottom pin to point downwards;
Catch, bright zinc coated mild steel trip catch;
Bolt: 250mm bright zinc mild steel padlock bolt, and drop bolt with ground socket to each leaf
Gate stop, 1 no 20mm x 95mm softwood fence boards returned to meet gate at both sides, nailed to vertical rail and end of runners.;

Steel Gates

- 044 Steel single leaved Bow Topped gate 910mm x 825mm high constructed from:
40mm x 10mm mild steel frame surround with top rail holed at 112mm centres with 13mm diameter holes; top and bottom rails to over-run gate width on hinge side for form gate hanging lugs, each lug with 6mm diameter hole, gate fixed to lugs of post with 2 no 6mm diameter x 40mm long hardened steel zinc plated hexagon bolts (half threaded) with lock nut and washers;
13mm diameter mild steel uprights with bow tops overall height 815mm, welded to horizontal top and bottom rails;
2 no 40mm x 10mm x 50mm long mild steel lugs, welded to gate frame;
100mm long x 90mm x 10mm mild steel plate as stop, rounded corners on exposed side and welded to gate frame;
Bolt, 12mm mild steel bolt with handle holed for padlock and 10mm thick back-plate, welded to gate frame and uprights, keeper designed to receive bolt and to be fitted on site with self-tapping/taping bolts;

All galvanised after manufacturer, and painted on site;

If Required:

Gate posts, 2 no 1175mm long x 40mm x 40mm x 3.2mm mild steel hollow section with 40mm wide x 10mm x 50mm mild steel lugs welded on to posts, each lug drilled for 6mm diameter bolt, 150mm x 150mm x 10mm mild steel base plate welded to bottom of posts, and solid mild steel capping welded to top;

Excavation for post holes 300mm x 300mm x 550mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

Hangers for fixing to end posts, 2 no 40mm wide x 10mm x 50mm lugs, once holed for hanging lug, one end welded to end post;

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- 045 Steel two leaved Bow Topped gate each 1227mm x 825mm high constructed from:
40mm x 10mm mild steel frame surround with top rail holed at 112mm centres with 3mm diameter holes;
top and bottom rails to over-run gate width on hinge side for form gate hanging lugs, each lug with 6mm
diameter hole, gate fixed to lugs of post with 2 no 6mm diameter x 40mm long hardened steel zinc plated
hexagon bolts (half threaded) with lock nut and washers;
13mm diameter mild steel uprights with bow tops overall height 815mm, welded to horizontal top and bottom
rails;
2 no 40mm x 10mm x 50mm long mild steel lugs, welded to gate frame;
100mm long x 90mm x 10mm mild steel plate as stop, rounded corners on exposed side and welded to gate
frame;
Bolt one leaf only, 12mm mild steel bolt with handle holed for padlock and 10mm thick back-plate, welded
to gate frame and uprights, keeper designed to receive bolt and to be fitted on site with self-tapping/taping
bolts;
Drop bolt with ground sockets on 315mm 70mm x 10mm mild steel back plate welded to both gates;

All galvanised after manufacturer, and painted on site;

If Required:

Gate posts, 2 no 1175mm long x 40mm x 40mm x 3.2mm mild steel hollow section with 40mm wide x 10mm
x 50mm mild steel lugs welded on to posts, each lug drilled for 6mm diameter bolt, 150mm x 150mm x 10mm
mild steel base plate welded to bottom of posts, and solid mild steel capping welded to top;

Excavation for post holes 300mm x 300mm x 550mm deep, 75mm concrete base, backfilled with concrete to
depth 100mm below finished ground level, remainder selected earth;

Hangers for fixing to end posts, 2 no 40mm wide x 10mm x 50mm lugs, once holed for hanging lug, one end
welded to end post;

- 046 Steel single leaved gate 900mm x 850mm high constructed from:
25mm x 25mm 3mm mild steel angle frame surround with corners mitred and welded;
7 no 10mm x 10mm mild steel balusters with ends welded to horizontal top and bottom rails;
2 no 75mm girth x 6mm diameter mild steel hanging lugs, once bent, welded to gate frame;
Bolt, 130mm long x 10mm x 10mm mild steel with stop welded on, 225mm girth semi-circular support with
ends welded to frame, support and frame holed for bolt;
115mm long x 38mm x 38mm x 3mm mild steel angle as stop for fixing to concrete post rounded on four
corners and holed for bolt, welded to 125mm long x 12mm diameter mild steel bolt with lock nut and washer
and washer welded on as spot-welded to gate frame;
115mm long x 38mm x 38mm x 3mm mild steel angle as stop for fixing to brickwork rounded on four corners
and holed for bolt, welded to 2 no 150mm long a 19mm x 5mm mild steel hanger having fishtailed end;

All galvanised after manufacturer, and painted on site;

Hangers for fixing to concrete post; 2 no x 450mm girth x 38mm x 6mm straps, each six times bent and
twice holed for and closed with 6mm diameter bolts 50mm long with lock nut and washer, and having 25mm
x 6mm diameter tube welded on;

Hangers for fixing to brickwork; 200mm girth x 12mm diameter hanger, fishtailed one end, other end bent
for lug;

- 047 Steel two leaved gate each leaf 1205mm x 850mm high constructed from:
25mm x 25mm 3mm mild steel angle frame surround with corners mitred and welded;
10 no 10mm x 10mm mild steel balusters with ends welded to horizontal top and bottom rails;
2 no 75mm girth x 6mm diameter mild steel hanging lugs, once bent, welded to gate frame;
Bolt on one leaf only, 130mm long x 10mm x 10mm mild steel with stop welded on, 225mm girth semi-
circular support with ends welded to frame, support and frame holed for bolt, other leaf holed for bolt;
Barrel bolt, one leaf only, 375mm long with socket;
Stop one leaf only, 200mm long x 50mm x 6mm;

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All galvanised after manufacturer, and painted on site;

Hangers for fixing to concrete post; 2 no x 450mm girth x 38mm x 6mm straps, each six times bent and twice holed for and closed with 6mm diameter bolts 50mm long with lock nut and washer, and having 25mm x 6mm diameter tube welded on;

Hangers for fixing to brickwork; 200mm girth x 12mm diameter hanger, fishtailed one end, other end bent for lug;

- 048 Paladin single gates 1065mm x 2000mm constructed from:
Gate frame, 50mm x 50mm x 3mm powder coated galvanised mild steel with mesh as Clause 035 clamped to same with 6 no tamperproof bolts and threaded nut inserts, gate complete with adjustable hinges, drop bolt, ground sockets and latch incorporating slip-bolt for Client's padlock, Colour to be agreed with the Client's Representative.

If Required:

Gate posts, 80mm x 80mm x 6mm mild steel rolled hollow sections;

Excavation for post holes 500mm x 500mm x 600mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

Submit manufacturer's and installers certificates to BS 1722 Part 12 Clause 9.

- 049 Paladin double gates 3600mm x 2000mm constructed from:
Gate frame, 50mm x 50mm x 3mm powder coated galvanised mild steel with mesh as Clause 035 clamped to same with 6 no tamperproof bolts and threaded nut inserts, gates complete with adjustable hinges, drop bolt, ground sockets and latch incorporating slip-bolt complete with 65mm padlock fixed by welding to gate frame with chain (links 40mm x 20mm x 5mm), Colour to be agreed with the Client's Representative.

If Required:

Gate posts, 200mm x 200mm x 6mm mild steel rolled hollow sections;

Excavation for post holes 600mm x 600mm x 750mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

Submit manufacturer's and installers certificates to BS 1722 Part 12 Clause 9.

- 050 Paladin double gates 5880mm x 2000mm constructed from:
Gate frame, 50mm x 50mm x 3mm powder coated galvanised mild steel with mesh as Clause 035 clamped to same with 6 no tamperproof bolts and threaded nut inserts, gates complete with adjustable hinges, drop bolt, ground sockets and latch incorporating slip-bolt complete with 65mm padlock fixed by welding to gate frame with chain (links 40mm x 20mm x 5mm), Colour to be agreed with the Client's Representative.

If required:

Gate posts, 200mm x 200mm x 6mm mild steel rolled hollow sections;

Excavation for post holes 600mm x 600mm x 750mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

Submit manufacturer's and installers certificates to BS 1722 Part 12 Clause 9.

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- 051 Paladin single gates 1065mm x 2440mm constructed from:
Gate frame, 50mm x 50mm x 3mm powder coated galvanised mild steel with mesh as Clause 035 clamped to same with 6 no tamperproof bolts and threaded nut inserts, gate complete with adjustable hinges, drop bolt, ground sockets and latch incorporating slip-bolt for Client's padlock, Colour to be agreed with the Client's Representative.
- If required:
- Gate posts, 80mm x 80mm x 6mm mild steel rolled hollow sections;
- Excavation for post holes 500mm x 500mm x 600mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;
- Submit manufacturer's and installers certificates to BS 1722 Part 12 Clause 9.
- 052 Paladin double gates 5880mm x 2440mm constructed from:
Gate frame, 50mm x 50mm x 3mm powder coated galvanised mild steel with mesh as Clause 035 clamped to same with 6 no tamperproof bolts and threaded nut inserts, gates complete with adjustable hinges, drop bolt, ground sockets and latch incorporating slip-bolt for Client's padlock, Colour to be agreed with the Client's Representative.
- If Required:
- Gate posts, 200mm x 200mm x 6mm mild steel rolled hollow sections;
- Excavation for post holes 600mm x 600mm x 750mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;
- Submit manufacturer's and installers certificates to BS 1722 Part 12 Clause 9.
- 053 Palisade single gate 900mm or 1200mm x 2000mm high constructed from:
Pales, D section, 3mm fixed at 152mm centres, with rounded tops to pales if adjacent to over-hanging trees or buildings, otherwise triple pointed and splayed,
2 no 50mm x 50mm x 2.75mm steel rails bolted with shear-nuts;
Gate complete with adjustable hinges welded to gate and to post,
Lockable slip bolt and keep welded to gate and post,
Drop bolt welded to gate and keep cast into road surfacing
Fixings; Galvanised steel;
All to be hot dipped galvanised to BS EN ISO 1461
Colour: to be agreed with the Client's Representative.
- If Required:
- Posts, 100mm x 100mm x 8mm rolled steel square section;
- Excavation for post holes 400mm x 400mm x 750mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;
- Submit manufacturer's and installers certificates to BS 1722 Part 12 Clause 9
- 054 Palisade single gate 1065mm x 2400mm high constructed from:
Pales, D section, 3mm fixed at 152mm centres, with rounded tops to pales if adjacent to over-hanging trees or buildings, otherwise triple pointed and splayed,
2 no 50mm x 50mm x 2.75mm steel rails bolted with shear-nuts;
Gate complete with adjustable hinges welded to gate and to post,
Lockable slip bolt and keep welded to gate and post,
Drop bolt welded to gate and keep cast into road surfacing
Fixings; Galvanised steel
All to be hot dipped galvanised to BS EN ISO 1461
Colour: to be agreed with the Client's Representative.

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If Required:

Posts, 100mm x 100mm x 8mm rolled steel square section;

Excavation for post holes 450mm x 450mm x 600mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

Submit manufacturer's and installers certificates to BS 1722 Part 12 Clause 9

- 055 Palisade pair of gate 3000mm x 2000mm high constructed from:
Pales, D section, 3mm fixed at 152mm centres, with rounded tops to pales if adjacent to over-hanging trees or buildings, otherwise triple pointed and splayed,
2 no 50mm x 50mm x 2.75mm steel rails bolted with shear-nuts;
Gate complete with adjustable hinges welded to gate and to post,
Lockable slip bolt and keep welded to gate and post,
Drop bolt welded to gate and keep cast into road surfacing
Fixings; Galvanised steel
All to be hot dipped galvanised to BS EN ISO 1461
Colour: to be agreed with the Client's Representative.

If Required:

Posts, 100mm x 100mm x 8mm rolled steel square section;

Excavation for post holes 600mm x 600mm x 750mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

Submit manufacturer's and installers certificates to BS 1722 Part 12 Clause 9

- 056 Palisade pair of gate 5880mm x 2000mm high constructed from:
Pales, D section, 3mm fixed at 152mm centres, with rounded tops to pales if adjacent to over-hanging trees or buildings, otherwise triple pointed and splayed,
2 no 50mm x 50mm x 2.75mm steel rails bolted with shear-nuts;
Gate complete with adjustable hinges welded to gate and to post,
Lockable slip bolt and keep welded to gate and post,
Drop bolt welded to gate and keep cast into road surfacing
Fixings; Galvanised steel
All to be hot dipped galvanised to BS EN ISO 1461
Colour: to be agreed with the Client's Representative.

If Required:

Posts, 200mm x 200mm x 8mm rolled steel square section;

Excavation for post holes 600mm x 600mm x 750mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

Submit manufacturer's and installers certificates to BS 1722 Part 12 Clause 9.

- 057 Palisade single gate 1065mm x 2400mm high constructed from:
Pales, D section, 3mm fixed at 152mm centres, with rounded tops to pales if adjacent to over-hanging trees or buildings, otherwise triple pointed and splayed,
2 no 50mm x 50mm x 2.75mm steel rails bolted with shear-nuts;
Gate complete with adjustable hinges welded to gate and to post,
Lockable slip bolt and keep welded to gate and post,
Drop bolt welded to gate and keep cast into road surfacing
Fixings; Galvanised steel
All to be hot dipped galvanised to BS EN ISO 1461
Colour: to be agreed with the Client's Representative.

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If Required:

Posts, 100mm x 100mm x 8mm rolled steel square section;

Excavation for post holes 400mm x 400mm x 600mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

Submit manufacturer’s and installers certificates to BS 1722 Part 12 Clause 9

- 058 Palisade pair of gate 5880mm x 2440mm high constructed from:
 Pales, D section, 3mm fixed at 152mm centres, with rounded tops to pales if adjacent to over-hanging trees or buildings, otherwise triple pointed and splayed,
 2 no 50mm x 50mm x 2.75mm steel rails bolted with shear-nuts;
 Gate complete with adjustable hinges welded to gate and to post,
 Lockable slip bolt and keep welded to gate and post,
 Drop bolt welded to gate and keep cast into road surfacing
 Fixings; Galvanised steel
 All to be hot dipped galvanised to BS EN ISO 1461
 Colour: to be agreed with the Client’s Representative.

If Required:

Posts, 200mm x 200mm x 8mm rolled steel square section;

Excavation for post holes 600mm x 600mm x 750mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

Submit manufacturer’s and installers certificates to BS 1722 Part 12 Clause 9.

Client’s current manufacturers/suppliers/products

- 059 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand Name	Manufacturer’s Details

[complete table as appropriate]

DRAINAGE

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DRAINAGE

MATERIALS

Gullies

001 Ensure grating, sealing plates and other metal accessories used are cast iron.

Gullies are to be:

Roddable trapped clay gullies are to be to BS EN 295 with vertical back inlet, 100mm diameter outlet, galvanised 150mm x 150mm cast iron grating and concrete bed and surround;

Roddable plastic trapped gully with horizontal back inlet, 100mm outlet, grating to suit and concrete (GEN3) bed and surround;

Roddable plastic trapped gully with vertical back inlet, 100mm outlet, grating to suit and concrete (GEN3) bed and surround;

Cast iron footway gully 300mm long, 230mm wide x 280mm deep channelled with 100mm diameter outlet and rodding eye, complete with hinged cast iron grating and concrete (GEN3) bed and surround;

Road gullies for connection to combined sewage or storm-water systems are to be precast concrete gully chamber, 375mm diameter internal diameter, 750mm deep with 150mm trapped outlet and rodding eye and stopper to BS 5911-6, kite marked certified complete with cast iron gully grating and frame to BS EN 124 Class D400, kite marked certified, hinged at one end so that it cannot be removed from frame, and concrete bed and surround;

Road gullies for use with precast channels are to be precast concrete gully chamber, 375mm diameter internal diameter, 750mm deep with 150mm trapped outlet and rodding eye and stopper to BS 5911-6 and frame to BS EN 124 Class D400, kite marked certified, hinged at one end so that it cannot be removed from frame, and concrete bed and surround;

Galvanised cast iron gully gratings are to be 150mm square;

Plastic gully gratings are to be 190mm diameter;

Dished cast iron gratings and frames for use at pedestrian areas are to be BS EN124 Class B125 kite marked certified at one end so that it cannot be removed from frame;

Precast Concrete gully fenders or surround kerbs are to fit around a 150mm square gully and be bedded solidly in cement sand mortar (1:3) centrally over the gully;

Granular beddings

002 Ensure granular bedding for pipes is:

Class B granular bedding consisting of broken stone or gravel to BS EN 12620 graded 20mm to 5mm for pipes up to 525mm diameter and 40mm to 5mm for pipes over 525mm diameter.

Class S granular surround consisting of broken stone or gravel to BS EN 12620 graded 10mm to 5mm

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Bricks for manholes etc.,

- 003 Ensure bricks for manholes are:
- Class B clay engineering bricks conforming to BS EN 721-1; or
 - Concrete bricks conforming to BS EN771-3.

Manhole Ironwork

- 004 General purpose pattern galvanised malleable cast iron manhole step irons with 230mm long tails to BS 13101 Type D Class 1, to be inserted during construction of brickwork to manholes;

Galvanised malleable cast iron precast concrete manhole pattern with 80mm tails to BS EN 13101 for precast concrete manholes.

Manhole ladders are to be installed to BS EN 14396 if invert of manhole deeper than 3.0m;

Where Instructed to be installed handrails for the edge of benching shall be formed from 25mm diameter solid mild steel bar, galvanised after manufacture in accordance with BS EN ISO 1461

Manhole safety chains are to be galvanised mild steel short link chain to BS 6405 Class 1 with one end securely attached to a 16mm diameter galvanised mild steel eyebolt and the other end securely fastened to a suitable galvanised wrought iron hook for attaching to similar eyebolts; Safety chains are to be installed where the diameter of the outgoing pipe is 600mm or greater;

Access ladders to manholes are to be mild steel to BS EN 14396 galvanised after fabrication with 64mm x 19mm stringers and 25mm diameter bar rungs, galvanised surface coating to be at least 85 microns thick;

Precast Manhole Components

- 005 Precast concrete manhole rings are to comply with BS 5911-3, with bitumen coated joints or preformed jointing strips applied in accordance with the manufacturer's technical data sheet to ensure watertight joints;

Precast concrete inspection chambers sections with internal dimension 450mm x 600mm to BS EN 5911-4, with bitumen coated joints or preformed jointing strips applied in accordance with the manufacturer's technical data sheet to ensure watertight joints;

Clean all lifting holes in precast units and grout with cement mortar;

Do not use step irons for hoisting or lowering components;

Precast concrete cover slabs are to comply with BS 5911-3 and are to be reinforced with 12mm diameter mild steel bars at 150mm centres both ways.

Manhole Covers and Frames

- 006 Manhole covers and frames are to be non-ventilating, and be to the requirements of BS EN 124 and BS 7903, bedded on a gauged Class 1 (3:1) sand/cement mortar centrally over opening, level with surrounding finishes and square with joints in surrounding finishes or with any adjacent buildings.

Covers and frames to inspection chambers on house drainage (no vehicular loading) are to be class A15, galvanised steel single seal type covers, key lifted with four brass locking screws, 600mm x 450mm clear opening.

Covers and frames to inspection chambers on house drainage located in driveways /hard-standings are to be Class B125, black coated with 610mm clear opening with single seal, kite marked certified.

Covers and frames to manholes not adjacent to carriageways are to be Class B125, ductile iron black coated with 675mm clear opening with single seal, kite marked certified manholes for foul and surface water drains must have the letters FS and SW respectively cast on the lids, the letters must not be less than 35mm high.

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Covers and frames to manholes in carriageways and public footpaths adjacent to carriageways are to be Class D400, ductile iron black coated single seal with 675mm clear opening, kite marked certified, manholes for foul and surface water drains must have the letters FS and SW respectively cast on the lids, the letters must not be less than 35mm high.

Manhole Channels

007 Manhole Channels generally:

Form main channel invert for sizes up to and including 300mm diameter with vitrified clay, precast concrete or PVC-u channel with secure anchorage system. Form channel invert for pipes over 300mm diameter in granolithic (cement, sand, 20mm coarse aggregate (1:1:2) concrete 50mm thick, laid over concrete benching and trowelled smooth, the depth of the main channel must not be less than the diameter of the largest pipe;

Vitrified clay channels shall comply with BS EN 295-1, kite marked certified, and bedded and pointed in cement mortar (1:3)

Precast concrete channels sections shall comply with BS 5911-1, kite marked certified, and bedded and pointed in cement mortar (1:3)

Plastic Inspection Chambers

008 Plastic inspection chambers are to be 450mm diameter chamber with preformed channels to BS EN 13598-1 (in grassed areas) and BS 13598-2 (in roads and deep underground), installed in accordance with the manufacturer's technical data sheet;

Plastic inspection chambers risers with sealing ring are to be 450mm diameter chamber with preformed channels to BS EN 13598-1 (in grassed areas) and BS 13598-2 (in roads and deep underground), height of riser, overall height 460mm effective height 235mm installed in accordance with the manufacturer's technical data sheet;

Precast Concrete Inspection Chambers

009 Precast concrete inspection chambers are to be sectional units with internal dimension 450 x 600mm to BS 5911-4, set on and including 150mm concrete (Gen 3) base, make all joints between chamber sections with watertight using either a bituminous coating or a preformed jointing strip.

Cover and frame to be either to BS EN 124 Class A15 for house drainage with no vehicular loading, galvanised steel single seal flat type cover and frame, key lifted with 4 brass locking screws, 600 x 450mm clear opening, bedded in 1:3 cement mortar centrally over the opening, and level with surrounding finished, and aligned with joints of paving etc.,

Or

Cover and frame to be to BS EN 124 Class B125 for house drainage with vehicular loading with single seal black coated with 610 mm clear opening, bedded in 1:3 cement mortar centrally over the opening, and level with surrounding finish.

Step irons to be to BS EN 13101 to be inserted where depth of chamber greater than 600mm.

Pipelines

010 Pipes shall be constructed from:

Clay pipes, bends and junctions for foul or combined drainage are to be vitrified clay to BS EN 285-3 with flexible joints, kite marked certified.

Clay pipes, bends and junctions for storm-water drainage are to be vitrified clay to BS 65 with flexible joints, kite marked certified.

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Plastic pipes, bends and junctions for foul or storm drainage are to be PVC-u to BS EN 13598-1 and BS EN 1401-1 with flexible joints, kite marked certified.

Concrete pipes, bends and junctions are to be to BS EN 591101 and BS EN 1916 with flexible joints, kite marked certified, strength Class 120.

Linear Drainage Channels

011 Linear drainage channels shall be constructed from:

Proprietary precast concrete linear channel 155mm x 80mm deep x 1000mm long, with galvanised mild steel mesh locking grating, loading Class A15 to BS EN 124, maximum mesh width 10mm, channel to be bedded and haunched with concrete.

Polypropylene "U" section linear channel 100mm x 75mm deep x 1000mm long and black plastic grating to BS EN 1433 loading grade A15 for pedestrian use, complete with vertical outlet to suit 110mm diameter PVC-u main drainage pipe, and end caps as required, channel to be bedded and haunched with concrete.

Road Gully Gratings

012 Road gully gratings and frames are to be "hinged" heavy duty ductile iron minimum grade D400 in accordance with BS EN 124 and be BSI kite marked.

Septic Tanks

013 Septic Tanks to single dwellings are to be:

Proprietary pre-fabricated septic tank with lockable cover, capacity 3600 litres, with 110mm diameter inlet and outlet pies, and 100mm diameter vent pipe terminating 800mm above ground with a non-return air admittance valve, tanks to be designed and installed in accordance with the recommendations of BS EN 12566-3 and BBA certified or equivalent, the design of the tank shall be such that sludge cannot be discharged through the outlet in any circumstances.

Channel gratings are to be galvanised mild steel square mesh gratings and set in position.

WORKMANSHIP

Setting out

014 Set out all drains as Instructed by the Client's Representative and provide all profiles, etc., necessary for the execution of the Works.

Existing drains

015 Check the invert levels of existing drains, sewers and manholes before laying new drains. Notify the Client's Representative immediately if the declared invert levels are found to be inaccurate.

016 Before commencing excavation to expose existing drains, determine the exact line and level of the drain by excavating trial holes by hand. In any case carry out the final 300mm of excavation to expose the pipe by hand to ensure that adjacent lengths of pipe are not damaged by Equipment.

Excavation

017 Excavate trenches for pipes to a sufficient depth and width to enable the pipe and the specified joint, bed, haunch and surround to be accommodated.

Ensure that the widths of trenches are within the limits shown in the table below, to a minimum 300mm above the top of the pipe barrel.

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The minimum width is that width between the faces of the soil required to ensure the correct placing and compaction of bedding material equally on either side of the pipe. All sheeting and supports are outside this width.

The maximum width is that width between the faces of the soil which has been used in the structural design of the pipeline and it includes an allowance for sheeting and tolerance.

Nominal Internal Diameter of Pipe	Minimum Trench Width	Maximum Trench Width
(mm)	(mm)	(mm)
100	430	630
150	490	690
225	580	780
300	680	880
375	950	1150
450	1030	1230
525	1120	1320
600	1240	1440
675	1330	1530
750	1400	1600
825	1490	1690
900	1920	2120
1050	2100	2300
1200	2290	2490
Above 1200mm	Outside diameter of pipe plus 800mm	Outside diameter of pipe plus 1000mm

Thin the bottoms of all excavations and consolidate to the correct levels. Fill unauthorised excavations below the required levels with Materials of the same composition as for drain beds.

Where the bottom is insufficiently firm, excavate until, in the Client’s Representative’s opinion, a firm bottom is obtained. Make up the level with Materials of the same composition as for drain beds or with a layer of concrete blinding if so Instructed by the Client’s Representative.

Agree the particulars of such additional Works with the Client’s Representative before covering up the Works, otherwise no payment is to be made for such additional Work.

Planking and strutting

- 018 Take care not to undermine the foundations of buildings. If so Instructed by the Client’s Representative, plank and strut or adopt other means to protect the foundations.

Backfilling

- 019 Backfill trenches to sewers immediately the preceding operations have been completed. Do not backfill trenches for house drains before these have been inspected by Building Control.

No backfilling is to be placed in trenches containing water, In trenches in footways, gardens or open country, backfill with selected excavated materials. Selected excavated materials to be readily compactable material, free from tree roots, vegetable matter, building rubbish, frozen soil, clay lumps retained on a 75mm sieve.

Backfill may be placed by machine provided the method of operation ensures that the material slides or rolls into position and does not drop from a height.

Compact backfill materials in layers not exceeding 300mm thick but do not use heavy compactors before there is 500mm of material over pipe.

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- 020 Make good any subsidence causing damage in surfaces or to adjoining structures that occurs after backfilling.
- 021 Rectify all damage caused to pipework during backfilling.

Concrete beds and surrounds to precast concrete manholes and road gullies

- 022 Concrete bed to precast concrete manhole rings is to be 150mm thick grade GEN3 concrete, laid on 75mm concrete grade 10 lean mix blinding concrete.
- 023 Concrete surround to precast concrete manhole rings is to be 150mm thick grade GEN3 concrete.
- 024 Bed and surrounds to road gullies to be 150mm thick grade GEN3 concrete.

Concrete beds, haunching and surround to drain pipes with rigid joints

- 025 Ensure beds are;
- a minimum of 150mm thick below the pipes;
 - of the widths described in this Specification or the Schedule of Rates; and
 - finished to the correct gradients.
- 026 After testing, haunch up the drains on both sides in similar concrete to half the diameter of the pipe. Where so Instructed entirely surround vertical clayware drains and other drains with concrete 150mm thick. Set all gullies, shoes, etc., on a base of similar concrete 150mm thick and the sides encased in concrete GEN3 150mm thick.
- 027 Provide flexible cleavage planes at each joint by means of 25mm thick bitumen impregnated fibreboard through the entire concrete surround.

Concrete beds and surrounds to clay and PVC-u drain pipes with flexible joints

- 028 Ensure concrete beds and surround to drain pipes with flexible joints are as described in this Specification.

Granular beds and surrounds to drain/sewer pipes with flexible joints

- 029 Dig out hard obstructions and soft pockets and remove the excavated materials. Fill the resultant void with granular bedding and consolidate it. Lay 75mm concrete blinding where trenches are in made up ground, or wet conditions are encountered.
- 030 Ensure drains specified to be "bedded and surround in granular material" are laid on a bed of granular material 150mm deep, spread and compacted and finished to the correct gradients and to the correct widths as Instructed by the Client's Representative. When compacted, form socket holes in the bedding material sufficient to allow the full length of pipe barrels only to rest on them.
- 031 After bedding, aligning, levelling and testing the drain pipes, place further granular bedding evenly and consecutively on each side to half way up the pipe. Then protect the pipe by a layer of similar granular bedding carefully consolidated by hand to 150mm above the top of the pipe for the full width of the trench.
- 032 Ensure backfilling for the next 300mm is with normal excavated Materials as described under the "Backfilling" Paragraph, and carried out by hand with no mechanical ramming.
- 033 Ensure backfilling for the next 300mm after that is with normal excavated Materials as described under the "Backfilling" Paragraph, and carried out by hand and/or light mechanical ramming.

Laying drains

- 034 Lay drains in straight lines to an even gradient from point to point, each pipe being "boned in" and the whole accurately laid and butted closely together at the joints.

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- 035 Set drain pipes passing through foundations so that a flexible drain joint is not more than 150mm from the face of the wall foundations or manholes with a further joint 600mm from the last joint.
- 036 Commence drains at the lowest point with sockets leading up the gradient.
- 037 Rest pipes on solid and even foundations for the full length of the barrel with hollows formed in the granular bed or ground for the sockets.
- 038 Leave trenches open for inspection by the Client's Representative until the drains have been tested and approved.

Gullies etc

- 039 Set gullies, etc., on concrete seatings, surrounded with concrete and jointed together and to pipes with gaskin and cement and sand mortar or with flexible coupling.

Brickwork in manholes

- 040 Bed brickwork in manholes in cement mortar (1:3) in an appropriate bond, built fair face with flush joints internally. Where built into manhole walls ensure pipes of 225mm diameter and over have half brick relieving arches over.

PVC-u inspection chambers

- 041 Ensure PVC-u inspection chambers including all fittings, covers and frames etc., have polypropylene mustow universal chambers.

Precast Concrete Manhole Rings

- 042 Manhole rings are to be bedded with mortar, proprietary bitumen or resin mastic sealant

Benching

- 043 Ensure benching in bottoms of manholes is in fine concrete to falls of at least 45 degrees to channels finished with cement and washed sand mortar (1:2) 25mm thick, trowelled hard and smooth with all angles rounded.

Bedding and sealing covers and frames

- 044 Bed frames to manhole covers in cement mortar (1:3) and the covers in grease and sand.

CCTV inspection of drains

- 045 Using CCTV survey all pipelines and drains as Instructed and record on digital media, all salient features of their structural and service conditions.
- 046 The CCTV Survey shall be carried out on new installations when:
- All planned laterals connections have been made and the remaining junctions and laterals are properly capped;
 - All debris has been removed from both laterals and pipelines;
 - All underground services are installed and no further excavation is planned in the vicinity of the pipeline;
- 047 The CCTV survey shall be carried out on existing drainage where Instructed by the Client's Representative following the reporting of consistently blocked or partially blocked drains. The Service Provider shall arrange for a copy of the video recording to be given to the Client's Representative.
- 048 All CCTV equipment and technical standards shall comply with the specification of the Water Research Centre.

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- 049 Where defects are exposed in new pipelines or in pipelines still subject to defects liability, they shall be remedied by the Service Provider at his own expense, and a further CCTV survey carried out at his own expense. When a final survey acceptable to the Client's Representative has been carried out. The Service Provider shall arrange for a copy of the video recording to be given to the Client's Representative.
- 050 The video recording shall be high quality digital format acceptable to the Client's Representative. At the start of each manhole length the video shall clearly display in Alpha-Numeric form the following information:
1. Camera metreage position in the sewer line;
 2. Sewer dimensions;
 3. Manhole/pipe length reference number;
 4. Date of survey;
 5. Road name location;
 6. Direct ion of survey;
 7. Time of start of survey;
 8. Sewer use;
- 051 Obtain Instructions from the Client's Representative on remedying any blockages or problems which may be revealed.

Septic Tank Installations

- 052 The single dwelling septic tank units are to be installed strictly in accordance with the manufacturer's technical data sheet and the recommendations of BS EN 12566-3;

The tanks are to be handled with care and lifted using a rope or sling passed through the lifting points provided;

Prevent superimposed loading by vehicles within a radius of 5m of the tank;

In dry ground conditions place tank on a base or 150mm thickness of broken stone or gravel to BS 12620 graded 10mm to 5mm, backfill and carefully compact the graded material, filling the tank with water to match the level of backfilling;

In wet or poorly drained ground, consolidate 250mm of crushed rock, cover with a polythene membrane and 150mm concrete (Gen 1). Lower the tank on to the concrete and puddle to form a cradle, carefully place and compact concrete (Gen 1) around the tank and bring up to a level 50mm below the outlet pipe, filling the tank with water to match the backfilling;

Septic Tank Sub-Surface Irrigation System

- 053 Pipes are to be: 100mm diameter perforated PVC-U complying with BS EN 13598-1 and BS EN 1401-1 before perforation and laid to a gradient of 1in 200 or to a layout Instructed by the Client's Representative, at a minimum depth of 500mm. Perforations shall be 8mm diameter, at 75mm centres in three rows giving an angle of perforation of 100%.

Pipes should be laid with perforations downwards on 250mm bed of clean filter stone graded 20-50mm, further filter material should be placed to 150mm above the crown of the pipe, and a 500 gauge polythene sheet laid on the stone foiling before backfilling with excavated material.

Testing

- 054 Test pipes and manholes generally by water test or air test to the satisfaction and in the presence of the Client's Representative and the Sewage Utility Provider.
- after haunching or bedding but before backfilling; and
 - after completion of the Works.

Where possible test each pipe from manhole to manhole, test short branch drains connected to a main drain between manholes as one system with the main drain, test hung branches separately.

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- 055 Water testing is to be undertaken by:
Applying a test pressure of 1.2m head of water above the invert of the drain at the high end but not more than 6m at low end by means of a standpipe;
Test steeply graded drains in stages in order not to exceed the maximum test pressure;
Allow a period of 1 hour for absorption;
Measure the loss of water over a period of 30 minutes by adding water from a measuring vessel at regular intervals of 10 minutes and noting the quantity required to maintain the original water level in the standpipe;
The average quantity of water added must not exceed 0.1 litre/100m.mm of pipe diameter;
- 056 Air testing is to be undertaken by;
Plug the length of drain to be tested and pump in air until a pressure of 100mm of head of water is indicated in a U tube connected to the system;
The air pressure must not fall to less than 75mm head of water during a period of 5 minutes without further pumping, after a period for requisite stabilisation;
- 057 Testing for Obstruction:
Check the bore, linearity and jointing of completed lengths of sewer less than 300mm diameter by drawing through a mandrel 750mm long and 12mm less in diameter than the nominal bore of the pipe;
- 058 Testing for Infiltration:
Test sewers for infiltration, the amount of infiltration shall not exceed 0.1litres per hour/100m/mm of pipe diameter;
Infiltration to manholes shall not exceed 5 litres per hour/manhole;
- 059 Water-tightness of Manholes, Chambers and Wet Well:
Manholes, inspection chambers and wet wells shall be inspected to ensure that they are watertight with no identifiable flow of water penetrating the chamber;
- 060 Provide all necessary testing apparatus and carry out any other tests required by the Client's Representative and the Sewage Utility Provider.

Land Drainage

- 061 Before starting work on land drainage, check invert levels and positions of existing drains, sewers, inspection chambers, manholes, catch-pits and watercourses against information shown on drawings and report any discrepancies to the Client's Representative.
- 062 Check position and levels of existing services before commencing excavation, hand dig carefully near to services. Notify the relevant Utility Authority if services are exposed by excavation or if land drainage work crosses the line of a service, follow the Utility Authorities instructions concerning work near services. Replace any marker tape or protective covers disturbed by excavation work in accordance with the Utility Authorities instructions.
- 063 Excavate trenches to a gradient of not less than 1:200 and not more than 1:80. Ensure that the invert to the outfall to open watercourses is no lower than the seasonal peak or 150mm above normal water level, whichever is higher.
- 064 Perforated plastic pipes are to be twin walled PVC-u to BS 5955-6 with purpose made junctions etc., and flexible joints laid on granular bedding 150mm thickness and backfilled to within 50mm of finished ground level with clean gravel or crushed rock graded as table in Clause 066 below, and blind with 40mm bed of sand to BS EN 12620: Gf 85 0/1 (FP) fine aggregate,
- 065 Perforated concrete sub-base land drainage pipes are to be to BS 5911-1 Class H with ogee joints and perforations not greater than 10mm or less than 3mm, total area of holes to be not less than 1000mm/square metre of pipe, laid on concrete bedding with perforations upwards, backfill with crushed rock grades as table in Clause 066 below, deposit filter media in layers not exceeding 225mm loose depth and length, compact each layer.

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066 Grading of crushed rock for land drainage is to be as table below:

British Standard Sieve Size	Range of Grading % by weight passing
63mm	100
37.5mm	85-100
20mm	0-20
10mm	0-5

Clean and flush all drains

067 Immediately before handing over m, thoroughly clean all drains and flush all pipelines not exceeding 400mm diameter with clean water while rodding from manhole to manhole with a rubber tipped plunger the same size as the diameter of the pipe;

Manholes and inspection chambers must be washed down, emptied and left to dry;

Core, clean and flush drains, gullies, manholes, etc. on completion of the Works.

Client’s current manufacturers/suppliers/products

068 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand Name	Manufacturer’s Details

[complete table as appropriate]

CONCRETE WORK

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CONCRETE WORK

GENERAL

- 001 Constituent materials, composition of mixes, production of concrete, information to be provided to the Client's Representative, sampling, testing and compliance to be in accordance with BS EN 206-1: and BS 8500-2.

READY-MIXED CONCRETE:

- 002 The ready-mixed concrete production plant is to be currently certified by a body accredited by UKAS to BS EN ISO/IEC 17065 for product conformity certification of ready-mixed concrete.

Source of ready mixed concrete: Obtain from one source if possible otherwise submit the following documentation to the Client's Representative.

- Name and address of depot: Submit before any concrete is delivered.
- Delivery notes: Retain for inspection.

Any declaration of non-conformity received from the concrete producer is to be notified immediately to the Client's Representative.

MATERIALS

Cement

- 003 Use ordinary "Portland" cement in accordance with BS EN 197-1 delivered to the Property in sound condition. Store and protect it from deterioration due to moisture or other causes.
- 004 Storage of Cement:
- Arrange delivery in suitable small consignments so that cement will be used within 4 weeks of delivery;
 - Store dry in weather-tight structures with a raised floor, or in suitable silos;
 - Reject any cement which is set such that it cannot be easily crumbled between the fingers;
 - Use cement fresh in the order of its delivery to site;
 - Keep sufficient cement available in store to ensure that concrete work on any section can proceed without interruption.

Aggregates

- 005 For fine aggregate use only well graded coarse river sand of Grading Zones 1-3, clean natural sand or crushed stones.
- 006 For coarse aggregate use only natural gravel, crushed gravel, or crushed stone, well graded and of the nominal sizes as specified below.
- 007 If so Instructed submit samples of aggregates proposed to be used to the Client's Representative for approval. Ensure all subsequent deliveries conform to the approved samples. Arrange for ample supplies to be available of both fine and coarse aggregates of the quality and colour selected.
- 008 Storage of Aggregates:
- Wash fine and coarse aggregates and store them on a hard, clean, paved self-drained base or in suitable hoppers or containers'
 - Ensure that stored aggregates will not become dirty or otherwise contaminated.
 - Ensure when they are handled that they remain clean and well graded and keep them separate from each other until placed in the mixer;
 - Check by visual inspection each load before tipping and each batch before mixing for consistency of particle shape, accuracy of grading, segregation of particle sizes and cleanliness;
 - Ensure consistency of moisture content of fine aggregate at time of batching, if necessary by allowing stockpiles to drain for not less than 16 hours before use.

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Water

- 009 When mixing concrete use only clean and fresh water from the main that is not below 4⁰ Centigrade at the time of use.
- 010 Ensure water does not contain any matter injurious to concrete.

Rejected materials

- 011 Reject and remove immediately from the Property any Materials which have been damaged, contaminated or have deteriorated or do not comply fully with this Specification.

WORKMANSHIP

012 Concrete mixes

	Designated Concrete for Kerb Bases, Blinding etc.,	Designated Concrete for Mass Concrete Foundations, Beds etc.,
Designated Concrete	GEN 1	GEN 3
Reinforcement/embedded metal	None	None
Aggregates – Size (maximum)	20mm	20mm
Aggregates – Coarse recycled concrete aggregate (RCA)	Permitted	Permitted
Aggregates – Other requirements	None	None
Other requirements for cement and combinations	None	None
Consistence class	Service Provider’s Choice	Service Provider’s Choice
Chloride class	Cl 1.0	Cl 1.0
Other requirements for admixtures	None	None
Other requirements	None	None

	Designated Concrete RC 20/25	Designated Concrete RC 25/30
Designated Concrete	RC 20/25	RC 25/30
Reinforcement/embedded metal	Yes	Yes
Aggregates – Size (maximum)	20mm	20mm
Aggregates – Coarse recycled concrete aggregate (RCA)	Permitted	Permitted
Aggregates – Other requirements	None	None
Other requirements for cement and combinations	None	None
Consistence class	Service Provider’s Choice	Service Provider’s Choice
Chloride class	Cl 0.4	Cl 0.4
Other requirements for admixtures	None	None
Other requirements	None	None

	Designated Concrete RC 28/35	Designated Concrete RC 32/40
Designated Concrete	RC 28/35	RC 32/40
Reinforcement/embedded metal	Yes	Yes
Aggregates – Size (maximum)	20mm	20mm
Aggregates – Coarse recycled concrete aggregate (RCA)	Permitted	Permitted
Aggregates – Other requirements	None	None
Other requirements for cement and combinations	None	None
Consistence class	Service Provider’s Choice	Service Provider’s Choice
Chloride class	Cl 0.4	Cl 0.4
Other requirements for admixtures	None	None
Other requirements	None	None

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	Designated Concrete for Rigid Pavement/Stepped Ramps
Designated Concrete	PAV1
Reinforcement/embedded metal	None
Aggregates – Size (maximum)	20mm
Aggregates – Type/Density	Normal weight
Aggregates – Coarse recycled concrete aggregate (RCA)	Not Permitted
Aggregates – Other requirements	Freeze-thaw resisting
Limiting value for composition – WC ratio (maximum)	0.45
Limiting value for composition – Cement combination content (minimum)	300kg/m ³
Limiting value for composition – Cement combination content (maximum)	Not applicable
Limiting value for composition –Air content minimum	4.5%
Consistence class	Service Provider’s Choice
Cement combination	Main cement and combination type 11
Chloride class	Cl 1.0
Admixtures	For air entrainment see limiting value for composition item
Colour	Not required
Other requirements	None

Design/Batching and Mixing

- 013 For each designed mix, before making concrete for use in the Works and whenever a change in the materials or mix proportions is proposed, submit and obtain approval of:
- Details of proposed quantities of each ingredient per cubic metre of compacted concrete and proposed workability;
 - Either existing data or details of appropriate tests on trial mixes to show that the proposed constituent Materials and method of manufacture will produce concrete of the required quality, which will not segregate or bleed and will be capable of being fully compacted.
- 014 In special circumstances, subject to the consent of the Client standardised prescribed concrete mixes may be substituted for designated concrete.
- Substituted mix must conform to BS 8500-1;
 - Substitution: In accordance with BS 8500-1: table A.13. Submit for each substitution, stating reasons.
 - Mixes: If standardised prescribed concretes are made on site, this must conform to BS 8500-2.
- 015 Water content of concrete must be carefully controlled and adjusted to allow for moisture content of aggregates to give consistent quality and workability.

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Identity Testing/Certification of Concrete

- 016 Testing of fresh concrete is to be to BS EN 206-1 Annex B and BS 8500-1 Annex B.
- Obtain Instructions from the Client's Representative immediately in the case of non-conformity.
 - Test concrete on a regular basis for compressive strength at least one sample for each day of use of a particular mix, or as directed by the Client's Representative.
 - Recording: - Maintain complete correlated records including:
 - Sampling, site tests and identification numbers of specimens tested in the laboratory.
 - Location of parts of the structure represented by each sample.
 - Location in the structure of the batch from which each sample is taken.
- 017 The testing laboratory: Is to be accredited by UKAS or other national equivalent. The Service Provider is to submit the name of the testing laboratory and its UKAS reference number well in advance of concrete being supplied.
- 018 If a concrete sample fails to achieve specified criteria or to pass specified tests, The Service Provider is to inform the Client's Representative without delay and submit:
- Confirmation of the validity of the test results, and/or
 - Proposals for further tests to assess the strength of the concrete in the structure, as set out in BS 6089 and/or
 - Proposals for rectification.
 - Obtain agreement with the Client's Representative of all such evidence and proposals before proceeding. The Client's Representative may issue Instructions for the work to be stopped or delayed until reasons for the failure have been established; possible consequences assessed and appropriate preventative and remedial measures taken.

Placing and Compacting

- 019 Form construction joints as follows:
- Carefully brush and spray surface while concrete is still green to remove surface laitance and expose aggregate finish. Obtain agreement of the Client's Representative for any alternative method.
 - Surface to be clean and damp when fresh concrete is placed against it.
- 020 At time of placing ensure that all surfaces on which concrete is to be placed are clean, with no debris, tying wire clippings, fastenings or free water.
- 021 Inform the Client's Representative before each pour of concrete to allow inspection of reinforcement and surfaces against which concrete is to be placed. Agree with the Client's Representative the period of notice to be given.
- 022 In placing concrete, the Service Provider is to:
- Record time, date and location of all pours.
 - Place while sufficiently plastic for full compaction. Do not add water or re-temper mixes. The temperature of concrete at time of placing must be not less than 5 degrees C. Do not place against frozen or frost covered surfaces.
 - Place in final position in one continuous operation up to construction joints. Avoid formation of cold joints.
 - Do not discharge from an excessive height or through reinforcement or other obstructions in a way which may cause uneven dispersal, segregation or loss of ingredients. Use suitable chutes or trunking to place concrete where necessary.
 - Place in layers no thicker than can be effectively compacted with the equipment being used.
 - Do not use vibrators to make concrete flow horizontally into position, except where necessary to achieve full compaction under void formers and cast in accessories and at vertical joints.
- 023 Fully compact concrete to full depth (until air bubbles cease to appear on the top surface), especially around reinforcement, cast-in accessories, into corners of formwork and at joints. Ensure amalgamation with previous batches, but do not damage adjacent partly hardened concrete. Use mechanical vibration for all reinforced concrete.

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- 024 Sudden irregularities in the flatness of concrete floors is not permitted. When measured to BS 8204-2, Table 2, the variation in gap under a 3m straightedge placed anywhere on the surface to meet the following requirements:
- Floors which are to be self-finished, and floors to receive sheet or tile finishes directly bedded in adhesive: the floor surface regularity to meet Classification SR2.
 - Floors to receive screeds/toppings/beds; the floor surface regularity to meet Classification SR3.
- 025 Inform the Client’s Representative of the number and type of vibrators to be used. Provide standby vibrators. Do not use external vibrators without agreement.

Curing and Protection

- 026 Curing Generally:
- Prevent surface evaporation from concrete throughout the period(s) specified below by:
 - Retaining formwork in position and, if necessary, covering exposed surfaces immediately after striking, and
 - Covering top surfaces of fresh concrete immediately after completion of placing and compacting, removing covering only to permit any finishing operations and replacing immediately thereafter.
 - Maintain surface temperature above 5 degrees C throughout the periods specified below or four days, whichever is the longer;
 - Maintain detailed records of location and timing of casting of individual batches, removal of formwork and removal of coverings. Keep on site, available for inspection.
 - Coverings for curing may be suitable impervious sheet materials or a suitable curing compound with an efficiency of at least 75%, and:
 - Must be effective in preventing evaporation of water from the concrete, particular attention being paid to sealing at edges and junctions.
 - Must not disfigure permanently exposed surfaces.
 - Must not affect the satisfactory bond of subsequent construction and finishes.
 - Until the exposed top faces of fresh concrete are in a state suitable to receive sheets in direct contact or a sprayed curing compound as applicable, cover with waterproof sheeting held clear of the surface and well-sealed against draughts at edges and junctions.

Curing Periods.

027 The curing periods, in days:

Concrete surfaces which will be exposed to frost or chemical attack. Concrete wearing surface floors and pavements. Watertight concrete:		
	Concrete made using OPC, SRPC, RHPC	Concrete made using PPFAC, PBC, PFA, GGBS
November to April	10	12
May to October	7	10
Other structural concrete surfaces: No special requirements if in damp weather and protected from sun and wind, otherwise as follows (cement as above):		
November to April	6	10
May to October	4	7

- Obtain prior approval for curing periods for mixes using admixtures or other types of cement.

- 028 Prevent damage to concrete, including:
- Surfaces generally: From site, indentation and physical damage.
 - Surfaces to be exposed in the finished work: From dirt, rust marks and other disfiguration.
 - Immature concrete: From thermal shock, physical shock, overloading, movement and vibration.
- 029 Ensure there is no traffic over, or loading on, concrete for at least seven calendar days after placing.

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Work in cold weather

- 030 Do not concrete when the air temperature is below 4⁰C. Bear the entire risk of concreting done below this temperature.
- 031 Take adequate precautions to protect concrete from freezing. Bear all risks of damage to concrete from frost action.
- 032 Keep a reliable maximum and minimum thermometer at the site of any concreting Works.

Designed Joints in Insitu Concrete

- 033 All joints to be accurately located, straight and well-aligned, and truly vertical or horizontal.
- 034 Construction/Movement Joints:
- Form joints accurately to detail and in locations shown on the drawings or as Instructed.
 - If modifications to any joint or location are necessary on site, agree revisions with the Client's Representative.
 - Do not allow concrete to enter any gaps or voids in the formwork or to render the movement joints ineffective.
 - Do not allow concrete to impregnate or penetrate any materials used as compressible joint fillers.
 - Do not place concrete simultaneously on both sides of movement joints.
- 035 Additional construction joints in concrete exposed to view required by the Service Provider, will not be permitted, unless permission is given by the Client's Representative.
- 036 Construct using rigid, grout-tight side forms or stop ends designed to accommodate projecting bars or fabric without temporary bending or displacement.
- 037 Brush and spray surface of construction joints while concrete is still green and leave a thoroughly roughened exposed aggregate finish.
- 038 Tie bars are to be:
- To BS 4449, Grade 250, clean and free from oil, dirt, loose rust or scale;
 - Fixed securely at the stated centres, and at the required depth, placed centrally on the joint.
- 039 Dowel bars are to be:
- To BS 4449, Grade 250, perfectly straight and clean with sawn ends;
 - Coated half the length of each bar with suitable proprietary de-bonding compound or fit with a suitable plastic sleeve;
 - Fixed securely at the required depth, level at right angles to and centred on the joint;
 - Fitted with a cap at expansion joint, incorporating a compressible material, to de-bonded end of all bars.
- 040 Sheet joint filler for expansion joints is to be:
- Firm compressible, rot-proof, non-absorbent, non-extruding material;
 - Fixed accurately in position;
 - Ensure sufficient space is left for sealant.
- 041 Sealant for joints is to be:
- Cold-applied sealants complying with BS 5212-1 as appropriate in conjunction with BS 6213.
 - Cured to manufacturer's recommendations to form a durable seal of low modulus elastomeric material.

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Worked Finishes to Insitu Concrete

- 042 Carborundum dust is to be to BS EN 12620.
- 043 Timing:
- Carry out all finishing operations at optimum times in relation to the setting and hardening of the concrete;
 - Do not wet surfaces of concrete to assist surface working;
 - Do not sprinkle cement on to surface.
- 044 Tamped finish is achieved by:
- Float concrete to an even surface with no ridges or steps, then immediately commence curing as specified in Clause 026;
 - When the concrete is suitably stiff, tamp surface in one direction to give a uniform ribbed surface;
 - Resume specified curing without delay.
- 045 Smooth floated finish is to be achieved by the use of a hand float; skip float or power float to give an even surface with no ridges or steps.
- 046 Trowelled finish is to be achieved by:
- Float concrete to an even surface with no ridges or steps, then immediately commence curing as specified in Clause 026.
 - When the concrete is suitably stiff, hand or power trowel to give a uniform smooth but not polished surface, free from trowel marks and other blemishes, and suitable to receive the specified flooring material.
 - Resume specified curing without delay.
 - Adequately protect the surface from construction traffic until flooring material is laid.
 - If, because of inadequate finishing or protection, the surface of the concrete is not suitable to receive the specified flooring material, it must be made good by application of a smoothing compound to the satisfaction of the Client's Representative. Allow for the cost of any such making good.
- 047 Trowelled finish for wearing surfaces is to be achieved by:
- Float concrete to an even surface with no ridges or steps, then immediately commence curing as specified in Clause 026.
 - Successively hand or power trowel at intervals, applying sufficient pressure to close the surface, to give a uniform smooth finish free from trowel marks and other blemishes.
 - Resume specified curing without delay.
 - Complete a sample area of the finished work, size 1m. sq., in advance of the remainder, at a specified location, and allow inspection of appearance before proceeding.
- 048 Trowelled finish with non-slip additive is to be achieved by:
- Float concrete to an even surface with no ridges or steps, then immediately commence curing as specified in Clause 026.
 - When the concrete is suitably stiff, sprinkle carborundum evenly over the surface at the rate of 1 kg/m sq. and hand trowel to give a uniform smooth, but not polished surface, free from trowel marks and other blemishes.
 - Resume specified curing without delay.
 - Complete a sample area of the finished work, size 1m sq., in advance of the remainder, at a specified location, and allow inspection of appearance before proceeding.
- 049 Brush surface textured finish is to be applied evenly across the concrete road slab or house path in one direction by the application of a wire brush not less than 450mm wide with wire tufts initially 100mm long.
- 050 Trowelled finish/brush textured finish to paths is applied evenly across the concrete path in one direction by the application of a wire brush not less than 450mm wide with wire tufts initially 100mm long, with a minimum 100mm wide margin trowelled smooth finish as Clause 046.

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Surface finishes - Generally

- 051 Place concrete so that the face is free from voids and shows a uniform distribution of aggregate and uniform texture.
- 052 Use wrot formwork where a fair finish is required to the concrete surface. After removing the formwork, remove the feathers caused by the joints in the boards. Fill any holes or honeycombing which may have formed in the surface by first drenching with water and then filling the void with cement mortar composed of cement and washed sand in the same ratio as that in the concrete mix.
- 053 Use surface lined formwork where a perfect finish is required to the concrete. Immediately after removing the forms bring the concrete to a true, smooth and even surface, free from board marks, honeycombing, etc., by rubbing down with carborundum stone dipped in cement grout.
- 054 When no specific finish is required, tamp upper surfaces to a plain or evenly ribbed finish with tolerances suitable for subsequent Works. When a floated finish is specified, close the surface to produce an even slightly coarse texture free from ridges and depressions.
- 055 Trowel concrete to receive a thin floor covering by power float or other suitable method to produce a dense very smooth surface that is visually flat and suited to the direct application of thin floor coverings. Ensure there are no Defects in the finished concrete that show through the floor.
- 056 The maximum permissible deviation from flat is 3mm from a 3.00m straight edge.

Formwork for insitu concrete

Generally/Preparation

- 057 Design and construct formwork to withstand the worst combination of:
- Total weight of formwork, reinforcement and concrete.
 - Construction loads including dynamic effects of placing, compacting and construction traffic.
 - Wind and snow loads.
- 058 Temporary Works including propping shall comply with Health and Safety Executive Information Sheet No 56 and BS 5975, Code of Practice for Temporary Works Procedures and the Permissible Stress Design of Falsework.

Provide adequate propping to prevent deflection and damage to the structure. Carry down such props to bearings strong enough to provide adequate support.

Temporary supports to the formwork shall not be cast into the concrete construction.

- 059 For work below ground:
- Vertical faces of strip footings, bases and slabs may be cast against faces of excavation, provided:
 - Prior agreement is obtained;
 - The faces are sufficiently accurate and stable.
 - Adequate measures are taken to prevent contamination of concrete;
 - Faces of walls must be cast against formwork.
- 060 Basic finish: No particular requirements, except those for tolerances and full compaction.
- 061 Formed finish: Where the surface is described as having a formed finish, the formwork shall be such as will give a perfectly smooth and even, but not polished surface, with neat sharp arrises.
- 062 Steelwork: Remove all loose mill scale and loose rust before encasing in concrete.

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Construction

- 063 Construct formwork accurately and robustly with adequate supports to produce finished concrete to the required dimensions. Cast surfaces of concrete must be free from twist and bow (other than any required cambers), all intersections, lines and angles being square, plumb and true.
- 064 Joints in forms: Construct formwork, including joints in form linings and between forms and completed work, to prevent loss of grout, using seals when necessary. Secure formwork tight against adjacent concrete to prevent formation of steps.
- 065 Inserts, holes, mortices, chases:
 - Confirm positions and details to ensure that alterations to and decisions about their size and location are not made without knowledge and agreement of the Client’s Representative.
 - Fix inserts or box out as required in correct positions before placing concrete. Form all holes, mortices and chases. Do not cut hardened concrete without permission.
- 066 Treatment of formwork:
 - Remove, rubbish, debris, water, etc. from the interior of the formwork before concrete is placed.
 - Coat inside surface of formwork with a mould release agent to prevent adhesion to the concrete.
- 067 Give sufficient notice of intention to place concrete to allow the Client’s Representative reasonable time to check the construction and condition of formwork.
- 068 Use the same type and make of release agent throughout the entire area of any one finish. Use the minimum amount necessary to obtain a clean release and prevent excessive local collection. Prevent release agent touching the reinforcement or other materials not part of the form face or formwork.

Striking

- 069 Strike formwork without disturbing, damaging or overloading structure, and without disturbing props. Notwithstanding other clauses in this Specification and any checking by the Client’s Representative, the responsibility for safe removal of any part of the formwork and any supports without damaging the structure rests with the Service Provider. When formwork is struck, any holes shall be filled with suitable concrete and fins shall be carefully removed so that a flat surface is presented.
- 070 Minimum Periods before striking:

The following periods (in days) for retaining formwork in position before striking apply to ordinary Portland cement concrete with no cement replacement materials or admixtures:

TABLE STRIKING TIMES.

	Average mean of daily minimum and maximum air temperatures during the period.		
	16 degrees C.	7 degrees C.	3 degrees C.
Vertical formwork to columns, walls and beams.	0.5	1	2
Soffit forms to slabs.	4	6	8
Props to slabs.	10	15	20
Soffit forms to beams.	10	15	20
Props to beams.	14	21	28

Submit details of proposed periods for mixes using admixtures or other types of cement.

Days during which the average air temperature is below 2 degrees C shall be disregarded in calculating the minimum time which shall elapse before forms are removed.

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Reinforcement for Insitu Concrete

Reinforcement generally

- 071 Reinforcing steel must comply with BS 4449 or BS 4483, be cut and bent to BS 8666 and be obtained from a firm holding a valid certification of approval issued under a product certification scheme operated by a third party certification body with appropriate Category 2 accreditation from the United Kingdom Accreditation Service (UKAS).
- 072 Plain bar reinforcement is to be to BS 4449, Grade 250.
- 073 Deformed bar reinforcement is to be to BS 4449, Grade 460.
- 074 Steel fabric reinforcement generally is to be to BS 4483.

REFERENCE	MINIMUM LAPS
A142	400mm
A193	400mm
A252	400mm
A393	400mm

- 075 Store reinforcement clear of the ground and prevent contamination by other materials. At time of placing concrete, reinforcement to be clean and free of corrosive pitting, loose mill scale, loose rust, ice, oil and other substances which may adversely affect the reinforcement, concrete, or bond between the two.

Before Fixing

- 076 Reinforcement must not be roughly handled, dropped from a height, or subjected to shock loading or mechanical damage.

Bending reinforcement

- 077 Bend or straighten bars cold, gradually and evenly and in a manner that will not injure the Material.
- 078 Bend steel to the shape exactly as shown on the drawings. Ensure all bends have an internal radius of at least twice the diameter of the bar.
- 079 Provide on-site facilities for hand bending to deal with minor adjustments.
- 080 Projecting Reinforcement:
 - Grade 250 bars may be bent to radii not less than BS 8666:2005 Table 3.
 - Grade 460 bars must not be bent or straightened without the approval of the Client’s Representative.
- 081 Reinforcement may be made up into cages. The cages shall be straight and out of winding when placed in position.

Placing reinforcement

- 082 Place reinforcement exactly as directed by the Client’s Representative and use the correct concrete cover. Adequately support and bind the reinforcement at intersections with 16 swg soft pliable or annealed mild steel tying wire, steel clips or tack welding if permitted so that displacement does not occur when the concrete is deposited. Wire or clips must not encroach into the concrete cover. Ensure the lap:
 - is at least 40 times the diameter of the bar size and at least 300mm; and
 - to the mesh is at least 450mm.

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- 083 Spacers to comply with BS 7973-1. In addition to supports shown on drawings or schedules, provide spacers and chairs at not more than 1m or 1000mm centres or closer spacing as necessary to support reinforcement in position and maintain the specified cover. Reinforcement must be fixed in position before the concrete is placed.
- 084 Cover spacers should be staggered on adjacent parallel bars and placed at approximate centres of 50 x diameter of bar but not exceeding 1000mm for individual bars or 500mm for welded fabric.
- 085 Cover Spacers which will adequately support the reinforcement, adequately resist displacement, not cause indentation of the formwork are to be made from:
- Plastics (perforated to at least 25% of their area), or
 - Fibre cement, or
 - Concrete (strength and durability to match surrounding concrete).
- 086 The actual concrete cover shall not be less than the required nominal cover minus 5mm.

Where reinforcement is located in relation to only one face of a member, the actual concrete cover shall be not more than the required nominal cover plus 5mm on bars up to and including 12mm size, 10mm on bars over 12mm up to and including 25mm size and 15mm on bars over 25mm size. Before concreting check thoroughly that the specified cover dimensions have been obtained.

Holes, chases, fixing blocks, etc.,

- 087 Incorporate any conduit, pipes, fixing blocks, chases, etc., in concrete members as required. Submit full details of these to the Client's Representative for approval before the Works start. Ensure all fixing blocks, bolts, chases, holes, etc., left in the concrete are:
- of the sizes required; and
 - accurately set out and cast with the concrete or boxed out as the Works proceed.
- 088 Do not cut holes or chases in the concrete unless the Client's Representative Instructs this to be done.

Precast concrete – Small Units

- 089 Ensure precast concrete is of the mixes specified.
- 090 Ensure reinforcement is 25mm clear of the soffit of lintels, steps, etc. Hook the ends of bars for a distance of 38mm and crank to resist shear. Mark the tops of members at the time of casting.
- 091 Reinforce precast concrete not described as reinforced as necessary to withstand handling and temperature stresses.
- 092 Adequately cure precast concrete before it is handled and fixed in position.
- 093 Rub down the surfaces of precast concrete described as "finished fair." Neatly stop any holes, etc. Leave the surfaces perfectly smooth with no sharp arrises. Leave remaining faces rough for plastering or rendering unless stated otherwise in the relevant part of this Specification.

Precast Concrete - Large Units

Components

- 094 Precast concrete stairs shall comply with Eurocode 2, BS EN 1992-1-1.
- 095 Concrete generally: Constituent materials, composition of mixes, production of concrete, information to be provided, sampling, testing and compliance to be in accordance with BS EN 206-1 and BS 8500-2.

The Chloride ion content of the constituents of each mix shall comply with Eurocode 2, BS EN 1992-1-1.

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- 096 Reinforcement type:
- Plain bar reinforcement to be to BS 4449, Grade 250.
 - Deformed bar reinforcement to be to BS 4449, Grade 460.
- 097 Reinforcement generally:
- Reinforcement to be clean and free from corrosive pitting, loose mill scale, loose rust, ice, oil and other substances which may adversely affect the reinforcement, concrete or the bond between the two.
 - Fix accurately and securely using tying wire or steel clips. Wire and clips must not encroach into the concrete cover.
 - In addition to reinforcement required for structural purposes, precast units must be reinforced as necessary to resist shrinkage and handling stresses.
- 098 Cover to reinforcement: Minimum nominal cover to reinforcement on exposed faces to be 35mm. Cover spacers must not be used to concrete faces which will be exposed in the finished work.
- 099 The following tolerances on the nominal dimensions are permitted:-
- Length ± 6 mm;
 - Depth ± 3 mm;
 - Width ± 3 mm.
- 100 Moulds must be:
- Constructed accurately to give straight, square and true components.
 - Maintained in clean, sound condition and inspected carefully for defects before each reuse.
 - Damaged moulds must not be repaired and reused if this would impair the surface appearance of the components.
 - Constructed to prevent loss of grout.
 - Designed to permit de-moulding without damage to the components.
 - Coated evenly with a suitable release agent, which must not be allowed to touch the reinforcement.
- 101 Finishes: Exposed surfaces shall have a smooth and even but not polished surface. Arrises or faces which are broken, chipped, cracked, crazed, honeycombed, irregular, inconsistent, stained or otherwise marred such that their appearance or performance is significantly impaired will not be accepted.
- 102 Casting and curing:
- Thoroughly compact concrete by vibration.
 - Do not de-mould components prematurely.
 - Prevent damage to and distortion of immature components from movement, vibration, overloading, physical shock, rapid cooling and thermal shock.
 - Ensure that components are protected from sun and drying winds until they are at least 5 days old.
 - Do not deliver components on site until at least 14 days after casting.
- 103 Storage of units: When units are stored they shall be firmly supported at such bearing positions as will ensure that the actual stresses induced are always less than the permissible stresses.
- 104 Lifting of units: Units shall be lifted only at points indicated by the manufacturer and shall be handled and placed without impact.
- 105 End bearing: The minimum end bearing for precast stair units shall be 100mm on brick/blockwork and 75mm on steelwork. Where the top of the supporting member is irregular, the stairs shall be bedded on a layer of mortar.
- 106 Cutting of units: Units shall only be cut on site in accordance with the manufacturer's technical data sheet and with the Client's Representative's agreement.
- 107 Repairs to units: Any repairs to precast stairs shall be authorised by the Client's Representative and shall be carried out using a compatible concrete repair material.

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108 Loading on units: When the units have been set in position, ensure that they are not overstressed by the placing upon them of heavy loads from other building materials.

109 Mortar for bedding shall be cement lime sand (2:1:6).

Precast/Composite Concrete Decking

Proprietary Floors/Roof Decks

110 Precast concrete floor units:

- Precast concrete floor units shall comply with Eurocode 2, BS EN 1992-1-1. The manufacturer shall supply drawings showing the proposed layout of the floor units and a schedule of the reinforcement/pre-stressing wire arrangements to be used in each unit.
- Grout all joints between units with concrete Grade RC 25/30 as Clause 012 and allow to harden before any loads are applied.

111 Marking of units:

- Each unit shall be indelibly marked in such a manner that by reference to the manufacturer's schedule, its nominal size and intended position on the floor layout may be easily found.
- If the units are of symmetrical section, the face which will be uppermost when the units are in their correct position shall be clearly marked.

112 Dimensions:

- The manufacturer shall make known the nominal sizes of his units. The following tolerances on the nominal dimensions are permitted;
 - Length +/- 9mm;
 - depth +/- 3mm;
 - width +/- 6mm.
- Where there is a camber in the units due to pre-stressing, the variation in camber between adjacent units shall not be greater than 6mm.

113 End bearing: The minimum end bearing for precast floor units shall be 100mm on brickwork/blockwork and 75mm on steelwork. Where the top of the supporting member is irregular, the units shall be bedded on a layer of mortar.

114 Storage of units: When units are stored they shall be firmly supported at such bearing positions as will ensure that the actual stresses induced are always less than the permissible stresses.

115 Lifting of units: Units shall be lifted or supported only at points indicated by the manufacturer and shall be handled and placed without impact.

116 Cutting of units: Units shall only be cut on site in accordance with the manufacturer's technical data sheet and with the Client's Representative's agreement.

117 Repairs to units: Any repairs to precast concrete floor units shall be authorised by the Client's Representative and shall be carried out using a compatible concrete repair material.

118 Loading on units: When the units have been set in position, ensure that they are not overstressed by the placing or storing upon them of heavy loads from other building materials.

119 Mortar for bedding shall be cement lime sand (2:1:6).

120 Lateral restraint straps:

- Ensure that floors tightly abut walls.
- Material/Finish: Galvanised steel.
- Size: Not less than 30mm x 5mm cross-section; not less than 650mm long including each end cranked 100mm.
- Position with one cranked end in tight contact with cavity face of wall inner leaf, other cranked end grouted into a floor joint.

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- 121 Precast beam and block: (floor)
- Beams: designed to BS EN 1992-1-1
 - Type: Reinforced pre-stressed concrete T-Beam.
 - Infill blocks: clause 123.
- 122 Detailing of proprietary system:
- Installation details: Submit location and assembly drawings showing every aspect of the construction, incorporated components and features, trimming for voids, holes for services, and related work by others.
 - Purpose: To allow checking of compatibility with surrounding structure and coordination of services.
 - Submit method statement and risk assessment for installation
 - Submit programme well in advance of construction.
- 123 Standard precast concrete infill blocks: (floor)
- Type: Solid block to BS EN 771-3.
 - Size: 440 x 215 x 100 mm.
 - Compressive strength (minimum) 3.5 N/mm²
 - Transverse load capacity (minimum): 3.5 kN/m² measured on a 420 mm span.

Bituminous damp-proof membrane

- 124 Thoroughly clean the surfaces to receive the bituminous membrane. Apply this strictly in accordance with the manufacturer's technical data sheet.

Polythene damp-proof membrane

- 125 Use heavyweight building sheet for any polythene damp-proof membrane. Lap all joints and make them with double welt folds. Tape all in accordance with the manufacturer's technical data sheet.
- 126 Take special care to prevent joints unsealing and to avoid puncturing the sheeting during placing operations, subsequently during the laying of the brickwork or securing fixing grounds. Remove and replace any damaged sheeting.
- 127 Seal any holes through the damp-proof membrane for services by wrapping the pipes in small sheets and using sealing tape around the pipes and main film barrier.

Repairs to Concrete – Exposed Reinforcement

- 128 All materials used shall form part of an integrated concrete repair system and the works shall be carried strictly in accordance with the manufacturer's technical data sheet.
- All loose and friable particles and areas of low strength concrete shall be removed and cut back to expose the sound concrete around the reinforcement;
 - The sound substrate shall be exposed over the full length of any rusted section of reinforcement, and for at least 25mm of the rust free portions of the bar at either end. Any damaged concrete shall be removed to a minimum depth of 12mm clear space behind the reinforcement, provided that this does not endanger the structural form or stability of the concrete component. The cut area shall be shaped such that a butt edge of at least 10mm deep results in the repair and no feather edges shall be permitted;
 - Any surface contaminants which could interfere with the bond, i.e. dirt, oil, grease, etc., shall be removed;
 - Remove all corrosion from the exposed reinforcement by grit blasting, to finish with a clean surface and immediately apply a corrosion resistant primer which must provide a good physical key for, and be compatible with the subsequent repair material;
 - The repair material shall be a polymer modified cement slurry or a solvent free high build epoxy resin sprinkled with sand or similar materials;
 - If at any point corrosion has reduced the diameter of a reinforcing bar by more than 10%, a new bar shall be lapped with the existing bar all in accordance with the Client's Representative's Instructions before proceeding with the repair;
 - The cut back face of the concrete shall be coated with a concrete primer coat of polymer modified cement mortar or any epoxy resin;

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- The patch repair mortar shall be purpose designed, factory mixed, polymer enhanced cementitious mortar with aggregate grading appropriate to the thickness of the repair. It shall be capable of being applied in layers up to 25mm thick;
- The material shall be fully compatible with the base materials and any proposed decorative coating and shall be applied strictly in accordance with the manufacturer's technical data sheet; and
- After completion of the full concrete repairs, coat the whole of the surface of the repaired component with a flexible microporous membrane, in accordance with the manufacturer's technical data sheet.

Structural Repairs to Defective Concrete

129 All materials used must be certified in accordance with BS EN 1504 and form part of an integrated concrete repair system and the works shall be carried strictly in accordance with the manufacturer's technical data sheet.

- The Service Provider shall only break out and remove concrete from areas specifically identified and marked out in agreement with the Client's Representative. Before removing any concrete the Client's Representative shall determine the position and depth of the reinforcement using non-destructive test methods and shall mark reinforcement clearly in the vicinity of repairs prior to any works commencing.
- The perimeter of the concrete to be removed shall be saw cut perpendicular to the face of the concrete to a minimum depth of 15mm or to within 10mm of any reinforcement. Cover depths may vary significantly across the structure. If inadequate cover exist for saw cutting, saw cuts shall continue to within 10mm of reinforcement and concrete carefully broken out across the reinforcement face using dry breakout techniques. Saw cuts should be along the lines marked on the concrete surface during the inspection by the Client's Representative;
- The Service Provider shall remove all defective concrete as marked until sound concrete is reached to the acceptance of the Client's Representative;
- At the upper limits of the manufacturer's recommended repair volumes, sloping cuts may be used to avoid the entrapment of air when the concrete is poured;
- Saw cut edges shall be abraded to ensure a satisfactory key for the repair mortar where directed by the Client's Representative;
- The method of removal and breaking out of defective concrete including the use of dry break-out techniques shall be proposed by the Service Provider to the Client's Representative for acceptance prior to works commencing;
- Over-break of concrete shall be made good at the Service Provider's own expense using an approved concrete repair system. Where the Service Provider feels that the repair area needs to be extended beyond the originally agreed area this must be agreed with the Client's Representative prior to any breaking out works;
- Sound reinforcement damaged during concrete removal shall be made good by the Service Provider at no additional expense to the Client;
- Existing reinforcement that has corroded and is identified by the Client's Representative as being defective, shall be instructed to be removed by the Service Provider;
- All new reinforcement shall be attached to the existing reinforcement either by lapping new and existing reinforcement steel or by using mechanical couplers. The Service Provider must submit his proposed methodology for the fixing of new reinforcement to the Client's Representative for approval; and
- The Service Provider shall take measures to keep the site, work areas and access platforms free of concrete debris. Solid material shall not be permitted to accumulate and shall be removed safely off site.

Surface Preparation - Reinforcement

130 Surface preparation for reinforcement shall be as follows:

- Removal of all detrimental contamination and corrosion products within the concrete repair areas to produce a generally bright steel appearance overall;
- The surfaces shall be free of embosses abrasive particles and corrosion products when viewed through a x10 illuminated magnifying glass and shall be offered up by the Service Provider for inspection by the Client's Representative;
- Surface preparation of reinforcement shall be completed using dry abrasive blasting, mechanical wire brush or hand tool abrasion techniques as proposed by the Service Provider as part of his safe working procedures; and
- Surface preparation methods must be agreed with the Client's Representative prior to Works commencing.

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Surface Preparation – Existing Concrete

- 131 Surface preparation of existing concrete shall be as follows:
- Concrete surfaces shall be clean and dry and free from all grease, oil, dust and loose material;
 - Loose material to the interior of repair areas shall be removed by a methodology approved by the Client's Representative;
 - The surface shall be such that repair concrete shall flow freely into all voids and be in intimate contact with the existing concrete;
 - Where dry breakout percussive methods have been used for concrete removal, surface preparation of the concrete surfaces to the interior of repair areas shall be completed using one of the following methods:
 - Dry abrasive blasting;
 - Mechanical surface preparation (e.g. scabbling);
 - Hand tool preparation (e.g. wire brushing);

Surface Preparation – Priming of concrete and steel

- 132 Prior to placing any repair mortar, preparation and priming of the concrete and steel substrates should be undertaken in accordance with the manufacturer's technical data sheet.

Remedial Works to Spalling and Cracks in Concrete Surfaces

- 133 All materials used shall form part of an integrated concrete repair system and the works shall be carried strictly in accordance with the manufacturer's technical data sheet.
- All loose and friable particles and areas of low strength concrete shall be removed and cut back to expose the sound concrete around the reinforcement;
 - Any surface contaminants which could interfere with the bond, i.e. dirt, oil, grease, etc., shall be removed;
 - The repair material shall be a polymer modified cement slurry or a solvent free high build epoxy resin sprinkled with sand or similar materials;
 - The cut back face of the concrete shall be coated with a concrete primer coat of polymer modified cement mortar or any epoxy resin;
 - The patch repair mortar shall be purpose designed, factory mixed, polymer enhanced cementitious mortar with aggregate grading appropriate to the thickness of the repair. It shall be capable of being applied in layers up to 15mm thick;
 - The material shall be fully compatible with the base materials and any proposed decorative coating and shall be applied strictly in accordance with the manufacturer's technical data sheet; and
 - After completion of the full concrete repairs, coat the whole of the surface of the repaired component with a flexible microporous membrane, in accordance with the manufacturer's technical data sheet.

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Client’s current manufacturers/suppliers/products

134 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

BRICKWORK AND BLOCKWORK

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

BRICKWORK AND BLOCKWORK

MATERIALS

Cement

001 Use either normal setting ordinary or rapid hardening or sulphate resisting Portland cement or blast furnace cement. All cement must comply with BS EN 197-1 and be manufactured by a firm with their capability assessed and registered with BSI or other quality certification body acceptable to the Client.

Lime

002 Use Class B hydrated lime, to BS EN 998-1 and BS EN 998-2

Sand

003 Sand for mortar is to be to BSEN 13139 0/2 FP or MP Category 3 unless specified otherwise. Sand for face-work mortar is to be from one source, different loads to be mixed if necessary to ensure consistency of colour and texture'

Sand and aggregate Material Property Limits	BS EN 13139 Category for other aggregates and Sand	BS EN 13139 Category for Air cooled blast furnace slag
Acid soluble sulphate content	AS0.2	AS 1.0
Total sulphur	≤ 1% by mass	≤ 2% by mass
Water soluble content	≤ 1% by mass	≤ 1% by mass
Loss on ignition	PFA ONLY ≤ 7% by mass	≤ 3% by mass

Cement mortar

004 Ensure all cement mortar used is composed of one part cement and three parts sand. Use this in brickwork built below ground level, copings, chimneys, parapet walls and any other brickwork in severely exposed situations.

005 In other situations unless otherwise Instructed, use only gauged cement mortar composed of:

- one part masonry cement;
- one part lime; and
- six parts sand.

006 Ensure all mortar used is fresh and made only in quantities sufficient to meet the immediate demand. Use mortar within 2 hours of mixing at normal temperatures. Do not revive or re-use any mortar which has been partially set. Measure materials accurately by volume using clean gauge boxes. Proportions of mixes are for dry sand, allow for bulking if sand is damp. Mix materials thoroughly to a consistency suitable for the work and free from lumps, do not over mix mortars containing air entraining admixtures. Keep plant and banker boards clean at all times.

007 Premixed lime:sand:mortar shall be obtained premixed in accordance with BS EN 998-1 and BS EN 998-2 from a competent mortar manufacturer to the satisfaction of the Client, Ordinary portland cement is added on site by volume in accordance with the mix specification.

008 Coloured lime:sand:mortar, where required is to be made using a proprietary coloured ready-mixed lime:sand to BS EN 998-1 and BS EN998-2; colour to be as specified or to match existing. Pigments used in lime:sand mortar are to conform to BS EN 12878.

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Ready to Use Retarded Mortars

009 Ready to use retarded mortars shall be in accordance with BS EN 998-2 and Render/Plaster mixes to be in accordance with BS EN 998-1. The Client is provided with CE Marked performance information to Annex ZA before mixing commences.

- (i) All mortar storage containers are kept in good condition.
- (ii) Storage containers are thoroughly cleaned out between fills.
- (iii) Storage containers are clearly marked with mortar mix designation i.e. building/plaster/render, date and time of delivery.
- (iv) Under no circumstances may partially full storage containers be 'topped up' with fresh mortar.
- (v) The mortar is properly protected from adverse weather conditions, prior to, during and after use.
- (vi) On no account should the mortar be re-mixed in a mechanical mixer

Under no circumstances can anything other than minimal amounts of water be added to the mix on site and this only to maintain workability during use i.e., by bricklayer on a spot board.

Absolutely no cement or any other additive may be added to the mix on site.

Care should be taken to ensure that the mortar is used in its 'fresh' state and that no remixing for use takes place after the period of retardation has passed.

All mortar, which has been contaminated in any way, shall be disposed of in such a manner as to render it unusable.

Waterproofing Agents

010 Waterproofing agent is to be to BS EN 934-3, supplied and installed in compliance with a current British Agrément Board certificate or other Quality system approved by the Client. The quantities of agent to be used are to be strictly in accordance with the manufacturer's technical data sheet. The Service Provider is prohibited from using admixtures based on calcium chloride and ethylene glycol.

Bonding Agent

011 Bonding agent is to be Opaque white non-toxic externally plasticised PVA emulsion of high viscosity and manufactured to BS 5270-1. The bonding agent is to be suitable for the exposure conditions and supplied and installed in compliance with a current British Agrément Board certificate or other Quality system approved by the Client.

Air Entraining Admixture

012 Air entraining admixture is to be to BS EN 934-3, supplied and installed in compliance with a current British Agrément Board certificate or other Quality system approved by the Client. The quantities of admixture to be used are to be strictly in accordance with the manufacturer's technical data sheet.

Water Reducing Admixture

013 Water reducing admixture is to be to BS EN 934-3, supplied and installed in compliance with a current British Agrément Board certificate or other Quality system approved by the Client. The quantities of admixture to be used are to be strictly in accordance with the manufacturer's technical data sheet.

Common bricks

014 Use clay common bricks to BS EN 771-1

Location	Bond	Mortar Mix
Superstructure Brickwork above DPC	Stretcher	1:1:6 cement lime mortar
Superstructure Brickwork above DPC	English	1:1:6 cement lime mortar
Substructure Brickwork below DPC	Stretcher	2:1:6 cement lime mortar
Substructure Brickwork below DPC	English	2:1:6 cement lime mortar

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- 015 Use concrete common bricks to BS EN 771-3, with an average compressive strength of 20N/mm² with no brick from any 10 no tested having a strength less than 16N/mm sq.

Location	Bond	Mortar Mix
Superstructure Brickwork above DPC	Stretcher	1:1:6 cement lime mortar
Superstructure Brickwork above DPC	English	1:1:6 cement lime mortar
Substructure Brickwork below DPC	Stretcher	2:1:6 cement lime mortar
Substructure Brickwork below DPC	English	2:1:6 cement lime mortar
Substructure Brickwork below DPC	Honeycombed	2:1:6 cement lime mortar

- 016 Use concrete common bricks to BS EN 771-3, with an average compressive strength of 30N/mm² with no brick from any 10 no tested having a strength less than 24N/mm sq.

Location	Bond	Mortar Mix
Manholes	Stretcher	1:3 cement sand
Manholes	English	1:3 cement sand

Facing and Engineering bricks

- 017 Ensure facing bricks and engineering bricks are clay and of a size, type and colour to match the existing bricks.
- 018 Where approved by the Client's Representative, clean and reuse sound facing and engineering bricks taken down as part of repair works.

Air bricks and wall ventilators

- 019 Use unglazed clay/concrete air bricks of a colour to match the facing bricks.

Cavity wall insulation – Built in Boards

- 020 Mineral fibre batt built in cavity wall insulation to BS EN 13162 generally made to fill the cavity, with conductivity less than 0.038W/mK, complete with a current BBA certificate or equivalent current quality system approved by the Client's Representative.
- 021 Expanded grey polystyrene injection moulding full fill board cavity wall insulation to BS EN 13163 with 10mm weathering space, and with conductivity less than 0.032W/mK, and compressive strength more than 70kPa at 10% compression, complete with a current BBA certificate or equivalent current quality system approved by the Client's Representative.
- 022 Composite, full-fill. Cavity wall insulation board, with polyisocyanurate foam to BS EN 13165 between foil skins faced with a vacuum formed or injected high density polystyrene moulding with weathering space 5mm nominal, thermal conductivity less than 0.023 W/mK, compressive strength > 70kPa at 10% compression, complete with a current BBA certificate or equivalent current quality system approved by the Client's Representative.
- 023 Foil faced polyurethane/polyisocyanurate (PUR/PIR) foam partial fill cavity insulation board to BS EN 13165, thermal conductivity less than 0.023W/mK, compressive strength more than 120pKa at 10% compression, with a tongued and grooved edge profile, complete with a current BBA certificate or equivalent current quality system approved by the Client's Representative.
- 024 Foil faced phenolic foam partial fill cavity insulation board to BS EN 13166, thermal conductivity less than 0.023 W/mK, compressive strength more than 120pKa at 10% compression, complete with a current BBA certificate or equivalent current quality system approved by the Client's Representative.
- 025 Closed cell polystyrene board wall insulation (for use below ground level) to BS EN 13164, thermal conductivity less than 0.038W/mK, compressive strength more than 300pKa at 10% compression, complete with a current BBA certificate or equivalent current quality system approved by the Client's Representative. Boards fixed underground to resist uplift or displacement with flooding.

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- 026 Closed cell foam glass board wall insulation (for use below ground level) to BS EN 13167, thermal conductivity less than 0.038W/mK, Compressive strength more than 300pKa at 10% compression, complete with a current BBA certificate or equivalent current quality system approved by the Client's Representative. Boards fixed underground to resist uplift or displacement with flooding.

Installation Generally

- 027 Install in compliance with the manufacturer's technical data sheet and the relevant BBA certificate or equivalent quality system approved by the Client's Representative.

Neatly cut and fit insulation securely, with staggered vertical joints and no gaps, and temporarily support in position when necessary. Include for 300mm girth DPM as requires at external corners.

When available use tongues and groove edge profiled boards.

Ensure that board edges are not damaged, and all parts of the inner cavity leaf face are covered.

Protect top edges from mortar droppings and other debris with a temporary batten.

Place and secure each course of insulation firmly against the inner leaf, before building up the outer leaf above level of previous course of insulation.

Wall ties are to be corrosion proof to suit manufacturer's board fixings including insulation retention clips as necessary and must **not be galvanised mild steel**.

Mastic compound and sealants

- 028 Sealants are to conform to:
BS EN ISO 11600 low modulus and mould resistant; or
BS EN ISO 11600 low modulus; or
BS 476-22 fire retardant

Before commencing application of sealants check suitability of joints to ensure that:
Joint dimensions are within limits specified for the sealant;
Surfaces are smooth and undamaged;
Joints are to BS 8000-16

Clean surfaces to which sealant is to adhere using methods and materials recommended by the sealant manufacturer's technical data sheet.

Remove all temporary coatings, tapes, loosely adhering material, dust, oil, grease and other contaminants which may affect bond.

Keep joints clean and protect from damage until sealant is applied.

Protect adjacent surfaces with masking tape to prevent staining and protect surfaces which would be difficult to clean if smeared with primer or sealant.

Backing strips, bond breaker and primer are to be of the types recommended by the sealant manufacturer's technical data sheet. Backing strips and/or bond breaker tape are to be inserted into joint leaving no gaps.

Use equipment and methods recommended by the sealant manufacturer's technical data sheet for the application of sealants. Sealants are to be applied within the recommended application life of primer and sealant and the recommended air and substrate temperature ranges.

Sealants are not to be applied to:
damp surfaces (unless recommended otherwise);
surfaces affected by ice or snow;
surfaces during inclement weather;

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Joints are not to be heated to dry them or to raise the temperature.

Fill joints completely, leaving no gaps, excluding all air and ensuring firm adhesion of the sealant to required joint surfaces. Tool the sealant to a neat, slightly concave profile unless otherwise specified, and protect till cured.

Wall ties

- 029 Wall ties are to be stainless steel 225mm to suit cavity and built in as work proceeds;
Type: to BS EN 845-1 and BS EN 1996-2
Material: Austenitic stainless steel conforming to BS EN 10088-3 grade 1.4301 (304)
- 030 Wall ties are to be stainless steel 225mm to suit cavity and with suitable fixings for any partial fill boards and built in as work proceeds;
Type: to BS EN 845-1 and BS EN 1996-2
Material: Austenitic stainless steel conforming to BS EN 10088-3 grade 1.4301 (304)
- 031 Wall ties are to be stainless steel 275mm to suit 150mm cavity and with tie mounted insulation retaining clips as recommended by insulation manufacturer and built in as work proceeds;
Type: to BS EN 845-1 and BS EN 1996-2
Material: Austenitic stainless steel conforming to BS EN 10088-3 grade 1.4301 (304) Product to have BBA certification or equivalent.
- 032 Wall ties are to be stainless steel 275mm to suit 150mm cavity and built in as work proceeds;
Type: to BS EN 845-1 and BS EN 1996-2
Material: Austenitic stainless steel conforming to BS EN 10088-3 grade 1.4301 (304) Product to have BBA certification or equivalent.
- 033 Wall ties are to be proprietary moulded black polypropylene wall ties 185mm long with a central 75mm x 9mm steel rod incorporating 3 annular collars and with 56mm wide fish-tail ends incorporating keying edges to suit 225mm cavity
Type: to BS EN 845-1;
Material: Plastic/steel;
Supplied and installed in compliance with a BBA certificate or equivalent quality assurance system approved by the Client's Representative.
- 034 Wall ties are to be mineral fibre resin composite wall ties minimum 225mm and with suitable fixings for any partial fill boards
Material: Mineral fibre resin composite;
Supplied and installed in compliance with a BBA certificate or equivalent quality assurance system approved by the Client's Representative.
- 035 Wall ties are to be bedded not less than 50mm into bed joint of each leaf, sloping towards the exterior with drip centred on cavity, and evenly spaced at maximum 900mm centre horizontally, staggered in alternate rows and at 450mm centres vertically, provide additional ties within 225mm of sides of openings, at not more than 225mm centres vertically, (to suit blockwork courses).
- 036 Wall ties are to be stainless steel ties to timber frames are to conform to BS EN 845-1
Material: austenitic stainless steel conforming to BS EN 10088-3;

Fixing: Fix securely to timber studs with 50mm x 11 gauge stainless steel annular shank nails, bed not less than 50mm into bed joint of brick cladding sloping towards the exterior, ties evenly spaced at not more than 800mm centres horizontally, staggered in alternate courses and at 450mm centres vertically, and with suitable fixings for any partial fill insulation boards, provide additional ties within 150mm of sides of openings, at not more than 225mm centres vertically.
- 037 Spiral stainless steel ties for timber frames are to be austenitic stainless steel conforming to BS EN 10088-3 and installed in accordance with the manufacturer's technical data sheet and the Client's requirements.

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- 038 Brick extension ties are to conform to BS EN 845-1
 Material: 22 gauge austenitic stainless steel conforming to BS EN 10088-3;
 Fixing: Fixing screws to be 50mm austenitic stainless steel with washers, 155mm austenitic stainless steel, Plugs to be 8mm high density polyamide;
 Sealing: Sealing strip to be neoprene resin-impregnated micro-cellular polythene, self-adhesive 10mm x 20mm x 2.4mm;
- 039 Wall ties spaced at not more than 225mm centres vertically at vertical edges.

Chimney pots and cowls

- 040 Clay, clay louvered, and clay “H” type chimney pots as Instructed and approved by the Client’s Representative are to be to BS EN 13502, bedded and flaunched in cement mortar (1:3) incorporating a waterproofing agent and a bonding agent mixed in accordance with the manufacturer’s technical data sheet.
- 041 Ventilating caps as Instructed and approved by the Client’s Representative are to be vitrified clay, set in position in chimney cap with a neat fit joint.
- 042 Chimney cowls as Instructed and approved by the Client’s Representative are to be aluminium, fixed to clay chimney pots in accordance with the manufacturer’s technical data sheet.
- 043 Clay anti-draught terminals as Instructed and approved by the Client’s Representative are to be to BS EN 13502, bedded and flaunched in cement mortar (1:3) incorporating a waterproofing agent and a bonding agent mixed in accordance with the manufacturer’s technical data sheet.
- 044 Galvanised steel anti-draught terminals as Instructed and approved by the Client’s Representative are to be bedded and flaunched in cement mortar (1:3) incorporating a waterproofing agent and a bonding agent mixed in accordance with the manufacturer’s technical data sheet.

Expansion joints

- 045 Movement joints are to be formed from 60mm x 18mm wide impregnated compressible insulation board, 25mm polyethylene foam strip and 10mm thiosulphide joint sealant pointed to finish slightly behind the brick face or concrete threshold.

Samples of bricks and blocks

- 046 Use only common, facing and engineering bricks and lightweight concrete blocks that conform to samples that have been approved by the Client’s Representative.

Precast concrete components

- 047 Unless the Client’s Representative Instructs otherwise, bed precast concrete components on mortar with a bearing of at least 150mm, packed on slate.

Precast concrete is to be:

Components	Copings, Pier Caps Chimney Capping’s Lintels Door Thresholds
Designated Concrete	RC 25/30
Reinforcement	BS 4449
Aggregate Size	20mm
Coarse recycled concrete aggregates (RCA)	Permitted
Chloride Class	C1.0.4
Finish Requirements	Fair face on exposed surfaces

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Components	Window Sills,
Designated Concrete	RC 25/30
Reinforcement	BS 4449
Aggregate Size	10mm
Coarse recycled concrete aggregates (RCA)	Permitted
Chloride Class	C1.0.4
Finish Requirements	Fair face on exposed surfaces

Prefabricated steel lintols

- 048 Unless the Client’s Representative Instructs otherwise, bed steel lintols on mortar with a bearing of at least 150mm, packed on slate.

Lintels are to be hot dipped galvanised steel to BS EN 845-2 BSI kite marked, BBA or equivalent certified quality system as approved by the Client’s Representative.

Facing Brick Slips

- 049 Facing brick slips must be clay of a size, type and colour and to a bond to match existing facework to the property; subject to approval of the Client’s Representative.
- 050 Acrylic brick blips must be of a size, type and colour and to a bond to match existing facework to the property; subject to approval of the Client’s Representative.

WORKMANSHIP

Brickwork

- 051 Except where otherwise Instructed, lay new brickwork:
- to a gauge of 34 courses to 2550mm rise; or
 - where existing brickwork is of a different gauge, to match the coursing of that brickwork.
- 052 Flush up solid horizontal and vertical joints with mortar throughout the thicknesses of the wall. Keep bed joints horizontal and quoins and perpends square and vertical. Lay bricks with single frogs with the frogs upwards.
- 053 Carry up walls in a uniform manner, with no part being raised more than 1 metre above another at one time. Rack back brickwork for jointing up (do not tooth it). Do not use bats except where required to bond.
- 054 Where the Schedule of Rates refers to “half brick thick”, provide half brick thick walls in either metric or imperial sizes, as required for the Works.

Cavity walls

- 055 Construct cavity walls:
- with a cavity minimum 100mm, maximum 150mm wide between the inner and outer casings;
 - bonded together with austenitic stainless steel wall ties;
 - spaced according to manufacturer’s technical data sheet and to suit cavity width but a maximum of 900mm apart horizontally, each row staggered and 450mm vertically; and
 - spaced at a maximum 225mm apart vertically (to suit blockwork courses) within 225mm of vertical edge of opening.
- 056 Fit ties for batt type insulated cavity walls with an adjustable plastic anchor for securing the insulation in position against the inner skin of the wall.
- 057 Keep cavities clear of mortar dropping by draw boards across the cavity. Leave access holes at the bottom of cavities and over lintels for cleaning out. Fill them in after this has been done.

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- 058 Close cavities of cavity walls with proprietary insulated cavity closers as Clauses 115 to 119, damaged brickwork closing cavities of hollow walls at sills and jambs of openings is to be repaired with brickwork to match existing, solid for a minimum depth of 100mm, and properly bonded to the surrounding work.
- 059 Take all precautions whilst undertaking the Works not to lose the integrity of the insulation in existing cavity walls that contain loose fill insulation materials.

Weather and protection

- 060 Adequately protect bricks on site and keep them dry. Where covers are used to protect bricks, ensure that there is sufficient circulation of air to prevent condensation forming. Ensure bricks are laid dry.
- 061 Do not carry out bricklaying:
- in driving rain; or
 - when the temperature in the open is at or below 5^o Centigrade.
- 062 Use plasticisers only with the Client's Representative's approval. Do not use antifreeze compounds.
- 063 Adequately protect new brickwork from damage by frost or excessive wet weather.

Fair face

- 064 Face surfaces of brickwork or blockwork described as "built fair face" with common bricks or blocks selected from bulk for even and unmarked faces and square undamaged arrises. Finish them with a neat flush joint as the Works proceed to match the existing brickwork. Protect them from mortar droppings and damage and ensure they are left clean on completion of the Works.

Facework

- 065 Joint facework as the Works proceed. Finish the vertical and horizontal joints with a convex jointer (bucket handle) or to match the existing framework. Keep the leading edge of damp-proof courses/cavity trays 5mm back from face of wall. Rake back mortar to fully expose edge of damp-proof course/cavity tray.
- 066 Keep facings free of all mortar splashes, droppings or other blemishes and leave them perfectly clean on completion of the Works.

Damp-proof courses (Polyethylene DPM)

- 067 Lap damp-proof courses 150mm at all joints and full width at angles and intersections.

Bituminous and silicone waterproofing liquid

- 068 Ensure surfaces to receive the waterproofing liquid are thoroughly dry and clean.

Pointing

- 069 Match the pointing of new work to that of adjacent work, or to be flush or bucket handle pointing as Instructed by the Client's Representative.
- 070 Match pointing closely to the existing pointing in finish, colour and texture.

Carefully rake out existing brickwork joints by hand to form a square recess of 15mm – 20mm depth, remove dust, lightly wet and neatly point in cement lime sand mortar (1:1:6) of a colour to match existing to a neat weather struck profile to match existing in a continuous operation.

Carefully rake out existing stonework joints by hand to form a square recess of 15mm – 20mm depth, remove dust, lightly wet and neatly point in cement lime sand mortar (1:1:6) of a colour to match existing.

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Work to chimneys and fires

- 071 Adequately protect the Customer's finishes, fittings and furnishings from falling debris and soot during Works to chimneys and fires. Take all necessary precautions to protect existing fire appliances from damage. Rectify any damage caused.
- 072 Ascertain whether any flueways affected by the Works serve a gas appliance. If so, immediately notify the Client's Representative of this in writing, so that appropriate safety precautions can be implemented.
- 073 Remove all debris from flueways and from behind fires and appliances on completion of the Works.

Cavity Wall Insulation (CWI)

System Guarantees

- 074 The Service Provider is to provide a 25 year, third party, insurance-backed guarantee to cover the cavity wall assessment, insulation materials, system and installation. For each property insulated, a guarantee certificate should be provided stating the exact address of the Property covered by the guarantee.
- 075 The guarantee must meet the following criteria:
 - 1 Provide a minimum guarantee of 25 years.
 - 2 Provide assurance that funds are available to honour the guarantee, including in the event the contractor/installer/manufacture ceases to trade.
 - 3 Cover the full replacement of a failed CWI system, including remedial works, materials and installation.
 - 4 Have a quality assurance framework in place whereby the quality of the system and its installation are independently assessed by a UKAS accredited body.
- 076 A list of appropriate guarantees can be found on the Ofgem website under their ECO Guidance. Please note this list is not exhaustive and other appropriate guarantees may be available.
- 077 All costs associated with providing the guarantee are to be borne by the Service Provider and the Service Provider must make the Client's Representative fully aware, in advance and in writing, of any maintenance regime required to uphold the guarantee.

PAS 2030

- 078 The installation must be undertaken by persons with appropriate skill and experience, approved by the manufacturer and in accordance with PAS 2030.
- 079 Evidence must be provided that the CWI installation contractor has PAS 2030 certification.
- 080 A pre-design survey of the dwelling is to be carried out by a competent person in accordance with PAS 2030 to assess its suitability to receive the insulation. The Client's Representative, Service Provider and system designer should be made aware of any remedial works required and, if Work is to proceed, these should be carried out prior to installation.
- 081 Pre-design survey, method statements and the related requirements of PAS 2030 are to be provided to the Client's Representative prior to installation.
- 082 Clear records of Work undertaken must be kept and be presentable at the reasonable request of the Client's Representative to allow monitoring of installation Work.
- 083 On completion of the Work, a "Declaration of Conformity" to PAS 2030 standard shall be provided to the Client's Representative for their records.

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Design Considerations

- 084 The proposed design and installation must not have a negative effect on the ventilation, air quality, humidity and comfort of the Property. When presenting designs, the Service Provider must make recommendations for any further measures required to prevent environmental changes occurring as a result of the insulation works, and to ensure the continued or improved comfort of the Customers. The proposed design must, satisfy or exceed the minimum standards in the Building Regulations.
- 085 The insulation system designer should:
- Calculate U-values in accordance with:
 - BS EN ISO 6946
 - BRE report BR 443
 - Ensure that thermal bridges, air leakage and condensation are avoided or at least kept to a minimum within the acceptable parameters, in accordance with the following methods of calculation and assessment:
 - BS EN ISO 13788 - Hygrothermal performance of building components and building elements. Internal surface temperature to avoid critical surface humidity and interstitial condensation.
 - BS EN ISO 10211 - Thermal bridges in building construction. Heat flows and surface temperatures.
 - BS EN ISO 13789 - Thermal performance of buildings. Transmission and ventilation heat transfer coefficients.
 - BRE BR 262 – Thermal Insulation: avoiding risks.
 - BS 5250 – Code of Practice for the Control of Condensation in Buildings.
 - Assess the subject walls for the effects of wind-driven rain and the suitability of the proposed system in accordance with:
 - BS 8104 – Code of Practice for assessing the exposure of walls to wind-driven rain.

Cavity Wall Pre-Installation Inspection

- 086 Prior to any Works, the Client's Representative must receive evidence from the Service Provider that the Property has been inspected in accordance with, and independently verified by, the BBA Cavity Assessment Surveillance Scheme (CASS), or other UKAS accredited inspection body equal and approved by the Client's Representative. The inspection body must satisfy the requirements of PAS 2030, be independent of any system installer or designer and hold UKAS accreditation to either ISO 17065 or ISO 17020 'Type A'.

The inspection should include an external visual assessment of the elevations, and an internal visual inspection of the dwelling.

A rigid 90 degree optical borescope with attached digital SLR camera or another optical system of comparable image quality should be used to record clear photographs to the Client's Representative's satisfaction. The illumination, depth of field, and camera resolution will be sufficient to clearly identify defects and fibre and expanded polystyrene insulation up to one meter from the camera.

Longer focus images may be in black and white or a single illumination colour wavelength, provided that the materials shown in the images are identified. 10 different sample digital photographs of wall cavities, including mineral or glass fibre and cavity bottom debris, shall be submitted to become contractual image quality benchmarks and should include views of materials 1 meter away from the viewing prism or lens.

THE CWI inspectors may, if they wish, use a thermal imaging camera with an appropriate scale to assist them in deciding where exactly to drill for the boroscope inspection but it should comply with the following pattern:

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- 087 For single storey Properties this will include 3 boroscope readings per elevation.
- One of these will be at least 300mm above the damp proof course
 - One will be within 300mm of the wall plate below the roof (For gable walls this should be along or just above the dividing line between the ground floor accommodation and the loft).
 - One will be below a window sill (For gable walls where there are no windows, this can be halfway up the wall between the ground and roof space line)
- 088 For two storey dwellings this will include 4 boroscope readings per elevation.
- One of these will be at least 300mm above the damp proof course
 - One will be within 300mm of the wall plate below the roof (For gable walls this should be along or just above the dividing line between the first floor accommodation and the loft).
 - One will be at first-floor floor joist level (i.e., between ground and first floor)
 - One will be below a second storey window sill (For gable walls where there are no windows, this can be halfway up the wall between the first floor and the loft).
- 089 Prior to any Work, the Service Provider must produce a Property specific report on their findings to include confirmation of the following;
- 1 Address, postcode and Client's UPRN of the Property being inspected.
 - 2 The location of boroscope holes, each with a unique reference number, presented on sketch elevations or photographs.
 - 3 Date stamped photographs from boroscope tests with images of similar quality to the benchmark digital images.
 - 4 The construction type and its condition, including the build-up of the walls, the condition of masonry and pointing materials and the thickness of each element.
 - 5 Condition and width of the cavity and wall ties, including the presence of mortar snots, debris etc., and whether or not it is deemed to be a Hard To Treat cavity.
 - 6 Any visible evidence of continuing or developing structural problems, including steel lintel or wall tie corrosion, settlement or subsidence cracking, movement, failures in structural timber.
 - 7 The presence of insulation and its type, e.g., mineral or glass wool (fibre), bonded bead, loose bead, Urea Formaldehyde foam, or insulation board.
 - 8 Condition of insulation, including whether the cavity is filled to the correct density in accordance with the system designer specification.
 - 9 The original injection drill pattern in relation to whether or not it conformed to the system designer specification for the type of insulation.
 - 10 The U-value of the existing construction.
 - 11 The presence of an adequate DPC.
 - 12 The suitability of the cavity to receive CWI in relation to the property location and exposure, in accordance with BS 8104 and BRE Report 262.
 - 13 Any evidence of voids or other problems caused by insulation failure.
 - 14 Where voids or other problems are evident, what are the reasons e.g. insufficient insulation (fibre or bead), settlement of fibre, insufficient glue for bonded beads, boards not properly fitted, etc
 - 15 Locations and severity of any mould, condensation, water penetration or other obvious defects evident internally.
 - 16 Locations and severity of any mould, condensation, water penetration or other obvious defects evident externally.
 - 17 The presence of openable ventilators and adequate mechanical ventilation in relation to condensation/mould.
 - 18 Adequate existing ventilation for any fuel burning appliances located within the property.
 - 19 Any ventilation openings that would require remedial works to ensure they are not compromised during extraction or injection of insulation.
 - 20 The location of flues to ensure they are not compromised during extraction or injection of insulation.
 - 21 Injection drill holes were adequately filled upon completion of the original installation.
 - 22 Boroscope drill holes were adequately filled with sand/cement and to closely match the colour and texture of the existing wall, upon completion of the inspection.
 - 23 Any evidence of ingress of CWI materials in roof space/at services.
 - 24 Relevant feedback from the Customer.

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- 25 Any other information considered relevant e.g. absence of cavity barriers, etc.
- 26 Conclusions and any recommendations for remedial action to improve or replace insulation if considered appropriate.
- 27 Any Property constraints that would prohibit the execution of any recommended Works.

Cavity Wall Cleaning

- 090 Cleaning of cavity walls may only be carried out by a company currently registered with the BBA Cavity Cleaning Company Scheme, or other UKAS accredited body equal and approved by the Client's Representative, that includes for clearing rubble and other material from the cavity in addition to the extraction of insulation.
- 091 Cleaning may only take place when Instructed by the Client's Representative and is subject to the outcome of the surveillance scheme inspection.
- 092 Cleaning company must inform the Client's Representative of any remedial Works that are required, following the independently verified cavity inspection.
- 093 Cleaning company must include for the removal of rubble within the cavity and any other material that may bridge the cavity. The Client's Representative should be informed of any Material that cannot be removed and may compromise the integrity of the cavity.

Cavity Wall Insulation - Injected

- 094 Mineral fibre of a type currently certified by BBA, or other UKAS accredited certification body equal and approved by the Client's Representative, as suitable for the purpose and exposure. Only to be used to top up existing mineral fibre insulation, subject to the outcome of the surveillance scheme inspection. Thermal conductivity max 0.04W/mK, installed to the recommended density and in accordance with the quality assurance certificate and manufacturer's technical data sheet.
- 095 Expanded polystyrene beads/granules with grey/metallic additive, bonded by adhesive, and currently certified by the BBA or other UKAS accredited certification body equal and approved by the Client's Representative as suitable for the purpose and exposure. Suitable for both existing and newly constructed cavities, subject to the outcome of the surveillance scheme inspection. Thermal conductivity max 0.033W/mK, installed to the recommended density and in accordance with the quality assurance certificate and manufacturer's technical data sheet.
- 096 The insulation company is to be registered as a member of the Cavity Insulation Guarantee Agency (CIGA). The installer must be trained and approved by the system designer and carry out the installation in accordance with the:
 - surveillance scheme,
 - the BBA certificate,
 - the certificate holder's instructions, and
 - the CIGA requirements to obtain their guarantee.
 - any additional requirements of the insurance backed guarantee provider.

The completed installation is to be covered by an insurance backed minimum 25 year guarantee.

- 097 Injection holes are to be formed neatly to a regular pattern, preferably at the junction of vertical and horizontal mortar joints, and to sizes recommended by the cavity fill manufacturer. Drill additional holes as necessary to ensure a full fill. Avoid damage to damp-proof courses, cavity trays, flues etc., and prevent debris falling into cavity. Form all holes in any one wall before commencing filling of that wall. Fill injection holes, replacing existing material where possible to ensure a close match of colour and texture with the existing surface. Obtain agreement from Client's Representative of finished appearance of first few holes before completing the remainder.
- 098 During installation, check regularly for leakages of insulation and seal immediately.

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- 099 Following completion of the works, and at the end of each day if the work spans more than one day, check and confirm all ventilation outlets, flues etc have not been compromised by the injection of insulation and remain in working order, ensuring to clear any blockages immediately.
- 100 Check for and remove any wall insulation that has been blown up through the top of the cavity into the loft space.
- 101 The Service Provider is to keep a detailed record of the installation including survey results, materials, weather conditions and any unusual features. Records shall be returned digitally to the Client’s Representative as a spreadsheet or database in a format compatible with Microsoft Office and named with the Client’s UPRN, as approved by the Client’s Representative.
- 102 Copies of all certificates, records, guarantees and other documents shall be submitted to the Client’s Representative on completion.

Fire-stopping Works – Proprietary Material

- 103 Fire-stopping material for use as a gap filling material where cables, non-combustible dusts or pipework services penetrates fire compartment floors and walls shall be a proprietary compound that is to be non-fibrous, non-toxic and to contain no asbestos, phenol’s or halogen’s, applied as a mortar to the following thicknesses.

Fire Resistance	Minimum Depth of Filling Material
One Hour	50mm
Four Hour	100mm

50mm Thick non-combustible mineral wool slab is to be used as permanent shuttering to fire-stopping compound mortars.

For horizontal barriers the mineral wool slabs are to be friction fitted into the opening and around the penetrating services, so that the compound mortar may be poured on top of the slab to the required thickness, temporary support may be needed until the compound mortar has achieved it setting requirements

For vertical or wall barriers the mineral wool slab should be installed at the centre line of the fire compartment wall by friction fitting around the penetrating services, the vertical slab is then to have the compound mortar applied either side of the slab to a maximum thickness of 25mm.

The fire-stopping mortar is to be applied strictly in accordance with the manufacturer’s technical data sheet.

- 104 Fire-stopping material for use as a gap filling mortar around cable penetrations through fire compartment and separation walls and floors shall be a proprietary non-combustible material manufactured from lightweight aggregates, inorganic hydraulic binders and other fire protective additives which impart rheological properties. It is to be used in situations where the subsequent installation of additional cables through the wall or floor penetration is likely to take place and a flexible filling material would facilitate this event.

The mortar is to be mixed by hand and applied strictly in accordance with the manufacturer’s technical data sheet

- 105 Fire-stopping material for use as fire protection to fire compartment floors and walls penetrated by air conditioning ducts or service pipework shall be a proprietary non-combustible non-fibrous and non-toxic material manufactured from lightweight aggregates, inorganic hydraulic binders and other fire protective additives which impart rheological properties, applied in layers as a mortar to the following thicknesses.

Fire Resistance	Minimum Depth of Filling Material
Four Hour	160mm

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Temporary shuttering may be required where the mortar is applied to wall penetrations, if there is likely to be movement in the pipes or ducts, the pipe or duct is to be wrapped in a 5 to 10mm thickness of mineral or ceramic wool.

The compound is to be mixed by hand and applied strictly in accordance with the manufacturer's technical data sheet.

The Service Provider or his approved subcontractor is to have FIRAS certification and to produce certified copies of their registration as and when requested by the Client's Representative.

Fire-stopping – Non Proprietary

106 Fire-stopping material to party walls and similar situations can be either:

Non-combustible mineral wool to BS 3958-5 compressed fit between timber members and fixed with large galvanised nails, cut to profile; or
Non-combustible mineral wool with density ne 80kg/m³ to BS 3958-5 compressed fit between timber members and fixed with large galvanised nails, cut to profile; or
Non-combustible mineral wool with integral galvanised wire mesh with density ne 80kg/m³ to BS 3958-3 compressed fit between timber members and fixed with large galvanised nails, cut to profile; or
Asbestos free mineral fibre reinforced board, moisture resistant to BE EN 13501-1 Euro Class A1, bedded in mortar to match walling;

107 Fire-stopping to loft access hatch door shall be asbestos free mineral fibre reinforced board, moisture resistant to BE EN 13501-1 Euro Class A1.

108 Joint sealants are to be intumescent fire resistant mastic to BS 476-20 installed in accordance with the manufacturer's technical data sheet;

109 Ensure that any imperfections of fit between building elements which are required to have fire resistance and/or resist the passage of smoke are completely sealed with non-combustible sealing material e.g. mortar, mineral filler paste or plaster, not plastic foam filler. Where not specified otherwise, tightly pack with mineral fibre.

Removal and Replacement of Failed Wall Tiles

110 Cut out corroded metal ties carefully, causing least possible disturbance to surrounding masonry and remove any associated rust debris.

111 Remedial wall ties shall be manufactured from austenitic stainless steel and be capable of meeting the test criteria for Type 2 wall ties.

Physically Inserted DPC'S to Existing Walls

112 When renewing damp-proof courses, cut out brickwork in short hit and miss lengths not exceeding 1.00m at any one time and prevent structural damage, installation is to form a continuous barrier to rising damp, finished flush with face of wall externally and to lap 150mm (minimum) with damp-proof membrane. Replace brickwork before commencing further lengths.

113 The installation is to form a continuous barrier to rising damp, the undertaking of joint cutting is to undertaken in such a manner as to prevent any structural damage. The damp-proof course is to extend the full width of the wall and any finishes. The damp-proof course is to finish flush with external face of wall, and internally is to lap 150mm (minimum) with damp-proof membrane.

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- 114 Physically inserted damp-proof course system material is extend the full width of wall and finish and to be either:
Polyethylene to BS 6514, weight not less than 1.55kg/m²; or
Bituminous Felt to BS 6398, weight not less than 0.46kg/m²

Insulated Cavity Closers and Insulation to Jambs

- 115 Insulation to window and door jambs must comprise:
- 50mm minimum front to back dimension, notional width 100mm, insulation to be securely built in between inner and outer skins at jambs with vertical damp-proof course;
 - Insulation to provide minimum 30 minutes fire resistance in terms of integrity and 15 minutes in terms of insulation when tested to BS 476 Part 20;
 - Thermal conductivity to be no greater than 0.038W/mK, insulation to be under compression within cavity and installed in accordance with the manufacturer's technical data sheet and the Building Regulations.
- 116 Built in insulated cavity closers must comprise proprietary insulated cavity closer to flush reveal, to bridge between inner and outer skins at window and door reveals.
- Cavity closers to be covered by a current BBA certificate or equivalent quality assurance certificate acceptable to the Client's Representative;
 - Rigid PVC-u casing enclosing insulation with double flange to internal and external leaf to provide a key for rendering and plastering;
 - Thermal conductivity of insulation to be no greater than 0.038W/mK;
 - Cavity closer to provide minimum 30 minutes fire resistance in terms of integrity and 15 minutes in terms of insulation when tested to BS 476 Part 20;
 - Installed in compliance with current BBA certificate or equivalent quality system acceptable to the Client's Representative;
 - Accessories: Manufacturer supplied compatible Polypropylene or PVC-u wall ties built in in accordance with the Manufacturer's technical data sheet.
- 117 Built in insulated cavity closers must comprise proprietary insulated cavity closer to check reveal, to bridge between inner and outer skins at window and door reveals.
- Cavity closers to be covered by a current BBA certificate or equivalent quality assurance certificate acceptable to the Client's Representative;
 - Rigid PVC-u casing enclosing insulation with single flange to internal leaf to provide a key for plastering;
 - Thermal conductivity of insulation to be no greater than 0.038W/mK;
 - Cavity closer to provide minimum 30 minutes fire resistance in terms of integrity and 15 minutes in terms of insulation when tested to BS 476 Part 20.
 - Installed in compliance with current BBA certificate or equivalent quality system acceptable to the Client's Representative;
 - Accessories: Manufacturer supplied compatible Polypropylene or PVC-u wall ties built in in accordance with the Manufacturer's technical data sheet.

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118 Built in proprietary insulated cavity closer to bridge between inner and outer skins at window sills:

Cavity closers to be covered by a current BBA certificate or equivalent quality assurance certificate acceptable to the Client’s Representative;

Rigid PVC-u casing enclosing insulation with double flange to internal and external leaf;

Thermal conductivity of insulation to be no greater than 0.038W/mK;

Cavity closer to provide minimum 30 minutes fire resistance in terms of integrity and 15 minutes in terms of insulation when tested to BS 476 Part 20;

Installed in compliance with current BBA certificate or equivalent quality system acceptable to the Client’s Representative.

119 Built in insulated cavity closers must comprise Proprietary insulated cavity closer to bridge between inner and outer skins at window heads

Cavity closers to be covered by a current BBA certificate or equivalent quality assurance certificate acceptable to the Client’s Representative;

Rigid PVC-u casing enclosing insulation with single flange to internal leaf;

Thermal conductivity of insulation to be no greater than 0.038W/mK;

Cavity closer to provide minimum 30 minutes fire resistance in terms of integrity and 15 minutes in terms of insulation when tested to BS 476 Part 20;

Installed in compliance with current BBA certificate or equivalent quality system acceptable to the Client’s Representative

Client’s current manufacturers/suppliers/products

120 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand Name	Manufacturer’s Details

[complete table as appropriate]

ROOFING

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

ROOFING

GENERAL

Generally

- 001 Stock adequate compatible Materials for the numerous types of tiled roofs that exist throughout the Properties.
- 002 Ensure tiles, slates and accessories laid or fitted are of a colour to match the existing.

Samples of the Materials shall be provided as and when requested by the Client's Representative. The quality of Material be not less than that of the samples of the agreed standard. Materials shall be stored in a manner which will prevent damage and the introduction of deleterious matter.

Carry out tests on Materials as and when requested by the Client's Representative and supply certificates from a testing laboratory showing the results of each test.

- 003 Reinstate or replace any missing or defective battens and roofing felt when undertaking repairs.

MATERIALS

Dry and Wet ridge/hips/valleys/verges

- 004 Ensure mechanically fixed dry ridge and dry verge Works are compatible with the existing dry ridge and dry verge installation and existing roof coverings.

Ridges are to be designed and fitted in accordance with BS 5534 and the manufacturer's technical data sheet and to be formed with either 240mm diameter x 457mm long concrete half-round ridge capping tiles or 237mm x 154mm x 457mm long concrete angled mono ridge capping tiles to BS EN 490 and BS EN 491 complete with plastic profile filler units to match tile profile, and plastic ridge end caps.

Hips are to be designed and fitted in accordance with BS 5534 and the manufacturer's technical data sheet and to be formed with 240mm diameter x 457mm long half round ridge capping tiles to BS EN 490 and BS EN 491.

Valleys are to be designed and fitted in accordance with BS 5534 and the manufacturer's technical data sheet from neatly and accurately cut tiles to give a valley width of 125mm.

Dry cloaked verge systems are to be designed and fitted in accordance with BS 5534 and the manufacturer's technical data sheet. Verge to be formed with one and a half tiles in alternate courses, with overhang kept to a minimum. Under-cloak is to be mineral fibre sheet 150mm x 12mm thick laid between the underlay and tiling batten.

- 005 Ensure wet ridge and wet verge Works are compatible with the existing wet ridge and wet verge installation and existing roof coverings.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Underlay

- 006 Lap roof tile underlay a minimum 150mm or length as stated in the manufacturer's technical data sheet at horizontal and vertical joints over adequately supporting members. Underlay should be sealed at penetrations through the roof and at the ridge to accommodate high level void ventilation.

As specified by roof designer, underlay to be either:

Reinforced felt, in repairs only, to BS 8747 and BS EN 13859-1; or

3 layer composite polypropylene membrane, composed of an impermeable polypropylene film sandwiched between 2 layers of spun-bonded polypropylene with:

- Tensile strength: min 240N/50m (Longitudinal), 200N/50m (Transverse)
- Tear Resistance: min 120N (longitudinal), 120N (Transverse)
- Water Tightness: W1 to BS EN 1928
- Certification: British Agreement Board (BBA) or equivalent; or

Breather membrane: 3 layer composite membrane, composed of a water vapour permeable membrane, sandwiched between 2 layers of spun-bonded polypropylene. Product to have British Agrément Board certification (BBA) or equivalent.

- Vapour resistance no more than 0.6MN s/g.
- Tensile Strength: min. 240 N/50 mm (longitudinal), 200 N/50 mm (transverse).
- Tear Resistance: min. 120 N (longitudinal), 120 N (transverse).
- Water Tightness: W1 to BS EN 1928

BS 5534 British Standard Code of Practice for slating and tiling provides additional guidance for the appropriate detailing of roofing components and should be followed when installing underlay.

- 007 On timber structures use only inodorous sheathing felt or proprietary underlay as specified by the manufacturer as underlay for copper, lead and zinc roofing in accordance with BS EN 13707.

Battens

- 008 For the tile battens use good quality deal, reasonably free from knots, clean and with no waney edges and in accordance with BS EN 1313-1 impregnated with an appropriate wood preservative before delivery to the Property, as specified under the 'Carpentry and Joinery' Section. Tile battens and counter battens to comply with BS 5534:20.

- 009 Fix battens with staggered joints and square butt jointing. These are to span at least 3 supports.

Wood rolls

- 010 For wood rolls for copper, zinc or aluminium roofing use wrot seasoned timber to a tapered profile shown in Code of Practice 143:5, 143:12 and 143:15. Use common rolls approximately 45 x 40mm overall unless otherwise Instructed by the Client's Representative.

- 011 For wood rolls for lead roofing, use wrot seasoned timber to the smooth rounded profile shown in BS 6915. Use common rolls approximately 45 x 45mm with a 25mm wide flat base unless otherwise Instructed by the Client's Representative.

Mortar

- 012 Use cement mortar (1:3) for bedding and pointing as described in the "Brickwork and Blockwork" Section, but slightly tinted in colour and specially mixed for the purpose.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Nails

- 013 Use galvanised steel clout nails for underlay and battens in compliance with BS 1202-1. Use the right size nails for battens to give a secure fixing without splitting the batten. For slates and tiles use aluminium alloy, to BS 1202-3, copper to BS 1202-2, or silicon bronze nails to BS 5534 or other nails approved by the Client's Representative.
- 014 Use copper jagged or ring shank nails, at least 20mm long with large flat heads for lead roofing.

Clips

- 015 Where roofing slates or tiles are described as fixing with clips, use lead or copper clips, approx. 300mm long x 20mm wide. Fix them to the roof batten beneath the slate or tile and bend them up and over the bottom edge of the slate or tile. Use aluminium alloy to BS 5427-1 or stainless steel clips to BS 5534 for slates.

Steel hook bolts and nuts and roofing screws

- 016 Steel hook bolts for fixing corrugated sheets are to be cadmium or zinc coated steel bolts with plastic sleeves and washers to a standard and quality approved by the Client's Representative. Ensure the bolt profile and size suits the sheets and roof members.

For corrugated sheets use galvanised drive roofing screws complete with plastic sleeves and washers to a standard and quality approved by the Client's Representative. Seams to be fixed with self-tapping screws or bolts.

Plywood decking for flat roofs

- 017 Ensure plywood sheets are to be for structural use to BS EN 1995-1 or equivalent material with Class 3 Bonding (external conditions) to BS EN 314-2, durability Class H and to comply to a standard and quality approved by the Client's Representative. Sheets to be fixed at 150mm centres to supports with 50mm x 3mm annular ring shank nails.

Woodwool slab decking for flat roofs

- 018 Where appropriate, reinforce woodwool slabs to comply with BS EN 13168 with pressed steel channels. Use galvanised steel large flat headed nails as fixings for the slabs of a length to suit the application of galvanised steel clips to BS EN ISO 3834-1 or such other fixings as the manufacturer of the slabs recommends. Slabs to be cut accurately and fixed with joints tightly butted and centred on supports, ends and cut edges are to be fully supported or reinforced in accordance with the slab manufacturer's technical data sheet.

Wood chipboard decking for flat roofs

- 019 Ensure chipboard conforms to BS 5669 and is of an appropriate moisture resistant grade suitable for the purpose and fix it with galvanised nails to comply to BS 120201 or screws to a standard and quality and of an appropriate size and gauge approved by the Client's Representative.

Lead

- 020 Use best milled Code 4 lead for lead roof coverings in accordance with BS EN 12588, flashings, soakers, rainwater chutes, valley gutter linings, hips, ridges and the like, colour marked for thickness and weight. Provide tacks minimum 40mm wide of the same lead substance at not more than 1 metre centres to flashings.

Clips for leadwork are to be 50mm wide and of a length to suit Client's details and to be formed from either:
Lead cut from sheets of the same code as the sheet being secured; or
Copper cut from 0.7mm thick sheet to BS EN1172, temper grade ¼ H, dipped in solder, if exposed to view; or
Stainless steel, cut from 28 gauge sheet to BS EN ISO 9445-1 and BS EN ISO 9445-2, terne coated if exposed to view

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Self adhesive flashings

- 021 Use self adhesive flashings in strict accordance with manufacturer's recommendations and only with the approval of the Client's Representative.
- 022 Fix self adhesive flashings over existing flashing and fillets. Apply an appropriate primer before use to ensure complete adhesion and in strict accordance with manufacturer's recommendations.

Asphalt roofing

- 023 Use as rubbing sand clean natural coarse sand passing a 600mm micron test sieve.
- 024 For chippings use hard light coloured non-absorbent natural stone graded 6 to 10mm.
- 025 Use white solar reflective paint.
- 026 Ensure asphalt roofing subject to traffic is to BS 6925 Type R988 undercoat with finishing coat to a standard and quality approved by the Client's Representative.
- 027 Use glass fibre tissue for the isolating membrane for roofing subject to traffic.

High performance felt roofing

- 028 Apply high performance felt roofing from an approved manufacturer to suit the relevant sub-surface and applied in strict accordance with the manufacturer's technical data sheet.

High performance "torch on" felt roofing

- 029 Prepare and apply high performance "torch on" felt roofing from an approved manufacturer to suit the relevant sub- surface and applied in strict accordance with the manufacturer's technical data sheet.

One layer torch on mineral felt roofing is to be to BS 8747 Class S3PS

Two layer torch on felt roofing is to consist of an intermediate layer of torch on felt roofing to BS 8747 Class S2PS, and a top layer of torch on felt roofing to BS 8747 Class S2PS.

Two layer torch on felt roofing with ventilating layer is to consist of a ventilating layer equivalent to Type 3G glass-fibre reinforced bitumen, perforated venting layer to BS 8747 and a top layer of torch on felt roofing to BS 8747 Class S2P3.

Bitumen primer

- 030 For felt roofing, use cut back bitumen primer with a maximum volatile solvent 60% by weight and Redwood No. 2 viscosity at 21⁰ Centigrade 25 sec maximum.

Bitumen compounds

- 031 For felt roofing, use a bitumen bonding compound having a penetration of 20/30 at 25⁰C and a softening point (R & B) of 80/100⁰ Centigrade. For the dressing compound use cut back bitumen to BS EN 12591. Use cold compounds dressing for bonding solar reflective chipping only with the approval of the Client's Representative. Ensure the bitumen coating for lead, copper or zinc roofing is a black coating solution to BS 3416.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

WORKMANSHIP

Roof tiling

- 032 Lay roof tiling in accordance with BS 5534 -1 and BS 8000-6 and in even courses to suit the existing gauging and laps. Secure tiles with the appropriate patent clips and/or nails.

Underlay to be laid and fixed with extra-large head nails parallel to eaves, cut neatly and accurately around pipes etc.,

Battens to be in straight horizontal lines with no batten less than 1200mm long, butt joints are to be centred on supports and must not occur more than once in any group of four batten at any one support, provide additional battens where necessary to prevent underlay being opened at laps by wind suction, fix each batten to each support with round galvanised steel nails 65mm long x 3.35mm.

Plain tiling is to be laid with each course to a half lap bond with tails aligned and joints slightly open, cut tiles the minimum necessary and then only with a masonry saw to give clean straight edges, nail tiles (minimum) every fifth course using two aluminium alloy nails per tile.

Nail fixed interlocking tiling is to be laid with tails aligned, cut tiles the minimum necessary and then only with a masonry saw to give clean straight edge.

Clip fixed interlocking tiling is to be fixed in accordance with the manufacturer's technical data sheet, tiling is to be laid with tails aligned, cut tiles the minimum necessary and then only with a masonry saw to give clean straight edges.

Form mechanically fixed dry ridge with underlay overlapping by not less than 150mm, fit correctly sized ridge batten along the apex of the trusses or rafters and secure to each rafter using stainless steel straps as supplied by the tile manufacturer and fitted in accordance with their technical data sheet, Fit top tiling batten on either side of ridge, fit top row of tiles to either side of ridge and fix to batten with two aluminium alloy nails per tile. Fit the plastic profile filler units in accordance with the manufacturer's technical data sheet, form ridge with ridge capping tiles and secure to ridge batten through the preformed hole in the ridge to ridge seal using the provided screw and washer. Fit the plastic ridge end caps.

Ridges spanning a party wall are to have a fire-stop formed by filling the ridge void with a suitable non-combustible material.

Form mechanically fixed dry hip with underlay overlapping by not less than 150mm, form ridge with ridge capping tiles. And neatly and accurately cut mitre tiles at junction with ridge.

Ventilating roof tiles are to proprietary ventilated in-roof ventilator tiles to match interlocking tiles in pattern, colour and texture and to be approved by the Client's Representative, to provide ventilation to BS 5250, product to have BBA certification or equivalent. Tile to provide 20,000mm² free opening and to exclude driven rain and large insects, openings are not to be more than 4mm. Tile to be installed approximately 300mm above the level of the insulation. Tile to have an integral apron and spigot for connection to flexible ducting and fixed in accordance with the manufacturer's technical data sheet.

Ridge ventilators are to be a proprietary concrete ridge ventilator tile to provide ventilation to BS 5250, product to have BBA certification or equivalent. Profile and colour to match adjacent ridge tiles, and mechanically fixed and bedded in accordance with the manufacturer's technical data sheet.

- 033 Form eaves with a double course of tiles.
- 034 Form verges with tile and a half in alternate courses including any undercloak and pointed in cement mortar to match the existing mortar. Ensure there are no exposed cut edges of tiles.

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Roof slating

- 035 Close joint natural slate roofing with horizontal and alternate vertical joints ranging through perfectly straight.
- 036 Head nail slates with two nails to each slate in every course. Secure slates to eaves, verges, ridges, hips, valleys and abutments with two nails to each slate. Ensure there are no exposed cut edges of slates.
- 037 Form eaves with double course of slates.
- 038 Form verges with slates and slate and a half slates in alternate courses including any undercloak and bedded, jointed and pointed with mortar, tinted to match the colour of the slates. Ensure there are no exposed cut edges of slates.
- 039 Ensure ridges and hips are of the type stated in the Schedule of Rates. Bed, joint and point ridge and hip tiles with mortar tinted to match the colour of the tiles or slates.

Fibre cement sheet roofing

- 040 Where appropriate, incorporate end and side lap sealing strips in fibre cement sheet roofing to BS 8219.

Galvanised steel

- 041 Lay galvanised corrugated sheeting in accordance with Code of Practice 143 section 4 and 10 to allow slight movement between the structural frame and sheeting. Lap all sheets 150mm at the ends and two corrugations at the sides. Fixing by drive screws and washers at maximum 375mm centres, and 2 hook bolts at every purlin. All cut edges of sheets to be coated with acrylic paint

Reinforced plastics

- 042 Where specified use reinforced corrugated plastic sheets in limited areas in association with roof sheeting of another Material. Lap at the ends and sides, as for the main roofing Material, and seal with approved woven fibre sealing strip.

Fixing sheets

- 043 Secure the sheets to steel with galvanised steel hook bolts and nuts, and to timber with galvanised steel roofing screws. Do not drill steelwork.

Holing sheets

- 044 Drill sheet fixing holes through the crown of the corrugations 1.5mm larger in diameter than that of the bolt or screw shank.

Safety precautions

- 045 Prevent unauthorised persons having access to the area below the roof whilst corrugated sheet roofing is under construction. Do not allow any person to go on to roofing without using crawling boards.

Insulation

- 046 Butt joint insulation quilts and lay them up to wall plates, leaving sufficient space to maintain adequate ventilation of the roof space. Lay the quilt under electrical cables and over horizontal pipes wherever possible. Do not lay quilt under water storage tanks. Bag quilts to hatches in polythene and securely fix them to the hatch. Insulation to be turned over eaves.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

General

- 047 Clear all debris resulting from roof Works from all gutters.

Leadwork

- 048 Ensure sheet lead Works are undertaken by skilled leadworkers in accordance with Lead Development Association recommendations and in accordance with BS 6915. Do not use solder without the approval of the Client's Representative. Undertake close and open nailing with copper nails at 25mm and 75mm centres respectively. Do not use lead pieces larger than 3.00m in length or 2.20m² in area.

Clips to be fixed with two fastenings not more than 50mm from edge of lead sheet, Clips welted around edges of sheet are to be turned over 25mm.

- 049 Ensure laps to finishings are no less than 100mm.

Form welted joints with a 50mm overlap, 25mm underlap and copper or stainless steel clips at no more than 450mm centres, welt overlap and clips around underlay, loosely turn over and lightly dress down.

Dress underlap to drips with splash lap into rebate along top edge of drip, fix to lower level base with two rows of nails, 25mm and 50mm from face of drip, at 75mm centres in each row, evenly spaced and staggered, dress overlap over drip and form a 75mm splash-lap, secure with lead clips, lead burned to underlap at not more than 300mm centres, with not less than 2 clips per bay.

Dress underlaps to drips without splash-laps into rebate along top edge of drip and fix with one row of nails at 50mm centres on centre line of rebate, dress overlap over drip to just short of lower level.

Form roll joints without splash-lap over wood core rolls, dress under-cloak three quarters over core roll, fix copper or stainless steel clips to roll at not more than 450mm centres, dress lead over cloak around core roll with edge welted around ends of clips, finishing 5mm clear of the main surface.

Form roll joints with splash-lap over wood core rolls, dress under-cloak three quarters over core roll, and fix with nails at 150mm centres for a distance of about one third of the length of the panel starting from the head of the sheet, dress over-cloak around core roll and extend on to main surface to form a 40mm splash lap.

Lead flashings

- 050 For flashings use milled sheet lead to comply with BS EN 12588 and shall be in accordance with BS 6915.
- 051 Dress lead flashings to the appropriate profiles without reducing the thickness of the lead sheet.
- 052 Turn the top edges, which should be welted of all cover flashings 25mm into grooves chased or cut into brick, blockwork or other cladding material, securely wedged and pointed with low modulus silicone mastic in brick, block, masonry and concrete and in other cladding where appropriate.

Asphalt roofing

- 053 Lay asphalt roofing generally in accordance with BS 8217 and the recommendations and publications of the Mastic Asphalt Council. Lay underlay loose and with 50mm laps.
- 054 Lay asphalt roofing in two coats with 150mm laps. Properly bond it to the edges of existing sound asphalt and unless otherwise Instructed by the Client's Representative maintain all existing planes. Provide fillets 50mm on the face at all internal angles. Unless otherwise Instructed by the Client's Representative, ensure that the asphalt surface finish matches the existing surface.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Felt roofing

- 055 Roofing felt to comply with BS 8217 unless otherwise specified or guided. Immediately seek Instructions from the Client's Representative if, when removing any defective felt, the base is found to be defective or unsuitable in any way to receive the new felt and that repair of the base is outside the scope of the Order.
- 056 Lay felts 90 degree to the direction of the roof gradient starting at the lowest point with 75mm side and 100mm end laps, and breaking joints between layers. Apply by mopping, brushing or spraying to achieve an even and full cover of the surface a priming coat recommended for the purpose by the felt manufacturer to all concrete and screed base surfaces. Other than where the Order is for Emergency Works, allow 24 hours to elapse before laying the felt.
- 057 Partially or fully bond the first layer of felt to the base with oxidised bonding compound to BS EN 13304 Bitumen and bituminous binders Framework for specification of oxidised bitumen. Grade as recommended by the felt manufacturer, and heated in thermostatically controlled kettles, to a temperature not exceeding 215^o Centigrade, but sufficient to provide a 200^o Centigrade laying temperature.
- 058 Effect any partial bonding system by spot, strip or frame bonding the first felt layer with hot bonding compound.
- 059 Fully bond the perimeter of the roof for a width of 450mm, leaving 150mm wide ventilation channels at appropriate centres.
- 060 Effect a fully bonded system by applying a continuous even coating of hot bonding compound to the base at the rate of 1.5kg/m². Apply the first layer of felt to provide a complete bond excluding all trapped air. Bond subsequent felt layers to match the underlayer excluding all trapped air. If any air bubbles become apparent in the Works, cut back and renew the felt.
- 061 Renewing or making good existing roofing:
- Remove existing chippings and clear roof of all dust, dirt, debris, moss and grease;
 - Star cut blisters, dry out and re-bond;
 - Fill ponded areas of sound roofing to level surface with compound recommended by the felt manufacturer;
 - Cut out defective areas of felt, dry out base and patch repair level with existing finish with three layers of matching felt lapped not less than 100mm;
 - Cut back to base 150mm width of felt over cracks and splits, dry out and insert 150mm strip of bitumen polyester felt bonded to base at edges only. Fully bond a further layer of bitumen polyester felt over the first strip and lap not less than 100mm onto the existing felt at each edge;
 - Remove rainwater outlet gratings and set aside for reuse on completion;
 - Cut out all existing skirting's and make good as for new work;
 - Renew damaged insulation;
 - Remove waterproof coverings from existing skirting's and re-cover as specified.

For chippings use coloured non-absorbent natural stone graded 6 to 10 mm/nominal 14 mm single size 6. Ensure gravel guards are fitted to all outlets, scatter chippings at rate of approximately 16kg/m², on completion remove loose chippings.

Use cut back bitumen or a suitable cold applied bitumen based adhesive to BS EN 12591 as a dressing compound for chippings applied at the rate of 1.5kg/m².

Torch on felt roofing

- 062 Ensure the existing roof is clean and dry. Cut out and patch blisters, nicks etc. If necessary, prime the surface and allow it to dry. Lay sheeting with 75mm side and 100mm end laps. Loose lay the first specified layer to roof surfaces, but do not carry up angle fillets and vertical upstands. Apply flame to the lower surface directed at the junction with the substrate so as to melt the adhesive across the roll width. Unroll felt onto the molten bitumen and press down firmly. Seal laps with wide bladed scraper and seal the plain finish (not mineral surface) by applying heat from above.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

For chippings, use hard light coloured non-absorbent natural stone graded 6 to 10 mm/nominal 14 mm single size 6. Ensure gravel guards are fitted to all outlets, scatter chippings at rate of approximately 16kg/m², on completion remove loose chippings.

Use cut back bitumen or a suitable cold applied bitumen based adhesive to BS EN 12591 as a dressing compound for chippings applied at the rate of 1.5kg/m².

Asphalt coverings to balconies and walkways

- 063 Lay asphalt to balconies and walkways in accordance with BS 8218 and the recommendations and publications of the Mastic Asphalt Council. Lay underlay loose and with 50mm laps.
- 064 Use a glass fibre tissue isolating membrane approved by the Client's Representative.
- 065 Use bitumen coated 'plain expanded' steel lathing of a minimum 26 swg and a minimum 10 mm short way of mesh.
- 066 Use a high bond primer as approved by the Client's Representative.
- 067 Use oxidised bitumen suitable for applying hot as bitumen based bonding compound for bonding vapour barriers and for general bonding purposes.
- 068 Use clean natural coarse sand passing a 60 micron test sieve for rubbing sand.
- 069 For chipping, use hard light coloured non-absorbent natural stone graded 6 to 10 mm/nominal 14 mm single size 6. Ensure gravel guards are fitted to all outlets, scatter chippings at rate of approximately 16kg/m², on completion remove loose chippings.
- 070 Use cut back bitumen or a suitable cold applied bitumen based adhesive to BS EN 12591 as a dressing compound for chippings supplied at a rate of 1.5kg/ m².
- 071 Use a reputable proprietary brand of solar reflective paint approved by the Client's Representative.
- 072 For aluminium edging, use a proprietary section profiled to suit asphalt manufactured from aluminium.
- 073 Asphalt concrete to be laid and compacted in accordance with BS 594987.
- 074 Hot rolled asphalt is to be transported, laid, compacted and tested to BS 594987.

Inverted Roof Insulation

- 075 Inverted roof insulation is to be 200mm thick extruded polystyrene board to BS EN 13164, conductivity 0.035 W/mK or less than, strength more than 250pKa at 10% compression, grade/density to be a minimum 30kg/cubic metre. Clean off all dirt and debris from base, lay boards tightly butted and to broken bond pattern, cut cleanly to fit closely around projections, upstands, rainwater outlets etc., lay surface protection.

Single layer plastic roof covering

- 076 PVC-u single layer membrane to BS EN 13956, minimum thickness 1.2mm laid in accordance with the manufacturer's technical data sheet with not less than 80mm head and side laps secured with the manufacturer's recommended thermal welding, break bond between layers with side laps staggered by one half sheet width, joint edges are to be completed with a bead of liquid PVC, membrane laid on separating layer as recommended by the manufacturer.

Warm deck roof designed in accordance with BS 6229 and to comprise foil faced polyurethane /PIR foam insulation board to BS 4841-3, conductivity less than 0.023 W/mK, strength more than 140kPa at 10% compression, boards fixed in accordance with the manufacturer's technical data sheet with minimum of 6 fixings per square metre, extra fixings may be necessary around roof perimeter.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

All edge trims, upstands, flashings, verge trims are to be proprietary items supplied as required by the roof covering manufacturer and formed from PVC coated metal and fixed in accordance with the manufacturer's technical data sheet.

Single Ply Membrane Roofing Systems

077 Clean all stone chippings, moss and debris off the entire roof surface to be re-covered and remove from site, felt blisters to be cut open and the damaged are made good, lay 1000 gauge vapour barrier to be laid loose over the entire roof surface, lay 25mm insulation board or 25mm closed cell moisture resistant board, mechanically fixed to the deck before the roofing membrane is laid.

078 Butyl rubber based membrane (Polyisobutylene) 0.75mm thick (fabricated in factory to cover the complete roof) laid on one layer of sheathing felt BS EN 13707 laid on existing roofing membrane or vapour barrier, the butyl membrane to be ballasted with 18mm diameter round gravel to a depth of 40mm over the entire roof area. The butyl membrane is to be dressed a minimum of 150mm and fully bonded to the upstands of the roof, at intersections between roof and walls the butyl membrane is to be carried up and fully bonded to the wall, turned and pointed into a wall chase for a minimum of 38mm deep, or dressed behind lead flashings, the edge of the membrane is to be pointed with the appropriate mastic, the lead flashing is to be carefully dressed down.

Eaves are to be finished with PVC coated metal "standard" edge trim and "GutterZ" edge trim to all perimeters, butyl membrane is to be stuck down to roof at eaves, a treated timber batten is to be fitted to the eaves where necessary for fixing the trim.

Where gutters are incorporated in the roof structure, the insulation is to be stopped at the edge of the gutter, the butyl membrane is to be stuck down to the roof surface in the gutter. The butyl membrane is to be dressed over the eaves and into the gutters or trunk heads and in the case of flat roof outlets, dressed over and into the outlets, fix a 50mm x25mm treated timber batten to all edges to form a stopping piece for the insulation, fixed with suitable fasteners at 400mm centres.

079 EPDM (Rubber Polymer) single ply membrane mechanically attached rubber sheeting, laminated to a non-woven polyester backing to be laid as specified by the Manufacturer's technical data sheet, delivered in sealed rolls and mechanically fixed to decking with galvanised steel discs and self-tapping screws. Fixing to be fully treated with a rustproof coating and have a minimum pull out force of 1.5kN per fixing and applied as 4 No fixings per m² on flat roof surfaces, 8 no per m² on edge zone and 12no per m² on corner zone. All joints are to be sealed by using hot bonding splicing machine with a 150mm wide splicing strip specially developed for hot-bonding application.

At intersections between roofs and walls, the roofing membrane shall be fully bonded to the wall with butyl adhesive. Lead flashings are to be fitted to prevent the ingress of rain, the roofing membrane is to be fully bonded to the wall surface under the lead flashing.

Metal Tile Roofing

080 Metal tile roofing shall comprise:

Natural stone chip with acrylic overglaze finished proprietary metal roof tiles each size 1330mm x 450mm x 0.9mm thick, pantile in profile, and terracotta or charcoal or green or red in colour, each tile fixed with four no 50mm x 2.5mm coated fixing nails driven through the down turned nose of the tile into 50 x25mm sawn softwood to BS 5534 battens fixed to each support with round galvanised steel nails 65mm long x 3.5mm, with additional battens where necessary to prevent underlay being opened at laps by wind suction.

Underlay to be reinforced felt to BS 8747 and BS EN 13859-1, laid with minimum 150mm horizontal and vertical laps and fixed with galvanised steel extra-large head felt nails parallel to eaves so that water will drain freely, laps to coincide with supports, including all abutments, eaves, verges, ridges, hips and valleys

All to be in accordance with Code of Practice for Lightweight Metal Roofing.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Metal Profiled /Flat Sheet Claddings

- 081 Plain Galvanised corrugated iron sheeting is to be in accordance with CP 143-10:1973, 24 gauge in sheets each 1260mm x 370mm, laid in accordance with the Manufacturer's technical data sheets from ridge to eaves, with side-laps being at least 2 corrugations and 150mm minimum end laps, sheets to fixed with drive screws and washers placed at maximum 375mm centres to 38mm x25mm battens, and secured to purlins with at least 2 bolts. Seams to be made watertight with suitable lapping material and secured with self-tapping screws or bolts at maximum 450mm centres. Breathing felt to BS 8747 lapped and carried into gutter is to be installed under corrugated sheeting.

Ridge to be galvanised sheet 22mm gauge to comply with BS 3083, ridge capping to be formed from equal angle pieces with 200mm sides formed to fit securely on top of galvanised roofing sheet.

Plastic profiled Sheet Claddings

- 082 PVC-Ue planks (Open 'V' joint, shiplap or Tongued and Grooved) in cladding shall comprise:
Lightweight foamed cellular core and homogeneous skin of PVC-UE having a nominal thickness of 0.6mm manufactured in accordance with BS EN 13245-3, BS EN 13245-2, and BS 7619;
Extruded Cellular Unplasticised (PVC-Ue) Profiles:
Standard length: 5m
Cover width: maximum 100mm
Nominal thickness; 6mm
Fire resistant to Class 1Y to BS 476-7;
Weight: Not less than 0.50kg metre;
Density: Not less than 500kg/m³;
Appearance: Self-coloured smooth semi-matt or glass finish;
Fixing: Maximum 600mm centres, 5mm gap every 5m run and at abutments for thermal expansion of plank and joint ends;
Method of fixing: 30mm hot dipped galvanised or stainless steel jagged nails with staggered joints;
Perimeter Trims: Single or two part PVC-Ue trims (capping's, angle pieces, closure pieces, flashings, trims, sill) as manufacturer's technical data sheet;
Breather membrane; Spun bonded polypropylene BBS certified, vapour resistance to be no more than 0.6MN.s/g and fixed with galvanised or stainless steel fixings every 300mm at studs and every 150mm at edges , horizontal laps to be 100mm, vertical laps 150mm and staggered to shed water away from substrate and structure;
- 083 PVC-Ue chipped finished planks in cladding shall comprise:
Lightweight PVC-Ue not exceeding 7kg/m² and a density of between 0.5 and 1.5kg/m³;
Impact resistance strength: 30k/m²;
Yield Stress: at/more than 14.5N/mm²;
Tear Strength: at/more than 13.5N/mm²;
Bending Stress: 18N/mm²;
Elasticity module; at /more than 640/mm²;
Fixings pull out strength: at least 500N;
Thermal Impact: in accordance with BRE Digest 228
Surface spread of flame: both internal and external surfaces to Class O, tested in accordance with BS 476-6 and 7, All fixings to be non-ferrous
Fixing supports to ETAG001 and ETAG 029
Fire resistant to Class 1Y to BS 476-7;
Weight: Not less than 0.50kg metre;
Density: Not less than 500kg/m³;
Appearance: Self -coloured smooth semi-matt or glass finish;
- The system will be required, under testing, to prevent transfer of water across the cavity to the masonry of the existing building under peak pressure testing to Class R7 as set out in BS EN 12154;

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

If battens are used to create a minimum 25mm vented cavity they must be formed from the same material as the cladding planks, the vented cavity is to provide adequate ventilation to remove any condensation or water permeating through the system before it reaches the masonry with drainage openings of at least 10mm;

Defection in accordance with BS EN 13830 and BS 8118-1. All testing must be in accordance with Current British or equivalent European Standards;

The system must be able to accommodate building movement and must be secured to suitable non-ferrous cladding rails/support structure approved by the manufacturer;

Aggregate; between 3 and 6mm incorporated into the surface of the cladding under strictly controlled factory conditions with the colour aggregate pre-mixed under quality controlled factory procedures to achieve uniformity;

084 PVC-Ue Fascia/Barge or Barge Overlay Board shall comprise:

Profile: Bull nosed or square edge with ribbed back;

Composition: Low density cellular (closed cell) core and homogeneous impact resistant skin of PVC-Ue. Manufactured in accordance with BS EN 13245-3, BS EN 13245-2, BS 7619 UV stability and UV aged impact resistance requirements;

Dimensions: Width Minimum 175mm;

Thickness: Minimum 9mm;

Weight: Average density 500kg/m³, Tolerance deviation of +/-12.5% per m length;

Tolerances Width: 151mm – 250mm +/- 1.5mm;

Tolerances Thickness: 5mm – 12mm +/- 0.5mm, over 12mm +/- 0.75mm;

Tolerances Length: 5m =10mm-00mm;

Flatness; Must not exceed +/- 0.6mm over 100mm;

Thermal Movement: Linear thermal expansion of less than 7mm x 10.5 degree C. Tested in accordance with BS 4370-3 Method 13;

Fire Resistance: Satisfy the requirements of BS 476-7 Class 1 spread of flame and BS 476-6;

Colour Fastness: in accordance with BS 7619;

Water Absorption: Less than 1% when tested in accordance with BS EN ISO 62

Appearance: Self-coloured smooth gloss finish;

Method of fixing: As specified by manufacturer

Jointing/edge trims: matching colour, single or two part PVC-Ue trims as manufacturer's details and fixed in accordance with manufacturer's technical data sheet

085 PVC-Ue Fascia or Barge Board

As Clause 084 but minimum thickness 16mm

086 PVC-Ue Soffit Boards shall comprise:

Profile: Flat solid board plain or shiplap profile sheet, depending upon application;

Composition: Low density cellular (closed cell) core and homogeneous impact resistant skin of PVC-Ue. Manufactured in accordance with BS EN 13245-3, BS EN 13245-2, BS 7619 UV stability and UV aged impact resistance requirements;

Dimensions: Width Variable, but not greater than 300mm;

Thickness: Minimum 9mm;

Weight: Average density 500kg/m³, Tolerance deviation of +/-12.5% per m length;

Tolerances Width: 151mm – 250mm +/- 1.5mm, 251mm – 350mm +/- 2.00mm;

Tolerances Thickness: +/- 0.5mm;

Tolerances Length: 5m - 10mm-00mm;

Flatness; Must not exceed +/- 0.6mm over 100mm;

Thermal Movement: Linear thermal expansion of less than 7mm x 10.5 degree C. Tested in accordance with BS 4370-3 Method 13;

Fire Resistance: Satisfy the requirements of BS 476-7 Class 1 spread of flame and BS 476-6;

Colour Fastness: in accordance with BS 7619;

Water Absorption: Less than 1% when tested in accordance with BS EN ISO 62

Appearance: Self-coloured smooth gloss finish;

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Method of fixing: As specified by manufacturer

Jointing trims: matching colour, single piece PVC-Ue trims as manufacturer's details and fixed in accordance with manufacturer's technical data sheet

- 087 PVC-Ue Pre-vented Soffit Boards shall comprise;
As Clause 086 but with flat solid board pre-vented depending on application;
- 088 A ten year warranty on the performance and colourfastness of all PVC-UE fascia, barge, soffit board and wall cladding systems must be provided prior to installation.
- 089 Eaves Ventilators generally are to provide a continuous air gap of either 10mm or 25mm to BS 5250 as required, to have BBA certification or equivalent, and to be proprietary preformed PVC-u, provided with fixing holes and with slots in ventilator being not more than 4mm to prevent entry of vermin. Eaves ventilators are to be fixed in accordance with the manufacturer's technical data sheet and are to be either:
- Proprietary behind fascia ventilation system: with soffit attachment, fixed behind fascia; or
 - Proprietary over fascia ventilation system: fixed to top of fascia board; or
 - Proprietary over fascia ventilation system; with polypropylene felt support, and fixing to top of fascia and rafters; or
 - Polypropylene twist and lock soffit ventilators, 70mm diameter, designed to exclude wind driven rain and large insects, openings not to exceed 4mm, to provide 10,000 mms/m, installed at 200mm centres, mechanically secured in accordance with manufacturer's technical data sheet;
 - Polypropylene spring fitted ventilators (10-15 degree roof); soffit attachment size 285mm x 115mm, designed to exclude wind driven rain and large insects, openings not to exceed 4mm, to provide 25,000 mms/m, installed at 480mm centres to 10-15 degree roofs, mechanically secured in accordance with manufacturer's technical data sheet.
- 090 Proprietary rafter tray ventilation system: to have BBA certification or equivalent and to provide ventilation to BS 5250, with corrugated rigidised PVC-u spacer sheet inserted between rafters at eaves to maintain a continuous 25mm min air path parallel with the roof slope, to prevent insulation blocking the ventilation path to eaves ventilators, and to prevent condensation forming under the underlay. Fitted to project 100mm beyond wall plates. Insulation re-inserted over wall plates but not projecting beyond the end of the spacer sheet. Fitted 800mm along roof slope 25mm deep, cut as required to fit and tacked in place between the rafters at top with galvanised tacks/thick staples.
- 091 Proprietary rafter tray fly screened ventilation system: to have BBA certification or equivalent and to provide ventilation to BS 5250, with corrugated rigidised PVC-u spacer sheet inserted between rafters at eaves to maintain a continuous 25mm min air path parallel with the roof slope, to prevent insulation blocking the ventilation path to eaves ventilators, and to prevent condensation forming under the underlay. Fitted to project 100mm beyond wall plates. Insulation re-inserted over wall plates but not projecting beyond the end of the spacer sheet. Fitted 800mm along roof slope 25mm deep, cut as required to fit and tacked in place between the rafters at top with galvanised tacks/thick staples.
- 092 Proprietary rafter tray ventilation system for refurbishment, installed from underside of roof to avoid disruption of roof covering: to have BBA certification or equivalent and to provide ventilation to BS 5250, with corrugated rigidised PVC-u spacer sheet inserted between rafters at eaves to maintain a continuous 25mm min air path parallel with the roof slope, to prevent insulation blocking the ventilation path to eaves ventilators, and to prevent condensation forming under the underlay. Adjust to suit roof pitch, pull back existing insulation and push tray into eaves, ensuring not to project beyond the top of the rafters, Fix to wall plate as recommended by the manufacturer, relay insulation over the wall plate but not projecting beyond the end of the spacer sheet. Fitted 800mm along roof slope 25mm deep, cut as required to fit and tacked in place between the rafters at top with galvanised tacks/thick staples.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

GRP Flat Roofing

093 GRP Flat roof specification will comprise the following activities:-

1. All existing stone chippings, felt coverings etc. are to be cleared from the roof area. Substrate, is to be stripped to expose the main roof joists.
2. Additional timber furring pieces are to be fitted to existing joists to give a fall to the new deck.
3. The roof is re-decked with 3/4" (20mm) exterior Grade Plywood securely anchored with 3" annular ring shank nails and /or 3" plated wood screws to the roof joists.
4. Purpose made, pre-moulded, edging trims, wall fillets, gully mouldings are to supplied as necessary and installed in position.
5. Glassfibre mat of 4oz / sg.m density is supplied and laid over the whole roof area. The glassfibre mat is then impregnated with polyester resin onto the new deck to form a seamless GRP membrane.
6. Once curing time has elapsed, usually between 1- 4 hours depending on ambient temperature, a polyester resin gel coat in a chosen colour will be applied to the whole roof area.
7. Where a flat roof meets brick walls, a chase is to be cut into a chosen coarse approximately 1.5" deep. A glassfibre and resin flashing will be tailor made to fit into the chase. The chase is then to be re-pointed with conventional sand / cement mortar.
8. Where a flat roof meets a tiled roof, as in the case of a dormer construction, the glassfibre membrane is to be extended between 150 to 300mm up and under the tiled roof area

GRP Canopies

GRP PURPOSE MADE FRONT DOOR CANOPIES

094 GRP purpose made front door canopies are to meet the following criteria:

- Primary support structure: Existing concrete brick or block work.
- GRP components:
 - Construction: Designed to direct water away from the main structure/dwelling;
 - Finish: Standard smooth matt finish;
 - Colour: Dark Grey;
 - Nominal size: 1600mm long x 900mm wide x 200mm deep;
 - Fire rating:
 - Spread of flame (component external face): Class 0 (National class).
 - Spread of flame (component internal face): As external face.
- Fixings and fasteners: Fixings to be concealed and as tested and recommended by canopy manufacturer to withstand calculated wind and snow loads;
- Joints: Upperside to have standing seam effect finish at 600mm centres, underside to have timber tongue and groove effect finish; and
- Accessories/Other requirements: Drip bar to front soffit. Provide a sample canopy to the Client's Representative prior to installation.

095 Thermal Performance/Bridging Requirement: Complete thermal design to avoid excessive thermal bridging. Assessed to BRE Information Paper 1/06.

096 Weather Resistance Requirement: Weathertight, with full allowance made for deflections and other movements.

097 Colour Fastness/Appearance of GRP, Colour fastness of pigments: Not less than standard 6 when measured to BS1006:B01C:LFS6, The Service Provider is to submit evidence of compliance.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

- 098 Colour Fastness/ Appearance Samples are to be provided as follows:
- Weathered samples: If available, submit naturally weathered samples, otherwise submit artificially weathered samples.
 - Naturally weathered samples:
 - Pigments and resins: As proposed GRP.
 - Age: Not less than two years.
 - Action: Submit with new unweathered control samples.
 - Artificially weathered samples:
 - Pigments, resins and gel coat: As proposed GRP.
 - Test method: Accelerated weatherometer subjecting samples to moisture and ultraviolet light.
 - Duration: Not less than 1500 hours.
 - Action: Submit with new unweathered control samples.
- 099 Canopy Design Samples are to be provided as follows:
- GRP samples: Before general manufacture obtain approval of appearance of fully tested compliant design samples.
 - Extent: Showing proposed colour, texture and incorporating a completed section of a joint.
 - Action: Obtain approval of appearance before proceeding. Retain as production control sample.

Manufacture of GRP Canopies

- 100 Quality of Work is to conform to:
- Manufacture: Compliant with design and performance requirements.
 - Materials: Appropriate and compatible.
 - Workmanship: Appropriate and in accordance with manufacturers' recommendations.
 - Resins: Used as supplied and not adulterated.
 - Standard of finish: Appropriate to end use and position in building.
 - Prohibited blemishes: Including, but not limited to, wrinkling, spotting, striations, fibre patterning, fish eyes, blisters, crazing, cracking, dry patches and uneven or inconsistent colour.
- 101 Manufacturing Accuracy to conform to:
- Finished dimensions of completed units when erected:
 - Ambient temperature: Measurements taken at 16-18°C.
 - Maximum permissible deviations as table below:

Overall dimension involved (m)	Up to 2 m	2-3 m
Width and height:	0-2 mm	0-3 mm
Straightness of edges: deviation from intended line, any variation to be evenly distributed with no sudden bends or irregularities.	3 mm	4 mm
Squareness: taking the longer of 2 sides at any corner as a base line, the deviation of shorter side from perpendicular; dimension involved is the shorter side.	3 mm	4 mm
Twist: deviation of any corner from the plane containing the other 3 corners; dimension involved is the shorter side.	3 mm	5 mm
Flatness - deviation under a 1 m straight edge placed anywhere on a flat panel surface:	3 mm	3 mm

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

- 102 Suitability of Structure:
- Service Provider’s survey:
 - Scope: Geometric survey of supporting structure, checking line, level and fixing points.
 - Give notice: If structure will not allow required accuracy or security of erection.
 - Setting out: Establish erection datum points, lines and levels.
- 103 Installation of Interfaces
- General: Locate flashings, closers etc. correctly with neat overlaps to form weathertight junctions.

Client’s current manufacturers/suppliers/products

- 104 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

CARPENTRY AND JOINERY

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

CARPENTRY AND JOINERY

GENERAL

Generally

- 001 Where necessary cut out for butts/hinges when replacing door or window frames/linings or piecing in new timber.
- 002 Note that all sawn timber sizes quoted in the Schedule of Rates are nominal sizes.
- 003 Stain or prime and undercoat all prepared timber all round before fixing, as described in the "Painting and Decorating" Section.
- 004 Comply with the "Painting and Decorating" Section where Works include items being painted, decorated, stained, touched up or prepared for decoration. Match the finish and type to the existing or surrounding finish as appropriate.
- 005 Where painted skirtings and architraves are specified, at the Service Provider's option use an MDF equivalent where this is approved by the Client's Representative.
- 006 Match any purpose made items (when specified) to the existing items as far as possible.

MATERIALS

Timber

- 007 Use only suitable, sound, well-conditioned, properly seasoned preservative treated whitewood from a source approved by the Client's Representative that is free from any defects making it unsuitable for its intended purpose. All timber to be FSC or PEFC certified or from equivalent independently verifiable sustainable sources.
- 008 Level and pack all structural timber. Structural timber shall comply with BS 5268: Part 2 and Part 3. The dimensions of a timber floor, ceiling or roof member may be determined by the guidance given in BS EN 1995 (Eurocode 5) span tables for solid timber members in floors, ceilings and roofs for dwellings published by TRADA. Timber for floors and roofs shall comply with BS 8103-2 and BS 5268-3. Strength classes, species, grades and species combinations referred to be as defined in BS EN 1995-1-1.
- 009 Cross sectional dimensions are to be either basic sawn or regularised sizes as defined in BS EN 1313 -1. Trussed rafter roofs are to be braced to BS 5268: Part 3. Structural timber shall be C16 or C24 grade timber to comply with loadings and spans as set out in the current Approved Document A of the Building Regulations; 2010 (amended 2013). The section sizes shall be in accordance with tolerance class 1 of BS EN 336, or are CLS/ALS processed sizes in accordance with tolerance class 2 of BS EN 336.
- Graded Softwood for Structural Use:
- Stress graded to BS EN 14081 or other national equivalent and so marked.
 - Strength class to BS EN 1995-1-1.
- 010 Trussed Rafters generally are to be designed and fabricated to BS EN 1995-1-1, truss members shall be 44mm (minimum) finished thickness, ceiling ties and top chord members shall have 97mm finished depth, all trussed rafters shall be nail plate connected.
- 011 Softwood for use with leadwork shall be planed, free from waness, pitch pockets, decay and insect attack except pinhole borers, with a moisture content of not more than 22% at time of covering.
- 012 Cross section dimensions of timber shown on drawings are nominal sizes unless stated otherwise. reduction to finished sizes of planed/regularized timber to be to BS EN 1313-1.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

- 013 Moisture content of timber at time of erection to be:
- Structural timber 20% + or - 2%, kiln dried.
 - Fascias barge boards and the like 18% + or - 2%.
- 014 Keep timber dry and do not overstress, distort or disfigure sections or components during transit, storage, lifting, erection or fixing. Store timber and components under cover, clear of the ground and with good ventilation. Support on regularly spaced, level bearers on a dry, firm base. Open pile to ensure free movement of air through the stack. Arrange sequence of construction and cover timber as necessary during and after erection to ensure that specified moisture content is not exceeded. Keep trussed rafters vertical during handling and storage

Preservative treatment of timber

- 015 Treat softwood described as "treated" or "impregnated" before delivery to the Property with either:
- an appropriate preservative under vacuum-pressure with an average net retention of at least 4kg of dry salts per cubic metre; or
 - an organic solvent type preservative giving an overall retention of 16Kg of solution per cubic metre of timber.
 - Generally - Structural Timber, Fencing and the like:
 - Where subsequent cross-cutting or boring of the treated timber cannot be avoided all exposed surfaces shall be liberally swabbed with a proprietary end grain timber preservative to maintain the integrity of the protective system.
 - All treated timber shall show only negligible dimensional change or distortion, otherwise it will be rejected.
 - The end use of timber must be quoted by the Service Provider to the treatment company.
 - A certificate of treatment to cover all timbers processed shall be supplied by the treatment company to the Service Provider.
 - A certificate of treatment shall be supplied by the Service Provider for each batch of timber treated.

Fixings

- 016 Framing anchors are to be galvanised steel, fixed securely using not less than the number of nails recommended by the anchor manufacturer. Nails to be not less than 30mm x 3.75 mm galvanized or sherardized square twist unless recommended otherwise.
- 017 Truss clips are to be galvanised steel, fixed securely with 32mm x 3.5mm galvanised square twisted nails in every hole.
- 018 Anchor straps are to be galvanised steel, fixed securely to timber with three 30mm x 3.75mm galvanized nails and to masonry with four 50 mm x 8 gauge galvanised screws evenly spaced.
- 019 Lateral restraint straps are to be galvanised steel, ensure that cranked end is in tight contact with cavity face of wall inner leaf and is not pointing upwards. Fix noggings and packs beneath straps which span joists/rafters/ties running parallel to wall, noggings and packs to fit tightly and be not less than three quarters of joist/rafter/tie depth. Notch joists so that straps fit flush with surface. Do not notch rafters/ties. Fix straps to joists/rafters/ties with seven 50 mm x 1½ mm gauge galvanised countersunk screws, evenly spread.
- 020 Bolts and nuts shall be cup square with large washers and nuts, and comply with BS 4190 - Washers shall comply with BS 4320.
- 021 Expanding bolts shall be Grade A4 stainless steel and shall be of a type to suit the purpose for which they are required, fixed security in position in accordance with manufacturers technical data sheet.
- 022 Canopy cleats are to be galvanised steel, fixed securely to timber with 50mm x 1½ mm galvanised screws.
- 023 Retaining strap to be galvanised steel, with site applied bituminous paint coating, and bedded securely in mortar.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

- 024 Expanded metal fixing strip to be galvanised expanded metal lathing to BS EN 13658-1 zinc coated and fixed securely by building into position.
- 025 Fastenings for materials and components forming part of external construction to be of corrosion resistant material or have a corrosion resistant finish.
- 026 Fastenings for materials and components, forming part of external construction but not directly exposed to the weather to be of corrosion resistant material or have a corrosion resistant finish, directly exposed to the weather to be of corrosion resistant material.
- 027 Cartridge operated fixings are not to be used without the permission of the Client’s Representative. Tools to be manufactured to BS 4078-2 and Kitemark certified. Fasteners, accessories and consumables to be types recommended by the tool manufacturer. Operatives to be trained and certified as competent by tool manufacturer. Ensure that operatives take full precautions against injury to themselves and others. Shot fixing is to give secure fixing at 750mm centres.

Nails, etc

- 028 Use sheradised nails for fixing joinery having an external exposed face in accordance with BS 1202-1, punched in below the surface and filled with an approved filler.

Joinery Timber

- 029 Softwood planed finish joinery timber which will be exposed to view shall be European Redwood minimum density 510kg/m³, class J10 of BS EN 942.

The following defects shall not be permitted: pinholes shown on the surfaces; sloping grain exceeding one in eight; checks, splits and shakes in excess of those permitted by class J10 of BS EN 942; knots, excepting isolated sound tight knots of less than 20mm diameter or no wider than half the width of the section; any evidence of beetle attack or decay. Softwood not exposed to view will be accepted with minor defects with the exception of active beetle attack or decay.

- 030 Where hardwood is specified, use hardwood to BS EN 942 of one of the following species suitable for the purpose, un-replenish able tropical hardwoods are not to be used

Oak	North American	Density range 590-930 kg/m ³
Beech		Density range 700-900 kg/m ³
Ash	North American	Density range 650-850 kg/m ³
Maple	North American	Density range 600-750 kg/m ³
Cherry	North American	Density range 700-900 kg/m ³
Utile		Density range 650-725 kg/m ³
Mahogany	South American	Density range 500-650 kg/m ³
Mahogany	West African	Density range 500-650 kg/m ³
Dark Red Luan	Philippine	Density range 650-725 kg/m ³
Iroko		Density range 650-725 kg/m ³
Dark Red Meranti		Density range 650-725 kg/m ³

- 031 Tongued and grooved floorboarding is to comply with BS 1297
- 032 Ensure the moisture content based products at time of installation: to be no more than:
 - internal joinery is no more than 20% (8-12% when timber is in an existing Property which is centrally heated); and
 - external joinery is no more than 18%.+ or-2%
 - structural timber 20% + or -2%, kiln dried

**M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS –
SPECIFICATION – VERSION 7.2**

Plywood, blockboard, particleboard, hardboard etc.,

- 033 Plywood panel products for structural use shall conform to BS EN 13986 and BS EN 636 for designs to BS EN 1995 plywood may be selected from those listed in BS EN 1995-1-1 or shall have certification from a suitable body such as the Agrément board.
- 034 Marine plywood shall comply with BS EN 1995-1-1 and BS 1088-1, marine plywood manufactured from selected untreated tropical hardwoods, durability class H, surface grade 11, and with sanded surface finish.
- 035 Plywood designed to BS EN 1995-1-1 shall be subject to the quality control procedures of one of the organisations listed in that standard, or to the controls listed by the certification body.
- 036 The specification for plywood shall state the following information where appropriate:
- type
 - Standard
 - grade
 - Species
 - nominal thickness
 - number of plies
 - finish (sanded/unsanded)
- 037 Plywood exposed to the weather shall have no open defects (e.g. checks, knots, holes, splits) on the exposed face(s) unless it is used only for a temporary application such as hoarding.
- 038 Prior to receiving a painted finish, plywood shall be adequately sanded.
- 039 All cut edges that may be subject to weather exposure shall be sealed with a suitable sealant or applied finish; typically these shall be one of the following:
- Special sealing compounds, such as pitch epoxy
 - non-setting mastic, where the plywood is set in frames.
 - timber beading bonded with suitable adhesives.
- 040 In construction the following procedures shall be observed:
- lower edges of boards shall be bevelled to promote shedding of water.
 - plywood used as infill panels shall be fully painted before installation and/or assembly.
 - cavities behind boards shall be adequately ventilated and drained to allow dispersal of moisture.
 - clearance shall be allowed at selected joints to allow free drainage of water.
 - plywood junctions with masonry shall provide adequate clearance to allow drainage, prevent capillary absorption of water and provide enough space for maintenance of edge sealing.
 - the bottom edges of boards shall stand well clear of flashings, roof coverings, sills, and the ground.
 - exposed and/or inadequately protected fixings shall be of non-ferrous metals and have adequate corrosion resistance.
- 041 WBP sanded and unsanded finished plywood is to be in accordance with BS EN 635, appearance classification E or I.
- 042 Oriented strand boards shall be in accordance with BS EN 300 and supplied in accordance to use:
OSB/1 general purpose no loading boards and boards for interior fitments for use in dry conditions;
OSB/2 load-bearing boards for use in dry conditions;
OSB/3 load-bearing for use in humid conditions;
OSB/4 heavy duty load-bearing boards for use in humid conditions;
- 043 Particleboards shall be in accordance with BS EN 312 Type 5, for chipboard flooring, use the appropriate waterproof moisture resistant grade suitable for the purpose.
- 044 Hardboard shall be to BS EN 622-2. Ensure hardboard used to form bath panels has an enamelled surface and Type TE Tempered.

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- 045 Ensure all block-board complies with BS EN 636-1 and to be to a standard and quality approved by the Client's Representative, lamin-board used is five-ply and veneer is of the specified species of timber (but where none is specified, it is an appropriate species of timber).

Priming

- 046 Prime timber in accordance with the finish coat specification. Use a primer recommended by the manufacturer of the surface coating.

Preservative treatment of timber

- 047 Treat softwood described as "treated" or "impregnated" before delivery to the Property with either:
- an appropriate preservative under vacuum-pressure with an average net retention of at least 4kg of dry salts per cubic metre; or
 - an organic solvent type preservative giving an overall retention of 16Kg of solution per cubic metre of timber.
- 048 Generally - Structural Timber, Fencing and the like, shall be treated in accordance with Clause 015.
- Where subsequent cross-cutting or boring of the treated timber cannot be avoided all exposed surfaces shall be liberally swabbed with a proprietary and grain timber preservative to maintain the integrity of the protective system. All treated timber shall show only negligible dimensional change or distortion, otherwise it will be rejected. The end use of timber must be quoted by the Service Provider to the treatment company.
 - A certificate of treatment to cover all timbers processed shall be supplied by the treatment company to the Service Provider. A certificate of treatment shall be supplied by the Service Provider for each batch of timber treated.

Generally - Joinery Components, Fascias and the like, shall be treated by spirit based double vacuum process and shall be machined to it's final dimensions before treatment and then assembled. All treated timber shall show only negligible dimensional change or distortion, otherwise it will be rejected.

- 049 Treat ground contact timber before delivery to the Property with an appropriate preservative under vacuum pressure with an average net retention of at least 5.4Kg dry salts per cubic metre of timber.
- 050 Cut timbers to their final dimensions before impregnation. Where this is not possible, liberally swab any sawn or cut faces or borings with an appropriate preservative from the impregnation plants.
- 051 After treatment, carefully open-stack the timber in a well ventilated covered space to enable surplus solvent in the preservative to dry out by evaporation. Ensure all treated timber is dry before incorporation in the Works.
- 052 Allow items of carpentry timber treated with an appropriate preservative a minimum of 3 weeks air drying period following treatment and before fixing. Allow joinery timbers similarly treated a minimum of 6 weeks air drying following treatment and before fixing.
- 053 Provide a copy of the relevant Preservation Treatment Certificate to the Client's Representative.

Adhesives

- 054 Ensure adhesives for:
- exterior use are synthetic resin type WBP; and
 - interior use are synthetic resin type of moisture resistant durability ("MR").

Timber fillers for rotted woods

- 055 Ensure timber fillers for rotted softwoods and hardwoods are a complete system appropriate for the type of wood.

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Storage of material

- 056 Protect joinery from the weather during transit. At all times before fixing, both before and after priming, store it under cover and clear of the ground.

Door frames and linings

- 057 Ensure external door frames without cills have 12.5mm diameter x 100mm long galvanised steel dowels housed into the bottom of each leg leaving 50mm projecting. Ensure the frames for fire resisting doors are of a type approved by the Client's Representative. Ensure frames for half hour doors have 25mm minimum stops.

Doors generally

- 058 Note that fire door ratings in the Schedule of Rates are shown in hours. Ensure the integrity of the door (including all hinges, ironmongery etc) achieves this when fitted to a frame with or without intumescent strips. Where it is necessary to use hinge packers or pads on fire rated doors, frames or door sets ensure that only intumescent types are used.
- 059 Ensure all external doors (other than flush doors) are from solid timbers. Do not use veneers or laminations.

Ledged and braced doors

- 060 Ensure ledged and braced doors consist of 3 No. 150mm x 25mm horizontal ledges with bevelled edges, 125 x 25mm, parallel braces and 100 x 19mm tongued and grooved and V-jointed matching with:
- the braces being obliquely jointed to the ledges with their lower ends adjacent to the hanging side of the door;
 - each board being nailed to the ledges and braces using at least 2 No. nails 50mm long at each ledge and one at each brace;
 - the ends of ledges being screwed back to the match boarding from inside and stopped in;
 - all timber being primed before the door is assembled; and
 - the end grain being primed with two coats of aluminium primer.

Framed, ledged and braced doors

- 061 Ensure framed, ledged and braced doors consist of 100 x 50mm stiles and top rail, 175 x 38mm middle and bottom rails, 100 x 38mm braces and 100 x 12mm tongued and grooved V-matching with:
- the top rail being haunched, morticed and tenoned to the stiles;
 - the middle and bottom rails being bare faced, morticed and tenoned to the stiles;
 - the top rails grooved to receive the tongues of the tongued and grooved V-jointed matching;
 - the braces being stub tenoned into the rails and stiles;
 - the tongued and grooved V-jointed matching being secured to the rails and braces by lost head nails hammered in from the faces;
 - all joints being jointed with WBP glue to standard and quality approved by the Client's Representative;
 - all boarding and timber faces covered being primed before assembly including all rails, grooves and matching;
 - the end grain being primed with aluminium primer;
 - the frame being securely cramped;
 - all mortice and tenon joints being secured with hardwood wedges well driven home; and
 - the whole being assembled perfectly square and free from winding.

Flush doors

- 062 Ensure 35 or 40mm thick internal flush doors consist of a skeleton or honeycomb core, lipped on two stiles with hardwood strips – each lipping should be a minimum of 6mm and to be full thickness of the door.

Hardwood faced doors are to have selected hardwood veneered, MDF or High density chipboard of 3.2mm thickness, Veneer type: Koto, Beech, African Mahogany, Maple, Cheery, Oak or Sapele lippings to match or compliment face veneer, pre-finished factory applied clear lacquer to both faces.

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- 063 Ensure 44mm thick external flush doors are faced on both sides with 6mm external quality resin bonded plywood, for painting or staining to BS EN 927-1 on a solid core. Provide glazing apertures with a rebated, sunk and rounded Utile cover mould and Utile hardwood glazing beads with mitred angles. Ensure the glazing cover piece and beads are no less than that required by the relevant European or British Standard for glazed apertures.

Opening for glass to be 400mm x 600mm high.

Half-glazed flush doors

- 064 Ensure the opening for glass in doors described as half-glazed:
- extends the full width between stiles; and
 - is at least 680mm high.
- 065 Ensure:
- glazing apertures are provided with a rebated, sunk and rounded Utile cover mould and Utile hardwood glazing beads with angles mitred; and
 - the glazing cover piece and beads are no less than that required by the relevant European or British Standard for glazed apertures.

Panel doors

- 066 Ensure panel doors:
- are jointed with mortice and tenon joints and WBP glue;
 - have ply panels that are a minimum of 6mm thick external quality WBP plywood for painting or staining; and
 - have the joint between the ply, stiles and rails sealed at the time of assembly with primer.

Fire check flush doors

- 067 Ensure fire check flush doors are to the fire rating specified in the Schedule of Rates and this Specification.

Windows

- 068 Provide timber windows with guarantees as table below. Provide timber surrounds for steel windows as approved by the Client's Representative.

Timber Frames	30 year guarantee against fungal attack
Timber Window Manufacturing Defects	10 Year guarantee
Timber Window (Factory Painted External Joinery)	10 Year guarantee (as minimum)
Timber Window (Factory Stained External Joinery)	6 Year guarantee (as minimum)
Hardware Components	10 Year guarantee (as minimum)
Double Glazed Units	15 Year guarantee (as minimum)

PVC-u doors and windows

- 069 Ensure all PVC-u windows and doors are:
- constructed from high impact modified PVC-u; and
 - manufactured from base materials guaranteed against decomposition and for colour fastness for a minimum of 25 (twenty five) years.
- 070 Guarantee the fabrication of all PVC-u frames and sashes against failure of welds, mechanical joints etc., for a minimum of 25 (twenty five) years.
- 071 Guarantee double glazed units against failure of the unit for a minimum of 15 (fifteen) years.
- 072 Guarantee hardware components against failure of the unit for a minimum of 10 (ten) years.
- 073 Protect PVC-u items against damage during the course of fixing.

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- 074 Ensure windows provided can be opened to allow a secure trickle ventilation.
- 075 Ensure the accurate measurement of the Works and correct any measurement errors. (Tolerances – the overall height and width of an assembled frame shall not differ from the work size by more than +/- 3mm when measured at (20 +/- 5) °C, with a maximum difference of 3mm at any point. For assemblies with outer frames having three or more joints per frame member, the deviation shall not be more than 4mm when similarly measured. Frame assemblies shall be such that they can be installed in a square opening with a maximum difference in the diagonal of 4mm).
- 076 Ensure all window frames show a 50mm-60mm face on the outside of the frame.
- 077 Construct doors from a profile with a minimum of 100mm width showing face.
- 078 Ensure doors:
1. are double panelled type 2XG or 2XGG;
 2. have the top panel double glazed in toughened glass;
 3. have a bottom panel similarly double glazed or PVC-u skinned/foam sandwich with PVC-u frame; and
 4. have the panels screwed and wedged.
- 079 Use door and window furniture suitable for the doors and windows approved by the Client's Representative that meets the following requirements:
5. door locks and furniture comprise:
 6. 1½ pairs of heavy duty hinges;
 7. cylinder lock;
 8. letter plate - white plastic gravity type (front doors only);
 9. 1 No. heavy duty multi-point lift lever espagnolette locking system with return lever handle action to horizontal position when locked;
 10. lever handles;
 11. numerals (front doors only);
 12. stormproof cill/threshold with integral weather seals; and
 13. rain deflector/weatherboard;
 14. turn tilt windows have:
 15. a key operated 'tilt barrier' approved by the Client's Representative;
 16. child locks, where the windows are fitted on or above the first floor level; and
 17. a switch barrier; and
 18. casement windows (outward opening) have:
 19. friction hinges with espagnolette fittings and locking furniture on all opening windows irrespective of configuration; and
 20. child locks, where the windows are on or above the first floor level.
- 080 Ensure door and window furniture is SAA or brass finished as approved by the Client's Representative or as specified on the Order.
- 081 Use only PVC-u windows/doors approved by the Client's Representative unless specified on the Order.

Sealant

- 082 For pointing around window and door frames use sealants:
- 1) to BS EN ISO 11600 Type B with fungicide;
 - 2) coloured to match existing; and
 - 3) that are suitable for sealing to timber, aluminium and PVC-u windows and doors, as applicable.
- 083 Silicone sealant to BS EN 11600 Type B with fungicide.

Repointing existing door and window frames with silicone sealant is to be undertaken by cutting away the existing mastic pointing with a sharp knife, cutting away any existing sand/cement pointing, ensuring that the surfaces to be jointed are completely dry and clean, the depth of sealant is to fill all resulting voids.

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Combustion air grilles

- 084 When repairing or renewing items which incorporate combustion air grilles:
- use either the salvaged air grille (if it is in sound condition) or combustion air grilles as approved by the Client's Representative; and
 - ensure apertures are maintained in the repair or renewed items.

Fibre cement insulating board

- 085 Use insulating board that is asbestos free and has a sanded finish.

Boards and panels

- 086 Do not use cross joints in board coverings.

PVC-u fascias/soffits/cladding and components

- 087 Ensure PVC-u fascias, soffits, cladding and components are:
- cellular PVC-u with a low density (closed cell) core and homogeneous skin;
 - with self coloured, smooth, semi-matt finish;
 - of sections and profiles approved by the Client's Representative.

Architraves, reveal linings, window boards and mouldings

- 088 Ensure replacement items match the existing (which may be of varying profiles and shapes). Where painted softwood skirtings and architraves are specified, at the Service Provider's option use an approved MDF equivalent where approved by the Client's Representative.
- 089 PVC-u cill board is to be bull nosed or square edged, manufactured from low density cellular (closed cell) core and homogeneous impact resistant skin of PVC-u in accordance with BS 7619 UV stability and UV aged impact, resistance requirements.

Cill board to be maximum 155mm wide and minimum 9mm thick.

Weight: Average density 500 kg/m³.

Tolerance deviations of: +/-12.5% per m, width +/- 1.5mm, thickness +/- 0.5mm.

Flatness: Must not exceed +/- 0.6mm over 100mm. Linear thermal expansion of less than 7mm x 10.5 dgs. C.

Tested in accordance with BS 4370-3 Method 13. Fire Resistance:

Satisfy the requirements of BS 476-7 Class 1 Surface spread of flame and BS 476-6 Index 1 = 15.4 Fire propagation. Colour Fastness: In accordance with BS 7619.

Water Absorption: Less than 1.0% when tested in accordance with BS EN ISO 62.

Appearance: Self-coloured smooth gloss finish. Method of Fixing: As specified by manufacturer. Generally proprietary brand of adhesive or low modulus silicon. Edge Trims: Matching colour. Single part PVC-u trims as per manufacturers details and fixed in accordance with manufacturers' technical data sheet.

Polythene vapour barrier

- 090 For a polythene vapour barrier use a type of sheet approved by the Client's Representative and fixed with all joints lapped and made with double folds and taped.

Ironmongery

- 091 Carefully wrap and protect ironmongery until completion of the Works. Either replace with new or re-lacquer any defaced or damaged ironmongery as Instructed by the Client's Representative.
- 092 Use screws conforming to the relevant BS, and of a suitable gauge and Material for the purpose and to match the article to be fixed.

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- 093 Lubricate locks, etc., with graphite and leave them in perfect working order on completion of the Works. Properly label and deliver up all keys to or as Instructed by the Client's Representative.
- 094 Use black japanned tee hinges and Suffolk latches.
- 095 Ensure that letter plates comply with the Royal Mail's minimum size standards in accordance with BS EN 13724. Ensure letter plates provided in fire doors conform to the fire rating of the door.
- 096 Unless the Order states otherwise provide all ironmongery to new, renewed or replacement timber doors in accordance with the following:
- for external front doors:
- 1½ pairs 100mm heavy duty satin stainless steel butt hinges to BS EN 1935;
 - 1 No. cylinder security night latch with latch pull, with deadlocking arrangements;
 - 1 No. 65 or 75mm 5-lever mortice deadlock and keep;
 - 1 set escutcheons;
 - 1 No. letter plate - gravity type to BS EN 13724; (fire rated for Fire doors)
 - 1 No. security door chain;
 - stormproof sill/threshold with integral weather seals;
 - rain deflector/weatherboard;
 - intumescent seals (fire doors only); and
 - door numerals;
- for external rear doors:
- 1½ pairs 100mm heavy duty satin stainless steel butt hinges to BS EN 1935;
 - 1 No. 100mm 5-lever mortice lock/latch and keep;
 - 1 set lever furniture/handles;
 - 2 No. mortice security bolts;
 - stormproof sill/threshold with integral weather seals;
 - rain deflector/weatherboard; and
 - Intumescent seals (fire doors only);
- for internal doors:
- 1 pair 75mm medium duty mild steel with fixed pin (non removable) butt hinges (1½ pair heavy duty satin stainless steel hinges to BS EN 1935 for fire-check doors);
 - 1 No. 65 or 75mm tubular mortice latch and keep;
 - 1 set lever furniture/handles; and
 - intumescent seals (fire doors only);
- for bathroom/wc doors:
- 1 pair 75mm medium duty mild steel with fixed pin (non removable) butt hinges (1½ pair heavy duty satin stainless steel hinges to BS EN 1935 to communal W.C's and bathrooms opening onto a means of escape);
 - 1 No. 65 or 75mm mortice bathroom lock/latch and keep with reversible solid brass latch bolt to BS 3621;
 - 1 set lever bathroom furniture/handles with snib/indicator, deadbolt operated by turn button with emergency release;
 - intumescent seals (fire doors only); and
- for external match-boarded doors:
- 1 pair 457mm steel tee hinges;
 - 1 No. rim lock and keep; and
 - 1 set knob furniture.
- 097 Ensure that all door hinges, ironmongery and other hardware has a minimum fire rating to match the door, frame or door set on which it is used.
- 098 Ensure all door furniture is SAA or brass finished as approved by the Client's Representative or as specified on the Order.

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Kitchen units/worktops in Repairs

- 099 Ensure kitchen units are manufactured to meet strength specification level 'H' and have fully repairable carcassing.
- 100 Ensure worktops are manufactured using laminated moisture resistant chipboard core and are consistent with existing worktops. Ensure all post-formed worktops are constructed using particleboard with minimum 'P5' classification (but if 'P5' is not obtainable construct only square edge and double post-formed worktops using particleboard with minimum 'P3' classification).
- 101 Ensure metal fittings and screws conforming to BS, used in manufacture are plated against corrosion. Use metal corner gussets as fixing posts.
- 102 Take all necessary precautions to protect units and worktops from damage. Either make good any damage caused or replace Materials as Instructed by the Client's Representative. Ensure that, when fitted, all doors and drawers operate smoothly.
- 103 Where existing fixing holes cannot be used for hinges, use a steel cabinet strengthening plate, fixed four times to the unit and hinges fixed with self-tapping screws to the plate.

Chrome supporting leg

- 104 Ensure the worktop supporting leg is 30mm in diameter chrome plated and fixed to the worktop and floor with retaining plates and screws.
- 105 Aluminium square edge worktop end trim to BS EN 515, fixing with aluminium screws; bedding in silicone sealant.
- 106 Aluminium insert junctions to BS EN 515, bedding in silicone sealant.
- 107 Aluminium and rubber clip on cover beads to standard and quality approved by the Client's Representative, fixing with aluminium screws.
- 108 Chrome cover fillets of an approved type and manufacture, bedding and twice pointing in silicone sealant.

Handrails etc.,

- 109 Handrail brackets are to be cast aluminium or mild steel and fixed securely to timber with appropriate screws, finish: as specified.
- 110 Fixing brackets are to be galvanised steel to comply with BS EN 912, fixed securely to timber frame with three 30mm x 1½ mm galvanised screws.
- 111 Newel brackets are to be galvanised steel, fixed securely with bolts
- 112 Aluminium angle bearers are to comply with BS EN 515, 6063tf standard, anodised finish to BS 3987, fixed securely to floor with galvanised steel screws.

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WORKMANSHIP

Generally

- 113 Ensure carpentry work is framed and put together in a substantial and workmanlike manner.
- 114 Ensure joinery work is accurately set out, framed and executed in accordance with manufacturer's drawings and finished off in a workmanlike manner.
- Put together purpose made doors and other framed work immediately upon the general work being commenced, but do not glue and wedge them until the joinery is prepared in readiness for immediate fixing.
- 115 Finish off machine planning and moulding smooth by hand.
- 116 Ensure exposed faces of joinery are wrought and all arises slightly rounded.
- 117 Punch and putty nails and pins in exposed work.

Plugging

- 118 Note that in this Section 'plug', 'plugged' or 'plugging':
- means fix to concrete, brickwork or blockwork and similar surfaces;
 - includes supplying and fixing with proprietary fixings; and
 - includes shot fired fixing.
- 119 For bolted joints, locate holes accurately and drill to diameters as close as practical to the nominal bolt diameter and not more than 2 mm larger, place washers under all bolt heads and nuts which bear directly on timber, - tighten bolts so that washers just bite the surface of the timber and at least one complete thread protrudes from the nut. Check at agreed regular intervals up to practical completion and tighten as necessary to prevent slackening of joints.
- 120 Ensure that wall plates are positioned and aligned to give the correct span and level for trusses, joists, etc. Wall plate to be fully bedded in fresh mortar in lengths of not less than 3 m with half lap joints. Wall plates shall be treated in accordance with Clause 015.
- 121 Installing joists generally, position at equal centres not exceeding designed spacing and true to level. Install bowed joists with positive camber. Bed hangers directly on and hard against supporting construction, do not use packs or bed on mortar. Cut joists to leave not more than 6 mm gap between ends of joists and back of hanger, rebate joists to lie flush with underside of hangers, fix joists to galvanised steel hangers with a nail in every hole, hanger size to suit joist, design load and crushing strength of supporting construction.
- 122 Trimming openings when not specified otherwise, trimmers and trimming joists to be not less than 25 mm wider than general joists.
- 123 When installing trussed rafters, carefully inspect each truss before erection to ensure compliance with shop drawings and specification, including grades and sizes of members, types, sizes and positions of nail plates, - gaps between ends of members at joints, and full penetration of nails.
- Erect trusses plumb, at equal centres not exceeding designed spacing and in accordance with BS EN 1995-1-1. Do not use damaged trusses and do not modify without consent of the Client's Representative. Fix securely with truss clips ensuring that rafters do not bear on wall plates. Do not fix ceiling chords to internal walls until roofing is complete and cisterns installed and filled.
- 124 Permanent bracing of trussed rafters is to be set out as shown on drawings. Fix bracing and binders to every rafter, strut or tie with not less than two 75mm x 3.35 mm galvanized round wire nails. Any lap joints must be side by side extending over and nailed to at least two truss members. Where a binder crosses a brace, interrupt and plate the binder.

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Repairs to Redwood Sills of Timber Windows

- 125 Cut out decayed timber and carry out repair using 'Dry Flex System' or other equal and approved. All in accordance with 'Window Care Systems' recommendations, approved method of working using correct tools. Maximum dimension of each resin repair as opposed to timber splice to be agreed with the Client's Representative prior to works commencing.

Repairs to Hardwood Sills of Timber Windows:

- 126 Cut out decayed timber and carry out repair using 'a proprietary timber repair system approved by the Client's Representative. All in accordance with 'Window Care Systems' recommendations, approved method of working using correct tools. Maximum dimension of each resin repair as opposed to timber splice to be agreed with the Client's Representative prior to works commencing.

Repairs to Timber Internal Door Frames:

- 127 Cut out decayed timber along the grain for a distance of 300mm (min) beyond the last visible sign of attack. The joint of new and existing timber shall be formed by means of 45° - 60° splice. New timber to be jointed to existing by means of galvanised screws or nails and adhesive and plugged and screwed to wall. New timber members shall match profile of existing. 'Dry Flex System' or other equal and approved may be used as a viable alternative to new timber section. Maximum dimension of each resin repair as opposed to timber splice to be agreed with the Client's Representative prior to works commencing. Dispose of defective timber immediately.

Repairs to Timber External Door and Window Frames:

- 128 Cut out decayed timber along the grain for a distance of 300mm (min) beyond the last visible sign of attack. The joint of new and existing timber shall be formed by means of 45° - 60° splice. The new timber shall be redwood to BS EN 942, Classes 2 and 3 or hardwood to BS EN 942, double vacuum treated in accordance with BS 8417 and all cut ends shall be dipped in similar preservative fluid before fixing in position. New timber to be jointed to existing by means of galvanised screws or nails and adhesive and plugged and screwed to wall. New timber members shall match profile of existing. 'Dry Flex System' or other equal and approved may also be used as a viable alternative to new timber section. Maximum dimension of each resin repair as opposed to timber splice to be agreed with the Client's Representative prior to works commencing. Dispose of defective timber immediately.

Repairs to Hardwood Sills of Timber Windows:

- 129 Cut out decayed timber along the grain for a distance of 300mm (min) beyond the last visible sign of attack. The joint of new and existing timber shall be formed by means of 45° - 60° splice. The new timber shall be hardwood to BS EN 942, Class 1 and all cut ends shall be dipped in similar preservative fluid before fixing in position. New timber to be jointed to existing by means of galvanised screws or nails and plugged and screwed to wall. New timber members shall match profile of existing. 'Dry Flex System' or other equal and approved may be used as a viable alternative to new timber section. Maximum dimension of each resin repair as opposed to timber splice to be agreed with the Client's Representative prior to works commencing. Dispose of defective timber immediately.

Replacing Structural Members:

- 130 Cut out decayed/infested timber along the grain for a distance of one metre beyond the last sign of attack. The joint of new and existing timber shall be formed by means of a half lapped joint at least twice the length of the member in depth; the new timbers should make-up the bottom section of the joint if timbers are horizontally placed. For the new timber, use a preservative treated whitewood from a source approved by the Client's Representative. Existing timbers ends exposed by cutting/jointing must be treated with preservative. New timber shall be jointed to existing by means of bolts. Connection to be affected with at least 4 number 12.5mm diameter mild steel bolts with locking nuts and dog washers. New timber members shall match profile of existing. Dispose of defective timber immediately.

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Replacing Preservative Treated Structural Members:

- 131 Cut out decayed/infested timber along the grain for a distance of one metre beyond the last sign of attack. The joint of new and existing timber shall be formed by means of a lapped joint at least twice the depth of the member in length. New timber shall be jointed to existing by means of galvanised bolts. Connection to be effected with at least 4 number 12.5mm diameter mild steel bolts with locking nuts and dog washers. New timber members shall match profile of existing. Dispose of defective timber immediately.

Replacing Treads and Risers:

- 132 Remove any plasterboard and trimmings as necessary to underside of staircase. Defective treads and risers to staircase are to be removed. Replacement whitewood treads and plywood risers to profile of previous to be housed into string. Wedges and blocks to be adhesive fixed in position. Internal Grade 1-1 plywood risers to be adhesive fixed and screwed to back of treads. All work to be executed from underside. Dispose of defective timber immediately.

Softwood flooring/board flooring

- 133 Renew floorboards carefully so as to avoid damaging the ceiling below the floor. Remove tongued and grooved boards by carefully sawing through the tongues and forming a heading joint adjacent to a joist. When replacing the boards, provide additional support at the heading joint using timber 50 x 25mm secured to the joist.
- 134 Where a number of floorboards require renewal, well cramp up the new boards to form tight joints and nail them up with two lost head nails punched and putted per board, per joint. Fix access traps with screws. Take care when fixing the floorboards not to puncture or damage any existing services.
- 135 Provide all additional support battens, noggins etc., required to support the boards.

Timber door frames and door linings

- 136 For new door frames and linings, use a minimum of three sets of fixings to each leg, each set comprising two fixings (either timber plugs and nails or proprietary plastic plugs and screws as appropriate to the quality of the fixing background). Where external door frames do not have timber cills, provide galvanised steel dowels in the legs, grouted into the building structure with cement mortar (1:3).
- 137 Fix existing door frames or linings which have become loose through the frame using proprietary sleeved screw fixing devices approved by the Client's Representative.
- 138 Sink the heads of fixings below the surface of the frame and the recess and fill them with an approved filler.

Softwood window frames

- 139 Fix softwood windows and softwood window surrounds in the same way as for fixing door frames and lining legs.

Metal window frames

- 140 Bed metal windows in a butyl rubber sealant and fix them to wood window surrounds which have been treated to BS EN 351-1 with galvanised or cadmium plated screws or alternatively by stainless steel fixing clamps or brackets and proprietary plastic plugs and approved rust proof screws.

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Window/door replacement

- 141 All replacement windows and doors in repairs and ad-hoc renewals are to be to BS 6375-2: 2009. Undertake window/door replacements that involve removal of the primary frame from the building and associated glazing in accordance with the current Building Regulations, Approved Document L.

Sealant

- 142 Before pointing around existing window and door frames, pick out all loose materials and insert a cellular backing appropriate to the type of sealant in the joint between the frame and wall. Use a sealant as specified, inserted by pressure gun to form a neat uniform beaded finish.

Stud partitions

- 143 For stud partitions use suitably sized softwood head and sole plates with studs at 400mm centres horizontally and noggins at 1200mm centres vertically. Butt joint quilts and fill the entire void.

Kitchen units

- 144 All kitchen units in repairs and ad-hoc renewals are to BS 6222-2 and BS EN 1116. Fix base units with proprietary metal or plastic fixing brackets, plastic plugs and screws and the joint between the worktop and wall pointed with a neat bead of anti-mould white silicone sealant.
- 145 Fix wall units with proprietary metal or plastic fixing brackets, plastic plugs and screws and also support them on full length softwood cleats of not less than 50 x 25mm.

Worktops

- 146 All worktops in repairs and ad-hoc renewals are to be to BS 6222-2. Fix worktops to base units on metal or plastic brackets with self-tapping screws. Support worktops with a void under by 50 x 25mm softwood cleats securely fixed to any background on at least three sides. If this cannot be achieved, support the sides affected on a flanged tubular steel support fixed to the floor with proprietary plastic plugs and screws and to the worktop with appropriate self-tapping screws. Seal/treat all cut edges to prevent the ingress of moisture, square cut with matching veneer to exposed ends.

Fixing PVC-u doors and windows

- 147 PVC-u windows and doors in repairs and ad-hoc renewals are to be to BS 7722 and manufactured to BS 7412. Take out the existing door/window and hack off render/plaster as far as necessary to accommodate the window fixing cramps in window reveals. Supply and install support lintels over the new window/door opening. Where the original brickwork is carried over the window/door i.e. soldier course, make good the brickwork as necessary. Remove all rubbish and leave the window/door opening ready to receive the new window/door. Lintels to be in accordance with current Building Regulations, Approved Document A.
- 148 Fix the PVC-u double glazed window/door with or without a cill directly into the prepared brick reveals using galvanised twist-in-lugs, approved by the Client's Representative, screwed to the reveals using galvanised screws. Seal the windows to the masonry openings with silicone sealant approved by the Client's Representative. Protect the windows during the course of the Works. Fix all windows directly to the inside face of the vertical DPC. Remove all old mastic from the brick face.
- 149 Where appropriate supply and fix an approved PVC-u cellular core window board, fixed with screw on lugs, fixed to the wall, together with 19mm PVC-u quadrant beading, glued to the window boards and window frame using an appropriate adhesive.
- 150 Make good to all internal window reveals with backing and finished plaster and leave ready for redecoration.
- 151 Replace the windows/doors that have been removed with new windows/doors and make them weather-tight before the Staff leave the Property at the end of each Working Day.

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Fixings/Adhesives

- 152 Fixing generally: Use fixing and jointing methods and types, sizes, quantities and spacings of fastenings which are suitable having regard to nature of and compatibility with product/material being fixed and fixed to recommendations of manufacturers of fastenings and manufacturers of components, products or materials being fixed and fixed to materials and loads to be supported. Provide additional noggings/grounds/bearers as necessary to provide adequate fixing and support.
- 153 Adhesive types: As specified in the relevant section. Surfaces to receive adhesive to be sound, unfrozen, free from dust, grease and any other contamination likely to affect bond. Where necessary, clean surfaces using methods and materials recommended by adhesive manufacturer.

Surfaces to be of sufficient smoothness and evenness to suit gap filling and bonding characteristics of adhesive. Adjust as necessary, ensure that operatives observe manufacturer's and statutory requirements for storage and safe usage of adhesives. Do not use adhesives in unsuitable environmental conditions or beyond the manufacturer's recommended time period. Apply adhesives using recommended spreaders/applicators to ensure correct coverage. Bring surfaces together within recommended time period and apply pressure evenly over full area of contact surfaces to ensure full bonding. Remove surplus adhesive using methods and materials recommended by adhesive manufacturer and without damage to affected surfaces.

- 154 Fixing Through Finishes: ensure that fastenings and plugs (if used) have ample penetration into the backing.
- 155 Pelleting: Countersink screw heads 6 mm below timber surface and glue in grain-matched pellets not less than 6 mm thick, cut from matching timber. Finish off flush with face.

Sun Pipes

- 156 Proprietary Rigid Sun Pipe to Pitched Roof

Generally will supplied and installed to the following specification:

- Pipe material: Rigid aluminium.
- Diameter: 240 – 360 mm
- Tunnel length: Up to 6 m maximum.
- Tunnel reflectance: Greater than 97%.
- Roof terminal: Proprietary polycarbonate dome (opal / UV protected) or 4 mm toughened glass in polyurethane frame.
- Ceiling terminal: Double glazed diffuser.
- Accessories: 30° – 45° proprietary bends as required. (Total number of bends to be kept to a minimum).
- Proprietary extension sections as required.
- Flashing: To suit interlocking concrete roof tiling.
- Installation: In accordance with manufacturers' technical data sheet

- 157 Proprietary Flexible Sun Pipe to Pitched Roof

Generally will supplied and installed to the following specification:

- Pipe material: Flexible metallized polyester.
- Diameter: 350 – 360 mm
- Tunnel length: Up to 1.5 m maximum.
- Roof terminal: Polycarbonate dome (opal / UV protected).
- Ceiling terminal: Double glazed diffuser.
- Flashing: To suit interlocking concrete roof tiling.
- Installation: In accordance with manufacturers' technical data sheet.

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158 Proprietary Rigid Sun Pipe to Flat Roof

Generally will supplied and installed to the following specification:

- Pipe material: Rigid aluminium.
- Diameter: 240 – 360 mm
- Tunnel length: Up to 6 m maximum.
- Tunnel reflectance: Greater than 97%.
- Roof terminal: Proprietary polycarbonate dome (opal / UV protected).
- Ceiling terminal: Double glazed diffuser.
- Accessories: 30° – 45° proprietary bends as required. (Total number of bends to be kept to a minimum).
- Proprietary extension sections as required.
- Flashing: To suit flat roof construction.
- Installation: In accordance with manufacturers' technical data sheet.

159 Proprietary Flexible Sun Pipe to Flat Roof

Generally will supplied and installed to the following specification:

- Pipe material: Flexible metallized polyester.
- Diameter: 350 – 360 mm
- Tunnel length: Up to 0.9 m maximum.
- Roof terminal: Proprietary polycarbonate dome (opal / UV protected).
- Ceiling terminal: Double glazed diffuser.
- Flashing: To suit flat roof construction.
- Installation: In accordance with manufacturers' technical data sheet

Servicing of Timber Window Frames

160 **General servicing requirements for timber window frames**

The degree of servicing required to timber window frames will be decided by the Client's Representative. The servicing should fall into one or other of the following categories.

161 **Condition of the frame and sash**

- The simplest form of servicing would be to ease and adjust the opening sash.
- Severely damaged opening sashes should be replaced as original.
- The fixed frame presents greater problems to repair but 'Window Care Dry Flex System' should be considered as a viable alternative to replacement.
- On completion the bare timber must be coated as original.

162 **Conditions of surface coating**

- Touching up is generally discouraged as weather conditions have an adverse effect on all surface coatings.
- The preferred option is to re-coat all window surfaces as original with light sanding between each coat.

163 **Condition of ironmongery**

- Damaged ironmongery should be replaced with matching or product similar to existing ironmongery and fitted as per manufacturer's technical data sheet
- Back flap or cranked hinges seldom require servicing, however service with light oiling with release oil/lubricant spray
- Friction hinges require light oiling with release oil/lubricant spray during servicing
- Replace all defective hinges as recommended by manufacture.
- Loose casement stays and handles should be re-fixed either by using longer screws or reuse the original screws by plugging the original screw hole.
- Tilt/turn and fully reversible gearing systems should be serviced by a qualified service engineer.
- Trickle vents should be cleaned of all paint, dirt, dust etc. and left in an operational state. Replace parts as necessary.

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- Condensation holes/channels were present should be cleaned of all paint, dirt, dust etc. and left in an operational state.
- All existing safety restrictors to be checked for correct operation. Where correct operation is not being achieved, adjustments should be made. If adjustments do not prove adequate replace the restrictor. On finishing the dwelling/property, all opening sashes are to be fitted with a safety restrictor. Each dwelling should be fitted with similar restrictors throughout – thus removing possible confusion in the event of a fire.

164 Condition of glass and glazing

- All damaged glass should be carefully removed before the removal of glazing slips or facing putty.
- Cracked glass should be taped to prevent accidents.
- When all glass is removed the rebates should be cleaned and primed with the appropriate primer before re-glazing.
- When slip glazing is used the bottom slip must be bedded in 'Dry Seal Elastic Glazing Sealant' to prevent ingress of water.
- Linseed oil putty must NOT be used.

165 Glazing medium

'Elastic Glazing Sealant' is the only option for face pointing. Linseed oil putty must NOT be used.

166 Draught Proofing

Draught proofing to existing window frames can usually be effected by using one of five different methods:

- Appropriately sized extruded foam with one side self adhesive; this if fitted to the frame rebate/inside face of sash.
- A co-extruded flexible seal with the rigid section nailed to the sash and the flap touching the sash. This component may have a metal rigid section.
- A bulbous extruded seal, again with the flat section nailed to the inside rebate of the frame and the bulbous section touching the sash.
- Replacement neoprene seals (if fitted) to match existing profile and colour.
- Silicon sealing. This method of draught proofing should be avoided and only undertaken after written advice and clarification is received from Policy and Standards.

In all cases some slight difficulty may be experienced when closing the sash and generally adjustment of ironmongery may be necessary.

Servicing of PVC-u Window Frames

General servicing requirements for PVC-U window frames

167 Ventilation and drainage:

All:

- Trickle vents (either in-frame, in-glazing or other)
- Condensation holes/channels (were present)

should be cleaned of all paint, dirt, dust etc. and left in an operational state. Replace parts as necessary.

168 Seals and gaskets:

Check neoprene seals and gaskets for wear/failure and replace seals/gaskets as necessary. Replacement seals to match existing profile and colour.
Clean of all paint, dirt, dust etc. from seals/gaskets and apply a spray coat of silicate lubricant (remove access lubricant).

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169 Ironmongery:

Damaged ironmongery should be replaced with matching or product similar to existing ironmongery and fitted as per manufactures instructions.

170 Hinges:

Hinges should be cleaned of all paint, dirt, dust etc. and left in an operational state. Hinge oil/lubricant is to be applied and hinge restraint screws adjusted accordingly. Replace parts as necessary.

171 Safety restrictors:

All existing safety restrictors to be checked for correct operation. Where correct operation is not being achieved, adjustments should be made. If adjustments do not prove adequate replace the restrictor.

On finishing the Property, all opening sashes are to be fitted with a safety restrictor. Each Property should be fitted with similar restrictors throughout – thus removing possible confusion in the event of a fire.

Cleaning PVC-u window frames

172 Sash frames and window frames are to be fully cleaned of all paint, dirt, dust etc. and left in an operational state.

173 Dirty marks on frames can be easily removed by using cleaning materials as indicated on the following table.

Cleaning cloths should be unbleached cotton. Do not use cloths containing synthetic fibres.

Heavy stains and deep scratching can be removed from white profiles only by sanding with a 320/400 grit sanding disc and by polishing using a sisal rotary brush to restore surface finish.

On wood grain surfaces care must be taken when cleaning. Seek manufacturer's advice on damaged wood grain surfaces.

Condition of glass and glazing

174 Check condition of glass;

- All damaged glass should be carefully removed before the removal of glazing slips.
- Cracked glass should be taped to prevent accidents.
- When all glass is removed the rebates should be cleaned

Typical problems and remedial action

175 Incorrect glazing and fixing of frames to masonry are the cause of most maintenance problems.

The following is an indication of typical problems and remedial action.

176 Opening sashes that have dropped during use:

Check hinges for wear/adjustment remove wedge gaskets.

Remove glazing beads internal or external.

Repack glass to manufacturers recommendations.

Refit glazing slips and gaskets.

177 Bowed cills/stiles:

Incorrect packing generally the case. Re-glaze as Clause 163 and secure packers to prevent further movement. Taking care not to block drainage/air circulation channels and/or slots.

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178 Sashes not sealing properly or engaging keepers:

Check adjustment hinges and keepers.

Check that the glass is packed at locking points, if not packed carry out work as manufacturer's technical data sheet.

Check also that the glass is packed at the position of frame fixings.

Check gaskets for wear/failure.

179 Broken/cracked glass.

Remove if possible pieces of broken glass before removing glazing beads.

Cracked glass should be taped to avoid accidents, before removing gaskets or glazing beads. Remove gaskets, remove glazing beads.

Carefully remove damaged unit or sheet glass.

Replace and re-glaze as per manufacturer's instruction, taking care to fit packers as recommended.

180 Opening sash adjustment.

All necessary adjustment should be completed after glazing. All hinges should be lightly oiled at periodic intervals. If glazing is completed as per manufacturer's instruction, little or no adjustment will be necessary. However, should adjustment be necessary the following steps should be taken:-

- Check margin of sash to frame.
- Remove centre screw on friction arm.
- Release two outer screws and then reposition the sash.
- Check that the overlap sash to frame is sufficient (5 mm min).
- Retighten the outer screws; replace the centre screw to ensure no further movement of the sash. The friction on the friction stay can be adjusted using the screw on the friction stay fixed member.
- Where adjustable espagnolettes have been fitted the rollers can be adjusted to gain compression of the weather gasket with the use of an Allen key by turning the rollers about their eccentric cams.

Should problems still exist when the sash is closed and the overlap to frame is equal refer to the below table for possible cause.

Upgrading

181 When upgrading from single to double glazing units, consider the strength of the existing hinges with regard to the additional weight of the double glazed unit and replace if required.

NOTE: It is recommended that all servicing work is carried out by a specialist service engineer

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CHECK LIST A

PROBLEM	CAUSE	ACTION
Sash hits keeper	- Frame bowed opening to rear	Re-glaze Reposition hinge
Cam hits striker	- Striker in wrong place	Reposition
Handle operation stiff	- Cams not adjusted - Keepers out of line	- Adjust cam - Realign and oil
Draughts	- Bowing members	- Re-glaze - Fit cavity block
	- Overlap incorrect - Both overlaps incorrect	- Reposition - Remake sash
	- Gasket problem	- Repair or replace
Sash moves too easily	Friction screw set incorrectly	Tighten Friction screw
Sash binding	Friction screw set incorrectly Outer frame bowed	Loosen friction screw Repack outer frame

CHECK LIST B

COMTAMINATION	CLEANING METHOD			
	Scrape off and Polish with Dry Cloth	Clean with water and mild detergent	Clean Off with non-abrasive detergent and water	Manufacturers specified cleaning agent¹
Bitumen			✓	
Pencil		✓		
Emulsion Paint	✓			
Felt Pen		✓		
Inorganic Grease			✓	
Plaster	✓			
Wood stain		✓		
Ball Pen		✓		
Cellulose Paint				✓
Rust				✓
Soot			✓	
Cement Mortar	✓			
Wax Pen			✓	

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182 Manufacturers specified cleaning agents should only be used by authorised service providers and with extreme care.

Loft Insulation

- 183 Mineral Fibre Loft Insulation laid between ceiling ties/joist or over existing quilt shall comprise:
- Mineral fibre insulation to BS EN 13162, manufactured in accordance with BS EN 9001 as certified under BSI kite marked or other certification scheme acceptable to the Client's Representative;
 - Installed in accordance with all the provisions of BS 5803-5. The Service Provider should pay particular attention of BS 5803-5 provisions for ventilation to roof space and; avoidance of overheating of electric cables.
 - Thermal conductivity of insulation no more than 0.040 W/mK;
 - Debris to be removed and any sealing of holes for pipes, lighting drops etc., completed before the installation of the insulation; Insulation to be fitted tightly with closely butted joints, leaving no gaps and extending over wall plates;
 - Ensure that eaves ventilation is unobstructed and electric cables are not covered;
 - Do not lay insulation directly below water cistern platform(s) – platforms should be elevated above ceiling joist/trusses
 - Lay insulation in two layers where necessary;
 - Install 800mm long plastic spacers to maintain a continuous 25mm minimum airspace above the insulation at the eaves. These are to be secured by tacked to rafters at both sides with galvanised thick staples or tacks, projecting 100mm (measured horizontally) beyond the wallplates. Insulation should cover the wallplates but shall not to project beyond the end of the spacer (described above)
- 184 Glass Fibre Loft Insulation laid between ceiling ties/joist or over existing quilt shall comprise:
- Glass fibre insulation to BS EN 13162, manufactured in accordance with BS EN 9001 as certified under BSI kite marked or other certification scheme acceptable to the Client's Representative;
 - Installed in accordance with all the provisions of BS 5803-5. The Service Provider should pay particular attention of BS 5803-5 provisions for ventilation to roof space and; avoidance of overheating of electric cables.
 - Thermal conductivity of insulation no more than 0.040 W/mK;
 - Debris to be removed and any sealing of holes for pipes, lighting drops etc., completed before the installation of the insulation; Insulation to be fitted tightly with closely butted joints, leaving no gaps and extending over wall plates;
 - Ensure that eaves ventilation is unobstructed and electric cables are not covered;
 - Do not lay insulation directly below water cistern platform(s) – platforms should be elevated above ceiling joist/trusses
 - Lay insulation in two layers where necessary;
 - Install 800mm long plastic spacers to maintain a continuous 25mm minimum airspace above the insulation at the eaves. These are to be secured by tacked to rafters at both sides with galvanised thick staples or tacks, projecting 100mm (measured horizontally) beyond the wallplates. Insulation should cover the wallplates but shall not to project beyond the end of the spacer (described above)
- 185 Loose mineral fibre loft insulation suitable for blowing only to BS 5803-2, used to manually fill gaps;
- 186 Insulated loft access boards shall be supplied and installed as additional loft access boards for inspection/access situated above walls where possible. Boards to be 1210mmx 475mm (minimum) x 18mm OSB Structural/Flooring grade bonded to 70mm high density insulation, strength 150 kPa at 10% compression, conductivity less than 0.041 W/mK fixed with 4 no long galvanised screws at least 20mm into ceiling joists. Generally allow 2 boards per dwelling. Leave existing loft boards in position, insulating underneath where possible.
- 187 Loft Hatch /Door Insulation and Sealing shall comprise:
- Mineral fibre loft access hatch insulation to BS EN 13162, conductivity less than 0.04W/mK, 200mm thick compressed to 120mm minimum held in place with woven fibreglass fabric and galvanised staples fixed to hatch lid frame, area 0.50m² nominal area, provide and install an easily compressible rubber self-adhesive 'P' seal fixed onto the timber hatch surround, refit or provide a hook and eye to prevent uplift;

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- Mineral fibre loft access door insulation to BS EN 13162, conductivity less than 0.04W/mK, 200mm thick compressed to 120mm minimum held in place with woven fibreglass fabric and galvanised staples fixed to door frame, area 0.70m² nominal area, provide and install an easily compressible rubber self-adhesive 'P' seal fixed onto the timber door surround, where necessary nail a 25mm x 38mm PAR softwood batten at 300mm centres round the door to provide a background for the compressible seal 3.4m maximum, refit or provide a small bright finish bolt to compress seal;
 - Phenolic foam loft access hatch insulation to BS EN 13166, conductivity less than 0.023W/mK, 100mm thick, strength more than 150kPa at 10% compression fixed to hatch lid frame, area 0.50m² nominal area, if the hatch is of combustible material nail 12mm plasterboard over before gluing insulation board over, provide and install an easily compressible rubber self-adhesive 'P' seal fixed onto the timber hatch surround, refit or provide a hook and eye to prevent uplift;
 - Phenolic foam loft access door insulation to BS EN 13166, conductivity less than 0.023W/mK, 100mm thick, strength more than 150kPa at 10% compression fixed to hatch lid frame, area 0.70m² nominal area, if the hatch is of combustible material nail 12mm plasterboard over before gluing insulation board over, provide and install an easily compressible rubber self-adhesive 'P' seal fixed onto the timber hatch surround, where necessary nail a 25mm x 38mm PAR softwood batten at 300mm centres round the door to provide a background for the compressible seal 3.4m maximum, refit or provide a small bright finish bolt to compress seal;
- 188 Proprietary white factory finished polypropylene insulated drop-down hinged loft access hatch to minimum opening width of 520mm, with insulation having a maximum U value of 0.25W/mK with integral draught and vapour seal in accordance with BS 5250, and secure catch to resist wind uplift, installed in accordance with the manufacturer's technical data sheet.

Insulation Boards

189 Insulation boards shall comprise:

- Expanded white polystyrene board to BS EN 13163, material to have BBA certification or equivalent, conductivity 0.035W/mK or less than, strength more than 100kPa at 10% compression, neatly cut and fit with no gaps and temporarily support in position where necessary, cut into insulation where this is needed to allow it to bend and rest directly on substrata;
- Expanded grey polystyrene board to BS EN 13163, material to have BBA certification or equivalent, conductivity 0.031W/mK or less than, strength more than 100kPa at 10% compression, neatly cut and fit with no gaps and temporarily support in position where necessary, cut into insulation where this is needed to allow it to bend and rest directly on substrata;
- Foil faced polyurethane/PIR foam board to BS EN 13165, material to have BBA certification or equivalent, conductivity 0.023 W/mK or less than, strength more than 100kPa at 10% compression, neatly cut and fit with no gaps and temporarily support in position where necessary, cut into insulation where this is needed to allow it to bend and rest directly on substrata;
- Closed cell extruded polystyrene insulation board to BS EN 13164, material to have BBA certification or equivalent, conductivity 0.035W/mK or less than, strength more than 100kPa at 10% compression, neatly cut and fit with no gaps and temporarily support in position where necessary, cut into insulation where this is needed to allow it to bend and rest directly on substrata. Where fixed to external walls underground, use suitable adhesive paste to fix, using lines of paste at edges and to form closed shapes no more than 250mm wide/tall, applying pressure until the adhesive sets. Finish the exposed upper edge and its junction with the wall with paste. Use 2 no additional stainless steel screws and 20mm washers and plug fixings per m² to prevent uplift with any later failure of the adhesive;

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- Foam glass rigid closed cell insulation board to BS EN 13167, material to have BBA certification or equivalent, conductivity 0.041W/mK or less than, strength more than 400 kPa to EN826 Annex A. Where fixed to external walls underground, use suitable adhesive paste to fix, using lines of paste at edges and to form closed shapes no more than 250mm wide/tall, applying pressure until the adhesive sets. Finish the exposed upper edge and its junction with the wall with paste. Use 2 no additional stainless steel screws and 20mm washers and plug fixings per m² to prevent uplift with any later failure of the adhesive;
- Foil faced Phenolic foam rigid sheet insulation board to BS EN 13166, material to have BBA certification or equivalent, conductivity 0.023W/mK or less than, strength more than 120kPa at 10% compression, neatly cut and fit with no gaps and temporarily support in position where necessary.
- Expanded Polystyrene insulation board fixed to studs to BS EN 13163, material to have BBA certification or equivalent, conductivity 0.032W/mK or less than, strength more than 100kPa at 10% compression, cut and fit neatly with tongue uppermost, leaving no gaps, fix sheets to each support at no more than 600mm centres with 12mm diameter flat head galvanised nails at least 12mm longer than thickness of insulation;
- Foil Faced polyurethane/PIR foam insulation board fixed to studs to BS EN 4841-2 faced with plasterboard, material to have BBA certification or equivalent, conductivity 0.023W/mK or less than, strength more than 120 kPa at 10% compression, cut and fit neatly leaving no gaps, fix sheets to each support at no more than 400mm centres with flat head galvanised nails at least 12mm longer than thickness of insulation, fit additional plasterboard so as not to leave vertical faces of insulation board exposed;
- Foil faced rigid sheet polyurethane/PIR foam cavity wall insulation board to BS 4841-1, conductivity 0.023W/mK or less than, strength more than 120 kPa at 10% compression, neatly cut and fit with no gaps and temporarily support in position where necessary, install in compliance with any relevant BBA certificate or equivalent quality system approved by the Client's Representatives;
- Mineral fibre vertical insulation mats to BS EN 13162, manufactured under BE EN 9001 as certified under BSI kite marked or other certification scheme acceptable to the Client's Representative, to vertical studding in un-floored loft areas, complete with galvanised mild steel 50mm mesh x 19swg gauge and used from 600mm rolls, 100mm mineral fibre insulation secured behind galvanised light wire mesh tied back to studs every 400mm horizontally and vertically, fixed with 2mm x20mm galvanised mild steel staples to BS EN 10244-2 at 400mm maximum centres, all installed in accordance with BS 5803-5;
- Mineral fibre vertical insulation mats with integral metal mesh facing to BS 3858-3, manufactured under BE EN 9001 as certified under BSI kite marked or other certification scheme acceptable to the Client's Representative, to vertical studding in un-floored loft areas, tied back to studs every 400mm horizontally and vertically, fixed with 2mm x20mm galvanised mild steel staples to BS EN 10244-2 at 400mm maximum centres, all installed in accordance with BS 5803-5;
- 50mm Foil faced Phenolic foam rigid sheet insulation board to BS EN 13166, material to have BBA certification or equivalent, conductivity 0.023 W/mK or less than, strength more than 120kPa at 10% compression, to vertical studding in un-floored loft areas, nailed in position over studs;
- 25mm Minimum mineral wool insulation with aluminium foil outer layer, maximum thermal conductivity of 0.04W/mK, wrapped around ductwork in unheated roof-space, taped securely in accordance with manufacturer's technical data sheet;

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Thermal and Sound Insulation Quilts

190 Thermal Insulation quilts shall comprise:

- Mineral fibre thermal insulation mat quilt to BS 13162, conductivity less than 0.040W/mK, compression fit, no gaps fixed between timber studs;
- Semi-rigid mineral fibre batts to BS 13162, conductivity less than 0.040W/mK, compression fit, no gaps fixed between metal studs;

191 Sound insulation quilts shall comprise:

- 25mm minimum mineral fibre sound absorbing quilt , no facing, minimum density 10kg/m3, fixed to one side of partition, joints butted, gaps < 5mm, securely fixed in place, can be glued or wire reinforced for fixing, head fixing to with galvanised large staples or large headed nails;

Client’s current manufacturers/suppliers/products

192 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

REPLACEMENT EXTERNAL DOORS

**REPLACEMENT EXTERNAL DOORS - SURVEYING AND INSTALLATION
[TOP TIER]**

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REPLACEMENT EXTERNAL DOORS – SURVEYING AND INSTALLATION

General

It should be noted that in order to reduce possible errors/confusion due to conflicting repeat clauses etc. the Replacement External Door specification sections have been sub divided into tiers as per the table below;

Top tier	Middle Tier	Lower Tier
Replacement external doors – surveying and installation etc.	Replacement External, Communal and Flat Entrance Doors – General	GRP External Door sets and Screens
		Fire Door Sets
		Pre-finished Timber External Door sets and Screens
		Aluminium External Doors and Screens
		Replacement Undecorated Timber External Door Sets and Screens

In this manner each completed product will be required to meet the specification of 3 No tier documents.

Example; if work to be undertaken is a GRP External Door, then the 3 No tier documents to be used will be;

- Replacement external doors – surveying and installation etc.
 - Replacement External Communal and Flat Entrance Doors – General
 - GRP External Door sets and Screens

Initial Survey

001 A list of Properties will be given to the Service Provider with access details and the Service Provider is then responsible for arranging access, visiting the Properties, taking measurements and forwarding existing external door dimensions and the Service Provider’s proposed style of replacement door to the Client’s Representative for approval.

External Doors - Whether the new doors are to be GRP, aluminium or timber replacements is dependent on the condition of any existing external door (if present) and therefore matching new proposals with the existing Property and surrounding Client owned Properties.

002 The drawings are to include ‘sketch elevations’ of each door showing the position of each proposed door type and to include details of glass type for each door.

003 The proposals are to be approved by the Client’s Representative before the Service Provider commences manufacture.

Site Measurements

004 The Service Provider is responsible for ascertaining the correct dimensions and sizes of every existing external door in each Property.

005 The dimensions noted on any schedule issued by the Client’s Representative are for guidance only and are approximate measurements. The Service Provider is responsible for taking all site sizes and measurements for each and every external door opening, and for manufacturing doors accordingly and to BS 8213-4. (Windows and doors - Code of practice for the survey and installation of windows and external door-sets) and as recommended in the GGF (Glass & Glazing Federation) “Good Practice Guide for the Installation of Replacement Windows and Doors”.

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This procedure requires a minimum of **8 No measurements** both internally and externally to determine the difference between internal and external reveal sizes. Therefore internal access to the Property must be gained before manufacturing the doors – this will also allow for full Customer consultation and agreement of intended Works. It is the Service Provider's sole responsibility to obtain the Customers approval to receive the Works before manufacturing is commenced.

External doors are in the main fitted from the outside, although the nature of some reveals will permit replacement doors to be fitted from the inside.

The measurement and fitting of doors must in every case respect the existing cover/rebate to the outer frame of the doors by virtue of any "reverse brick detail" or "check reveal" that may pertain to existing Client Property.

006 Where a check reveal is present for weathering purposes, the door manufacturing sizes should be based on achieving a minimum frame overlap of 12 mm on the external leaf. A hole may be drilled through the existing frame jamb rebate to establish the check reveal size. A frame may also be built into the check reveal at the head by use of a rebated lintel, and again a minimum frame overlap of 12 mm should be provided where practicable. If an overlap of 12 mm cannot be achieved, this should be discussed with the Client's Representative and an agreement reached regarding the size of the overlap for particular properties. As the Client owns a large stock of Properties, which vary in construction detailing, long term standard agreements to the amount of overlap will not be made with exception to the dimension stated here.

007 The Service Provider's attention is drawn to the fact that similar external doors in similar Property types may vary in size.

The Service Provider is responsible for ascertaining the correct dimensions and sizes of every existing external door in each Property. Measurements for each door (and its location) must be clearly identified on any delivery schedule and each door shall have a clear labelling system to reflect this.

008 The use of make up pieces (clip-on's) will not normally be permitted except with the express **written** authority of the Client's Representative. Written authority does not transfer to the entire Contract, if gained; it must be acquired for individual Property and/or phases.

009 Any existing external door opening which will present the Service Provider with a problem in compliance with the Specification, or in manufacture of a door to suit, must be brought to the attention of the Client's Representative before the door is fabricated. The Client's Representative will issue a written Instruction informing the Service Provider of what action is to be taken.

010 The Service Provider must obtain signed consent from the Customer before manufacture of any external door is undertaken. The Service Provider should be aware payment will only be made on completion of the door being installed into the Property.

Guarantees

011 In addition to the Client's rights under the Contract, the Service Provider is to provide the minimum guarantee tabled below against manufacturing defects etc., on all new GRP, aluminium and timber external doors upon completion of the Works. The guarantee is to include for all profiles, joinery, and for the double glazed units.

Manufacturers guarantees in all instances are to be for the years stated below with no exceptions attached (i.e. end user servicing expectations etc.), this will assure the Client that the manufacturer is confident of their own products durability.

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PVC-u profiles	25 Years
Timber frames	30 Years guarantee against fungal attack
Timber Door Manufacturing Defects	10 year guarantee
Timber Door (Factory Painted External Joinery)	10 Year guarantee (as minimum)
Timber Door (Factory Stained External Joinery)	6 Year guarantee (as minimum)
Hardware Components	10 Years (minimum)
Double Glazed Units	15Years (minimum)

Doors are to be manufactured under guidelines BS EN ISO 14001 (Environmental Management) and BS EN ISO 9001 (Quality Management Systems) with manufacturing companies holding the relevant accreditation. Manufacturers should promote and maintain an Environmental Policy and be committed to it. They should be able to demonstrate that all operations proactively comply with all applicable environmental laws and regulations.

The manufacturer shall provide a good practice guide relating to aftercare and maintenance of their manufactured doors etc. and its component items. The Service Provider shall ensure that each Customer receives a copy of this.

General Design of External Doors

Doors - Street Properties

- 012 Each Property case may be different and therefore approval will be required for each Property. In all cases, the proposed new style of external doors will need to comply with Building Regulations and in particular fire egress in terms of all habitable rooms.

Timber External Doors

- 013 The Service Provider is responsible for ascertaining the correct dimensions and sizes of every existing external door in each Property.

General External Door Installation

- 014 All sidelights are to achieve an 'A' energy rating certificated by the British Fenestration Rating Council (BFRC).

All replacement doors and sidelights must achieve Building Control standard of Maximum U-Value = 1.8 W/m²K for units with >50% internal face glazed.

U-values of external doors and sidelights glass and frames must meet the Building Regulations and must be BFRC Certified and have an "A" Rated Energy Index. Centre Pane "U Value" of 1.2W/m²K (or better). Thermal Transmittance Whole Window "U Value" of 1.4 W/m²K (or better)

- 015 All External Doors must pass testing undertaken to PAS 24 and be Secure by Design certified. All certification documents are to be forwarded to the Client's Representative and kept updated – this must include test certificate, report and list of tested ironmongery with product manufactures names, type etc. Evidence of compliance with PAS 24 (Specification for Enhanced security performance requirements for door-sets and windows in the UK) will be a condition of tender.
- 016 All new external doors and door frames are to match existing size openings in existing positions (i.e. brick reveals to be maintained externally where necessary on all occasions).
- 017 Before installing the new door frame, the existing structural opening should be checked to ensure its stability and existing lintels checked to ensure their condition soundness. Any large repairs should be reported to the Client's Representative.

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- 018 It is permissible to "chip back" a small area of plaster (typically 25mm) extending full height up the existing reveals and immediately adjacent to the door frame; this will both facilitate removal of existing door frame and installation of replacement door frame.
- 019 All openings should be cleaned of debris etc., and any minor making good is expected to be carried out as part of the external door replacement works.
- 020 All metal fixings should be at least as corrosion-resistant as BS EN 1670 Grade 3. 13.5.

Door frames shall be secured in accordance with the recognised "fixing distances" for strap / lug fixings and through-frame fixings as recommended in BS 8213-4.
- 021 Sills must be properly supported and fixed to ensure there is no likelihood of water penetration.
- 022 All internal reveals should be made good and plaster or decorations made good to match existing.
- 023 External sealing should be by means of a cement/sand pointing around the new door frame to conceal larger gaps and then a low modulus white silicone sealant to BS EN 11600. Only silicone sealants recommended by the manufacturer/supplier should be used and not general purpose mastics. All abutments of the door frames should have silicone sealant applied.
- 024 Prior to installation, the doors are to be supplied with adequate protection against damage caused by slippage, distortion etc. They must be stored under cover in a dry and secure position, stacked vertically, not horizontally.
- 025 The door frame dimensions must be checked with those of the opening before removal of the existing door frame.
- 026 A craft knife should be used to score around the perimeter of the existing frame in order to minimise damage to plaster/decoration.
- 027 External doors and frames to be removed and all existing mastic and debris cleaned away. The Service Provider is to ensure that the work is carried out in a neat and tidy manner, with all rubbish removed to a lockable skip at the end of each working day.
- 028 The damp proof course is to be checked by the Service Provider to ensure one is present and in good condition. Any defects present are to be brought to the attention of the Client's Representative immediately.
- 029 The new door frames must be installed in accordance with the manufacturer's requirements, taking into account the construction of the Property. Fixing methods should take into account thermal movement. The method of fixing will generally be either through frame fixing or lug fixing.
- 030 Door frames must be installed plumb and square without twisting, racking or distortion of any member in accordance with the manufacturer's installation tolerances.
- 031 The door frame must be centred in the aperture and be positioned so that it does not bridge the damp proof course. The amount by which the new door frame is set back from the outer face of the wall is determined by the requirement to set the internal face as close to the existing internal finishes as possible and by the bridging of the damp proof course.
- 032 The door frames must be secured so that the corner fixings are a minimum of 150mm and a maximum of 250mm from the corner of the frame and the intermediate fixings at centres no greater than 600mm.
- 033 Should the manufacturer require more onerous fixing requirements then these must be adhered to. Care should be taken not to overtighten bolts and that packers/shims are not allowed to fall away. Care should also be taken to ensure that water tightness is maintained where lintels have to be drilled for fixing.
- 034 All screw fixing heads which pass through the profile are to be spot sealed with appropriately coloured or clear silicone sealer or a PVC-u cap.

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- 035 Where electrical, television, telephone wires etc., enter a Property either through a hole in the existing door frame, or adjacent to it, then such services must be routed around the door frame. A split plastic tube of suitable diameter and length for entry into the Property should be slipped over the cable so that connections do not have to be disturbed on the appliances, with the ends of the tube sealed with white silicone sealant on completion of the external door installation.
- 036 Where any internal plaster work is disturbed when the existing door frames are removed, the Service Provider must make good the plasterwork. PVC-u cover mouldings may be used to a maximum width of 30mm.
- 037 Internally the door frame must be well caulked and the gap between the reveal finish and the frame flush pointed with a one part white emulsion acrylic painter's caulk.
- 038 Each sidelight must be permanently marked or labelled in an unobtrusive position (not visible when the opening light is closed) showing details of the manufacturer, the job number of the sidelight and the date of manufacture.
- 039 The latest standard for glass units is BS EN 1279 –2 (also part 3 for gas filled types)
- 040 Special care and attention must be taken to protect and avoid any damage to external doors and frames. Any damaged external door or frame must be replaced with a new external door or frame and it must be at the Client's Representative's sole discretion as to whether a repair to an external door or frame is acceptable.

Safety Laminated Glass

- 041 All glazing in doors in critical locations as defined by the Building Regulations (i.e. glazing below 1500mm height in doors with a zone of 300mm either side of the door) is to have both skins of glass units glazed with laminated low E glass – assumed to be 2 No. skins of 6.8mm laminated safety glass.
- Internal and external panes in sidelights, double glazing units to be laminated glass as default. An exception may be made where a staircase ends or turns immediately inside the doorway – in this instance the internal pane may be toughened (i.e. to reduce impact pressure) – written notification must be given to the Client's Representative. External pane must always be laminated to provide security and satisfy PAS 24.
- 042 All safety glass is to be permanently marked on both panes with British Standard kite marks, which are to be visible after installation.
- 043 Both sheets of glass making up the sealed double glazed unit must be safety glass where required by the above descriptions.
- 044 Details of external doors in critical locations are to be stated in the Service Provider's proposals for each new external door when proposed drawings are forwarded to the Client's Representative for approval.

Glazing - General

- 045 External doors and sidelights must be manufactured so that glazing or re-glazing on site is possible without the need to remove the outer frame from the structure of the building.
- 046 All glass and insulated glazed units should be carefully examined for damage, especially at the edges, prior to installation. Defective items must not be used.
- 047 The two panes of glass in the double glazed unit are to be held apart with warm edge technology, spacer bars to improve thermal efficiency and reduce the possibility of condensation forming around the perimeter of the sealed double glazed unit.
- 048 The glazing of the doors or sidelights must be carried out immediately after the installation of the frames and casements.
- 049 On completion of external door installations, all glass to be cleaned internally and externally and left clean and free from blemishes.

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- 050 Any glass with scratches cracks or defects to be replaced by the Service Provider at no charge.
- 051 All external doors and sidelights to be **INTERNALLY GLAZED** in argon filled sealed units in low Emissivity glass, using pre-formed gaskets inserted during the profile extrusion and secured by knock-in PVC-U glazing beads with mitred corners.
- All doors/sidelights will be totally dry-glazed with minimum 12mm wide x 3mm thick double-sided PVC foam closed cell high density security glazing tape on the inside frame rebates. Co-extruded EPDM corded glazing gaskets on the frame are acceptable as an alternative provided that bead security clips are used in conjunction with it.
- 052 Glass shall be at least the minimum thickness to meet wind load requirements of BS 6262 and BS 6375.
- 053 Glazing beads are to be able to withstand the design wind loading in accordance with BS 6375: Part 1 and the tests specified in BS EN 12211.
- 054 Fans are not permitted in sealed units.
- 055 Details of all glass types are to be stated in the Service Provider's proposals for each new external door or sidelight when proposed drawings are forwarded.

Certificate of Test Sidelight/doors

- 056 All manufacturers of sidelight/doors etc. shall be required to have a "sample" submitted for testing at an accredited testing station. These samples must be inspected against the requirements set out above. All manufacturers are required to have "third party" registration provided by BBA, BSI or equivalent recognised accredited quality licensing authority for the manufacture sidelights/doors etc.
- 057 A copy of the respective Certificate of Compliance for Secure by Design and PAS 24 must be made available at the time of submitting for inspection, which confirmations that the manufacturer can produce the product to the required standards, along with all testing data. The Service Provider should be aware these certificates may form part of the document handover pack and if not supplied on completion and handover of the Work, will incur a financial penalty.

Delivery to site of sidelights/doors etc.,

- 058 In each option, primary consideration must be given to current health and safety at work legislation in respect of site practices.

Option 1 – Pre-glazed

Will be valid where the external door manufacturer is commissioned on a supply only basis; the installation, therefore, being undertaken by the Service Provider.

Option 2 – Un-glazed

Will be valid where the external door manufacturer is commissioned on a supply and fit arrangement. This will involve the supply of insulating glass units and pre-formed glazing gaskets to be applied on site in accordance with the manufacturer's technical data sheet.

Critical considerations to be observed:

- All glazing must conform to the recommendations contained in the relevant parts BS 6262 – 5 and BS 8000 - 7. The setting and location block positions, frame to glass and bead to glass gaskets etc. with any glass or insulating glass units must be installed in accordance with the relevant manufacturer's technical data sheet and as per the recommendations in BS 6262 – 5;

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- All insulating glass units shall be examined for damage prior to installation; defective units shall not be used;
- Insulating units with “low emissivity coatings” shall be oriented in accordance with the manufacturer’s technical data sheet; and
- Where safety glazing forms part of an glazing unit, it remains a legal requirement to ensure that the marking remains visible after installation.

Protection, Transportation, Storage & Pre installation check

- 059 The Service Provider must ensure the manufacturer/supplier is responsible for ensuring that all sidelights/doors are suitably protected to avoid damage during transportation and storage.
- 060 Sidelights/doors/glazing units (if applicable) shall not be flat-packed, but stood vertically during transportation.
- 061 Sidelights/doors/glazing units in storage to be “kept apart” preferably with soft packing to reduce risk of transport/handling damage.
- 062 The Service Provider must ensure that all sidelights/doors stored on site are housed within a secure weatherproof storage facility on-site until the time of fitting. Pre-finished joinery shall not be stored in direct sunlight.
- 063 Prior to commencement of installation, the Service Provider should undertake the following checks -
- Consult survey sheets and ensure these are correct and clear;
 - All survey measurements are recorded;
 - The doors/sidelights supplied; are of the correct fenestration and design and in accordance with the external door schedule approved by the Client’s Representative;
 - The glass type and pattern are correct;
 - External door and glass sizes are compatible;
 - All trims, gaskets etc., are correct and fitted correctly; and
 - Consult survey sheets to ensure external doors supplied are correctly marked and identified to those Properties being replaced.

Site Approval on delivered

- 064 Previous to the benchmark Properties being set, a sample Pre-Finished, GRP, Aluminium or Timber external door/sidelight shall be delivered to site by the preferred manufacturer/supplier for inspection and acceptance by the Client’s Representative.
- 065 The manufacturer/supplier in providing the sample for acceptance must demonstrate full compliance with the specification requirements. Evidence of thermal efficiency standards being offered must be available to the Client’s Representative for verification.
- 066 The sample external door/sidelight (upon acceptance) will form the “benchmark external door/sidelight” for the remainder of the project.
- 067 The Client’s Representative shall reserve the right (at any stage) to have any external door/sidelight which is delivered to site, subsequently removed for further inspection/audit and/or independent testing to ensure that the specification requirements are being complied with.

Remove and Install on same Day

- 068 Existing doors to be removed are most likely to be timber in nature, although a small percentage of properties may have original PVC-u external doors and frames. The Service Provider should make every effort to have all existing external doors and frames recycled and provide waste disposal reports to the Client’s Representative.

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- 069 Replacement external doors and frames must be installed on the same day that the original external doors and frames are removed in order to maintain security and weather tightness of the structure. The existing door frames should be removed with care in order to avoid damage to the Property structure and its finishes and without permitting any subsidence of the structure during or after the operation.

When providing more than one replacement external door to a single Property the Works should be undertaken on one set day to reduce the amount of disturbance to the Customer.

- 070 Any defects that become apparent in the integrity of the structure upon removal of any door frame should be reported to the Client's Representative immediately.
- 071 If there is a sub-sill or threshold, e.g. Concrete, slate, brick or tile, below the existing door frame it must be left in position unless otherwise specified.

Protection of existing fixtures etc.

- 072 Allow for protection of floor coverings, furniture and Customer's belongings throughout the duration of the Works.
- 073 The Service Provider is responsible for moving any furniture, fixtures, Customer's belongings and fittings that may be damaged during the installation of the external doors, prior to commencement of the replacement of any external door and repositioning such items upon completion of the installation to each Property.
- 074 The Service Provider will be responsible for both internal and external protection. After the removal of the existing door, frame and sidelight the Service Provider is to carefully cut back any internal or external flooring, finishings, cladding, wallpaper and decorations to allow for the installation of the new frames etc. The Service Provider is responsible for making good all structures, finishings and decorations up to 100mm from the face of the frame or sill.
- 075 The Service Provider must ensure that clean and sufficient dust sheets or protective coverings are used, when carrying out any Works. The Service Provider must ensure he has taken all adequate provisions to ensure that the soiling or damage to floor coverings and needless damage to decorations are avoided. The Service Provider must allow for any cleaning of floor coverings required as a consequence of the Works and this should be reflected in the tender Rates submitted.
- 076 It is recommended the Service Provider undertakes a Schedule of Condition and agrees this with the Customer prior to undertaking any Works. It is therefore considered prudent to take photographs of any damaged Customer's belongings within the vicinity of the Work prior to commencement and, where appropriate, to obtain a signed disclaimer.

Fixings

- 077 Screws used for fixing non-reinforced PVC-u sections will be of carbon steel with a suitable corrosion protective coating and feature a double helical thread, spoon point with a countersunk head.
- 078 Fixings must incorporate a combination square/cross recess drive to provide a non-magnetic stick fit.
- 079 All screws, nuts, bolts and other fastenings must be of corrosion resistant material, or be treated to give corrosion resistant properties. When subject to the acetic acid salt spray test specified in BS EN ISO 9227 for a period of 144 hours, the corrosion resistance of treated mild steel must be equal to or better than that of stainless steel samples subjected to the same test conditions.
- 080 All ironmongery, fixtures and fittings must be of materials resistant to, or protected against atmospheric corrosion. Metals in contact with each other must be compatible so as to prevent galvanic corrosion of dissimilar metals by electrolytic action.

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081 The use of polyurethane foam is not acceptable as a sole method of fixing any door frame into a structural opening, nor is it acceptable to be used as bedding for the door frame.

Fixing to be as recommended by in BS 8213-4 below is a brief summary, actual fixing recommendation should be taken from BS 8213-4 and its example diagrams:

Secured on all sides (where practicable);
Corner fixings – 150 – 250mm from external corner;
Minimum of 2 fixings per reveal;
If head is fixed with polyurethane foam, then head fixings can be –
<ul style="list-style-type: none"> • Frame width up to 1200mm – no fixings • >1200mm to <2400mm – one central fixing • >2400mm to 3600mm – two equally spaced fixings

082 The use of polyurethane foam is permissible in terms of “foam filling” and as a useful addition to mechanical fixings. When the external door is completed and finished there should be no visual evidence of polyurethane foam either internally or externally.

Installation “packers” should be used to set the door frame onto to allow sealant/mastic to be used as a full fill bedding material. The colour should match the door frame finish.

Foam filling is to be used in all external door installations to provide a closure to possible cold bridge of gaps between the wall and the frame. It is only to be used within the depth of the door frame profile i.e. it should not be used to fill gaps to reveals etc. which are to be plastered. Form filling is only in regard to the following situations –

<p><u>1) To the head of a door frame, where the presence of pre-cast concrete or steel lintels make it impracticable or pose significant difficulties in achieving the recommended fixing distances</u></p>	<p><u>Up to 15mm maximum</u></p>
<p><u>2) To the sides of door frame to make up expansion/contraction gap left either side as a result of manufactured size of door frame</u></p>	

083 All components should be supplied by a manufacturer complying with BS EN ISO 9001 accredited quality systems. A certificate passing warranty to the Client is to be issued by the hardware manufacturer on completion of the project.

084 Written confirmation of compliance with all of the above should be given to the Client’s Representative in advance of commencement on site and will be a condition of the tender.

Fire barriers

085 In all methods of construction it is important to ensure that the cavities between internal and external skins are protected at openings for external doors from the spread of fire. If these openings are not protected, in the event of a fire, smoke and fire can spread through the cavity, causing danger to occupants in other parts of the Property not immediately affected by the fire. This issue is of particular concern in timber and metal framed buildings. Attention is drawn to the Building Regulations in respect of the requirement for suitable fire barriers to be present in such buildings. Guidance is given in BS 9991, BS 9999, and the current Building Regulations Approved Document B.

086 The method of construction should be identified, and where the building is of timber or metal frame construction, the type of cavity barrier should be established. Where the barrier is a cavity sock or similar, and is likely to become dislodged or damaged by the removal of the existing frames, this should be noted on the survey sheet, and instruction given to the installation team to ensure that the cavity barrier is either repaired or replaced to maintain the original level of fire protection for the Property.

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NOTE; Timber and metal frame constructions usually have a moisture barrier included in the area around openings, to resist moisture ingress into the cavity that could affect the timber sheathing or metal studwork.” (Extract from BS 8213-4)

Making Good

087 The final covering and treatment of surfaces and their intersections are fundamental to the overall replacement of external doors.

The primary objective of making good damaged areas adjacent to the external doors is to maintain the;

- Weather-tightness; and
- Thermal performance characteristics

As required in and around reveals.

088 This protocol described below applies to all external door replacements and shall be undertaken as the primarily aim to negating the need for any redecoration during/after external door installation.

There will be a number of situations (i.e. age of the Property; thickness of plaster reveals; and to some extent “build issues” associated with system-built dwellings) that it may not be possible to observe all or part of this protocol. Therefore more damage may be required to the reveals and/or the door frame wall to undertake the required door frame replacement. This could result in the need for some redecoration. Where this is likely to occur, firstly the Service Provider is required to notify the Client’s Representative at Design stage. If however this is not identified until on-site stage the Service Provider must note the Properties affected and alert the Client’s Representative before work commences.

Where full plaster reveals are to be undertaken – i.e. Internal and external making good; this may take place on subsequent days, but the whole operation from start to finish of each door frame must not exceed 3 No. consecutive working days.

089 Plaster-Patching - This process will require a small degree of plaster-patching. This will include the following areas -

- All of the reveals immediately adjacent to door frame etc.;
- Part of the reveals where strap / lug fixings have been employed.

Finishing Trims are to be Cellular extruded PVC-UE trims/beads and must conform to BS 7619 and as the below table;

	Internal Reveal (3 sides)	External Bead (3 sides)
Single bull-nosed PVC-UE trim typically 5–7mm maximum thickness	✓	
Trim width must not exceed 100mm		
Quadrant / Bead typically 12x12mm or 18x18mm maximum OR Single bull-nosed PVC-UE trim typically 5 – 7mm maximum thickness		✓
Trim width must be in range 20 – 25mm maximum		

090 Trims are not to be used to simply provide or enhance the weather tightness of the door frame or any perimeter joints. Finishing trims shall be used to neaten the interface between frames and opening, they are only to be used in conjunction with the “plaster-patching” / making good situations as stated above. All joints must be left ‘neat and tidy’ with an acceptable tolerance of +/- 2/3mm on all joints/trim abutments and sealed with sealant of matching colour.

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- 091 Internal finishing trims shall be compatible with the Material of the door frame and must be colour-matched
- 092 External finishing beads/trims shall satisfy the above criteria and be of an exterior quality Material used in accordance with the manufacturer's technical data sheet. External beading is not required where the external reveal has been re-plastered to match existing.

For the avoidance of doubt, door frames should be measured and fitted as described above and beads/trims should only be fitted to the opposite side of the determined cover/overlap. Only in exceptional cases where reveals are determined as flush will internal and external beads/trims be acceptable.

Fixing of Trims/Beads

- 093 All internal trims shall be secured in every case to a firm backing (junction of frame and reveal) with a low modulus silicon sealant (as below) and sealed all round.

All external beams/trims shall be secured in every case to a firm backing (junction of the frame and plaster reveal) with the low modulus silicon sealant (as below) and sealed all round.

Sealants

- 094 Sealants must comply with BS EN 11600 and be low modulus grade
- 095 Perimeter joints externally and internally around the "as installed" door frame shall be sealed with a low modulus silicone sealant and "smoothed" to provide a good seal.
The sealant shall be appropriate to –
- The frame surface and colour;
 - Any substrate material;
 - The specific joint size and configuration; and
 - Potential joint movement and weather exposure.

Implications – Customer's Blinds etc.,

- 096 The inclusion of a finishing trim to existing reveals and sill may in certain circumstances create an issue around the re-fitting of Customer's blinds etc. The Service Provider shall pay due regard to the existing sidelight dressing(s) and where finishing trims are required that a "slim-line" version (5mm or less) is used.

Repairing damaged prefinished coatings on site

- 097 Localised repairs to coatings shall be affected by brush application on site using the same coating Material and build-up as the factory application with no discernible difference upon completion. All repairs shall be carried out in accordance with the joinery manufacturer's technical data sheet, by a competent person and to the satisfaction of the manufacturer and Client's Representative to ensure continuance of the warranty.

Cleaning of External Doors

- 098 The protective tapes shall be removed from the as installed external doors, frames and sidelights immediately or as soon as practicable after installation and the door (frame and glazing) cleaned with a suitable cleaning agent.

Final Completion Checks

- 099 Upon final completion of each and every external door installation, the Service Provider is to confirm and check the following:-
- All glazing beads are adequately fitted and in good order;
 - All hardware functions and locks operate correctly and are not stiff to use;
 - All frames and glass are free from cracks, breaks and scratches etc. All frames and glass are cleaned and all internals of frames are swept clean.;
 - All openings are square and operate correctly;

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- There is no movement to the door;
- All hinges etc. are clean and operate correctly;
- All making good internally and externally are completed; and
- All trims are clean and sealed;

100 Once all the above items are completed, the Service Provider is to demonstrate the operation of the external door to the Customer and provide the Customer with their own operating instructions for the external doors. In addition, the Service Provider is to provide a Customer Satisfaction Card (to be supplied by the Client’s Representative) which the Customer is requested to complete and return by free postage to the Client. In due course the Service Provider will be required to provide any means necessary to allow the Customer to sign Satisfaction Card electronically for uploading to the Client’s Asset Management software.

Photographic Evidence – Removal/Installation of Sidelights/Doors

- 101 The Service Provider is required to take digital photographs of each completed sidelight/door installation.
- The photograph should clearly show the completed internal reveals and identified by address and room (i.e. this may be done by placing an address and room labelled clipboard against the external door at the time of taking the photograph – ensure clipboard does not block image of door).
- 102 The photographs should be retained electronically by the Service Provider and if requested provided on an individual basis to the Client i.e. in the event of any Customers making a claim against the Client.
- 103 The Service Provider should note that the Client’s Representative will from time to time ask for evidence of these photographs and how and where they are stored. The Service Provider is required to retain these images for at least 6 years after the Date of Completion (in accordance with the Client’s Retention of Documents Policy and legal timeframe for a Customer to make a claim).

Client’s current manufacturers/suppliers/products

104 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

**REPLACEMENT EXTERNAL, COMMUNAL AND FLAT ENTRANCE DOORS – GENERAL
[MIDDLE TIER]**

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REPLACEMENT EXTERNAL, COMMUNAL AND FLAT ENTRANCE DOORS - GENERAL

Secured by Design:

001 This section is to be read in conjunction with the general specification for 'Replacement Windows and External Doors – Surveying and Installation' section, which provides details of surveying, sampling, installation, finishing etc. - generally as BS 8213-4 (Windows and Doors – Code of Practice for the survey and installation of windows and external door-sets).

All new external doors must meet the requirements of "Secured by Design" (SBD) certification. External Doors; PAS 24 Doors of Enhanced Security

002 All new external doors complete with frames and factory installed double glazing must be high performance proprietary door sets supplied by a certified SBD manufacturer. Fire doors must have additional testing certification in accordance with BS 476-22 or BS EN 1634 and BS 8214.

003 These may be PVC-u, timber or timber/steel faced, composite door sets complete with a Secured by Design approved locking mechanism.

004 PVC-u external doors, timber composite or steel faced composite doors are suitable for areas where high security or severe exposure rating requires greater durability and a multi point locking mechanism.

005 Sample doors complete with proposed locking mechanisms are to be supplied for the approval of the Client's Representative.

Door Sets

006 The Door sets must meet the performance standards set out in this Specification. The Service Provider must provide to the Client's Representative a copy of the Secure by Design certificate and PAS 24 test certificate along with the list of door components/ironmongery as supplied by a UKAS test house prior to commencement of the Contract.

The door-sets supplied must be to exactly the same specification as those tested.

All timber doors to be to the Client's schedule of standard external doors.

REF	DOOR TYPE
SE.1SG	Single, small, glazed top panel.
3P.1SG/2SP	Three panel door, top panel double glazed with safety glass, two bottom panels with solid hardwood panels
4P.2SG/2SP	Four panel door, top two panels double glazed with safety glass, two bottom panels with solid hardwood panels
5P.2SG/3SP	Five panel door, top two panels double glazed with safety glass, three bottom panels with solid hardwood panels
6P.2SG/4SP	Six panel door, top two panels double glazed with safety glass, two middle and two bottom panels with solid hardwood panels
6P.6SP	Six panel door, top two panels, two middle and two bottom panels all with solid hardwood panels
FL.1SG	Flush door with 1 single panel of double glazed safety glass
LBS	Ledged, braced and sheeted door
FLBS	Framed, ledged, braced and sheeted door

[Amend ref. nos. as appropriate]

Each door-set shall have the name of the manufacturer and date of manufacture clearly stated on one rebate by means of a discrete permanent label to aid future traceability if required.

007 The fitting tolerance must be plus or minus 5mm, it is the Service Provider's responsibility to take all site dimensions for pricing purposes and for fitting purposes.

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- 008 Door sets which are deemed to be outside the fitting tolerances must be remade at no further expenses to the Client.
- 009 Where existing door sets are removed, the new assembly must be installed and left in full working order before the end of the same day.
- 010 The manufacturer of the door sets must be stated on the Service Provider's tender and a guarantee must be supplied indicating the life of the components.

- 011 Door Frames are to be fitted with weather seals of low density cellular core encased in low friction liner which are capable of taking up reasonable seasonal movement in all temperatures and returning to original profile. The weather seals shall be inserted into a plough within the door frame rebate while being **fitted in one piece with lower ends extending to bottom of trapper bar.**

Door Frames to be either:

- white reinforced PVC-u to BS 7412 and BS EN 12608; or
- hardwood complying with BS EN 942 (density range 650-725 kg/m cu) with factory applied coating to match door.

Level Access Thresholds

- 012 All external door sets (main and secondary entrances including doors leading onto a patio) must have level access thresholds (max 15mm high threshold).

Weather bar should be capable of renewal in-situ i.e. without the need to remove the door frame. The weather bar unit shall have a performance rating to comply with BS 6375.

Door Performance Requirements

- 013 All the external doors must meet the following minimum performance criteria for weather resistance as defined in BS 6375-1 -Classification for Weather tightness.

Air Permeability	Test Pressure Class 300 Pa Test Method BS EN 1026
Water Tightness	Test Pressure Class 200 Pa Test Method BS EN 1027
Wind Resistance	Test Pressure 2000 Pa Test Method BS EN 12211

- 014 All doors must be completely draught free when closed. The doors are to meet the **Severe Exposure Rating** category

Side Lights to Living Room External Doors

- 015 If the glazed opening door is in a living room, the sole means of natural daylight and ventilation must not be from that door.
- 016 Additional opening side light windows with trickle ventilators and security restriction, must be provided in order to allow ventilation to the room without opening the door all year round.

Double Glazing

- 017 All double glazing to any external doors and their associated side lights (or, within 400mm of the door lock) must be have at least one pane of laminated glass to comply with Secured by Design.

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- 018 Door and side light glazing must be 24 mm hermetically sealed double glazing units manufactured with laminated glass.
- Front door to be in small panels and be obscured.
 - Front door must incorporate facilities to view callers
 - Glazing to rear doors to be clear

Door Frames

- 019 Door Frames to door handle relationship to allow for a min of 50mm from the frame edge to the lever handle. Lock back-set to accommodate this dimension.
- 020 All frames must have a factory fitted removable weather-strip to frames and weather-strip to the bottom edge of doors.
- 021 Door frame set back must be 65 mm minimum reveal to external face of wall.
- 022 New lintels to windows and external doors must be insulated galvanised steel to BS EN 845-2 manufactured by an approved manufacturer and have an Agrément Certificate. End bearings must be a minimum of 150 mm.
- 023 All external door frames are to have mastic pointing provided all around. Such mastic pointing must be specified to be applied strictly in accordance with the manufacturer's technical data sheet and good practice. The Client has a preference for two part polysulphide mastics in areas that are vulnerable to vandalism.

Door Ironmongery

- 024 Ironmongery must be provided in full compliance with "Secured by Design". Handles and locks must be easy grip type suitable for use by disabled persons.
- 025 **The requirements of Secured by Design (SBD) and the approved and tested locking mechanism of the selected SBD Door Licence Holder may override this section.**
- 026 All external doors must be hung on 3 no stainless steel grade SS202 or coated zinc alloy patent hinges (having stainless steel) pins butt hinges.
- Non-adjustable hinges to be fitted to flush doors.
- Rebated door set hinges to incorporate lateral adjustment.
- Fire door hinges must be CE Marked and tested to BS 476-22 or BS 1634-1. Hinges shall have high corrosion resistance, greater than BS EN 1670 grade 4.
- A minimum of 2 no hinge bolts must be fitted to all external access doors providing hinge side enhanced security to PAS 24.
- 027 Doors to have multi-point lever handle security locking mechanism meeting BS 3261 and tested to PAS 24 and to comply with (and stamped) Secured by Design. Front doors to be provided with a security chain.
- 028 Multi-point locking espagnolette system to be provided
- 029 Cylinder and Keys: All cylinders to be nickel plated on brass finish. Cylinders should have a large thumb turn to suit the elderly. All cylinders to be double profile and a minimum five pin tumblers, 1000 differs, anti-bump flush. Minimum of 3 keys supplied with each cylinder.
- 030 Doors generally fitted with level handles operational both sides of door.
- 031 Pull Handles and Push Plates: To be provided only where elements of communal accommodation occur.

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- 032 Pull handles must be 230mm x 19mm dia. bolt through fixed and nylon or plastic coated finish. Push plates to be 300 x75 x 1.5mm drilled and countersunk fixed, finishes to match the Pull Handles.
- 033 Letter Plates: Front doors to Properties are to have a telescopic letter plate with external flap (finish to match door ironmongery) and an inward sprung flap, on the inside of the door.
- 034 Letter Plates must be draught and fire proofed internally and have a finger hood to prevent access to door locks (minimum distance from door locks 400 mm).
- 035 Intumescent Liners and Smoke Stopping must be provided to fire doors.
- 036 Internal flat entrance door off communal corridors must have a fire and acoustic rated letter plate with integral intumescent liners and a smoke stopped internal letter flap. Fire tested to satisfy the requirements of BS 476:22. Acoustic tested to satisfy the requirements of BS EN ISO 10140:1 to 5 to 29db/Rw.
- 037 Door numerals must be provided to the front entrance door of each Property.
- 038 Door Stops: All doors are to be provided with floor, wall or skirting mounted rubber stops on a nylon or plastic coated shoe where appropriate to prevent damage to walls or plaster.
- 039 Door Closers: Where required, all self-closing fire doors should have size 2 - 6 adjustable strength and back check function overhead closers.
- 040 Concealed door closers and hush latches may be used in individual Properties and flats if approved by Building Control.
- 041 Closers to Frail Elderly flats must be the 'swing-free' type operated by the activation of the fire alarm.
- 042 Cabling and transformers must be provided to all wheelchair Property external entrance doors for the future installation of 'power operated' door closers.
- 043 All overhead closers must carry a 10 year guarantee to BS EN 1154.
- 044 Door Viewer: Front doors to Flats should have a 180 degree chrome plated door viewer fitted at:
- 1500mm above finished floor level for accessible dwellings
 - 1050mm above finished floor level for Wheelchair Units
- 045 Door Bolts: Bolts to double doors, french windows and the like, should be of brass material satin chrome or satin nickel plated. Flush bolts should be fixed in the leading edge of the second opening leaf of a pair of doors with a flat plate at the head and an easy clean socket in the floor.
- 046 Kick Plates: To be provided only where elements of communal accommodation occur.
- 047 Provide 450mm high coloured plastic kick plates to match the ironmongery on the push side of internal doors in communal and circulation areas and to all flat entrance doors on the corridor side. Flat entrance door kick plate to achieve fire resistance of door set.
- 048 Wall Protection: For internal communal areas only
- 049 Provide flame retardant corner protection to all external wall angles to a height of 1000mm using proprietary PVC-u corner protectors.
- Composite Doors -Generally**
- 050 It is intended to renew main front doors and frames on all single family Property houses with composite doors installed by the PRP or Pre-finished Timber manufacturer/contractor.

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Doors -Generally

- 051 Generally all front doors to be styled with upper panels double glazed with laminated safety glass sealed units.
Generally all rear doors to be panel door style with upper panel double glazed with laminated safety glass sealed units.
- 052 Customers to be given the option of cat flaps to be installed to lower panels of rear door.
- 053 Doors within Conservation Areas will be renewed with a pre-finished timber door

Composite Front Doors to Houses not within Conservation Areas

- 054 Style and choice of front doors is to be agreed with Customer and Client's Representative on each individual project. The Service Provider is to provide each Customer with a sheet listing and showing the style of doors available and five colours available, and the Customer is to choose and sign the list as to which door they wish, and copy of the signed sheets to be forward to Client's Representative. Door colour should be either be translucent coatings or from a manufacturer's heritage range. Due to on-site issues with expansion etc., dark coloured doors should be avoided.
- 055 All existing door bells are to be re-fixed
- 056 Where fanlights are above the doors, the fanlights and frames are to be included as part of the renewal.
- 057 All glazing doors to be double glazed laminated safety glass sealed obscure units unless otherwise Instructed.
- 058 All doors to have brass numbers on the outside and brass draught-proof letter boxes.
- 059 All doors to have brass multipoint lever handles.
- 060 All doors and locks to meet Secure by Design British Standard and tested to PAS 24 Standard.

Timber Front Doors to Conservation Areas

- 061 All statutory consents and permissions required to complete the Work to be obtained and/or checks to be made to ensure these are in place before ordering Materials and commencing Corks.
- 062 All new timber front doors where requested are to be purpose made pre-primed minimum 44mm thick softwood doors, with hardwood painted frame.
- 063 It is anticipated that most doors will be 4 panel with 2 No. upper panels to be double glazed laminated safety glass sealed obscure units, and 2 No. lower panels to be mouldings to match existing.
- 064 Brass numbers and brass draught-proof letter boxes are to be as Clause 060 above.
- 065 All doors to have brass mortice night latch and separate 5 lever deadlocks with finger turn snib internally.
- 066 Where fanlights are above the doors, the fanlights and frames are to be included as part of the renewal.

Installation

- 067 The Service Provider is responsible for surveys and installation of the doors at the same time as the windows installations.
- 068 The Service Provider will be responsible for ensuring the correct installation of each door-set.

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069 The door-set shall be placed on a concrete threshold and beeded on a low Modulus Silcon, minimum depth of bed 2mm, maximum depth of bed 4mm. All door-sets shall be installed using heavy duty galvanised perforated metal straps at 150mm from corners and maximum 600mm centres between these fixings.

070 Door-sets may also be fixed using through frame fixings provided that the existing reveals are sound.

Fixings shall be properly countersunk, plugged and head of plug coated to match frame. Split frames (i.e. PVC-u frames) as a result of bad fitting workmanship shall not be accepted and may result in the door-set being entirely replaced at no extra cost to the Client.

071 **Note: Under no circumstances shall expanding foam be accepted as a method of fixing.**

Timber Architraves and Sills

072 To every new timber door and door frame, carefully remove all existing internal architraves and replace to match existing in pre-primed ogee or similar timber, with mitred joints to architraves. All timbers to be finished in gloss paint.

073 All gaps to walls or gaps to joints are to be sealed prior to decorations.

Painting of Timber Sundries

074 To all new timber sill boards, pre-prime, architraves and sill boards before fixing, and then once installed, rub down, fill as necessary and paint 2 No. coats white undercoat and 1 No. gloss white paint, rubbing down between all coats.

075 Include to repaint existing external concrete sills and thresholds externally to the doors and touch up any painted stonework or render around the door frame to match existing, as disturbed during the renewal Works.

Client’s current manufacturers/suppliers/products

076 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

**GRP EXTERNAL DOOR-SETS AND SCREENS
[LOWER TIER – Client to delete if not applicable]**

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

GRP ENTRANCE DOOR-SETS AND SCREENS

General

- 001 This section is to be read in conjunction with the general specification for 'Replacement Windows and External Doors – Surveying and Installation' and 'Replacement External Doors – General'.
- 002 This Specification is intended to describe the performance criteria to be obtained for the manufacture, supply and installation of inward opening GRP doors and frames and associated PVC-u windows. Service Provider's must ensure that their proposed system completely satisfies all the relevant standards detailed.
- 003 This Specification is applicable to ALL Properties and the Service Provider's price must cover the location of all Properties and doors being renewed. Generally Properties will be occupied during the course of the Works.
- 004 This Specification describes works in detail however not all items of work will be applicable to each Property, nor is work referred to exhaustive. All doors, frames, fanlights and sidelights must pass testing to PAS 24 and must be "Secured By Design" certified. All certification documents are to be forwarded to the Client's Representative and kept updated – this must include the test certificate, report and list of tested ironmongery with product manufacturer's names, types etc. Evidence of compliance with PAS 24 (Specification for Enhanced security requirements for door-sets and windows in the UK) will be a condition of acceptance of completion.

All doors must achieve Building Control standard of Maximum U-Value = 1.8W/m²K.

- 005 Only products defined herein shall be used; alternative products will not be acceptable unless agreed with Client's Representative.

Stiles and rails to be engineered timber edge bonded with 1.5mm or high strength engineered double plastic composite. Skins to be GRP transfer moulded and U.V. stable, thickness of skin is determined by the door manufacture and as a result of PAS 24 testing. Bonding agent is to be moisture cure polyurethane adhesive with core of 39mm CFC free rigid foam insulation.

Door glazing to be double glazed laminated glass fitted in separate glazing cassette mechanically fixed to sub-frame and internally beaded.

- 006 The Service Provider is to arrange access with the Customer to carry out a pre-manufacture site survey as recommended by the British Plastics Federation Code of Practice for the Survey of PVC-u Window sets, current edition. This survey will include the provision of a pro-forma questionnaire offering the available options from which the Customers can choose.

The visit will include:

- consulting with the Customer about choices,
- taking measurements sufficient to prepare scale drawings
- scheduling Customer fittings and their condition
- any other site condition that may affect installation

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007 Customers are to be given a choice of 5 front door types as table below.

REF	DOOR TYPE
SE.1SG	Single, small, glazed top panel
3P.1SG/2SP	Three panel door, top panel double glazed with safety glass, two bottom panels with solid panels
4P.2SG/2SP	Four panel door, top two panels double glazed with safety glass, two bottom panels with solid panels
5P.2SG/3SP	Five panel door, top two panels double glazed with safety glass, three bottom panels with solid panels
6P.2SG/4SP	Six panel door, top two panels double glazed with safety glass, two middle and two bottom panels with solid panels
6P.6SP	Six panel door, top two panels, two middle and two bottom panels all with solid panels

[Amend ref. nos. as appropriate]

Other choice options are to be:

Element	Location	Options
Colour	Front/Rear Door	White (RAL 9003)
		Blue (RAL 5004)
		Red (RAL 3002)
		Green (RAL 6009)
Glazing	Front	Obscure - Cotswold
	Rear	Clear only
Ironmongery	Front/Rear	Gold/brass
Surface Finish	Front/Rear	Wood grain effect

008 All screen/door styles must be in accordance with modern casement design where possible, allowing for exceptions where fire egress casements are necessary. Unusual aesthetic arrangements are to be referred to the Client's Representative for decision.

009 All component parts are to be British Standard "Kite marked", or BBA approved or equivalent, verification of which to be supplied on request by the Client's Representative.

010 PAS 24 certification from the Manufacturer and Service Provider must be provided to the Client's Representative before manufacture.

011 The sidelight/screen types are to be as existing in respect of configuration and opening lights. However, sidelight/screens in conservation areas, areas of outstanding natural beauty or historic buildings must be discussed with the Client's Representative for likely planning approval issues.

012 Design drawings are to be prepared by the Service Provider prior to manufacture. A copy is to be supplied to the Client's Representative before manufacture commences.

013 The Service Provider will be required to carry out a pilot installation prior to full commencement of the Work, to ascertain the correct provision and detailing of the installation.

Programme and Security

014 In the case of numerous installations a programme for the Works is to be prepared by the Service Provider and agreed by the Client's Representative, before Work commences.

015 Provide 14 days' notice, and agree the timing of the Works with each Customer. When undertaking Works they need to be carried out as quickly as possible, in order to reinstate all facilities as soon as is possible. Full security, wind and weather tightness must be provided at the end of each working day in each occupied Property to suit the Customer's/Client's needs.

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- 016 The installation of a door and frame, fanlights and sidelights must be carried out in one continuous operation within the working day. The security, wind and weather tightness of the Property must not be compromised at any time.
- 017 All making good of the structure and fabric must be carried out within one working day following the installation of the door etc., Any making good will not be left outstanding over weekends without the permission of the Customers and the Client's Representative.
- 018 The Client's Representative is also to be notified of the proposed commencement and completion dates, and proposed date for completion inspection once all the Works are completely finished including any snagging by the Service Provider.
- 019 The Service Provider is to agree a maximum number of Properties to be worked on at any one time before the Works programme begins (to suit number of Properties/Contract Period available).
- 020 A Property must be 100% complete prior to commencing on further Properties above the agreed maximum and each completed Property must be signed off by the Customer and the Client's Representative.

Protection

- 021 Allow for protection of floor coverings, furniture and Customers belongings throughout the duration of the Works. Include for moving furniture, Customers belongings and everything necessary in order to carry out the Works and minimise disturbance to the Customers as far as possible. On completion of the Works place all previously moved furniture and belongings in locations agreed with the Customers. Dust sheets must be used at all times during the Works to prevent any damage.
- 022 The Service Provider will be responsible to any damage to carpets or Customers belongings therefore it is recommended the Service Provider undertakes a schedule of condition and agree this with the Customer prior to undertaking any Works. It is therefore considered prudent, to take photographs of any damaged Customer's belongings within the vicinity of the Work prior to commencement, and where appropriate to obtain a signed disclaimer.

Stripping Out

- 023 Carefully remove existing doors, frames, sills, fanlights, sidelights and all associated fixings and prepare existing openings to receive the new installation. Dispose of all unwanted material and recycle where possible.
- 024 Take care to carefully remove remaining Customer fixtures and store to one side for reinstalling and refix on completion.
- 025 Carefully remove coatings, panelling, tiles or sheeting of any kind from adjacent walls and ceilings generally back to the plastered surfaces. Make good, repair or replaster to receive new fittings, tiles and decoration.
- 026 After the removal of the existing door, frame, sill, fanlight and sidelight the Service Provider is to carefully cut back any internal or external flooring, finishing's, cladding, wallpaper and decorations to allow for the installation of the new frames etc. The Service Provider is responsible for making good all structures, finishing's and decorations up to 100mm from the face of the frame or sill.

Replacement Doors - General

- 027 The Service Provider must ensure that all door-sets and their installation fully satisfy the relevant standards detailed.
- 028 Manufacture, fabrication and installation should be suitable in all respects for: Low Rise Domestic Structures

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- 029 **Important Note:** Dimensions, if shown, are for guidance only and the Service Provider is responsible for taking all necessary site dimensions to ensure that door-sets are manufactured to fit accurately and properly.
- 030 No frame extensions or make up pieces are to be used to compensate for incorrectly measured openings.
- 031 Fire doors are to have been tested (at a UKAS accredited test facility) to BS 476-22 or BS EN 1634 and BS 8214. Fire doors are to have achieved fire resistance integrity in excess of 30 minutes and a door-set classification of FD30S. On completion of installation, the Client's Representative is to be furnished with 2 copies of all documents within clause 032 of the Fire Door-Sets section. Fire door to be individually referenced, marked and tagged by the fire door manufacture, whereby they are keep records of all fire doors supplied and present monthly updates to the Client's Representative with the monthly reports.

Construction of Door and Frame

- 032 Door leafs shall be constructed with minimum 4mm high gloss through coloured external Skins, manufactured from gel coat to BS 3532, coloured to BS 5252, and one layer of 300gm chopped strand matt and 2 layers of 450gm chopped strand matt to BS EN 14118, fully saturated with high heat distortion isophthalic / DCPD polyester resin conforming to BS 3532 type C. Skins shall fully encapsulate a jointed timber frame manufactured from prepared material kiln dried to BS 4978, and resin laminated CFC free polyurethane foam core. The above may be over ruled/enhanced by testing to PAS24 (and fire testing. as above. in the case of fire doors).
- 033 Door frames shall be of moulded GRP manufacture generally to the same specification as the door leaf and have a non-staining EPDM compression seal gasket and secondary angled blade neoprene stop seal;
- 034 Door sills, where required for non-wheelchair required access, shall be of moulded GRP manufacture generally to the same specification as the door leaf. They shall be 50mm in height, 150mm in width and designed to accept an approved threshold.

Threshold to Front Doors

- 035 All external door sets (Main and Secondary Entrances including Doors leading onto a patio) must have level access thresholds (max 15mm high threshold) and a minimum clear opening width of 800mm between the blade and the stop, irrespective of the type of accommodation in order to meet the requirements of Lifetime Homes.

Weather bar should be capable of renewal in-situ – i.e. without the need to remove the door frame. The weather bar unit shall have a performance rating to comply with BS 6375.

Glazing

- 036 All glazing apertures are to be internally beaded with the double glazed units securely fixed using mechanical means.
- 037 All doors, fan lights and/or side lights shall be glazed with dual sealed double glazing units with at least one pane of laminated glass to comply with Secured by Design. Safety glass shall comply with BS EN 12600 and BS 6262

Ironmongery

- 038 Ironmongery must be provided in full compliance with "Secured by Design", Handles and locks must be easy grip type suitable for use by disabled persons.
- 039 Two door viewers must be provided to all front doors at heights of 1500 and 1050 mm from finished floor level.

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- 040 All external doors must be hung on 1½ pairs of heavy duty butt hinges. Fire door hinges must be CE Marked and tested to BS 476:22 or BS 1634. Hinges shall have high corrosion resistance, greater than BS EN 1670 grade 4.
- 041 Multi-point locks tested to PAS 24 and to comply with (and stamped) Secured by Design. Front doors to be provided with a security chain.
- 042 All hardware, where attached to the door-set, shall be fixed with stainless steel screws fully penetrating the timber sub frame. For all installations use screws not rivets and employ maximum retention. Do not over tighten fixings.
- 043 Allow for fitting of D type handle to internal face of door where identified. Position to be agreed with manufacturer.

Installation of Door-sets

- 044 The door-sets are to be fixed strictly in accordance with the manufacturer's technical data sheet. Care shall be taken to ensure the doors are handled and stored correctly. Frames are to be packed and wedged into the correct position to ensure a square and flat fit before fixing to the reveals.
- 045 The door-set is to be fixed with a minimum of eight M10 x 140mm proprietary frame fixings, direct through frame and finished with colour coded plastic not easy removed cover caps.
- 046 Door frame should be sealed to reveal with low modulus silicone sealant, colour matched to the door frame and neatly executed. A suitable bull nosed cover trim should be used to improve the aesthetic appearance of the joint.
- 047 All protective coverings on door-sets shall be removed on installation. Removal and cleaning of the frames and doors is the responsibility of the Service Provider.

Sidelights and Fanlights

Profile Manufacture

- 048 All sidelights, fanlights, door frames etc., profiles are to be obtained from the same approved system manufacturer.
- 049 All manufacturers must confirm as being registered as either having BS 7412 or BBA (or equivalent) independently. Evidence to be supplied. All manufacturers will be required to have membership of either, the GGF or BPF, evidence to be supplied.
- 050 The sidelights, fanlights, door frames etc., will be manufactured in accordance with current manuals for GRP sidelights and door frames. The profile will be manufactured to BS EN 12608. Cadmium based stabilisers, and re-work material used in manufacture will not be accepted. The profile will be vent profile manufactured with a euro-groove. All profiles are to be chamfered.

Construction

- 051 All sidelights, fanlights, door frames etc., shall be of all welded construction. All corner joints, transoms and mullions are to be mitred, and fusion welded. All excess materials are to be neatly trimmed and feature grooved. Mechanically jointed transoms may be considered where there are specific design constraints, but only after approval from the Client's Representative. All feature grooves should be straight and of consistent depth throughout their length.
- 052 Each sidelight, fanlight, door frame etc., shall be permanently marked in an unobtrusive position (not visible when the opening light is closed) with BS 7412, the weather tightness exposure category and the name or trade mark of the manufacturer.

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- 053 Reinforcement is to be continuous to a minimum of 85% of the length of the frame, and within 5mm of the weld. Screw fixed to the profile at 250 mm max c/c, with a minimum of three fixings. All reinforcement to be to the profile manufacturer's current recommended parameters in either aluminium or galvanised steel.
- 054 All sidelights, fanlights, door frames etc., will be constructed with the profile manufacturer's current guide lines for pressure equalisation. Face drainage is to be provided, however drainage slots should be a minimum 30mm long and 5mm wide. Internal drainage slots should be offset by a minimum of 50mm from external slots.
- 055 The sidelights, fanlights, door frames etc., are to be internally beaded as recommended in the current profile manufacturer's manual, and be capable of accepting 24mm hermetically sealed "low emissivity" glass units.

Installation

- 056 The correct installation of GRP sidelights and door frames is critical to achieve maximum performance.
- Installation shall at all times meet the requirements of BPF/GGF code of practice for the survey and installation of white high impact modified windows (Ref: COP3, parts A&B). The requirement for through frame fixing, cleat fixing and the need for frame extensions will be discussed at appropriate times. The Service Provider should draw these details to the Client's Representative's attention.
- 057 All sidelights etc., are to be glazed from the inside of the building. Glazing systems shall be designed so that the glass cannot be removed from the outside by the use of a thin blade or other simple tool or tools.
- 058 All fasteners used for the installation of GRP door frames, sidelights etc and doors, must meet the following specification:-
- Fastener is to be a nylon through frame type with twist proof vanes to ensure mechanical stability and prevent anchor rotation;
 - To ensure stress free attachment to the masonry structure and to prevent twisting, racking or distortion of the frame, the anchor body will expand radially along its full length during installation. Fasteners relying on a cone and expanding sleeve are not acceptable due to the increased risk of frame distortion;
 - The fastener when installed will be fully concealed within the frame to ensure that the fastener remains tamper proof and secure;
 - Maximum distances between fasteners will not be more than 600mm and the minimum distance of fasteners from frame corners, transom or mullion joints will be 150mm; and
- 059 The Service Provider is to ensure the final securing of fixings are screw tightened (not hammered) to avoid possible splitting of the frame. Any splitting of frames will result in the entire door set having to be removed, re-framed and replaced at the no extra expense to the Client.

Glazing

- 060 Glazing should be to Building Regulations Approved Document N and to BS 6262, and BS 8000-7. In addition manufacturer's recommendations for positioning of glazing blocks and packers must be adhered to.
- 061 Glass to all screens and windows will be hermetically sealed double glazed low emissivity units to BS 952-1 and BS 952-2, units to be fitted in accordance with manufacturer's technical data sheet. Glass to be marked with appropriate labelling which will only be removed after handover is completed.
- 062 Double glazed units are to be manufactured to the following specification 4mm Float Glass - 20mm Argon Gas fill - 4mm low emissivity glass overall thickness 28mm. Glass thickness and type shall be selected using the recommendations given in BS 6262 to withstand the calculated design wind pressure relative to the size of pane.

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- 063 All glazing to screens and adjacent windows must have at least one pane of laminated safety glass to BS EN 12600 and marked accordingly. Safety glass shall be fitted where required in accordance with Building Regulations Approved Document N.
- 064 If any panels have any fixtures/fitting etc. attached, they are to contain a ply reinforcement.
- 065 Obscure glass to be Cotswold pattern or an obscure pattern of level 5 as a minimum.

Hardware Specification for Fanlights and Sidelights

- 066 Openings in the fanlights/sidelights should in the first instance be avoided, as it presents a higher risk of unauthorised door entry. However it may be deemed necessary to provide the room/inner space with an adequate amount of ventilation (see Building Regulations). In these instances all ironmongery must be as window specification detailed elsewhere. In addition restrictors must be concealed and tamper-proof from outside the property.
- 067 The fanlight/side light hardware package must meet the requirements of PAS 24 "Enhanced security performance requirements for door-sets and windows in the UK. External door-sets and windows intended to offer a level of security suitable for dwellings and other buildings exposed to comparable risk"

Insulated Panels

- 068 On full floor to head height frames, lower panels will be coloured insulated panels to match door panelling. Therefore, the panel's overall thickness and Materials to be used will be determined by the doors PAS 24 certification. All panels will achieve a min thermal resistance equal to or better than the glazed area above.
- 069 All panels to be manufactured to meet all relevant Building Regulations and safety standards with regard to thermal performance, acoustic transmission, and fire protection

Covers, Trims and Mouldings

- 070 Unless otherwise Instructed all internal heads, jambs, and sills will be finished with a (colour as windows) single bull-nosed PVC-u trim typically 5–7mm maximum thickness of not greater width than 100mm. Scribed, mitred, securely screwed and capped and the edge glued to the frame with a PVC-u cyanoacrylate adhesive to give a neat finish and sealed on all edges using an emulsion acrylic sealant.
- 071 All PVC-U extrusions, mouldings, trims and profiles to windows will be manufactured and installed so that no colour variation exists to the detriment of the aesthetic value of the windows, doors etc. In accordance with colour fastness test methods included in BS EN 12608.
- 072 Trims are not to be used to simply provide or enhance the weather tightness of the window or any perimeter joints. Finishing trims shall be used to neaten the interface between frames and opening, they are only to be used in conjunction with the "plaster-patching" / making good situations. As it is likely that cold bridging may occur, filling at reveals, heads and sills must be plastered prior to fitting of all trims.
- 073 The inclusion of a finishing trim to existing reveals and sill may in certain circumstances create an issue around the re-fitting of Customer's blinds etc. The window installer shall pay due regard to the existing window dressing(s) and where finishing trims are required that a "slim-line" version (5mm or less) is used.

Sealants and Perimeter Pointing

- 074 All external sealants are to be of low modulus silicone and conform to BS 11600 and used to seal gaps between window/door assembly and brickwork/plasterwork. Colour matched to windows and neatly executed.
- 075 Internal sealant to be a one part flexible emulsion acrylic sealant. This sealant may be used to fill cracks or gaps around walls and ceilings, and around all finished PVC-u architraves and trims.

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Ventilation

- 076 All openings to be fitted with room ventilation as per window specification detailed elsewhere.
- 077 If required the Service Provider is to supply and fit a ventilator, which will conform to Gas regulations BS 5440-2, for air supply to gas appliances. This applies to any room containing, or used to vent these types of appliances. Type position and quantity of ventilators to be agreed and verified with the Client’s Representative prior to work commencing.
- 078 An appropriate “**DO NOT OBSTRUCT**” label approved by the Client’s Representative indicating boiler rating, must be fitted to all gas ventilators by the manufacturer.

Completion

- 079 On completion of all Works thoroughly clean all adjacent surfaces affected by the Works.
- 080 All builders rubbish both internally and externally must be removed during and on completion of the Works.

Client’s current manufacturers/suppliers/products

- 081 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

FIRE DOOR-SETS
[LOWER TIER – Client to delete if not applicable]

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

FIRE DOOR-SETS

GENERAL REQUIREMENTS ON FIRE DOOR-SETS

<u>Scheme Type</u>	<u>Door Replacement</u>	<u>Colours/Choices</u>
Internal Flat Entrance door-sets	Timber Veneer flush faced FD30s/FD60s door-set in accordance with Fire Safety Regulations 2017 and BS 476 Part 22 Door thickness 44mm and 54mm	Colours to be chosen by Client's Representative and Customers. *Locking system – Client's Representative will Instruct whether to retain the existing *locking system or to replace with a new locking system
Internal Communal door-sets	Timber Veneer FD30s/FD60s door-set in accordance with Fire Safety Regulations 2017 and BS 476 Part 22	Colours to be chosen by Client's Representative and Customers. *Locking system – Client's Representative will Instruct whether to retain the existing *locking system or to replace with a new locking system
Internal Cupboard door-sets	Timber Veneer FD30s/FD60s door-set in accordance with Fire Safety Regulations 2017 and BS 476 Part 22	Colours to be chosen by Client's Representative and Customers. All new doors MUST match all other existing or proposed new doors throughout the scheme. Client's Representative will Instruct whether to retain the existing *locking system or to replace with a new locking system
External Flat Entrance door-sets	Composite FD30s/FD60s door-set in accordance with Fire Safety Regulations 2017 and BS 476 Part 22	Colours to be chosen by Client's Representative and Customers. *Locking system – Client's Representative will Instruct whether to retain the existing *locking system or to replace with a new locking system
Combination of Internal & External Flat door-sets	Composite FD30s/FD60s door-set in accordance with Fire Safety Regulations 2017 and BS 476 Part 22	Colours to be chosen by Client's Representative and Customers. *Locking system – Client's Representative will Instruct whether to retain the existing *locking system or to replace with a new locking system

Internal Flat Entrance Door-sets

- 001 Timber veneer FD30s/FD60s door-set, set within timber or aluminium frames in accordance with Fire Safety Regulations 2017 and BS 476-22 to provide fire resistance ratings of 30 minutes (or better) and 60 minutes (or better) when tested in accordance with BS476-22 or BS EN 1634-1.

All Materials to have achieved Certifire certification to 30/60 minutes fire resistance, or to have been tested in accordance with the appropriate section of BS 476 and all door components must comply with Approved Document B of the Building Regulations. All to be installed in strict accordance with manufacturer's technical data sheet with certificate obtained by the Service Provider at practical completion.

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002 Please note: If the existing doors are glazed, the Service Provider must conduct a survey with the Customers to see whether they wish to retain the glazing or have replacement solid doors. Where possible, the Client would like to prevent glass from being installed due to security risks, fire safety and thermal efficiencies.

003 All doors must include the following elements (if not included with the door-set):

Combine 15 x 4mm intumescent /brush smoke seals to both side edges and top edge of door leaf Successfully tested for fire and smoke performance in accordance with both <u>BS 476 Pt 20/22</u> and also <u>BS EN 1634-1</u> .
Overhead door closing mechanism affixed to the external side of the door in accordance with BS EN 1154.
75mm/3" Eurospec Fire rated door numerals in satin anodised aluminium finish.
Average size 285mm x 55mm fire and smoke resistant letter plate with Telescopic intumescent liner and Nylon brush seals fitted to prevent vision through the letterplate and provide draught proofing, complete with a security cowl is available to prevent vision through the letterplate when open, and to inhibit manipulation of locks and bolts. In accordance with BS 9999 and Approved Document B of the Building Regulations.
Complete viewing angle 60 degrees fire rated door viewer with a prism system that allows viewing from up to 2m away. Fire protection is provided by intumescent strip and suitable for 35mm - 62mm thickness doors. One per door, Two to be provided for wheelchair users.
1½ pairs Eurospec Grade 13 ball bearing fire rated hinges manufactured from 304 grade stainless steel, CE marked, designed and tested for 44mm doors.
Locking assembly and door handle ironmongery – Thumb turn on the internal face.
Fire Safety Signage to comply with BS 5499-2 Fire safety signs, notices and graphic symbols and the Health and Safety (Safety Signs and Signals) Regulations 1996 and where applicable conform to EN ISO 7010.

Communal Internal Door-sets

004 Timber veneer FD30s/FD60s door-set with clear fire resisting glazing panels set within timber or aluminium frames in accordance with Fire Safety Regulations 2017 and BS 476-22 to provide fire resistance ratings of 30 minutes (or better) and 60 minutes (or better) when tested in accordance with BS476-22 or BS EN 1634-1.

All Materials to have achieved Certifire certification to 30/60 minutes fire resistance, or to have been tested in accordance with the appropriate section of BS 476. All door components must comply with Approved Document B of the Building Regulations. All to be installed in strict accordance with manufacturers technical data sheet with certificate obtained by Service Provider at practical completion.

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005 All doors must include the following elements (if not included with the door-set):

Combine 15 x 4mm intumescent /brush smoke seals to both side edges and top edge of each door leaf Successfully tested for fire and smoke performance in accordance with both <u>BS 476 Part 20/22</u> and also <u>BSEN 1634-1</u> .
Overhead door closing mechanism affixed to the external side of the door in accordance with BS EN 1154.
1½ pair Eurospec Grade 13 ball bearing fire rated hinges manufactured from 304 grade stainless steel, CE marked, designed and tested for 44mm doors to each door leaf.
Fire Safety Signage to comply with BS 5499-2 Fire safety signs, notices and graphic symbols and the Health and Safety (Safety Signs and Signals) Regulations 1996 and where applicable conform to EN ISO 7010.
Eurospec plain or Push/Pull engraved Fire door rated finger plates to each door leaf.
Eurospec D pull Handle - A versatile range of pull handles in various bar diameters and lengths to each door leaf.
<u>Eurospec kicking plate to both faces of each door leaf.</u>
<u>Electromagnetic fire door retainers</u> (hold open devices) can be used to hold a self-closing fire door in the open position with an electrically powered magnet. These devices are usually linked into a building's fire alarm system or are controlled from locally positioned smoke detectors.
Or
<u>Acoustic fire door retainers</u> fitted at the bottom of fire doors and can lock a fire door in the open position by pushing a plunger down. The acoustic fire door retainers then 'listen' for the sound of smoke alarms. Door release mechanism should conform to BS EN 1155 – Electronically powered hold-open devices.

Internal Cupboard Door-sets (Electric cupboards, meter cupboards, boiler cupboards, storage rooms, cleaning cupboards & Lift rooms etc.).

006 Timber veneer FD30s/FD60s door-set set within timber or aluminium frames in accordance with Fire Safety Regulations 2017 and BS 476-22 to provide fire resistance ratings of 30 minutes (or better) and 60 minutes (or better) when tested in accordance with BS476-22 or BS EN 1634-1.

All Materials to have achieved Certifire certification to 30/60 minutes fire resistance, or to have been tested in accordance with the appropriate section of BS 476. All door components must comply with Approved Document B of the Building Regulations. All to be installed in strict accordance with manufacturers technical data sheet with certificate obtained by Service Provider at practical completion.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

007 All doors must include the following elements (if not included with the door-set):

Combined 15 x 4mm intumescent /brush smoke seals to both side edges and top edge of door leaf Successfully tested for fire and smoke performance in accordance with both <u>BS 476 Part 20/22</u> and also <u>BS EN 1634-1</u> .
Cam action overhead door closing mechanism affixed to the external side of the door in accordance with BS EN 1154.
1½ pair Eurospec Grade 13 ball bearing fire rated hinges manufactured from 304 grade stainless steel, CE marked, designed and tested for 44mm doors.
Locking assembly and door handle ironmongery – Thumb turn on the internal face.
Fire Safety Signage to comply with BS 5499-2 Fire safety signs, notices and graphic symbols and the Health and Safety (Safety Signs and Signals) Regulations 1996 and where applicable conform to EN ISO 7010.

External Flat Entrance door-sets

008 Complete FD30S Composite fire door-set set within timber or aluminium frames and flush finished with a fire resistant glass reinforced plastic textured finish. Fire Resistant insulated core which has a leaf thickness of 44mm in accordance with Fire Safety Regulations 2017 and BS 476-22, to provide fire resistance ratings of 30 minutes (or better) when tested in accordance with BS476-22 or BS EN 1634-1.

All Materials to have achieved Certifire certification to 30/60 minutes fire resistance, or to have been tested in accordance with the appropriate section of BS 476 and all door components must comply with Approved Document B of the Building Regulations. All to be installed in strict accordance with manufacturer’s written instructions with certificate obtained by Service Provider at practical completion.

009 Please note: If the existing doors are glazed, the Service Provider must conduct a survey with the Customers to see whether they wish to retain the glazing or have replacement solid doors. Where possible, the Client would like to prevent glass from being installed due to security risks, fire safety and thermal efficiencies.

010 All doors must include the following elements (if not included with the door-set):

Combine 15 x 4mm intumescent /brush smoke seals to both side edges and top edge of door leaf Successfully tested for fire and smoke performance in accordance with both <u>BS 476 Part 20/22</u> and also <u>BSEN 1634-1</u> .
Cam action overhead door closing mechanism affixed to side of the door in accordance with BS EN 1154.
75mm/3” Eurospec Fire rated door numerals in satin anodised aluminium finish.
Average size 285mm x 55mm fire and smoke resistant letter plate with Telescopic intumescent liner and Nylon brush seals fitted to prevent vision through the letterplate and provide draught proofing, complete with a security cowl is available to prevent vision through the letterplate when open, and to inhibit manipulation of locks and bolts. In accordance with BS 9999 and Approved Document B of the Building Regulations.
Complete viewing angle 60 degrees fire rated door viewer with a prism system that allows viewing from up to 2m away. Fire protection is provided by intumescent strip and suitable for 35mm - 62mm thickness doors. One per door, Two to be provided for wheelchair users.
2 pair stainless steel hinges, CE marked, designed and tested for 44mm doors.

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Multi-point automatic multi-point locking assembly and lever/lever configuration door handles to suit Euro profile lock cylinder with 3 keys – Thumb turn on the internal face.
Fire Safety Signage to comply with BS 5499-2 Fire safety signs, notices and graphic symbols and the Health and Safety (Safety Signs and Signals) Regulations 1996 and where applicable conform to EN ISO 7010.
Anodised aluminium "low mobility" threshold.
Anodised aluminium weather bar.

Internal and External Flat Entrance Door-sets

- 011 Complete FD30S **Composite** fire door-set, set within timber or aluminium frames and flush finished with a fire resistant glass reinforced plastic textured finish and Fire Resistant insulated core which has a leaf thickness of 44mm in accordance with Fire Safety Regulations 2017 and BS 476-22 to provide fire resistance ratings of 30 minutes (or better) and 60 minutes (or better) when tested in accordance with BS476-22 or BS EN 1634-1.

All Materials to have achieved Certifire certification to 30/60 minutes fire resistance, or to have been tested in accordance with the appropriate section of BS 476. All door components must comply with Approved Document B of the Building Regulations. All to be installed in strict accordance with manufacturers technical data sheet with certificate obtained by Service Provider at practical completion.

- 012 Please note: If the existing doors are glazed, the Service Provider must conduct a survey with the Customers to see whether they wish to retain the glazing or have replacement solid doors. Where possible, the Client would like to prevent glass from being installed due to security risks, fire safety and thermal efficiencies.
- 013 All doors must include the following elements:

Combine 15 x 4mm intumescent /brush smoke seals to both side edges and top edge of door leaf Successfully tested for fire and smoke performance in accordance with both <u>BS 476 Part 20/22</u> and also <u>BSEN 1634-1</u> .
Cam action overhead door closing mechanism affixed to external side of the door in accordance with BS EN 1154.
75mm/3" Eurospec Fire rated door numerals in satin anodised aluminium finish.
Average size 285mm x 55mm fire and smoke resistant letter plate with Telescopic intumescent liner and Nylon brush seals fitted to prevent vision through the letterplate and provide draught proofing, complete with a security cowl is available to prevent vision through the letterplate when open, and to inhibit manipulation of locks and bolts. In accordance with BS 9999 and Approved Document B of the Building Regulations.
Complete viewing angle 60 degrees fire rated door viewer with a prism system that allows viewing from up to 2m away. Fire protection is provided by intumescent strip and suitable for 35mm - 62mm thickness doors. One per door, Two viewers are to be provided for wheelchair users.
2 pair stainless steel hinges, CE marked, designed and tested for 44mm doors.
Multi-point automatic multi-point locking assembly and lever/lever configuration door handles to suit Euro profile lock cylinder with 3 keys – Thumb turn on the internal face.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Fire Safety Signage to comply with BS 5499-2 Fire safety signs, notices and graphic symbols and the Health and Safety (Safety Signs and Signals) Regulations 1996 and where applicable conform to EN ISO 7010.
Anodised aluminium "low mobility" threshold.
Anodised aluminium weather bar.

- 014 Fire Door manufacturers and suppliers must provide, as a minimum, evidence of testing relating to the following:
Accreditation to and compliance with:
- UKAS Accredited Fire Testing Laboratory Detailed Report, typically known as a Global Fire Resistance Assessment
 - BS 476: Part 22 (Fire Test)
 - BS EN 1634 – 1 (Fire Test)
- Compliance (as far as reasonably practicable) with Statutory Requirements:
- Building Regulations
 - Fire Safety and associated Technical Booklet Guidance
 - BS 9991:2011 Fire Safety in the Design, Management and Use of Residential Buildings – Code of Practice
- 015 Composite fire door-set manufacturers/suppliers, must at all times demonstrate compliance with the standard specification requirements in terms of certification (and validity of same), product compliance etc.
- 016 The manufacturer/supplier of fire door-sets will be required to submit the following evidence directly to the Client’s Representative. This will be held solely by the Client as evidence of accredited fire performance, technical specification and particular features –
- A Global Fire Resistance Performance Assessment Report for the respective composite fire door-set arrangement from a UKAS accredited fire testing laboratory with definitive confirmation that the composite fire door-set when tested to destruction achieves well in excess of the required 30 minutes.
 - This to account for a series of glazing options including the addition of glazed top-lights or side-lights within prescribed dimensions. All other components such as hinges, multi-point locking devices, etc., must be fire-rated and hence part of this assessment. The manufacturer/supplier may elect to have a number of the same component, but from different suppliers tested and the outcome reflected in this report.
 - A composite fire door-set Installation and Procedure Manual specific to the product. This document is for the sole use of the Service Provider/Installer who warrants through a Certificate of Conformity that the Fire Door-set exhibits no compromise whatsoever.
 - Training is undertaken directly by the manufacturer/supplier of the composite fire door-set on their product and installation manual to the Service Provider in the installation of these door-sets.
 - A Manufacturer/Supplier Certificate of Conformity to be issued with delivery of each manufactured fire door-set listing the unique job reference and all of the secondary components (fire-rated letter-plate, eye viewer etc.,)
 - A Manufacturer/Supplier Fire Door-set Monthly Report that records the composite fire door-sets as manufactured. This to be issued to the Client’s Representative in a tabular/PDF format on a monthly basis.

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Marking of Fire Door-Sets

- 017 All fire door-sets supplied to the Client should be clearly and permanently marked with their declared fire resistance at the manufacture stage. This will be in the form of a circular metallic tag. It must bear the manufacturer's name and contact details.

The door-set must, in addition, carry a unique job reference number on the upper RH edge of the door leaf, which, in turn, must relate to the specific Fire Door Certificate issued with the door-set.

Fire-resisting glass where installed as part of the fire door-sets must be identified with an appropriate designation mark. The mark on the glass must be permanent, legible and completely visible after glazing installation. Similarly, this should include as a minimum, the glass manufacturer's name and the product name.

- 018 **The Specifying of Fire Door-Sets**

Fire Door-sets are to be available in both FD30s and FD60s configurations. The specification for a fire door-set must include a full description of the elements together with the required fire resistance. Typically this should reflect critical issues such as –

- the overall size of the door-set
- the proposed mode of operation
- size and number of any glazed apertures
- details of any hardware
- frame details and material being used
- the presence of any top or side-light glazed panels
- requirement in terms of performance seals

- 019 **Door Leaves and Frames**

All fire door-sets must be purchased as complete door-sets. This ensures that all of the correct components are fitted and that full assembly instructions are available through the manufacturer.

Door Leaves are to be constructed from composite materials and be "single swing". The "as installed" door-sets must reflect those features contained in the manufacturers **Global Fire Resistance Assessment Report**.

Door frames can be provided (subject to above assessment reports) in hardwood, aluminium or PVC-u. The frame of the door-set should provide support for the door leaf in a "cold state", but also provide adequate support in a fully developed fire. The minimum dimensions for the frame cross-section will be stated in the manufacturer's fire door-set assessment report.

The timber, metal (aluminium) and PVC-u door frames in terms of their density, dimensions and material should not be less than those tested and recorded within the manufacturers **Global Fire Resistance Assessment Report**

- 020 **Intumescent Fire and Smoke Seals**

The intumescent fire and smoke seals used in the fire door-sets must be of the same formulation, dimensions and configuration as that stated in the manufacturers **Global Fire Resistance Assessment Report**.

These seals must achieve their optimum performance when fitted in the frame of the single leaf, single swing Fire Door-sets. These are normally positioned by the manufacturer at the mid point of the door leaf thickness.

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Fire door-sets are required under Building Regulations to restrict the flow of ambient temperature smoke – all Fire Door-sets, therefore, supplied to the Client must be identified by the suffix “s” – for example, FD30s and fitted with smoke seals.

Painting of smoke seals or combined intumescent and smoke seals is not permissible as this may inhibit the door-set from latching correctly.

021 Glazing Apertures

Fire door-sets as supplied to the Client may have glazed apertures. The door-sets must be designed to receive glazed apertures and fitted into the fire door-set aperture under the strict control of the manufacturer. Under no circumstances must apertures be cut on site.

The position, number and area of glazed apertures must be the same as that tested as part of the manufacturers **Global Fire Resistance Assessment Report**.

Only completely tested glazing systems must be used and the manufacturer must identify the glass product type, thickness, glazing seals and beads and any fixings. These must be fully supported by the relevant test evidence.

022 Fire Door-Set Hardware

Intumescent materials that have been used to achieve a particular performance in the fire test conditions, with the relevant hardware and the door leaf must be reflected in the completed Fire Door-set to maintain the stated fire performance.

It is essential that any element of hardware incorporated as part of the composite fire door-sets provides the required intumescent protection. It is recommended in most cases that the hardware is bedded in an intumescent mastic or intumescent pads to restrict heat transfer to the door edge by means of the metal hardware products.

All hardware/door-set furniture must be fitted in a manner that ensures the fire-resisting properties of the door-set are not compromised.

Intumescent and fire-rated letter plates and fire-rated eye viewers are a particular requirement of fire door-sets. These must be fitted with an intumescent liner and only fitted where they have achieved the appropriate fire resistance period when tested in-situ with the composite fire door-set.

023 Finish/Decoration to Fire Door-Sets

Fire door-sets are generally not required to provide a specific spread of flame classification.

All fire door leaves supplied as part of the composite fire door-set are pre- coloured GRP skins that do not require any form of decoration. Similarly those fire door-sets utilising the aluminium framing system require no form of decoration as these are “powder coated”.

Where there is a hardwood frame as part of a composite fire door-set, particular care must be taken where there may be future re-decoration. The use of heat or chemical strippers must be avoided at all costs as these are liable to damage intumescent fire and smoke seals incorporated within the frame.

024 Sample Fire Door-Sets for Approval

Sample fire door-sets must be delivered to site by the Service Provider/manufacturer/supplier for inspection and acceptance by the Client’s Representative.

The Service Provider/manufacturer/supplier in providing the sample for acceptance must demonstrate full compliance with the Specification requirements. Evidence of full compliance with the standard specification requirements and a copy of the relevant test data/**Global Fire Resistance Assessment Report** must be held in advance by Client.

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025 Protection, Transportation, Storage and Pre Installation Check of Fire Door-Sets

The Service Provider/manufacturer/supplier of the fire door-sets shall be responsible for ensuring they are suitably protected to avoid damage during transportation and subsequent storage.

Fire door-sets shall not be flat-packed, but stood vertically during transportation.

Fire door-sets in storage to be "kept apart" with preferably soft packing.

The Service Provider/manufacturer/supplier of fire door-sets may choose to disengage the over-head door closer for transportation purposes. This is a critical component and part of the fire door-set and must be re-engaged by the Service Provider prior to any installation.

The Service Provider must ensure that all fire door-sets stored on site are housed within a weatherproof on-site storage facility and protected at all times from moisture and temperature extremes. This should preferably be a well ventilated facility.

Prior to commencement of installation, the Service Provider must undertake the following checks:

- Consult the manufacturer/supplier survey sheets and ensure these are correct and clear
- All definitive survey measurements are recorded
- The fire door-sets as supplied are of the correct fenestration and design
- All hardware components are intact and engaged (where required)

026 All Fire Door-sets are generally measured in accordance with **BS 8213:2007** and as recommended on the **GGF (Glass & Glazing Federation) Code of Practice (March 2006)**. Fire Door-sets will in the main be fitted from the inside, although the nature of some reveals will permit these to be fitted from the outside. The measurement and fitting of fire door-sets must in every case respect the existing cover/rebate to the outer frame of the fire door-sets by virtue of the "reverse brick detail" or "check reveal".

027 Compatibility of Fire Door-set Framing with Surrounding Structure

The type of the surrounding structure and / or the wall or partition into which the fire door-set is being installed will have been determined by the fire resistance testing and within the **Global Fire Resistance Assessment** Report. Reference must be made to the manufacturer / supplier for each common area and verified by test evidence.

028 Installation of Fire Door-sets

- Installation Generally
 - All fire door-sets to be installed must pay due regard to the following –
 - Fire door-set manufacturer/supplier Installation technical data sheets
 - Installation of fire door-sets
 - Compatibility of door-set arrangement (and in particular, the door frame) with the surrounding structure
 - Sealing between the door-set and the surrounding structure
 - Clearance gaps
 - Under-door (threshold gaps)

Where the fire door-sets are installed by a Service Provider, the following protocol must operate:

- The Service Provider must identify "skilled Installers" to the Client's Representative who will be employed in their installation;
- The Service Provider must organise with the fire door-set manufacturer/supplier, specific training on all aspects of the door-set and importantly the installation technical data sheet;
- The manufacturer/supplier of the fire door-sets must maintain a record of all training given and must be made available for inspection by the Client's Representative, as and when required.
- The manufacturer/supplier of the fire door-sets will issue "all persons attending" with a bespoke certificate as proof that training in their respective product has taken place.

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The Service Provider’s installers must install the fire door-sets in strict accordance with the installation technical data sheets and ensure that there is adequate sealing with the surrounding structure and that damage is limited (or avoided) with any flame retardant coatings.

Under no circumstances must the fire door-set arrangement (as supplied) be compromised in the fitting/installation process. This includes making on-site adjustments to key fire-rated components such as “building hardware” with intumescent fire protection.

In all cases the fire door-set manufacturer/supplier is at liberty to undertake random checks to ensure that their fire door-set arrangement has not been compromised in any way. Where a manufacturer/supplier is of the opinion that any of their fire door-sets have been compromised, this must be referred immediately to the Client’s Representative for action.

Installation Criteria:

- Fire door-sets must be installed plumb and square within the structural aperture, without twist, racking or distortion of any member and in accordance with the manufacturer/supplier recommended and permissible tolerances so as to operate correctly after installation;
- It is critical that the manufacturer/suppliers correct and preferred method of installation is fully complied with to ensure that the door-set, when fixed into the wall, will achieve the required fire rating designated for the respective door opening;
- In order to maintain the fire resistance of the compartment walling when fitted with a fire door-set arrangement, the junction between the two elements must be adequately sealed.
- The sealing of these junctions must be in strict accordance with the manufacturer / supplier Installation technical data sheets.
- The composite fire door leaf must be hung to give an equal gap across the heads and down both jambs. To ensure good fire performance and under fire test conditions; this may be in the order of 2 – 4mm;
- The combined intumescent fire and smoke seals (as required and fitted) must allow the door-set to operate without causing significant “frictional issues”, and the gap must remain within the “as tested” tolerances;
- The under door/threshold gaps should be pre-determined by the fire door-set manufacturer/supplier and be in accordance with their Installation technical data sheet for the particular fire door-set;
- When fitted, the fixed or threshold arrangements or the drop- down seal variant should give an “even contact” with the floor, but not create/exhibit significant “frictional issues” that could interfere with the closing action/latching of the fire door-set

029 Methods of Fixing for Fire Door-sets

- **Fixing Fire Door-sets Generally**
 - Fixings for fire door-sets must be strictly in accordance with the manufacturer/supplier Installation technical data sheets;
 - Fixing methods and distances together with their respective methodology must also be strictly complied in terms of the manufacturer/supplier Installation technical data sheets;
- **Use of Fire Rated Expanding Foam**
 - The use of Fire Rated Expanding foam is not acceptable as a sole method of fixing any fire door-set into a structural opening;
 - Where the installation of the fire door-set with the adjacent wall substrate may require an element of fire-rated expanding foam, this must be referred initially to the manufacturer/supplier for verification/approval. Where the manufacturer/supplier Installation technical data sheet permit this or make reference to its use, this must be applied strictly in accordance with that stated.

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030 Finishing Off and Making Good

The final covering and treatment of adjacent surfaces, substrates, and their intersections are key in the overall fire door-set installation process.

The primary objectives of making good any damaged areas adjacent to the fire door-sets is to:

- Maintain the fire resistance of a fire-resisting or compartment wall
- Ensure the junction between the two elements are adequately and appropriately sealed
- Maintain the required Surface Spread of Flame Classification (Class 0) linked to the Flame Retardant Coatings
- Plaster-Patching
 - A small degree of plaster-patching will be required from the installation process. This will in all probability relate to reveals immediately adjacent to fire door-set.
- Finishing Trims
 - In a small number of cases, the gap between the door frame and the wall frame may be masked by an architrave both internally and externally. In the main, it is expected that the door frame will be fixed directly to the substrate.
 - Where the former occurs, this should be referred initially to the fire door-set manufacturer/supplier for verification that this type of surrounding structure was determined by the fire resistance test. Additional protection can be facilitated as below.
- Frame to Wall Junction & Adjacent Flame Retardant Paint Coatings
 - Where the surface of the adjacent walling is identified as being plastered over to back of the frame, then there is no real problem with the exception of disturbance to any applied wall applied paint applications – in many cases, these paint applications will be multiple coatings and potentially in a flame retardant paint.
 - Where there is disturbance of such surface linings, the Service Provider must refer to his paint suppliers for advice and sampling (if required). It is recognised that wall linings disturbed and in a fully developed fire can compromise the common area.
 - Where architraves / adjacent panels are present, these should be removed to check that no voids exist between the frame and the adjoining structure.
 - If the above scenario is found, the fire door-set manufacturer/supplier should be consulted as stated. As a form of additional protection, the void(s) should be filled with plaster, intumescent material or tightly packed rock-wool. The method of packing will depend on the size of the void – guidance on filling voids satisfactorily is stated in Section 9.4 of BS 8214 Tables 2 and 3
 - Where fire Door-sets are installed and any damage of the adjacent wall surfaces sustained, then a visual inspection should take place and identification made of the “applied paint” – it is expected, for example, within common areas that any of the following paint applications may exist:
 - Flame Retardant Paint
 - Emulsion
 - Solvent-based Gloss
 - Solvent-based Egg-shell
 - Textured Coatings
 - If there is any element of doubt as to the above application, then referral should be made to his paint manufacturer for technical advice. This is particularly critical if the topmost paint layering is of a flame retardant paint.
 - There are fire hazards associated with multi-layer paint coatings
 - The common area paint linings and forming part of compartment walling must ultimately achieve a Class 0 Surface Spread of Flame classification. That is readily achievable normally through an “upgrade process” and specification involving flame retardant paints from the Service Provider’s paint manufacturer.

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031 Fire Door-set Inspection Checklist

A **FIRE DOOR-SET INSPECTION CHECKLIST** requires to be completed where any fire door-set is installed as part of this Contract.

Each Fire Door-set **must** be individually, independently inspected by a UKAS accredited fire door installation inspector in relation to all issues listed. This information will be critical in maintaining a “level of fire resistance” within the common areas.

The Inspection Checklist is to give the Client an assurance that the door-set has been independently observed and inspected as installed and that any deficiencies based on the checklist issues have been noted and recorded. The inspector is required to record and advise the Service Provider of any such deficiencies.

The inspection, recording and completion of this Checklist is the responsibility and cost of the Service Provider. Photographs may be used where necessary as evidence of any significant deficiencies.

It is the Service Provider’s responsibility to ensure that any deficiencies identified are remedied without delay.

The Service Provider upon completion of any remedial works must sign and issue the Service Provider’s Certificate of Conformity for each Fire Door-set.

032 Protocol – Certification of Fire Door-Sets

Certification Generally

Fire Door-sets as supplied to the Client must be “certified” as fit for purpose and capable of achieving the fire resistance and integrity as stated.

The Service Provider and the fire door set manufacturers/supplier must demonstrate compliance with this Specification.

Manufacturer/Supplier Certification and Compliance

- **Any Manufacturer/Supplier of Fire Door-sets are required to undertake the following:**
 - Tag every Fire Door-set with a round metallic tag affixed to the door leaf with security screws; this must state “FD30s or FD60s” and the respective Manufacturer’s name and contact number.
 - The upper RHS of the Fire Door leaf must bear the unique manufacture job reference assigned to the respective Flat/Maisonette address or communal location – this must relate directly to the MANUFACTURER/SUPPLIER CERTIFICATE OF CONFORMITY and also be logged to the MONTHLY FIRE DOOR-SET REPORT
 - The MANUFACTURER/SUPPLIER CERTIFICATE OF CONFORMITY must be made available with every Fire Door-set and record the following details:
 - Project/Scheme name & corresponding Project No.
 - Door-set Manufacturer/Supplier details
 - Manufacturer/Supplier job reference
 - Contractor supply details
 - Completed Certificate of Conformity Statement
 - Product Supplied Address
 - Product Details
 - The relevant Certificate of Conformity template is included below:
 - A MANUFACTURER/SUPPLIER MONTHLY FIRE DOOR-SET REPORT format and content to be approved by the Client’s Representative must be submitted to the Client’s Representative on a monthly basis fully completed as confirmation of all fire door- set locations as supplied in the preceding month. This report must cross-reference with all of the Certificates of Conformity issued.

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Installer Certification and Compliance

The Service Provider required to undertake the following:

- Undertake all remedial works/deficiencies as identified on the Fire Door-set inspector checklist, format and content to be agreed with the Client’s Representative.
- Warrant that the Fire Door-set as installed has been supplied from a fire door-set manufacturer who holds a current and valid Global Fire Resistance Assessment Report; in addition, the Service Provider is to warrant that the fire door-set Installation (and any identified deficiencies have been undertaken in strict compliance with the manufacturer/supplier installation technical data sheets and with the Client’s Specification and that no compromise of any fire safety component exists.

The relevant INSTALLER CERTIFICATE OF CONFORMITY template is to be provided by the Client to the Service Provider.

Client’s current manufacturers/suppliers/products

033 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

**PRE-FINISHED TIMBER EXTERNAL DOOR SETS AND SCREENS
[LOWER TIER – Client to delete if not applicable]**

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

PRE-FINISHED TIMBER EXTERNAL DOOR SETS AND SCREENS

Timber Doors

- 001 This Section is to be read in conjunction with the general specification for 'Replacement Windows and External Doors – Surveying and Installation' and 'Replacement External Doors – General'.
- 002 All new pre-finished timber doors shall be purpose made pre-treated timber double glazed doors, manufactured to BS 644.
- 003 Where required lower panels shall be laminated safety glass or 25mm hardwood raised and fielded panels as appropriate. **Plywood panels shall not be accepted.**
- 004 Hardwood or aluminium glazing beads incorporating an integral EDPM corded lipped gasket shall be fitted to the external face. **The bead type and colour shall be agreed with the Client's Representative.**
- 005 All aluminium glazing beads shall be secured with bead retention clips as standard. Pre-finished hardwood glazing beads shall be fixed either by secret nailing using stainless steel or copper pins or by stainless steel large headed pins. When pinning with stainless steel large headed pins care shall be taken to ensure that splitting, head indentation of the glazing bead or breaking of the paint surface by the head does not occur. Bead retention clips may also be used for the securing of hardwood glazing beads.
- 006 All pre-finished door-sets shall be delivered to site totally completed including full coating system, this shall be either opaque or translucent, solvent based or water borne, fully glazed and with all furniture fitted leaving only the need to fix into the prepared opening on site. Note: Projecting furniture i.e. handles, may be supplied unfitted to avoid damage during transit.
- 007 All workmanship to be to BS.1186-2.
- 008 Timber for use in all doors shall be selected hardwood and in the density range of 650kg/m cu. Doors may be flush fitting or rebated over frame.
- 009 Flush fitting doors shall have a minimum thickness of 44mm.
- 010 Rebated doors shall have a minimum thickness of 57 mm.
- 011 Timber for doorframes shall be selected hardwood and in the density range of 650kg/m cu.
- 012 All external edges shall have a radius of not less than 1.5mm and not greater than 3.00mm in accordance with Paint Manufacturers technical data sheet.
- Note: It is acceptable for this detail to 'run through' all joint lines.
- 013 Surface waves caused by machining or excessive sanding will not be accepted.
- 014 All frames, mullions, transoms etc., to be to quality standard of BS 1186-2.
- 015 Timber doors to be set in rebated hardwood frames, and 2XG style pre-primed timber doors with upper panel double glazed with laminated safety glass sealed units.
- 016 Weatherboards to doors are to be included.

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Client’s current manufacturers/suppliers/products

017 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

**ALUMINIUM EXTERNAL DOORS AND SCREENS
[LOWER TIER – Client to delete if not applicable]**

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

ALUMINIUM EXTERNAL DOORS AND SCREENS

Generally

- 001 This Section is to be read in conjunction with the general specification for 'Replacement Windows and External Doors – Surveying and Installation' and 'Replacement External Doors – General'.
- 002 The Works comprise all the necessary Design Work for and the supply and installation of aluminium external doors and screens, with double glazed units to communal staircases and landings.

Design Standards

- 003 The door system is to comply with the following British Standards:
- | | |
|-----------------|---|
| BS 952-1 | Glass for glazing – Classification |
| BS EN 755 | Aluminium and aluminium alloys. Extruded rod/bar, tube and profiles. Mechanical properties |
| BS 4873 | Aluminium alloy windows and doorsets Specification |
| BS 5516-1 and 2 | Patent glazing and sloping glazing for buildings. Code of practice for design and installation of sloping and vertical patent glazing |
| BS 9991 | Fire safety in the design, management and use of residential buildings. Code of practice |
| BS 6206 | Specification for impact performance requirements for flat safety glass and safety plastics for use in buildings |
| BS 6262-5 | Glazing for buildings. Code of practice for safety related to human impact |
| BS 6375-1 | Performance of windows and doors. Classification for weathertightness and guidance on selection and specification |
| BS 6375-2 | Performance of windows and doors. Classification for operation and strength characteristics and guidance on selection and specification |
| BS 6496 | Specification for powder organic coatings for application and stoving to aluminium alloy extrusions, sheet and preformed sections for external architectural purposes, and for the finish on aluminium alloy extrusions, sheet and preformed sections coated with powder organic coatings |
| BS EN ISO 9227 | Corrosion tests in artificial atmospheres. Salt spray tests |
| BS 8213-1 | Windows doors and rooflights. Design for safety in use and during cleaning of windows, including door-height windows and roof windows. Code of practice |
| BS 8213-4 | Windows and doors. Code of practice for the survey and installation of windows and external doorsets. |
| GGF 6.6.2 | Specification for improved security single hinged residential doorsets. |
- 004 The installation is to comply with all the relevant requirements of Building Regulations Approved Documents.
- 005 All door openings are to be suitable for wheelchair access in accordance with the Building Regulations Approved Document M (Access to and use of buildings). This means that, with the door open, the clear opening width between the jamb of the frame and the hanging style of the door is to be not less than 800mm.

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Materials

- 006 All framing and swing doors system must be constructed from aluminium 100% recycled and suitable for fire route exits.
- 007 Screws and internal components must be either stainless steel, A2 cadmium plated steel or other corrosion resistant material.
- 008 Glazing beads must be aluminium "snap on" type requiring no screws. Dry glazing must be with self-locking plasticised PVC-u gaskets.

Construction

- 009 Framing assembled from pre-finished lengths of aluminium profile, which are square cut. All horizontal members are secured to verticals by screwing into four integral screw splines. All joints to be sealed against the entry of water. Mid rails into framing are to be secured with frame to rail cleats.
- 010 Door leaf assembled from finished lengths of aluminium profile, which is square cut. Door rails secured to stiles with pre-machined cleats. All joints to be sealed against entry of water. All external-glazing beads must be secured by mechanical means and tamper proof. Stiles to have double weather-stripping as standard.

Ironmongery

- 011 Fire exit doors (opening out) (to comply with BS EN 1125 (Building Hardware. Panic exit devices operated by a horizontal bar, for use on escape routes. Requirements and test methods.))
- 1 No. Flush Fitting Panic Latch.
 - 1 No. Pull handle in matching polyester RAL coating to outside.
 - 1 No. Door closer.
 - 1 No. Modular escape nightlatch with 70mm backset with suited lock.
 - 1 No. High Security Electric Strike faceplate
 - Minimum 3 No. finger guard silver anodised butt hinges.
- 012 Main entrance door:
- 1 No. Pull handles in matching polyester RAL coating.
 - 1 No. Flush Fitting Panic Latch.
 - 1 No. Low energy swing door operator.
 - 1 No. Modular escape nightlatch with 70mm backset with suited lock.
 - 1 No. High Security Electric Strike faceplate
 - Minimum 3 no. finger guard silver anodised butt hinges.

Screen Inserts

- 013 System screen inserts must consist of an outer frame and ventilator frame mitred and mechanically jointed using prepared extruded aluminium corner cleats and stainless steel corner chevrons. All joints must be sealed against the entry of water. Infills are secured by snap in beads internally or externally. Integral mullions/transoms are secured by driving screws into extruded screw ports. Structural coupling mullions and transoms are available to construct larger composite window units. Always refer to the System manufacturer's technical data sheets for limitations on frame and vent size.

Colour Finish

- 014 All exposed sections of aluminium extrusion are to be powder coated. Unless otherwise specified all powders must comply with the requirements of BS 6496 and conducted under BS EN ISO 9002 control conditions. Powder coating application and stoving on aluminium must be carried out in accordance with BS 6496.
- 015 The powder coating must have a Class 1 surface spread of flame rating to BS 476-7.

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- 016 The selected coating must comply with the British Board of Agrément Certificate or equivalent. Colour to be high gloss white.
- 017 All doors are to be permanently marked in an unobtrusive position (not viable when the opening door is closed) with the name and trademark of the system supplier and fabricator.
- 018 Units are to be installed by a specialist Subcontractor approved under the terms of the Contract. After installation and glazing, units are to be checked and adjusted as required.

Glass

- 019 Hermetically sealed 24mm double glazed units with clear glass.

Main entrance door to scheme

- 020 Electric swing opener to be installed by a specialist Subcontractor approved under the terms of the Contract.
- 021 The Service Provider is to liaise with his Subcontractor for the door entry/warden call system to work on door entry system with regard to the following operations:
- Disconnection system before existing door is removed; and
 - Connection system after installation of new door is installed to allow Customers and central control to open the door remotely.

Proximity Swipe

- 022 External doors to be fitted with a proximity swipe system with capability of reading up to 70 key fobs also to be supplied.

Master Keying

- 023 All new locks are to pass the same key suited to the schemes master suite.
- 024 Copies of keys are to be issued in the first instance to the Client's Representative.

Installation

Aluminium

- 025 Installation of fenestration systems must be performed by a Subcontractor approved by the Client's Representative in accordance with shop drawings and pointed with a fire grade silicone/mastic sealant, all as approved by the Client's Representative. After installation and glazing the Service Provider must check and adjust, if required, all items furnished under this section.

Glass

- 026 All glazing to be carried out in accordance with the requirements of the Building Regulations. Glass to comply with BS 952-1.
- 027 Safety glass to comply with BS EN 12600 with regard to impact performance and the marking of glass to indicate type and classification, and with BS 6262 and subsequent amendments with regard to minimum thickness' for certain pane sizes.

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Protection and Cleaning

028 The Service Provider must be responsible for any damage to the Materials under this section of the Specification incurred by him during installation and must leave the Work in a clean condition. The Service Provider must be responsible for the protection of these Materials from damage by other trades and must be responsible for the final cleaning of the Work.

Fasteners and Fixings

029 All aluminium units are to be installed in accordance with the manufacturer’s installation technical data sheets.

030 Openings should be checked against available drawings or a site survey for correctness and openings should be square and plumb.

031 Fixings grounds at head, sill and jamb must be capable of carrying all imposed and dead loads in a stable condition, i.e. there should be no spalling, fissures or general debris.

032 Foamed polyurethane must not be used as a means of fixing.

Approved Fabricators

033 If the Service Provider is not an approved powder coated door and screen manufacturer/contractor, he must sub-contract the work to a fabricator who is capable of being approved by the Client’s Representative.

034 When submitting his tender, the Service Provider must give full details of the proposed system, ironmongery, glazing method etc.

Client’s current manufacturers/suppliers/products

035 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

**REPLACEMENT UNDECORATED TIMBER EXTERNAL DOOR SETS AND SCREENS
[LOWER TIER – Client to delete if not applicable]**

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

REPLACEMENT UNDECORATED TIMBER EXTERNAL DOOR SETS AND SCREENS

Timber Doors

- 001 This Section is to be read in conjunction with the general specification for 'Replacement Windows and External Doors – Surveying and Installation' and 'Replacement External Doors – General'.
- 002 All new undecorated timber doors shall be factory primed, purpose made pre-treated timber double glazed doors, manufactured to BS 644.
- 003 Where required lower panels shall be laminated safety glass or 25mm hardwood raised and fielded panels as appropriate. **Plywood panels shall not be accepted.**
- 004 Hardwood or aluminium glazing beads incorporating an integral EDPM corded lipped gasket shall be fitted to the external face. **The bead type and colour shall be agreed with the Client's Representative.**
- 005 All aluminium glazing beads shall be secured with bead retention clips as standard. Factory primed hardwood glazing beads shall be fixed either by secret nailing using stainless steel or copper pins or by stainless steel large headed pins. When pinning with stainless steel large headed pins care shall be taken to ensure that splitting, head indentation of the glazing bead or breaking of the paint surface by the head does not occur. Where this does occur, the indentation shall be filled with approved filler, rubbed down smooth and touched in with approved primer. Bead retention clips may also be used for the securing of hardwood glazing beads.
- 006 All pre-finished door-sets shall be delivered to site totally completed including factory applied primer or base coat stain, this shall be either opaque or translucent, solvent based or water borne, fully glazed and with all furniture fitted leaving only the need to fix into the prepared opening on site and insitu decoration
Note: Projecting furniture i.e. handles, may be supplied unfitted to avoid damage during transit.
- 007 All workmanship to be to BS.1186-2.
- 008 Timber for use in all doors shall be selected hardwood and in the density range of 650kg/m cu. Doors may be flush fitting or rebated over frame.
- 009 Flush fitting doors shall have a minimum thickness of 44mm.
- 010 Rebated doors shall have a minimum thickness of 57 mm.
- 011 Timber for doorframes shall be selected hardwood and in the density range of 650kg/m cu.
- 012 All external edges shall have a radius of not less than 1.5mm and not greater than 3.00mm in accordance with Paint Manufacturers technical data sheet.

Note: It is acceptable for this detail to 'run through' all joint lines.
- 013 Surface waves caused by machining or excessive sanding will not be accepted.
- 014 All frames, mullions, transoms etc., to be to quality standard of BS 1186-2.
- 015 Timber doors to be set in rebated hardwood frames, and 2XG style pre-primed timber doors with upper panel double glazed with laminated safety glass sealed units.
- 016 Weatherboards to doors are to be included.

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Decoration of timber door sets and screens

017 All new timber external door sets and screens are to be built in prior to full decorations being applied.

Make good any exposed/damaged surfaces with approved filler. Rub down and leave smooth before applying 1 No. coat of approved primer on base coat stain for bare wood and filled areas.

Paint 2 No. coats of white undercoat and 1 No. coat of white gloss pain or 2 No./3 No. coats of stain top coat (as recommended by manufacturer), to all surfaces, rubbing down between all coats.

Client’s current manufacturers/suppliers/products

018 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

REPLACEMENT WINDOWS

**REPLACEMENT WINDOWS - SURVEYING AND INSTALLATION
[TOP TIER]**

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REPLACEMENT WINDOWS - SURVEYING AND INSTALLATION

General

It should be noted that in order to reduce possible errors/confusion due to conflicting repeat clauses etc. the Replacement Window specification sections have been sub divided into tiers as per the table below;

Top tier	Middle Tier	Lower Tier
Replacement windows – surveying and installation etc.	Replacement Windows – General	Replacement PVC-u Windows
		Replacement Pre-finished Timber Windows
		Replacement Undecorated Timber WIndows

In this manner each completed product will be required to meet the specification of 3 No tier documents.

Example; if work to be undertaken is a Replacement PVC-u window, then the 3 No tier documents to be used will be;

- Replacement windows – surveying and installation etc.
 - Replacement Windows – General
 - Replacement PVC-u Windows

Initial Survey

001 A list of Properties will be given to the Service Provider with access details and the Service Provider is then responsible for arranging access, visiting the Properties, taking measurements and forwarding existing window dimensions and the Service Provider’s proposed style of replacement windows to the Client’s Representative for approval.

Windows - Whether the new windows are to be PVC-u or timber replacements is dependent on the condition of any existing double glazed window (if present) and therefore matching new proposals with the existing Property and surrounding Client owned Properties.

002 The drawings are to include ‘sketch elevations’ of each window showing the position of each proposed window type and to include details of opening casements and glass type for each window.

003 The proposals are to be approved by the Client’s Representative before the Service Provider commences manufacture.

Site Measurements

004 The Service Provider is responsible for ascertaining the correct dimensions and sizes of every existing window in each Property.

005 The dimensions noted on any schedule issued by the Client’s Representative are for guidance only and are approximate measurements. The Service Provider is responsible for taking all site sizes and measurements for each and every window opening, and for manufacturing windows accordingly and to BS 8213-4. (Windows and doors - Code of practice for the survey and installation of windows and external door-sets) and as recommended in the GGF (Glass & Glazing Federation) “Good Practice Guide for the Installation of Replacement Windows and Doors”.

This procedure requires a minimum of **8 No measurements** both internally and externally to determine the difference between internal and external reveal sizes. Therefore internal access to the Property must be gained before manufacturing the windows – this will also allow for full Customer consultation and agreement of intended Works. It is the Service Provider’s sole responsibility to obtain the Customers approval to receive the Works before manufacturing is commenced.

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Windows are in the main fitted from the inside, although the nature of some reveals will permit replacement windows to be fitted from the outside.

The measurement and fitting of windows must in every case respect the existing cover / rebate to the outer frame of the windows by virtue of any "reverse brick detail" or "check reveal" that may pertain to existing Client Property.

006 Where a check reveal is present for weathering purposes, the window manufacturing sizes should be based on achieving a minimum frame overlap of 12 mm on the external leaf. A hole may be drilled through the existing frame jamb rebate to establish the check reveal size. A frame may also be built into the check reveal at the head by use of a rebated lintel, and again a minimum frame overlap of 12 mm should be provided where practicable. If an overlap of 12 mm cannot be achieved, this should be discussed with the Client's Representative and an agreement reached regarding the size of the overlap for particular properties. As the Client owns a large stock of Properties, which vary in construction detailing, long term standard agreements to the amount of overlap will not be made with exception to the dimension stated here.

007 The Service Provider's attention is drawn to the fact that similar windows in similar Property types may vary in size.

The Service Provider is responsible for ascertaining the correct dimensions and sizes of every existing window in each Property. Measurements for each window (and its location) must be clearly identified on any delivery schedule and each window shall have a clear labelling system to reflect this.

008 The use of make up pieces (clip-on's) will not normally be permitted except with the express **written** authority of the Client's Representative. Written authority does not transfer to the entire Contract, if gained; it must be acquired for individual Property and/or phases.

009 Any existing window opening which will present the Service Provider with a problem in compliance with the Specification, or in manufacture of a window to suit, must be brought to the attention of the Client's Representative before the window is fabricated. The Client's Representative will issue a written Instruction informing the Service Provider of what action is to be taken.

010 The Service Provider must obtain signed consent from the Customer before manufacture of window is undertaken. The Service Provider should be aware payment will only be made on completion of the window being installed into the Property.

Guarantees

011 In addition to the Client's rights under the Contract, the Service Provider is to provide the minimum guarantee tabled below against manufacturing defects etc., on all new PVC-u and timber windows upon completion of the Works. The guarantee is to include for all profiles, joinery, and for the double glazed units.

Manufacturers guarantees in all instances are to be for the years stated below with no exceptions attached (i.e. end user servicing expectations etc.), this will assure the Client that the manufacturer is confident of their own products durability.

PVC-u profiles	25 Years
Timber frames	30 Years guarantee against fungal attack
Timber Window Manufacturing Defects	10 year guarantee
Timber Window (Factory Painted External Joinery)	10 Year guarantee (as minimum)
Timber Window (Factory Stained External Joinery)	6 Year guarantee (as minimum)
Hardware Components	10 Years (minimum)
Double Glazed Units	15Years (minimum)

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Windows are to be manufactured under guidelines BS EN ISO 14001 (Environmental Management) and BS EN ISO 9001 (Quality Management Systems) with manufacturing companies holding the relevant accreditation. Manufacturers should promote and maintain an Environmental Policy and be committed to it. They should be able to demonstrate that all operations proactively comply with all applicable environmental laws and regulations.

The manufacturer shall provide a good practice guide relating to aftercare and maintenance of their manufactured window/sidelight etc. and its component items. The Service Provider shall ensure that each Customer receives a copy of this.

General Design of Windows

Windows - Street Properties

- 012 Generally the Design of windows to be replaced with storm-proof casements projecting top and side swing hinge (see Appendix A in Replacement Windows - General).
- 013 However, each Property case may be different and therefore approval will be required for each Property. In all cases, the proposed new style of windows will need to comply with Building Regulations and in particular fire egress in terms of all habitable rooms.

Timber Windows

- 014 The Service Provider is responsible for ascertaining the correct dimensions and sizes of every existing window in each Property.

Emergency Egress Windows

- 015 Every habitable room shall have at least one opening which shall comply with the Building Regulations Emergency Egress Windows, having an unobstructed openable area that is at least 0.33m² and at least 450mm high x 450mm wide with the bottom of the openable area not less than 800mm and not more than 1100mm above the floor. Egress hinges should be included, where necessary.

General Window Installation

- 016 All Windows and sidelights are to achieve an 'A' energy rating certificated by the British Fenestration Rating Council (BFRC).

All replacement sidelights must achieve Building Control standard of Maximum U-Value = 1.8 W/m²K for units with >50% internal face glazed.

U-values of windows glass and frames must meet the Building Regulations and must be BFRC Certified and have an "A" Rated Energy Index. Centre Pane "U Value" of 1.2W/m²K (or better). Thermal Transmittance Whole Window "U Value" of 1.4 W/m²K (or better)

- 017 All windows are to have "child restriction" to limit the uncontrolled opening of the window.
- 018 All windows must pass testing undertaken to PAS 24 and be Secure by Design certified. All certification documents are to be forwarded to the Client's Representative and kept updated – this must include test certificate, report and list of tested ironmongery with product manufactures names, type etc. Evidence of compliance with PAS 24 (Specification for Enhanced security performance requirements for door-sets and windows in the UK) will be a condition of tender.
- 019 All new windows are to match existing size openings in existing positions (i.e. brick reveals to be maintained externally where necessary on all occasions).
- 020 Before installing the new window, the existing structural opening should be checked to ensure its stability and existing lintels checked to ensure their condition soundness. Any large repairs should be reported to the Client's Representative.

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- 021 It is permissible to "chip back" a small area of plaster (typically 25mm) extending full height up the existing reveals and immediately adjacent to the windows; this will both facilitate removal of existing window and installation of replacement window.
- 022 All openings should be cleaned of debris etc., and any minor making good is expected to be carried out as part of the window replacement works.
- 023 All metal fixings should be at least as corrosion-resistant as BS EN 1670 Grade 3. 13.5.
- Windows shall be secured in accordance with the recognised "fixing distances" for strap / lug fixings and through-frame fixings as recommended in BS 8213-4.
- 024 Sills must be properly supported and fixed to ensure there is no likelihood of water penetration.
- 025 All internal reveals should be made good and plaster or decorations made good to match existing.
- 026 External sealing should be by means of a cement/sand pointing around the new window frame to conceal larger gaps and then a low modulus white silicone sealant to BS EN 11600. Only silicone sealants recommended by the manufacturer/supplier should be used and not general purpose mastics. All abutments of the windows should have silicone sealant applied.
- 027 Prior to installation the windows are to be supplied with adequate protection against damage caused by slippage, distortion etc. They must be stored under cover in a dry and secure position, stacked vertically, not horizontally.
- 028 The window dimensions must be checked with those of the opening before removal of the existing window.
- 029 A craft knife should be used to score around the perimeter of the existing frame in order to minimise damage to plaster/decoration.
- 030 Windows to be removed and all existing mastic and debris cleaned away. The Service Provider is to ensure that the work is carried out in a neat and tidy manner, with all rubbish removed to a lockable skip at the end of each working day.
- 031 The damp proof course is to be checked by the Service Provider to ensure one is present and in good condition. Any defects present are to be brought to the attention of the Client's Representative immediately.
- 032 The new windows must be installed in accordance with the manufacturer's requirements, taking into account the construction of the Property. Fixing methods should take into account thermal movement. The method of fixing will generally be either through frame fixing or lug fixing.
- 033 Windows must be installed plumb and square without twisting, racking or distortion of any member in accordance with the manufacturer's installation tolerances.
- 034 The outer frame of the window must be centred in the aperture and be positioned so that it does not bridge the damp proof course. The amount by which the new window is set back from the outer face of the wall is determined by the requirement to set the internal face as close to the existing internal finishes as possible and by the bridging of the damp proof course.
- 035 The window frames must be secured so that the corner fixings are a minimum of 150mm and a maximum of 250mm from the corner of the frame and the intermediate fixings at centres no greater than 600mm.
- 036 No fixing must be closer than 150mm to a transom or mullion centre line. Should the manufacturer require more onerous fixing requirements then these must be adhered to. Care should be taken not to overtighten bolts and that packers/shims are not allowed to fall away. Care should also be taken to ensure that water tightness is maintained where lintels have to be drilled for fixing.
- 037 All screw fixing heads which pass through the profile are to be spot sealed with appropriately coloured or clear silicone sealer or a PVC-u cap.

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- 038 Where electrical, television, telephone wires etc., enter a Property either through a hole in the existing window, or adjacent to it, then such services must be routed around the PVC-u window frame. A split plastic tube of suitable diameter and length for entry into the Property should be slipped over the cable so that connections do not have to be disturbed on the appliances, with the ends of the tube sealed with white silicone sealant on completion of the window installation.
- 039 Where any internal plaster work is disturbed when the existing windows are removed, the Service Provider must make good the plasterwork. PVC-u cover mouldings may be used to a maximum width of 30mm.
- 040 Bathrooms/WC windows must have obscured glazed window panes internally and one clear pane externally forming the double glazed units.
- 041 The Service Provider is to include for removing existing internal window sills and renewing with suitably sized PVC-u window sills and any extensions to window frames required to raise height of window openings to 800mm from finished floor level internally if required.
- 042 Internally the PVC-u frame must be well caulked and the gap between the reveal finish and the frame flush pointed with a one part white emulsion acrylic painter's caulk.
- 043 The Service Provider must provide a matching cover bead at the junction of the internal window board or tile sill and the PVC-u window frame to all windows.
- 044 Each window must be permanently marked or labelled in an unobtrusive position (not visible when the opening light is closed) showing details of the manufacturer, the job number of the window and the date of manufacture.
- 045 The latest standard for glass units is BS EN 1279 –2 (also part 3 for gas filled types).
- 046 Special care and attention must be taken to protect and avoid any damage to windows. Any damaged window must be replaced with a new window, and it must be at the Client's Representative's sole discretion as to whether a repair to a window is acceptable.

Safety Laminated Glass

- 047 All glazing in windows in critical locations as defined by the Building Regulations (i.e. glazing below 800mm internal sill heights in windows is to have both skins of glass units glazed with laminated low E glass – assumed to be 2 No. skins of 6.8mm laminated safety glass.

Internal and external panes in sidelights, double glazing units to be laminated glass as default. An exception may be made where a staircase ends or turns immediately inside the doorway – in this instance the internal pane may be toughened (i.e. to reduce impact pressure) – written notification must be given to the Client's Representative. External pane must always be laminated to provide security and satisfy PAS 24.

- 048 All safety glass is to be permanently marked on both panes with British Standard kite marks, which are to be visible after installation.
- 049 Both sheets of glass making up the sealed double glazed unit must be safety glass where required by the above descriptions.
- 050 Details of windows in critical locations are to be stated in the Service Provider's proposals for each new window when proposed drawings are forwarded to the Client's Representative for approval.

Glazing - General

- 051 Windows must be manufactured so that glazing or re-glazing on site is possible without the need to remove the outer frame from the structure of the building.
- 052 All glass and insulated glazed units should be carefully examined for damage, especially at the edges, prior to installation. Defective items must not be used.

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- 053 The two panes of glass in the double glazed unit are to be held apart with warm edge technology, spacer bars to improve thermal efficiency and reduce the possibility of condensation forming around the perimeter of the sealed double glazed unit.
- 054 The glazing of the windows must be carried out immediately after the installation of the frames and casements
- 055 On completion of window installations, all glass to be cleaned internally and externally and left clean and free from blemishes.
- 056 Any glass with scratches cracks or defects to be replaced by the Service Provider at no charge.
- 057 All windows to be **INTERNALLY GLAZED** in argon filled sealed units in low Emissivity glass, using pre-formed gaskets inserted during the profile extrusion and secured by knock-in PVC-U glazing beads with mitred corners
- 058 All windows/sidelights will be totally dry-glazed with minimum 12mm wide x 3mm thick double-sided PVC foam closed cell high density security glazing tape on the inside frame rebates. Co-extruded EPDM corded glazing gaskets on the frame are acceptable as an alternative provided that bead security clips are used in conjunction with it.
- 059 All glazing to be clear glass except bathrooms and WC's which are to be obscure Cotswold style glass or pattern group 5.
- 060 Glass shall be at least the minimum thickness to meet wind load requirements of BS 6262 and BS 6375.
- 061 Glazing beads are to be able to withstand the design wind loading in accordance with BS 6375-1 and the tests specified in BS EN 12211.
- 062 Note: All timber sliding sash windows to have sash cords and lead weights to box frames to counteract the glazing weights
- 063 Fans are not permitted in sealed units.
- 064 Details of all glass types are to be stated in the Service Provider's proposals for each new window when proposed drawings are forwarded.

Certificate of Test Window/Sidelight

- 065 All manufacturers of window/sidelight etc. shall be required to have a "sample" submitted for testing at an accredited testing station. These samples must be inspected against the requirements set out above. All manufacturers are required to have "third party" registration provided by BBA, BSI or equivalent recognised accredited quality licensing authority for the manufacture windows/sidelights etc.
- 066 A copy of the respective Certificate of Compliance for Secure by Design and PAS 24 must be made available at the time of submitting for inspection, which confirmations that the manufacturer can produce the product to the required standards, along with all testing data. The Service Provider should be aware these certificates may form part of the document handover pack and if not supplied on completion and handover of the Work, will incur a financial penalty.

Delivery to site of windows/sidelights etc.,

- 067 In each option, primary consideration must be given to current health and safety at work legislation in respect of site practices.

Option 1 – Pre-glazed

Will be valid where the window manufacturer is commissioned on a supply only basis; the installation, therefore, being undertaken by the Service Provider.

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Option 2 – Un-glazed

Will be valid where the window manufacturer is commissioned on a supply and fit arrangement. This will involve the supply of insulating glass units and pre-formed glazing gaskets to be applied on site in accordance with the manufacturer's technical data sheet.

Critical considerations to be observed:

- All glazing must conform to the recommendations contained in the relevant parts BS 6262-5 and BS 8000-7. The setting and location block positions, frame to glass and bead to glass gaskets etc. with any glass or insulating glass units must be installed in accordance with the relevant manufacturer's technical data sheet and as per the recommendations in BS 6262-5;
- All insulating glass units shall be examined for damage prior to installation; defective units shall not be used;
- Insulating units with "low emissivity coatings" shall be oriented in accordance with the manufacturer's technical data sheet; and
- Where safety glazing forms part of an glazing unit, it remains a legal requirement to ensure that the marking remains visible after installation.

Protection, Transportation, Storage & Pre installation check

- 068 The Service Provider must ensure the manufacturer/supplier is responsible for ensuring that all windows/sidelights are suitably protected to avoid damage during transportation and storage.
- 069 Windows/sidelights/glazing units (if applicable) shall not be flat-packed, but stood vertically during transportation
- 070 Windows/sidelights/glazing units in storage to be "kept apart" preferably with soft packing to reduce risk of transport/handling damage.
- 071 The Service Provider must ensure that all windows/sidelights stored on site are housed within a secure weatherproof storage facility on-site until the time of fitting. Pre-finished joinery shall not be stored in direct sunlight.
- 072 Prior to commencement of installation, the Service Provider should undertake the following checks -
- Consult survey sheets and ensure these are correct and clear;
 - All survey measurements are recorded
 - The windows/doors/sidelights supplied; are of the correct fenestration and design and in accordance with the window schedule approved by the Client's Representative;
 - The glass type and pattern are correct;
 - Window and glass sizes are compatible;
 - All trims, gaskets etc., are correct and fitted correctly; and
 - Consult survey sheets to ensure windows supplied are correctly marked and identified to those Properties being replaced.

Site Approval on delivered

- 073 Previous to the benchmark Properties being set, a sample Pre-Finished Timber window / sidelight shall be delivered to site by the preferred manufacturer/supplier for inspection and acceptance by the Client's Representative.
- 074 The manufacturer/supplier in providing the sample for acceptance must demonstrate full compliance with the specification requirements. Evidence of thermal efficiency standards being offered must be available to the Client's Representative for verification.
- 075 The sample window (upon acceptance) will form the "benchmark window" for the remainder of the project.

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- 076 The Client's Representative shall reserve the right (at any stage) to have any window which is delivered to site, subsequently removed for further inspection/audit and/or independent testing to ensure that the specification requirements are being complied with.

Remove and Install on same Day

- 077 Existing doors to be removed are most likely to be timber in nature, although a small percentage of properties may have original PVC-u windows. The Service Provider should make every effort to have all existing windows recycled and provide waste disposal reports to the Client's Representative.
- 078 Replacement windows must be installed on the same day that the original windows are removed in order to maintain security and weather tightness of the structure. The existing windows should be removed with care in order to avoid damage to the Property structure and its finishes and without permitting any subsidence of the structure during or after the operation.

When providing numerous replacement windows to a single Property the Works should be undertaken on one set day to reduce the amount of disturbance to the Customer.

- 079 Any defects that become apparent in the integrity of the structure upon removal of any window should be reported to the Client's Representative immediately.
- 080 If there is a sub-sill or threshold, e.g. Concrete, slate, brick or tile, below the existing window frame it must be left in position unless otherwise specified.

Protection of Existing Fixtures etc.

- 081 Allow for protection of floor coverings, furniture and Customer's belongings throughout the duration of the Works.
- 082 The Service Provider is responsible for moving any furniture, fixtures and fittings that may be damaged during the installation of the windows/doors, prior to commencement of the replacement of any window/door and repositioning such items upon completion of the installation to each Property.
- 083 The Service Provider will be responsible for both internal and external protection. After the removal of the existing window/sidelight the Service Provider is to carefully cut back any internal or external flooring, finishings, cladding, wallpaper and decorations to allow for the installation of the new frames etc. The Service Provider is responsible for making good all structures, finishings and decorations up to 100mm from the face of the frame or sill.
- 084 The Service Provider must ensure that clean and sufficient dust sheets or protective coverings are used, when carrying out any Works. The Service Provider must ensure he has taken all adequate provisions to ensure that the soiling or damage to floor coverings and needless damage to decorations are avoided. The Service Provider must allow for any cleaning of floor coverings required as a consequence of the Works and this should be reflected in the tender Rates submitted.
- 085 It is recommended the Service Provider undertakes a Schedule of Condition and agrees this with the Customer prior to undertaking any Works. It is therefore considered prudent to take photographs of any damaged Customer's belongings within the vicinity of the Work prior to commencement and, where appropriate, to obtain a signed disclaimer.

Fixings

- 086 Screws used for fixing non-reinforced PVC-u sections will be of carbon steel with a suitable corrosion protective coating and feature a double helical thread, spoon point with a countersunk head.
- 087 Fixings must incorporate a combination square/cross recess drive to provide a non-magnetic stick fit.
- 088 Fixings for friction stay applications will be supplied with a special low profile pan head to prevent fastener head interfering with the friction stay.

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- 089 All screws, nuts, bolts and other fastenings must be of corrosion resistant material, or be treated to give corrosion resistant properties. When subject to the acetic acid salt spray test specified in BS EN ISO 9227 for a period of 144 hours, the corrosion resistance of treated mild steel must be equal to or better than that of stainless steel samples subjected to the same test conditions.
- 090 All ironmongery, fixtures and fittings must be of materials resistant to, or protected against atmospheric corrosion. Metals in contact with each other must be compatible so as to prevent galvanic corrosion of dissimilar metals by electrolytic action.
- 091 The use of polyurethane foam is not acceptable as a sole method of fixing any window into a structural opening, nor is it acceptable to be used as bedding for the window.

Fixing to be as recommended by in BS 8213-4 below is a brief summary, actual fixing recommendation should be taken from BS 8213-4 and its example diagrams:

Secured on all sides (where practicable);
Corner fixings – 150 – 250mm from external corner;
No fixings less than 150mm from centre line of a mullion or transom;
Minimum of 2 fixings per reveal;
If head is fixed with polyurethane foam, then head fixings can be –
<ul style="list-style-type: none"> • Frame width up to 1200mm – no fixings • >1200mm to <2400mm – one central fixing • >2400mm to 3600mm – two equally spaced fixings

- 092 The use of polyurethane foam is permissible in terms of “foam filling” and as a useful addition to mechanical fixings. When the window is completed and finished there should be no visual evidence of polyurethane foam either internally or externally.

Installation “packers” should be used to set the window frame onto to allow sealant/mastic to be used as a full fill bedding material. The colour should match the window finish.

Foam filling is to be used in all windows installations to provide a closure to possible cold bridge of gaps between the wall and the frame. It is only to be used within the depth of the window frame profile i.e. it should not be used to fill gaps to reveals etc. which are to be plastered. Form filling is only in regard to the following situations –

<p><u>1) To the head of a window, where the presence of pre-cast concrete or steel lintels make it impracticable or pose significant difficulties in achieving the recommended fixing distances</u></p>	<p><u>Up to 15mm maximum</u></p>
<p><u>2) To the sides of frame to make up expansion/contraction gap left either side as a result of manufactured size of window</u></p>	

- 093 All components should be supplied by a manufacturer complying with BS EN ISO 9001 accredited quality systems. A certificate passing warranty to the Client is to be issued by the hardware manufacturer on completion of the project.
- 094 Written confirmation of compliance with all of the above should be given to the Client’s Representative in advance of commencement on site and will be a condition of the tender.

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Fire barriers

- 095 In all methods of construction it is important to ensure that the cavities between internal and external skins are protected at openings for windows from the spread of fire. If these openings are not protected, in the event of a fire, smoke and fire can spread through the cavity, causing danger to occupants in other parts of the Property not immediately affected by the fire. This issue is of particular concern in timber and metal framed buildings. Attention is drawn to the Building Regulations in respect of the requirement for suitable fire barriers to be present in such buildings. Guidance is given in BS 9991, BS 9999, and the current Building Regulations Approved Document B.
- 096 The method of construction should be identified, and where the building is of timber or metal frame construction, the type of cavity barrier should be established. Where the barrier is a cavity sock or similar, and is likely to become dislodged or damaged by the removal of the existing frames, this should be noted on the survey sheet, and instruction given to the installation team to ensure that the cavity barrier is either repaired or replaced to maintain the original level of fire protection for the Property.

NOTE; Timber and metal frame constructions usually have a moisture barrier included in the area around openings, to resist moisture ingress into the cavity that could affect the timber sheathing or metal studwork.” (Extract from BS 8213-4)

Making Good

- 097 The final covering and treatment of surfaces and their intersections are fundamental to the overall replacement of windows:

The primary objective of making good damaged areas adjacent to the windows is to maintain the;

- Weather-tightness; and
- Thermal performance characteristics

As required in and around reveals.

- 098 This protocol described below applies to all window replacements and shall be undertaken as the primary aim to negating the need for any redecoration during/after window installation.

There will be a number of situations (i.e. age of the Property; thickness of plaster reveals; and to some extent “build issues” associated with system-built dwellings) that it may not be possible to observe all or part of this protocol. Therefore more damage may be required to the reveals and/or the window/wall to undertake the required window replacement. This could result in the need for some redecoration. Where this is likely to occur, firstly the Service Provider is required to notify the Client’s Representative at Design stage. If however this is not identified until on-site stage the Service Provider must note the Properties affected and alert the Client’s Representative before work commences.

Where full plaster reveals are to be undertaken – i.e. Internal and external making good; this may take place on subsequent days, but the whole operation from start to finish of each window must not exceed 3 No. consecutive working days.

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- 099 Plaster-Patching - This process will require a small degree of plaster-patching. This will include the following areas -
- All of the reveals immediately adjacent to window frame etc.;
 - Part of the reveals where strap/lug fixings have been employed.

Finishing Trims are to be Cellular extruded PVC-UE trims/beads and must conform to BS 7619 and as the below table;

	Internal Reveal (3 sides)	External Bead (3 sides)	Internal Sill Board
Single bull-nosed PVC-UE trim typically 5–7mm maximum thickness	✓		
Trim width must not exceed 100mm			
Quadrant / Bead typically 12x12mm or 18x18mm maximum OR Single bull-nosed PVC-UE trim typically 5 – 7mm maximum thickness		✓	
Trim width must be in range 20 – 25mm maximum			
PVC-UE Cloaked Trim typically 10–12mm in thickness in every case over-cladding the existing timber sill			✓
Removal of existing sill boards is not permissible as substantial damage is normally inflicted on window wall within rooms			

- 100 Trims are not to be used to simply provide or enhance the weather tightness of the window or any perimeter joints. Finishing trims shall be used to neaten the interface between frames and opening, they are only to be used in conjunction with the “plaster-patching”/making good situations as stated above. All joints must be left ‘neat and tidy’ with an acceptable tolerance of +/- 2/3mm on all joints/trim abutments and sealed with sealant of matching colour.
- 101 Internal finishing trims shall be compatible with the material of the window frame and must be colour-matched.
- 102 External finishing beads/trims shall satisfy the above criteria and be of an exterior quality material used in accordance with the manufacturer’s technical data sheet. External beading is not required where the external reveal has been re-plastered to match existing.

For the avoidance of doubt, windows should be measured and fitted as described above and beads/trims should only be fitted to the opposite side of the determined cover/overlap. Only in exceptional cases where reveals are determined as flush will internal and external beads/trims be acceptable.

Fixing of Trims/Beads

- 103 All internal trims shall be secured in every case to a firm backing (junction of frame and reveal/existing sill) with a low modulus silicon sealant (as below) and sealed all round.
- All external beams/trims shall be secured in every case to a firm backing (junction of the frame and plaster reveal) with the low modulus silicon sealant (as below) and sealed all round.

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Sealants

- 104 Sealants must comply with BS EN 11600 and be low modulus grade
- 105 Perimeter joints externally and internally around the “as installed” window shall be sealed with a low modulus silicone sealant and “smoothed” to provide a good seal.
The sealant shall be appropriate to –
- The frame surface and colour;
 - Any substrate material;
 - The specific joint size and configuration; and
 - Potential joint movement and weather exposure.

Implications – Customer’s Blinds etc.,

- 106 The inclusion of a finishing trim to existing reveals and sill may in certain circumstances create an issue around the re-fitting of Customer’s blinds etc. The Service Provider shall pay due regard to the existing window dressing(s) and where finishing trims are required that a “slim-line” version (5mm or less) is used.

Repairing damaged prefinished coatings on site

- 107 Localised repairs to coatings shall be affected by brush application on site using the same coating Material and build-up as the factory application with no discernible difference upon completion. All repairs shall be carried out in accordance with the joinery manufacturer’s technical data sheet, by a competent person and to the satisfaction of the manufacturer and Client’s Representative to ensure continuance of the warranty.

Cleaning of Windows

- 108 The protective tapes shall be removed from the as installed windows immediately or as soon as practicable after installation and the window (frame and glazing) cleaned with a suitable cleaning agent.

Final Completion Checks

- 109 Upon final completion of each and every window installation, the Service Provider is to confirm and check the following:-
- All glazing beads are adequately fitted and in good order;
 - All hardware functions and locks operate correctly and are not stiff to use;
 - All frames and glass are free from cracks, breaks and scratches etc. All frames and glass are cleaned and all internals of frames are swept clean.;
 - All openings are square and operate correctly;
 - There is no movement to the window;
 - All restrictors, vents and hinges etc. are clean and operate correctly;
 - All making good internally and externally is completed; and
 - All trims are clean and sealed;
- 110 Once all the above items are completed, the Service Provider is to demonstrate the operation of the window to the Customer and provide the Customer with their own operating instructions for the windows. In addition, the Service Provider is to provide a Customer Satisfaction Card (to be supplied by the Client’s Representative) which the Customer is requested to complete and return by free postage to the Client. In due course the Service Provider will be required to provide any means necessary to allow the Customer to sign Satisfaction Card electronically for uploading to the Client’s Asset Management software.

Photographic Evidence – Removal/Installation of Windows/Sidelights

- 111 The Service Provider is required to take digital photographs of each completed window/sidelight installation.
- The photograph should clearly show the completed internal reveals and identified by address and room (i.e. this may be done by placing an address and room labelled clipboard against the window at the time of taking the photograph – ensure clipboard does not block image of window).

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- 112 The photographs should be retained electronically by the Service Provider and if requested provided on an individual basis to the Client i.e. in the event of any Customers making a claim against the Client.
- 113 The Service Provider should note that the Client’s Representative will from time to time ask for evidence of these photographs and how and where they are stored. The Service Provider is required to retain these images for at least 6 years after the Date of Completion (in accordance with the Client’s Retention of Documents Policy and legal timeframe for a Customer to make a claim).

Client’s current manufacturers/suppliers/products

- 114 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

**REPLACEMENT WINDOWS – GENERAL
[MIDDLE TIER]**

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REPLACEMENT WINDOWS – GENERAL

General

- 001 This section is to be read in conjunction with the 'Replacement Windows and External doors – Surveying and Installation' section, which provides details of surveying, sampling, installation, finishing etc. – generally as per BS 8213-4 (Windows and doors - Code of practice for the survey and installation of windows and external door-sets).
- 002 All Windows and sidelights to achieve an 'A' energy rating certificated by the British Fenestration Rating Council (BFRC).

Design of Windows

- 003 On door-sets with sidelight panels, the mullion should have sufficient stiffness to ensure rigidity when the door is closed against it.
- 004 Existing windows may be housed within an existing concrete surround. These concrete surrounds have virtually no insulation value, lack air-tightness and contribute significantly to "cold bridging". Some will also have spalling of the concrete which may have exposed the reinforcement bars and causing the bars to rust.

As a long term strategy where concrete surrounds are encountered the Client requires **them be removed**. In all cases this will involve provision of a new sill and repair works. Facing brick constructed Properties may require render bands around the external window reveals.

Cutting off of extruding element of concrete surround and render patching **will not be allowed** as it does not remove the cold bridging issue. This will be constituted a "structural alteration" under Building Regulations and hence will require a Building Control application.

Windows Openings

- 005 All windows to be fitted with opening restrictors and as far as practical Egress Easy Clean Hinges.
- 006 All hinge components such as bottom track, link bars and rivets to be manufactured from Austenitic stainless steel to BS EN ISO 10088-2 Grade 1.4301 and fitted in accordance with manufacturer's technical data sheet limitations and recommendations. All associated hardware should be approved to PAS 24 and meet BS EN 1670 Class 4 corrosion resistance.
- 007 The protective tapes shall be removed from the windows immediately or as soon as practicable after installation and the window cleaned with a suitable cleaning agent.
- 008 Easy clean facility to allow the window to slide along the hinge track so as to be cleaned from inside the building to BS 8213-1. After cleaning, the hinge should allow the window to self-relocate and return to its original position and mode of operation simply by closing the casement.
- 009 All hinges should be BBA Approved or equivalent and to include a thermoplastic end point and die cast end cap with self-lubricating surface finish featuring a roof to minimise the build-up of debris.
- 010 Windows, after a considered and noted risk assessment, can be fitted with a clearly visible and intuitive to release restrictor.
- 011 The release mechanism must self-relocate in one action on closure of the vent. All components, rivets and pins should withstand a force of 600N to comply with BS 6375-2, Performance of windows and doors. Classification for operation and strength characteristics and guidance on selection and specification and BS 8213-1 - Design for Safety in Use and During Cleaning of Windows.

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- 012 Restrictor to be tested to comply with BS 6375-2 to withstand a force of 600N when opened at the restricted position and fitted to provide a maximum opening of 100mm in the restricted position. Restrictor to be manufactured from stainless steel to BS EN ISO 10088-2 Grade 1.4301 tested to meet the requirements of BS 7412 and to meet BS EN 1670 Class 4 corrosion resistance.
- 013 Written confirmation of compliance with all of the above should be given to the Client's Representative in advance of commencement on site.

Weather Performance and Seals

- 014 All new windows must be approved to BS 6375-1 (Performance of windows and doors. Classification for weather tightness and guidance on selection and specification) to the below levels and will achieve a Class A for mechanical testing to BS 6375-2 (Performance of windows and doors. Classification for operation and strength characteristics and guidance on selection and specification):-
- (a) Air permeability – 600 Pascals minimum
 - (b) Water tightness – 300 Pascals minimum
 - (c) Wind resistance according to the design wind loading but not less than 2400 pascals.

All framing including mullions, transoms and couplers shall be capable of withstanding the design wind loadings calculated in accordance with BS EN 1991-1-4:

- 015 Weather stripping and glazing gasket Material must not have a detrimental effect on the plastic profile.
- 016 Weather strips for PVC-u windows to be co-extruded weldable seals and white gaskets approved to BS 7412 and BS 4255 to increase the weather tightness of the windows.
- 017 The weather-stripping must be capable of being renewed without disturbing the glazing system and without removing the outer frame from the structure.
- 018 The weather-stripping must be continuous around the frame.
- 019 Weather strip seals and draught excluders between all timber sashes to be included for all windows.
- 020 Glazing gaskets must be thermoplastic elastomer (TPE) and must be pre- inserted into the profiles.

Window Ventilation

- 021 All window units are to be provided with trickle ventilators to provide 8000mm² areas to each habitable room and 4000mm² areas to kitchen, bathroom, WC and utility rooms.
- 022 The ventilator is to be fitted with an insect mesh in accordance with the requirements of BS 5440-2 and BS 7372-1. Trickle ventilators must be manufactured from either aluminium section with powder coated finish to match window colour, or high impact modified PVC-u.

All ventilators are required to have their 'equivalent areas' from testing clearly marked on the device. The fitting of cording or rod devices to ventilators, ensuring ease of use by the Customer, to be in accordance with the latest guidance in the Building Regulations Approved Documents. For new build applications ventilation requirements must be calculated from the tables in the Building Regulations Approved Documents.

- 023 The Service Provider is to ensure that all window Designs to habitable rooms have a window opening area of no less than 5% of the floor area. The Service Provider must bring to the attention of the Client's Representative any window Designs included in this Specification that he believes does not meet this criterion, before the manufacture of any windows.
- 024 The type of trickle ventilator to be fitted is to be "glazed in". Due to the Client's requirement that all PVC-u window frames must be fully reinforced (i.e. metal inserted into all profile members) "through frame" design is not permitted on PVC-u windows.

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025 Front timber windows in Conservation Areas will not normally require trickle ventilators to be installed as this would be against planning policies.

Child Restrictors

026 Child restrictors are to be fitted to all windows with openings on all floors. The restrictors must not allow opening the window more than 100mm without using the restrictor switch.

027 Type of restrictors to the PVC-u windows are to be integral/in-built to hinge or push type fitted within frames on all casements outward openings and the PVC-u switch built into the top sashes on PVC-u sliding sash windows.

028 Types of restrictors for timber windows are to be agreed between Service Provider and Client's Representative prior to installation of windows – examples of types required would be Sash Stop and Limiter to sliding sash windows, and integral/in-built to hinge or button restrictor within the window frame to outward opening casements.

Window Furniture

029 Window furniture to openable sashes to be positioned in the centre line of the frame unless indicated otherwise.

030 Push button handles to be fitted to all window openings. As all windows are to be egress, key operated locks are NOT to be fitted

031 Details of window furniture are to be provided by Service Provider and approved by Client's Representative.

032 All handles to casement windows to be lever handles operating a multi-point espagnolette shoot bolt locking system with auto lock button cylinder lock. PVC-u window handles to be white powder coated aluminium and timber windows to be brass effect.

033 All side hung casement windows to be fitted with egress hinges with the lower hinge being integral push button restrictor mechanism for two handed full opening operation.

034 Top hung casements to be easy clean hinges of sufficient size to allow easy cleaning from the inside and integral push button restrictor mechanism.

035 There must be a correct correlation of hinge/friction stay capability with maximum vent weight and vent sizes i.e. sash sizes must be no larger than the hinge manufactures product table recommendations.

036 All timber sliding sash windows to be fitted with the following furniture:

- Brass Brighton Type fasteners to each window
- 2 No. D brass sash pulls to each upper sash and 2 No. sash lifts to each lower sash
- Brass sash stop and limiter window locks both sides of each window, to allow window ventilation opening of 100mm with security
- Brass dual locking screws to meeting rails of sashes

037 Hardware with provision for adjustment must be accessible for adjustment after the window has been installed. Hardware used to open/close the window must be replaceable without removing the outer frame from the structure.

038 All components should be supplied by a manufacturer complying with BS EN ISO 9001 accredited quality system.

039 Ironmongery product manufactures limitations must be strictly observed within the terms of their conditions of supply. It is the responsibility of the fabricator/purchaser to ensure that the performance of the window complies with the relevant standards and specification requirements for the particular window and that the correct product is chosen for the weight and design of each window system. The Ironmongery manufactures product information to be provided to the Client's Representative as required.

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- 040 Window hardware wherever applicable must be supplied from a manufacturer holding a product licence under the auspices of the Home Office "Secured By Design" initiative with the aim of fulfilling the obligations placed on the housing provider to ensure a reasonable level of security to the occupants as outlined in Section 17 of the Crime and Disorder Act 1998.
- 041 Written confirmation of compliance with all of the above should be given to the Client's Representative in advance of commencement on site.

Locking Mechanism

- 042 All windows to be fitted with a Locking Mechanism that must be BBA accredited or equivalent and have been tested to the equivalent of PAS 24 security test or a Secured by Design Licensed Product
- 043 Locking mechanism to have an enhanced grade zinc alloy gearbox and mushroom-headed cams and shoot bolts. Where twin cam type is used, shoot bolts are not required. Minimum corrosion resistance: BS EN 1670 Class 3. Fully adjustable "Twin Cam" high performance "no crop" security locking system. Operate with up to four pairs of mushroom cams travelling towards each other locking into a double-sided security keep. Fully adjustable cams \pm 1mm. keeps with a night latch locking facility.
- 044 All window hardware should meet BS EN 1670 Class 4 corrosion resistance.
- 045 All components should be capable of sustaining a minimum of 25,000 opening cycles and 1,000 full reversals under 50kg operational load without demonstrating any significant deterioration or deformation that would inhibit its function and have a Mechanical Guarantee/Warranty required (as a minimum) - 10 years.

Implications – Customer's Blinds etc

- 046 The inclusion of a finishing trim to existing reveals and sill may in certain circumstances create an issue around the re-fitting of Customer's blinds etc. The window manufacture shall pay due regard to the existing window dressing(s) taking note of where finishing trims are required that a "slim-line" version (5mm or less) is used for sizing of window and ensuring correct allowances to ensure sash opening.

Cleanability of Window

- 047 All windows must be cleanable from the inside and the design of openings and fixed units is to meet the access standards recommended in BS 8213: Parts 1-3 and Code of Practice 154.
- 048 New PVC-u sliding sash windows must be capable of tilt inwards to allow for cleaning and to have secure brackets fitted within the frames to hold each sash in position when tilted inwards for cleaning.

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Client’s current manufacturers/suppliers/products

049 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

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Appendix A

Choosing window type to applicable Stock

Table 1 Choosing window type to applicable Stock

STOCK APPLICABLE TO:		<u>STORM-PROOF CASEMENTS</u> Projecting Top & Side Swing Hinge	<u>FLUSH CASEMENTS</u> Projecting Top & Side Swing Hinge	<u>FULLY REVERSIBLE WINDOWS*</u> Hotel Hinge – Top Swing	<u>FULLY REVERSIBLE WINDOWS</u> Fully Reversible Hinge
	<u>No of storeys</u>	<u>Property Type</u>			
<u>LOW RISE STOCK (1 – 3 Storey)</u>	1	Bungalows	✓	✓	
	2	Houses	✓	✓	
	2	Flats	✓	✓	
	3	Houses	✓	✓	
<u>MEDIUM RISE STOCK (3 – 5 Storeys)</u>	3	Flat Blocks		✓	✓*
	3	Flat over Maisonette		✓	✓*
	3	Maisonette over Flat		✓	✓*
	4	Flat Blocks			✓*
	4	Flat over Maisonette Blocks			✓*
	4	Maisonette over Maisonette			✓*
	5	Flat Blocks			✓*
<u>HIGH RISE STOCK (6 – 20 Storeys)</u>	6-20	Multi-Storey Flat Blocks			✓

* Floors 1 & 2 will be FLUSH CASEMENTS to reflect the same “fenestration” as the Fully Reversible Window
- Floors 3 - 5 will be FULLY REVERSIBLE (Hotel Hinge)

**REPLACEMENT PVC-u WINDOWS
[LOWER TIER – Client to delete if not applicable]**

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REPLACEMENT PVC-U WINDOWS

MATERIALS AND MANUFACTURE

PVC-u Windows

- 001 This section is to be read in conjunction with the general specification for 'Replacement Windows and External Doors – Surveying and Installation' and 'Replacement Windows – General'.
- 002 All new PVC-u windows shall be purpose made BBA approved or equivalent, fully welded and fully reinforced PVC-u to BS 7412, BS EN 12608, PAS 24 and Secured by Design certified.
- 003 The windows fabricator/contractor is to be a licensed kite marked manufacturer to BS 7412, and all products to be covered by BS EN ISO 9001 and an 'A' energy rating certificated by the British Fenestration Rating Council (BFRC).

PVC-u Window Installations Specific

- 004 To all windows where timber sliding sash windows are to be removed and replaced with PVC-u windows, the Service Provider is to include for new windows to have pressure treated timbers around the windows wrapped in damp proof course to infill the old window sash boxes. The timber packers to then be covered with PVC-u clip on liners, and small gaps filled with polyurethane in-situ foam with closed cell structure between 65% and 75%.
- 005 Under no circumstances are the old box frame cavities to be filled with foam only. Plaster is then to be made good and new plaster covered with wider PVC-u architraves to reduce damage to wall decorations.
- 006 The use of 'make-up' pieces (clip on's) as means of standardising manufacturing sizes should not be used under any circumstances without the prior approval of the Client's Representative. In only special circumstances will approval be given, and then the make-up size should not exceed 15mm either side or head.

PVC-u Windows Section Profiles and Reinforcement

- 007 Extruded window profiles shall only be those itemised on the window manufacturer/contractor's kite marked licence and the type testing carried out by a third party testing house to BS 7412.
- 008 The Material from which the extruded four chambers profile sections are made shall consist of white high impact modified un-plasticised poly vinyl chloride with a class 1 surface spread of flame resistance to the requirement of BS 476.
- Manufactured and extruded hollow PVC-u profiles to BS EN 12608. PVC-U Material shall have a multi-chambered design (5 chambers minimum) for enhanced thermal efficiency.
- 009 All joints to be welded joints with a grooved finish.
- 010 Reinforcement to be installed to all casement and frame members.
- 011 Reinforcement is to be fixed with self-tapping stainless steel screws to BS EN ISO 3506-1 and 2 or, sheradised coated steel screws at 300mm centres so that the reinforcement does not move or rattle when the window is in use.
- 012 Reinforcement must be made of hot dipped coated steel reinforcement to comply with BS EN 10346 or Aluminium reinforcement to comply with BS EN 485-2; BS EN 515 or BS EN 755-9 (as laid down in BS 7412) or hot dipped prime galvanised steel complying with BS EN ISO 1461, BS EN 10132 and BS EN ISO 9015.

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- 013 The profile must be extruded from un-plasticised polyvinyl chloride (PVC-u) therefore recyclable at the end of its life. Only those additives and pigments may be used that are needed for the manufacture of the compound and its subsequent conversion into sound, durable extrusions of good surface finish and mechanical strength, as assessed by the requirements of this specification.
- 014 The PVC-u Material frame, that the profiles are to be made from, must conform to the specification given in Table 1. The tests must be carried out on pressed plaques prepared from milled sheet*, under standard conditions as specified in BS EN ISO 1163-2. (* with the exception of the impact tests which are carried out on samples cut from the face sides of extruded profile.)
- 015 Profile wall thickness to be classified in accordance with the requirements of BS EN 12608 (Unplasticised polyvinylchloride (PVC-u) profiles for the fabrication of windows and doors. Classification, requirements and test methods).
- 016 The colour of the profile must be uniform and the colour of the profiles in a system must be uniform. The finish of the windows is to be white to 40% Gloss (RAL 9003 equivalent). The profile must be free from foreign bodies, cracks or sink marks when viewed by normal corrected vision at 90 degrees to the surface and at a distance of 1 metre in normal diffused north light.
- 017 The profiles must be straight such that the longitudinal axis of the profile as measured on the face surfaces may deviate from the straight line by no more than 1mm/metre.
- 018 Tolerances on external dimensions (from BS EN 12608)

External dimension	Tolerance
Depth (D) ≤ 80	+/- 0.3
> 80	+/- 0.5
Overall width (W)	+/- 0.5

- 019 No rework/regrind material is to be used in any section, which will be subjected to any weathering. Rework/regrind material will only be allowed in internal glazing bead extrusions.

Construction

- 020 All corners and intersection joints between frames, mullions and transoms must be welded.
- 021 The excess material created by the welding process must be removed by a grooving or flush surface method. In either case, the method used must not weaken the profile or the joint, and must retain sufficient wall thickness.
- 022 Only where Instructed by the Client’s Representative must windows be provided with external projecting PVC-u sills. The sill must be from the same manufacturer as the PVC-u windows.
- 023 These sills must be properly supported, and hollow sill sections must have end caps to ensure that no water penetration occurs at the end of the sills. The sill and window frame must be jointed in accordance with the manufacturer’s technical data sheet to ensure water and weather tight joint.
- 024 Insulated infill panels to window frames must be provided where Instructed by the Client’s Representative and fixed with internal glazing beads.
- 025 The panels must consist of an inner core of high density thermal insulation (min 0.033W/m2K) and outer layers of coloured plastic coated steel skins (skins to be a min of 0.5mm thick). The colour of the panels, must be approved by the Client’s Representative, prior to the Service Provider ordering the panels.
- 026 The finished window must be free from all sharp edges, burrs and the like that might be a hazard to the user.

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Performance Requirements

- 027 All windows are to comply with BS 7412 and BS EN 12608.
- 028 The Service Provider must be able to provide test reports prepared by a UKAS accredited testing house to confirm that the windows meet the criteria. The Client’s Representative reserves the right to have any window provided for the Contract tested to check its compliance with these performance requirements.
- 029 The new BS EN test methods are more demanding than the old. One major factor is the introduction of a final ‘safety test’ on windows. A 2000 Pa exposure rated window would have to withstand a ‘safety’ test where gusts of 3000 Pa are applied (both positive and negative pressure)

Architraves and sills

- 030 To every new PVC-u window and door, carefully remove all existing internal architraves and sill boards and replace to match existing in white PVC-u **with mitred joints** to architraves.
- 031 All trims are to be sealed with white silicon to the window frame and sealed to decorations.
- 032 Sill boards to have rounded nosing finish and sealed to undersides with white silicon and provided with end caps.
- 033 Include for PVC-u quadrant piece around casement windows to internal recesses.
- 034 To all windows where timber sliding sash windows are to be removed and replaced with PVC-u windows, the Service Provider is to include for PVC-u liners to inner reveals to form square reveals for new PVC-u windows and cover with wider 150mm PVC-u architraves to minimise disturbance.

Drainage

- 035 The windows must include a self-drainage system by means of slots/ holes which must under no circumstances drain through chambers incorporating reinforcement. All drainage slots/ holes must be neatly cut out with no lips to allow free drainage of water from the frames to the outside of the building.
- 036 Matching PVC-u caps must be provided to cover all visible external drainage slots. Care must be taken to ensure that glazing blocks or spacers do not obstruct drainage from the glazing rebate.

Client’s current manufacturers/suppliers/products

- 037 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

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TABLE1 MINIMUM PROPERTIES OF PVC-u MATERIAL TO BE USED FOR FABRICATION OF WINDOW		
MATERIAL PROPERTY	TEST METHOD	REQUIREMENT
Vicat Softening Point	BS 2782-1: Part 1: Method 120B	78°C ± 2°C
Apparent modulus of Elasticity (flexural)	BS ISO 6721-10 Method 335A. Rate 5mm/min	2500 MPa
Impact Strength	BS ISO 6721-10: Method 359	20KJ/m ² minimum
% change impact strength after accelerated ageing		70% minimum
Notch impact strength	BS ISO 6721-10: Method 359A	12KJ/m ² minimum
Low temperature impact	A 300mm profile sample supported at 200mm centres. Condition at one hour – 10°C. Strike flat surface with rounded 1kg weight from 1 metre.	
Colour retention after artificial accelerated weathering	BS 2782: Part 5: Method 540D and Method 540G. Sample to be exposed to total irradiation of 8GJ/m ² in wet/dry cycle.	
Colour retention after natural weathering for a period of 60 months	DIN 3386	Maximum colour change allowed is that rated 3, using BS 1006: Part A03
Heat reversion	200mm of profile tested. Mark profile 1cm from each end and age at 100°C for one hour. Cool and re-measure distance between marks. Compare before and after ageing and express as % change.	No visible signs of deterioration Maximum reversion allowed – 2%
Profile delamination post heat ageing	200mm of profile tested. Subject sample to 30 minutes at 150°C. Visually inspect	No bubbles, cracks or delamination should be found
Heat Stability	BS 2782: Part 1: Method 130A	Not less than 85 minutes
Flame Resistance	BS 476 Part 7	Class 1
Weld factor	Samples of profile are butt welded together at 180 degrees. Cut sample from joined faces according to requirements of the now withdrawn BS 2782-Part 3: Method 320C so that weld line is in centre. Five samples are tensile tested to the requirements of the now withdrawn BS 2782-3: Method 320 at a rate of 5mm/min. Five samples of un-welded section are tested in comparison. Sample condition at 20°C for 1 hour Weld factor – Maximum stress valve welded. Maximum stress control sample. Profile cut at 45 degrees and welded to give 90 degree corner. Condition at 20°C for 1 hour. Load applied to deform on leg of corner piece.	
Corner Weld Strength	BS EN ISO 868 or DIN53505 – Shore hardness Table D	Deformation of horizontal member should be minimum 5mm with no breakage of the corner weld line.
Hardness		77-79

Notes on tables above Please refer to BS EN 12608 for details of test methods and standards currently adopted.

**REPLACEMENT PRE-FINISHED TIMBER WINDOWS
[LOWER TIER – Client to delete if not applicable]**

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REPLACEMENT PRE-FINISHED TIMBER WINDOWS

Timber Windows

- 001 This section is to be read in conjunction with the general specification for 'Replacement Windows and External Doors – Survey and Installation' and 'Replacement Windows – General'.
- 002 All new pre-finished timber windows shall be purpose made pre-treated timber double glazed windows manufactured to BS 644 and PAS 24.
- 003 All Timber Window manufacturers shall produce timber windows and the ranges required to the highest standards, all of which have been approved by the British Woodworking Federation's (BWF) Timber Window Accreditation Scheme (TWAS) and hold a "third party" registration by BBA or equivalent.
- 004 All timber for constructing windows should be in accordance with BS EN 942 (Timber in Joinery) and sustainably obtained as per European Union Timber Regulation (EUTR).
- 005 All softwood joinery to be subject to preservation treatment by spirit based double vacuum pressure impregnation in compliance with BS 8417 (Preservation of wood). The moisture content of the timber sections shall be in the range of 14 – 16% before assembly and the application of any preservative treatment or coatings

Timber Window Installations Specific

- 006 Where no 'check' reveal is present install the new window frame wrapped in an approved damp proof course. Where 'checked' reveal is present the window is to be placed directly behind the DPC located behind the external skin.

The "as installed" windows shall in every case operate correctly.

Avoid (as far as reasonably practicable) unnecessary damage to the internal plastered reveals irrespective of how they may be finished (i.e. paint/wallpaper/ tiling etc.), fixing methods will be directly affected by the condition of any cavity closer.

The new frame shall maintain the recommended movement gap (typically 5mm) each side; once the frame is fixed, this gap can be "foam filled". Fixings should be at least as corrosion-resistant as BS EN 1670 Grade 3. Windows shall be secured in accordance with the recognised "fixing distances" for strap / lug fixings and through-frame fixings as recommended in BS 8213-4;

Timber Window Styles

Dwelling Type	Window Type
Low rise stock (1-3) storeys- Bungalows, houses, flats	Storm proof casement (projecting top and side hung hinge) Flush casement. (projecting top and side swing hinge)
Medium rise stock (3-5) storeys- Flats block, flats over maisonettes (opposite), maisonettes. Over maisonettes	Flush casement. (Projecting top & side swing hinge) Fully reversible windows- (hotel hinge top swing) Floors 1 & 2 will be FLUSH CASEMENTS to reflect the same "fenestration" as the fully reversible window Floors 3-5 will be FULLY REVERSABLE (Hotel Hinge)
High rise stock (6-20) storeys- Multi storey flats	Fully reversible hinge.

- 007 All new timber windows are to be purpose made pre-treated.
- 008 All new windows to be double-glazed and must have features to match existing, e.g. vertical beadings, curved sashes, cover mouldings and horn details etc.

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009 All new windows to be pre-finished prior to delivery and installation on site.

010 All external sills to new windows to be pre-approved by the Client’s Representative.

Timber Windows Architraves and Sills

011 To every new timber window, carefully remove all existing internal architraves and sill boards and replace to match existing surrounds, with mitred joints to architraves.

012 All gaps to walls or gaps to joints are to be sealed prior to decorations.

013 Sill boards to have rounded bull nose timber finish.

Painting of Timber Windows

014 All new timber windows/sidelights etc., shall be delivered to site with the full coating system. All external edges of timber windows shall have a radius of not less than 1.5mm and not greater than 3.0mm in accordance with any Paint Manufacturer’s Technical data sheet. This detail is acceptable through all joint lines.

015 Where required, pre-prime and paint all new architraves before fixing, and then once installed, rub down, fill as necessary and paint 2 No. coats white undercoat and 1 No. gloss white paint, rubbing down between all coats.

016 The Tendered rates include to repaint existing external concrete sills externally to the windows and touch up any painted stonework or render around the windows to match existing, as disturbed during the window renewal works.

Drainage

017 The windows must include a self-drainage system by means of slots/ holes which must under no circumstances drain through chambers incorporating reinforcement. All drainage slots/ holes must be neatly cut out with no lips to allow free drainage of water from the frames to the outside of the building.

Client’s current manufacturers/suppliers/products

018 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

**REPLACEMENT UNDECORATED TIMBER WINDOWS
[LOWER TIER – Client to delete if not applicable]**

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

REPLACEMENT UNDECORATED TIMBER WINDOWS

Timber Windows

- 001 This section is to be read in conjunction with the general specification for 'Replacement Windows and External Doors – Survey and Installation' and 'Replacement Windows – General'.
- 002 All new undecorated timber windows shall be factory primed, purpose made pre-treated timber double glazed windows manufactured to BS 644 and PAS 24.
- 003 All Timber Window manufacturers shall produce timber windows and the ranges required to the highest standards, all of which have been approved by the British Woodworking Federation's (BWF) Timber Window Accreditation Scheme (TWAS) and hold a "third party" registration by BBA or equivalent.
- 004 All timber for constructing windows should be in accordance with BS EN 942 Timber in Joinery and sustainably obtained as per European Union Timber Regulation (EUTR).
- 005 All softwood joinery to be subject to preservation treatment by spirit based double vacuum pressure impregnation in compliance with BS 8417 (Preservation of Wood). The moisture content of the timber sections shall be in the range of 14 – 16% before assembly and the application of any preservative treatment or coatings.

Timber Window Installations Specific

- 006 Where no 'check' reveal is present install the new window frame wrapped in an approved damp proof course. Where 'checked' reveal is present the window is to be placed directly behind the DPC located behind the external skin.

The "as installed" windows shall in every case operate correctly.

Avoid (as far as reasonably practicable) unnecessary damage to the internal plastered reveals irrespective of how they may be finished (i.e. paint/wallpaper/tiling etc.,). fixing methods will be directly affected by the condition of any cavity closer.

The new frame shall maintain the recommended movement gap (typically 5mm) each side; once the frame is fixed, this gap can be "foam filled". Fixings should be at least as corrosion-resistant as BS EN 1670 Grade 3. Windows shall be secured in accordance with the recognised "fixing distances" for strap / lug fixings and through-frame fixings as recommended in BS 8213-4;

Timber Window Styles

Dwelling Type	Window Type
Low rise stock (1-3) storeys- Bungalows, houses, flats	Storm proof casement (projecting top and side hung hinge) Flush casement. (projecting top and side swing hinge)
Medium rise stock (3-5) storeys- Flats block, flats over maisonettes (opposite), maisonettes. Over maisonettes	Flush casement. (Projecting top & side swing hinge) Fully reversible windows- (hotel hinge top swing) Floors 1 & 2 will be FLUSH CASEMENTS to reflect the same "fenestration" as the fully reversible window Floors 3-5 will be FULLY REVERSABLE (Hotel Hinge)
High rise stock (6-20) storeys- Multi storey flats	Fully reversible hinge.

- 007 All new timber windows are to be purpose made pre-treated.

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- 008 All new windows to be double-glazed and must have features to match existing, e.g. vertical beadings, curved sashes, cover mouldings and horn details etc.
- 009 All new windows to be factory pre-primed prior to delivery and installation on site.
- 010 All external sills to new windows to be pre-approved by the Client's Representative.

Timber Windows Architraves and Sills

- 011 To every new timber window, carefully remove all existing internal architraves and Sill boards and replace to match existing surrounds, with mitred joints to architraves.
- 012 All gaps to walls or gaps to joints are to be sealed prior to decorations.
- 013 Sill boards to have rounded bull nose timber finish.

Painting of Timber Windows

- 014 All new timber windows/sidelights etc., shall be delivered to site factory primed. All external edges of timber windows shall have a radius of not less than 1.5mm and not greater than 3.0mm in accordance with any Paint Manufacturer's Technical data sheet. This detail is acceptable through all joint lines.
- 015 All new timber windows/sidelights etc. are to be built in prior to full decoration being applied. Make good any exposed/damaged surfaces with approved wood filler. Rub down and leave smooth before applying 1 No. coat of approved primer to bare wood and filled areas. Paint 2 No. coats of white undercoat and 1 No. coat of white gloss paint to all surfaces, rubbing down between all coats.
- 016 Where required, pre-prime and paint all new architraves before fixing, and then once installed, rub down, fill as necessary and paint 2 No. coats white undercoat and 1 No. gloss white paint, rubbing down between all coats.
- 017 The Tendered rates include to repaint existing external concrete sills externally to the windows and touch up any painted stonework or render around the windows to match existing, as disturbed during the window renewal works.

Drainage

- 018 The windows must include a self-drainage system by means of slots/ holes which must under no circumstances drain through chambers incorporating reinforcement. All drainage slots/ holes must be neatly cut out with no lips to allow free drainage of water from the frames to the outside of the building.

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Client’s current manufacturers/suppliers/products

019 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

METALWORK

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METALWORK

MATERIALS

Generally

- 001 Grades of metals, section dimensions and properties are to be to the appropriate British Standards. When not specified, select grades and sections are to be appropriate for the purpose.

Prefinished metal products may be used if methods of fabrication do not damage or alter appearance of the finish, and the finish is adequately protected.

Fasteners and fixings are to be to the appropriate British Standards and, unless specified otherwise, of same metal as component being fastened, with matching coating or finish.

Mild Steel

- 002 Ensure steel used is free from imperfections. Before fixing, remove all rust, mill scale, welding slag and flux residue from iron and steel surfaces by wire brushing, scraping, hammering and/or flame cleaning.
- 003 Hot rolled structural steel long and flat products (excluding structural hollow sections and tubes) are to be to BS EN 10025-1.
- 004 Fine grain steels, including special steels are to be to BS EN 10025-3 and -4.
- 005 Steels with improved atmospheric corrosion resistance are to be to BS EN 10025-5.
- 006 High yield strength steel plate and wide flats are to be to BS EN 10025-6

Galvanised coatings

- 007 Apply galvanised coatings to BS EN ISO 1461.
- 008 Powder Coatings unless specified otherwise, comply with all relevant requirements and recommendations of BS EN 12206-1 for aluminium alloy backgrounds; BS EN 13438 for galvanized steel backgrounds; British Coatings Federation: Code of safe practice - Application of powder coatings by electrostatic spraying.

Garage door repairs

- 009 Ensure fittings and furniture for metal 'up and over' garage doors generally match the existing fittings.

WORKMANSHIP

General repairs

- 010 Cut out defective metal balusters and replace with new, including all welded joints. Prime where damaged and leave ready to receive decorative finish.
- 011 Cut out defective ironmongery and replace with new, including any welding that may be necessary. Prime where damaged and leave them ready to receive the finish.
- 012 Make good damaged welds including removing the remains of the weld, wire brushing, hacking the surface and re-welding. Prime where damaged and leave it ready to receive the finish, in accordance with the details in the "Painting and Decorating" section.

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- 013 Remove a defective arch bar by:
- cutting it out from brickwork;
 - providing temporary supports;
 - replacing with a new primed mild steel bar; and
 - making good the brickwork with a finish to match the existing finish.

Fabrication

- 014 Ensure compliance with any stated design and performance requirements. Ensure sections and dimensions are in accordance with relevant British Standards. Do not permit contact between dissimilar metals. Mitre corner junctions of identical sections. Use tack welds only for temporary attachment. Make joints with parent material fully bonded throughout with no inclusions, holes, porosity or cracks. Prevent weld splatter falling on surfaces that will be self-finished and visible in completed work. Remove traces of flux residue, slag and weld splatter.

Avoid contact between dissimilar metals in components.

The finished components are to be rigid and free from distortion, cracks, burrs and sharp arrises, moving parts to be free moving without binding, and corner junctions of identical sections are to be mitred.

Cold formed work is to have accurate profiling with straight arrises.

Surfaces of metals to receive adhesives are to be degreased, abraded mechanically or chemically etched and rimed to suit the adhesive being applied,

- 015 Steel is to be welded to BS EN 1011-1.
- 016 Stainless steel is to be welded to BS EN 1011-1 using double butt welds, backing bars, jiggling and other methods to remove distortion.
- 017 Aluminium alloys are to be welded to BS EN 1011-4.
- 018 Brazing is to be to BS EN 14324 with butt joints finished smooth and level with adjacent surfaces.
- 019 All sharp arrises are to be removed from any welding or brazing to prevent hazards.

Welding

- 020 Welding procedures:
- Method and standard: Metal arc welding to BS EN 1011-1 and -2;
 - Welding Procedure Specification (WPS): Not required.

Preparation:

- Joint preparation: Clean thoroughly.
- Surfaces of materials that will be self-finished and visible in the completed work: protect from weld splatter.

Jointing:

- Joints: Fully bond parent and filler metal throughout with no inclusions, holes, porosity or cracks;
- Dissimilar metals: Not applicable;
- Strength requirements: Welds to achieve design loads;
- Heat straightening: Service Provider to submit proposals;
- Complex assemblies: Agree priority for welding members to minimize distortion caused by subsequent welds;
- Tack welds: Use only for temporary attachment;
- Jigs: Provide to support and restrain members during welding;
- Filler plates: Service Provider to submit proposals;
- Lap joints: Minimum 5 x metal thickness or 25 mm, whichever is greater;
- Weld terminations: Clean and sound.

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Finishing:

Welded and Brazed Joints visible in Complete Work:

- Standard: To BS EN ISO 8501-3. - Preparation grade:P1.
- Butt joints: Smooth, and flush with adjacent surfaces.
- Fillet joints: Neat. • Grinding: Grind smooth where indicated on drawings.

Preparation for Application of Coatings

- General: Complete fabrication, and drill fixing holes before applying coatings.
- Paint, grease, flux, rust, burrs and sharp arrises: Remove

Balustrades

- 021 Isolated balustrades shall be mild steel hot dipped after manufacture to BS EN 10025-1, all welding /fabrication of components shall be complete prior to galvanising, bolted site connections only will be accepted, no site welding is permitted, damaged sections of galvanising and exposed bare metal shall be liberally painted with proprietary cold galvanising paint, handrails are to be continuous and smooth to avoid key clamp style fixings;
- 022 Isolated external balustrades for ramp access to adaptations, steps and stepped ramps shall be 48.3mm circular hollow section mild steel, hot dip galvanised after manufacture to BS EN 10025-1, all welding /fabrication of components shall be complete prior to galvanising, bolted site connections only will be accepted, no site welding is permitted, damaged sections of galvanising and exposed bare metal shall be liberally painted with proprietary cold galvanising paint, handrails are to be continuous and smooth to avoid key clamp style fixings;

Mesh Infill to Handrails

- 023 Proprietary mild steel to BS EN 10025-1 galvanised diamond pattern mesh netting fixed to existing galvanised steel tubular handrails, guarding to provide a minimum horizontal force/metre run of 0.74 kN/m, galvanised after fabrication, all welding /fabrication of components shall be complete prior to galvanising, bolted site connections only will be accepted, no site welding is permitted, damaged sections of galvanising and exposed bare metal shall be liberally painted with proprietary cold galvanising paint;
- 024 Proprietary mild steel to BS EN 10025-1 galvanised diamond pattern mesh netting fixed to new galvanised steel tubular handrails, guarding to provide a minimum horizontal force/metre run of 0.74 kN/m, galvanised after fabrication, all welding /fabrication of components shall be complete prior to galvanising, bolted site connections only will be accepted, no site welding is permitted, damaged sections of galvanising and exposed bare metal shall be liberally painted with proprietary cold galvanising paint;

Vertical Railings to Galvanised Tubular Handrails

- 025 Mild steel to BS EN 10025-1 hot dipped galvanised after manufacture vertical railings to new or existing galvanised tubular handrails galvanised after fabrication, all welding /fabrication of components shall be complete prior to galvanising, bolted site connections only will be accepted, no site welding is permitted, damaged sections of galvanising and exposed bare metal shall be liberally painted with proprietary cold galvanising paint;

Isolated Wall Mounted External Handrails

- 026 48.3mm diameter circular hollow section mild steel to BS EN 10025-1 hot dipped galvanised after manufacture isolated wall mounted external handrails galvanised after fabrication, all welding /fabrication of components shall be complete prior to galvanising, bolted site connections only will be accepted, no site welding is permitted, damaged sections of galvanising and exposed bare metal shall be liberally painted with proprietary cold galvanising paint;

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PVC-u Handrail Cover

027 Moulded PVC-u section to suit 50mm x 8mm core rail and installed in accordance with the manufacturer’s technical data sheet;

Fixings Generally

028 Methods of fixing and fastenings to be as specified using fixing and jointing methods and types, sizes, quantities and spacing of fastenings which are suitable having regard to:

- Do not modify, cut, notch or make holes in structural members except as shown on any applicable drawings or as approved.
- All welding/fabrication of components shall be complete prior to galvanising.
- Do not site wild connections. Bolted site connections only will be accepted.
- Damaged sections of galvanising and exposed bare metal shall be liberally painted with proprietary cold galvanising paint.

Nature of and compatibility with product/material being fixed and fixed to.
 Recommendations of manufacturers of fastenings and manufacturers of components, products or materials being fixed and fixed to.
 Materials and loads to be supported.
 Conditions expected in use.

Completion

029 Upon completion of the installation works, the Service Provider is to provide the Client’s Representative with the manufacturer’s maintenance instructions and technical data sheets, guarantees, warranties, test certificates, record schedules and log books.

030 Remove all temporary protective coverings and carry out any cleaning and post installation maintenance in accordance with the manufacturer’s technical data sheets.

Client’s current manufacturers/suppliers/products

031 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

PLASTERWORK AND OTHER FLOOR, WALL AND CEILING FINISHES

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PLASTERWORK AND OTHER FLOOR, WALL AND CEILING FINISHES

MATERIALS

Cement

- 001 Use either normal setting ordinary or rapid hardening or sulphate resisting Portland cement or blast furnace cement. All cement must comply with BS EN 197-1 and be manufactured by a firm with their capability assessed and registered with BSI or other quality certification body acceptable to the Client’s Representative.

Lime

- 002 Use Class B hydrated lime, to BS EN 998-1 and BS EN 998-2.

Sand

- 003 Sand for mortar is to be to BSEN 13139 0/2 FP or MP Category 3 unless specified otherwise. Sand for facework mortar is to be from one source, different loads to be mixed if necessary to ensure consistency of colour and texture’.

Sand and aggregate Material Property Limits	BS EN 13139 Category for other aggregates and Sand	BS EN 13139 Category for Air cooled blast furnace slag
Acid soluble sulphate content	AS0.2	AS 1.0
Total sulphur	≤ 1% by mass	≤ 2% by mass
Water soluble content	≤ 1% by mass	≤ 1% by mass
Loss on ignition	PFA ONLY ≤ 7% by mass	≤ 3% by mass

Where mixes contain lime, the lime:sand mortar shall be obtained premixed from a competent mortar manufacturer to the satisfaction of the Client’s Representative. Ordinary Portland cement is added on site by volume in accordance with the mix specification.

Coloured mortar, where required, to be made using a proprietary coloured ready-mixed lime:sand to BS EN 998-1 and BS EN 998-2; colour as shown on drawings.

Building paper

- 004 Building paper is to be water resistant breather type. Starting from the bottom, fix with clout nails or staples in horizontal lengths, with 100mm laps.

Membranes

- 005 WORKMANSHIP GENERALLY:
Apply Materials carefully to provide a completely waterproof, continuous membrane. Laps to be not less than 300mm. Ensure that surfaces to be covered are clean, dry, smooth and free from voids, sharp protrusions and frost. Protect finished sheeting adequately to prevent puncturing during following work. Cover sheeting with permanent overlying construction as soon as possible. Immediately prior to covering, check for damage and repair as necessary. Where services pass through sheeting, make junctions completely watertight by forming collars to pipes. Identify position of adjoining damp proof courses and expose to view where concealed. Thoroughly clean away all mortar, debris and dirt from vicinity of DPCs, including any projecting portions of DPCs. DPCs which project from the wall: Lap by 200mm with sheeting and fully bond/seal to projecting DPC.
- 006 POLYTHENE DPM:
Type: PIFA - Standard 6/83A:1995. Min.300 micrometres / 1200 gauge. Lay sheets neatly and tuck well into angles to prevent bridging. If sheets cannot be kept dry, double welted joints may be used provided they are temporarily weighted to hold the folds in position prior to laying concrete or insulation. Form folded welts at corners in upstands.

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- 007 RADON GAS IMPERMEABLE MEMBRANE BARRIER SHEETING SYSTEM (300µm):
- Primary protection for use in Zone 1 at ground level with ground supported and suspended concrete floors;
 - Performance:
 - Radon Permeability 12x10⁻¹²m²/s: Laboratory Test;
 - Low temperature flexibility to BS EN 495-5:2001 – No cracking at -25° Centigrade;.
 - Products:
 - Low Density Polyethylene (LDPE) sheet, minimum 300 micrometres (1200 gauge);
 - Tensile strength to BS EN ISO 527-3 and BS 2782 Method 326E: 1995.
 - Minimum 13N/mm²;
 - Elongation to BS EN ISO 527-2;
 - Minimum 450%.;
 - Tear Resistance to BS 2782-3: Method 360C;
 - Minimum 100N;
 - Accessories:
 - 5mm polypropylene geotextile protection layer for gas membrane barrier;
 - 30mm double sided butyl tape self-adhesive bonding strip sealant for compression joints; to be non-hardening permanently flexible and durable;.
 - 110, 120 or 130mm nominal diameter take external dimension of pipe preformed Top Hat pipe collars section (for service pipes);
 - 110 -140mm diameter adjustable stainless steel clip;
 - Preparation:
 - Barriers shall be stored rolled up in a dry area until they are to be used; keep away from sharp objects and chemical solvents;
 - Store rolls on their sides under cover until needed;
 - To offer protection against granular fill or rough surfaces of pre-cast concrete units; lay down geotextile protection layer;
 - Installation in accordance with manufacturer's technical data sheet.
- 008 RADON GAS IMPERMEABLE MEMBRANE BARRIER SHEETING SYSTEM (300µm):
- Primary protection for use in Zone 2 at ground level with ground supported and suspended concrete floors;
 - Performance:
 - Radon Permeability 12x10⁻¹²m²/s: Laboratory Test;
 - Low temperature flexibility to BS EN 495-5:2001 – No cracking at -25° Centigrade;
 - Form an airtight, durably sealed, barrier across the whole of the building; including the floor, internal walls and both external and party walls - along with the associated cavities.
 - Carefully install and seal sections of the barrier; ensure airtight sealing at all joints, laps, service entries and cavity trays.
 - Products:
 - Low Density Polyethylene (LDPE) sheet, minimum 300 micrometres (1200 gauge);
 - Tensile strength to BS EN ISO 527-3 and BS 2782 Method 326E: 1995.
 - Minimum 13N/mm²;
 - Elongation to BS EN ISO 527-2;
 - Minimum 450%.;
 - Tear Resistance to BS 2782-3: Method 360C;
 - Minimum 100N;
 - Accessories:
 - 5mm polypropylene geotextile protection layer for gas membrane barrier;
 - 30mm double sided butyl tape self-adhesive bonding strip sealant for compression joints; to be non-hardening permanently flexible and durable;.
 - 110, 120 or 130mm nominal diameter take external dimension of pipe preformed Top Hat pipe collars section (for service pipes);
 - 110 -140mm diameter adjustable stainless steel clip;
 - Preparation:
 - Barriers shall be stored rolled up in a dry area until they are to be used; keep away from sharp objects and chemical solvents;
 - Store rolls on their sides under cover until needed;

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

- To offer protection against granular fill or rough surfaces of pre-cast concrete units; lay down geotextile protection layer;
- Installation in accordance with manufacturer's technical data sheet.

009 INSTALLATION OF RADON GAS IMPERMEABLE MEMBRANE:

- Form an airtight, durably sealed, barrier across the whole of the building; including the floor, internal walls and both external and party walls - along with the associated cavities;
- Carefully install and seal sections of the barrier; ensure airtight sealing at all joints, laps, service entries and cavity trays.

Application and arrangement:

- Remove loose debris from the surface of the concrete slab. The surface of the slab should be smooth and free from projections or indentations.
- Cover entire site with main membrane barrier to be loose-laid directly onto a protection layer (as recommended by manufacturer) on concrete slab; allow for 150mm over lapping joints between sheets; lay main membrane barrier neatly, tuck well into angles to prevent bridging and creasing.
- Repair or replace any damaged areas.
- Take care to ensure all joints have a clean, dry and dust-free overlap.
- Carry edges of membrane under DPC of external walls. Avoid slip panes as per PD 6697:2010.
- Provide 600mm wide membrane strip under internal walls; allow for 150mm overlapping joints with the main membrane barrier.
- In the case of an extension to an existing dwelling, cut a chase in the existing wall and tuck in the membrane. If there is a radon membrane in the existing floor, make the cut slightly above or below.
- For service pipe penetrations through the main membrane barrier, cut a hole in the barrier so that it fits neatly around the penetration and install preformed "Top Hat" pipe collars membrane sections ensuring 150mm overlap with main membrane barrier.
- Ensure a secure gas-tight seal connection at membrane barrier overlaps using one strip of double-sided tape; 2 No. strips to be used to seal "Top Hat" pipe collar sections - firstly tape butt joint main membrane barrier to service pipe and secondly, membrane barrier to "Top Hat" Section.
- Install and tighten adjustable stainless steel clip around top of "Top Hat" pipe collars to ensure a gas tight seal is maintained around service penetrations.
- Ensure that the barrier is not punctured as building work continues; any damage must be repaired before laying the floor slab; cover the barrier with the permanent over lapping construction as soon as possible.

Slip Resistance

- 010 The Pendulum Test Value (PTV) should be 36+ (CoF) or above when tested, wet or dry as appropriate for the anticipated service conditions including any likely surface contamination by the method described in BS 7976-1-2 and 3 as required by BS 8204-6.

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- 011 For plaster, use Gypsum building plasters or 'Pre-mixed Lightweight Plaster', plaster to BS EN 13279-1(see below) to a minimum thickness of 8mm, Finish Plaster to BS EN13279; minimum thickness of 2mm to bonding plaster, minimum thickness of 3mm when applied to plasterboard.

Types of gypsum binders and gypsum plasters	
Designation	Notation
Gypsum Binders e.g.: <ul style="list-style-type: none"> • gypsum binders for direct use or further processing (dry powder products); • gypsum binders for direct use on site • gypsum binders for further processing (e.g. for gypsum blocks, gypsum plasterboards, gypsum elements for suspended ceilings, gypsum boards with fibrous reinforcement) 	A A1 A2 A3
Gypsum plaster: <ul style="list-style-type: none"> • gypsum building plaster; • gypsum based building plaster; • gypsum-lime building plaster; • lightweight gypsum building plaster; • lightweight gypsum based building plaster; • lightweight gypsum –lime building plaster; • gypsum plaster for plasterwork with enhanced surface hardness. 	B B1 B2 B3 B4 B5 B6 B7
Gypsum plaster for special purposes: <ul style="list-style-type: none"> • gypsum plaster for fibrous plasterwork; • gypsum mortar; • acoustic plaster; • thermal insulation plaster; • fire protection plaster; • thin coat plaster, finishing product; • finishing product. 	C C1 C2 C3 C4 C5 C6 C7

Bonding agent

- 012 Where bonding agents are permitted, use an opaque white non-toxic externally plasticised PVA of high viscosity manufactured to BS 5720-1 solution to sound surfaces, with a 1:3 solution to be applied to soffits.

Metal lathing, beads and stops

- 013 Ensure steel lathing is of the plain expanded type having a minimum weight of 1.6Kg/m2.
- 014 Ensure beads and stops are of an appropriate profile and:
- for internal use are galvanised; and
 - for external use are manufactured from stainless steel or PVC-u to BS 13658-1.

Plasterboard

- 015 Plasterboard is to be to BS EN 520; core density of 6kg/m2 for 12.5mm board. Product selection to be restricted to materials with a minimum 75% recycled content.
- 016 Dry lining is to be to BS EN 520, core density of 10kg/m2 for a 12.5mm board; taper edged.

Wall tiling

- 017 Plain cushion edge white or coloured glazed ceramic tiles to BS EN 14411 and BS 5385-1 size 6mm minimum thickness. Waterproof adhesives for ceramic tiles to be to BS ISO 13007-1. Waterproof grout to BS ISO 13007-3. Wall tiling for repairs is to match existing for repairs to existing tiled surfaces.

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Sealant

018 Sealants are to be:

- gun grade white silicone mould resistant sealant to BS EN ISO 11600 low modulus; or
- gun grade white silicone sealant to BS EN ISO 11600 low modulus; or
- fire retardant sealant to BS 476-22

Textured decorative finish

019 Use a plastic compound textured decorative finish. Apply it to provide a finish to match the existing finish. Apply to no less than the minimum thickness stated in the manufacturer's technical data sheet.

Steel lathing beads and stops

020 Lathing to Timber or Masonry to be either:

- Zinc coated lathing to BS EN 13658-1 or BS EN 13658-2 zinc coated Reference L3 fixed with staples at 150mm centres; or
- Stainless steel lathing to BS EN 13658-1 or BS EN 13658-2 stainless steel Reference SWL fixed with stainless steel staples at 150mm centres.

021 Lathing to External Wall Insulation to be either:

- Stainless steel lathing to BS EN 13658-1 or BS EN 13658-2 stainless steel Reference HWL fixed with stainless steel staples and ties at 150mm centres; or
- Glass or Carbon reinforced lathing, with fibres encapsulated against alkali attack, strength and stiffness greater than that for stainless steel, fixed with stainless steel staples and ties at 150mm centres

022 Stretch lathing and fix securely in accordance with manufacturer's technical data sheet to give a taut firm base for plaster/rendering, fix with the long way of the mesh at right angles to supports and with all strands sloping in the same direction, Lap side edges not less than 100mm. Lap ends 50mm at supports and 100mm between supports. Laps must not occur within 100mm of angles or bends. Tie all edges and ends together with 1.2mm wire ties at not more than 150mm centres. Ensure all joints have a 100mm lap and are wired at centres not exceeding 75mm.

023 Angle beads are to be either:

- PVC-u angle bead with 25mm x 25mm lugs to take 2mm plaster to BS 13658-1; or
- PVC-u angle bead with 40mm x 40mm lugs, depth to suit external render;

Bellcast beads are to be PVC-u with 25mm x 45mm lugs.

Stop beads are to be PVC-u edge bead 25mm wide.

Fix beads and stops with galvanised steel or stainless steel nails or mortar or render dabs on accordance with the manufacturer's technical data sheet.

Plasterboard, Dry Lining and Thermal Boards

024 Fix plasterboard to soffits or studding with 32mm x 12 swg galvanised clout headed nails for 10mm boards and 38mm x 12 swg galvanised clout headed nails for 12.5mm boards at intervals suitable for the particular application. Provide all supporting members as necessary for fixing the plasterboard. Do not use cross joints in boards. Seal all exposed and cut edges with PVAC sealer.

025 Horizontal joints will not be permitted on dry lining unless the wall height exceeds the maximum manufactured board dimension. All joints are to be taped and finished to a flush seamless finish. Jointing material is to be to BS EN 13963. Seal all exposed and cut edges with PVAC sealer.

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- 026 Ensure flush joints between plasterboards and at the junction between walls and soffits with straight edged and level finish plaster. Cover them with 90mm wide jute scrim cloth bedded in neat board finish. Apply a coat of neat d finish plaster at least 5mm thick immediately after the joint application has set but before it dries out.
- 027 Fix dry lining to metal framing with drill point ("jack point") drywall screws at 300mm centres to vertical studs, around openings and at board edges.
- 028 Ensure that backing walls are dry and direct bond dry lining with a gypsum based adhesive, seal perimeter and around openings with gypsum adhesive.
- 029 Ensure the plaster finish to thermal board consists of two coats of premixed lightweight plaster total thickness of plaster system of at least 13mm as follows:
- the first coat being scratch coat of bonding plaster; followed by
 - a coat of appropriate finish plaster trowelled to a smooth finish.

Plaster on concrete soffits

- 030 Ensure the plaster finish to concrete soffits consists of two coats of premixed lightweight plaster, to a total thickness of plaster system of at least 10mm as follows:
- the first coat being a bonding scratch coat; followed by
 - a finishing coat trowelled to a smooth finish.

Plaster on solid vertical backgrounds

- 031 Ensure the plaster finish to solid vertical backgrounds consists of two coats of lightweight premixed plaster to a total thickness of plaster system of at least 13mm as follows:
- the first coat being:
 - on low suction backgrounds, a bonding plaster scratch coat containing exfoliated vermiculite; or
 - on normal suction backgrounds, a scratch coat of HB brown plaster containing expanded perlite aggregate; and
 - the second coat being finish plaster containing exfoliated vermiculite aggregate trowelled to a smooth finish.

Dissimilar Solid Backgrounds for Plaster:

- 032 Where plaster is to be continued without break across joints between dissimilar solid backgrounds which are rigidly bonded or tied together, cover the joints with a 200 mm wide galvanized mesh strip (backgrounds in the same plane) or with galvanized corner mesh (internal angles) fixed at not more than 600 mm centres along both edges, unless specified otherwise.

Dissimilar Solid Backgrounds for Plaster (Lintels):

- 033 Where plaster is to be continued without break and without change of plane across the face of a lintel which is not wider than 300 mm and is rigidly bonded or tied to the plaster background:
- Cover the face of the lintel with building paper to BS 1521 extending 25 mm on to the adjacent background.
 - Overlay with expanded galvanized steel lathing extending 50 mm beyond the edges of the
 - paper and securely fix with masonry nails at not less than 100 mm centres along both edges.

Alternatively, a suitable paper and mesh lathing may be used.

Dissimilar Solid Backgrounds For Rendering:

- 034 Where rendering is to be continued without break across joints between dissimilar solid backgrounds which are in the same plane and rigidly bonded or tied together, cover joints with a 150 mm wide strip of building paper to BS 1521 overlaid with 300 mm wide stainless steel lathing fixed at not more than 600 mm centres along both edges, unless specified otherwise.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Conduits:

- 035 Conduits bedded in undercoat to be covered with 90 mm wide jute scrim bedded in finishing coat mix, pressed flat and trowelled in. Do not lap ends of scrim.

Cement beds, backings and renderings generally

- 036 Unless the Client's Representative Instructs otherwise, ensure all beds, backings and renderings are composed of one part Portland Cement to three parts sand, by volume. Keep the water content as low as possible and ensure it does not exceed 18 litres per 50 Kg of cement (including the moisture content in the sand).
- 037 Brush sub-bases and backgrounds free of all dust. Well wet them and coat them with cement slurry before applying the screeds. Alternatively, use 1:10 EVA bonding adhesive instead of cement slurry.
- 038 Where the beds, backings or renderings are specified as waterproof, incorporate waterproofer to BS EN1199 in the mix.
- 039 Expansion joints should be placed to form bays not exceeding 3.50m x 3.50m. Finish off the surfaces of beds and backings to receive the appropriate tiling, paving or other finishing.
- 040 External rendering is to be to BS EN 13914-1. Ensure external renderings have a surface finish to match the existing renderings.

Granolithic finish

- 041 Ensure granolithic finish is composed of 1 part cement to 1 part fine aggregate to 2 parts coarse aggregate 10mm maximum size, all measured by weight. Add the minimum amount of water necessary to give sufficient workability for laying and compacting. All granolithic repairs are to match existing.
- 042 Thoroughly scabble, clean, wet and treat the base for granolithic application either by brushing on a neat cement grout or an EVA emulsion bonding agent. Lay the granolithic finishing in bays not exceeding 15m² with the bay proportions being such that the ratio of sides will not exceed 1:1 1/2.
- 043 Ensure the minimum thickness is 19mm to a sound loadbearing concrete base. To prevent dusting, avoid excessive trowelling. Carry out curing for at least 4 days or, if the Client's Representative so Instructs, for longer.
- 044 Ensure the deviation from the level is no more than +/- 3mm in 3m.
- 045 Steel trowel the granolithic to produce a close knit surface and either tool it by stud rolling or sprinkle it with non slip grains to produce an anti-slip finish as Instructed by the Client's Representative.

Wall tiling

- 046 Fix tiles to the backing with straight joints on a combed bed of waterproof adhesive. Ensure all exposed edges of tiles are round edged. Either round edge or mitre the external angles, at the Service Provider's discretion. Form exposed stop end corners using double bullnose tiles.
- 047 Fill the joints between tiles solid with waterproof grout. Tool off the joints and clear off all residual adhesive and grout from the tiles and surrounding surfaces on completion of the Works.

Quarry and Ceramic floor tiling

- 048 Lay tiles either on a bed of cement and sand (1:3) or on a cementitious adhesive bed to BS ISO 13007 3-6mm thick, which makes full contact with the tile and background.

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Suitability of Backgrounds/Bases:

- 049 Before starting work ensure that backgrounds/bases:
- Are sufficiently flat to permit specified flatness of finished surfaces, bearing in mind the permissible minimum and maximum thicknesses of the bedding material.
 - Have been allowed to dry out by exposure to the air for not less than the following:
 - Concrete slabs: 6 weeks.
 - Cement:sand screeds: 4 weeks.
 - Rendering: 2 weeks.
 - Gypsum plaster: 4 weeks.

Plain Coloured Skirting To Existing Painted Plaster:

- 050 Tiles: Plain coloured unglazed ceramic skirting tiles, minimum rounded top edge, covered bottom to BS EN 14411 and BS 5385-3, Size: 8mm minimum. Joint width: 3mm.
- Background/Base: Existing painted plaster.
 - Grouting material: Waterproof grout.

Setting Out:

- 051 Ensure that:
- Joints to be true to line, continuous and without steps.
 - Joints on walls to be truly horizontal, vertical and in alignment round corners.
 - Joints in floors to be parallel to the main axis of the space or specified features.
 - Cut tiles/slabs to be kept to the minimum, as large as possible and in unobtrusive locations.
 - Before laying tiles obtain confirmation of setting out to satisfaction of the Client's Representative.

Flatness of Wall Tiling:

- 052 Sudden irregularities not permitted. When measured with a slip gauge to BS EN 14411 and BS 5385-1, the variation in gap under a 2 m straight edge placed anywhere on the surface to be not more than 3 mm.

Flatness of Floor Tiling:

- 053 Sudden irregularities not permitted. When measured with a slip gauge to BS EN 14411 and BS 5385-3, the variation in gap under a straight edge (with feet) placed anywhere on the surface to be not more than 3mm over a 2m straight edge.

Vinyl and thermoplastic tiles

- 054 Unless the Client's Representative Instructs otherwise, lay tiles in accordance with BS 8203 with straight joints on a combed bed of adhesive to a standard and quality approved by the Client's Representative. Match the size, colour and pattern of the tiles as nearly as possible to any existing surrounding tiles.

Vinyl and other Resilient Sheet Floor Coverings

- 055 Unless the Client's Representative Instructs otherwise, vinyl and other resilient sheet floorings are to be of a standard and quality in accordance with BS EN 10582, and laid in accordance with BS 8203.

All non slip floor coverings to be 2mm thick anti slip vinyl sheet floor coverings to BS EN 13845 and BS EN 13553 and to have a Pendulum test value (PTV or slip resistance value) (36+ (CoF) or above) as tested to BS 7976-1,-2 and -3 and a Surface roughness (Rz) (20+µm (microns) or above) to BS 1134. Floor covering to be complete with aluminium threshold strips at doors

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Textured decorative finish

056 Fill joints in plasterboard to receive decorative textured finish with plastic filler. Cover them, while wet, with wet strength paper scrim or while wet or dry, with glass fibre membrane scrim tape. Allow this to dry before applying the finishing coat. Apply the finishing coat evenly. Tool or brush this to match the existing surrounding finishes or as the Client’s Representative Instructs otherwise.

Labour and sundry items

- 057 Cut and fit and/or make good all wall and floor finishings around any kind of obstruction or projection of a permanent nature from the wall background or floor base including any:
- structural elements;
 - pipework, ducting and their brackets and supports;
 - fittings and appliances in connection with the electrical, water, gas heating, air conditioning, communication and waste disposal systems; and/or
 - fittings and any permanent object in connection with any permanent parts of the Property.
- 058 Unless the Client’s Representative Instructs otherwise, maintain plasterwork, renderings, backings, asphalt and any applied finishes in the same plane as any existing surrounding similar applications. Make a fair joint between the new application and any existing surrounding application.

Client’s current manufacturers/suppliers/products

059 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

PAINTING AND DECORATING

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

PAINTING AND DECORATING

GENERAL

Benchmark Standard

- 001 Prior to the commencement of painting, the Client's Representative, the Service Provider and the Paint and Decorative Materials Manufacturer will meet on site to identify a number of Properties which are agreed as being representative in condition and substrate types of the Properties that exist throughout the relevant estate or programme of Works. The Client's Representative shall have the final decision on the Properties identified as the benchmark Properties.
- 002 The selected Properties will be known as the "benchmark Properties" against which decorating materials performance will be measured during the course of the Contract and the agreed addresses will be recorded.
- 003 Prior to commencement of re-decoration to the remainder of the estate or programme of Works, the benchmark Properties will be prepared and redecorated strictly in accordance with the contract/technical decorating specifications and monitored by the Client's Representative.
- 004 Upon completion of the benchmark Properties, the Client's Representative, Service Provider and Paint and Decorative Materials Manufacturer will meet again to "sign off" the Properties provided the required standards of workmanship and materials have been achieved. The signing off should be in conjunction with the Client's Decorative Materials Performance Record – Benchmark Properties Form.
- 005 The Service Provider shall further ensure that the standards of preparation and decoration on the benchmark Properties are applied to the remaining Properties within the estate or programme of Works.

The Service Provider

- 006 The Service Provider shall be responsible for ensuring that the selected Paint and Decorative Materials Manufacturer is consulted prior to the commencement of any painting and decorating Works.
- 007 The Service Provider shall be responsible for ensuring that all Staff engaged to carry out the painting and decorating are suitably trained to achieve the quality standards and levels of service indicated in this Specification and individual Property, estate or programme of Works requirements.
- 008 The Service Provider shall be responsible for the quality standards and levels of service achieved both in surface preparation and decorative materials application by those members of Staff engaged for this purpose. The Service Provider will also ensure that a suitably qualified Supervisor is appointed to control work sequencing, quality standards and to ensure that Customers property is left clean and tidy at the end of each working day.
- 009 The Service Provider shall be responsible for adhering wholly to the "Technical Painting and Decorating Specification" prepared and supplied by the Paint and Decorative Materials Manufacturer, and using the specified paint and other decorative materials so that the application to various surfaces, preparation, initial and final coats achieve the optimum performance as stated. The Service Provider must use the paint and other decorative materials stated in the "Technical Painting and Decorating Specification" specific to the project Property, estate or programme of Works.
- 010 The Service Provider shall provide a minimum of one week's notice to all Customers prior to preparation or painting and decorating Works being carried out on their Property.
- 011 The Service Provider shall ensure that the standards of preparation and painting and decorating application to the Benchmark Properties is compliant with the Technical Painting and Decorating Specification" provided and subsequently "signed off" by the authorised representative of the Paint and Decorative Materials Manufacturer and the Client's Representative.

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- 012 The Service Provider shall ensure the remaining Properties on the estate or programme of Works achieve equitable painting and decorating standards in terms of quality and performance as the previously agreed Benchmark Property.
- 013 The Service Provider shall show evidence of having a responsible waste management system, i.e. that paint and decorative materials tins and containers are re-cycled and not disposed of to landfill sites.

Paint and Decorative Materials Manufacturer

- 014 The Paint and Decorative Materials Manufacturer is the party indirectly employed by the Service Provider or their approved Subcontractors to supply paint and other decorative Materials, training and technical support.
- 015 The Paint and Decorative Materials Manufacturer shall liaise with the Client's Representative and the Service Provider to identify and agree the Benchmark Properties for the estate or programme of Work.
- 016 The Paint and Decorative Materials Manufacturer shall ensure that all of the products supplied for the Contract, are in full compliance with this Specification.
- 017 The Paint and Decorative Materials Manufacturer shall provide for each Property, estate or programme of Work (if required) any necessary on-site training in the use of their products and retain a record of the training undertaken and who received that training.
- 018 The Paint and Decorative Materials Manufacturer shall inspect and survey each Property, estate or programme of Work and prepare the applicable "Technical Painting and Decorating Specification" recommending the preparation, applications and paint and other decorative Material products applicable to the Works identified as being required to be undertaken, which if undertaken correctly would enforce any guarantees given by the Paint and Decorative Materials Manufacturer as to the expected life and performance of the paint and decorative Material products used.
- 019 The Paint and Decorative Materials Manufacturer shall liaise fully with the Client's Representative, the Service Provider and if applicable any approved painting Subcontractors to provide an effective site monitoring of standards and advisory service which ensures best practice in the use of their products. The Paint and Decorative Materials Manufacturer shall complete the Client's Quality Monitor Form on a bi-weekly basis.
- 020 In addition the Paint and Decorative Materials Manufacturer shall be responsible for providing a written report in an electronic format to the Client's Representative following each inspection.
- 021 The Paint and Decorative Materials Manufacturer is required on the completion of every Property to collate a comprehensive Property, estate or Programme of Work specific technical report in an electronic format and submit to the Client's Representative. The technical report must provide clear evidence of the following:
- a comprehensive Technical specification that identifies all of the products used (trade names permitted) with their associated warranties and where applied;
 - Site Monitoring Reports – details of any site visits, any findings identified and what action(s) were taken/requested in terms of remedial works;
 - Where communal hallways have been repainted – full details of flake sampling, independent analysis and what recommendations were followed on site, details of tag(s) affixed should also be recorded including photographic record of location(s);
 - Record of training where specifically requested by the Service Provider of a paint or decorative Material product or products;
 - Confirmation that all paint and other decorative Material products and their quantities as supplied are held by the Paint and Decorative Materials Manufacturer on his internal IT system for future reference; and
 - Fire certification certificates as applicable on the application of fire retardant paints and the achievement of Class "0" surface spread of flame.

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Redecorate/touch up/make good

022 Note that “redecorate/touch up” or “make good decoration” includes preparation, priming, one undercoat and either one gloss coat to previously painted surfaces or reinstating any stain or clear finish for previously stained or clear finish surfaces.

MATERIALS

Generally

023 The products supplied must be applied in accordance with the relevant product Technical Data Sheet. In addition, all products should be used in accordance with BS 6150 Code of Practice for Painting Buildings and BS 8000 Part 12 Workmanship on Building Sites as set out in the table below. When applying coatings, in order to ensure optimum protection and durability, it is essential to achieve the required coverage rate, particularly when using medium/high build finishes,

AREA	LONGEVITY	BASE	RE-COAT Within	COVERAGE
Previously painted woodwork	Up to 8 Years	Solvent or Water Based	8-16 Hours	18m ² /litre
Previously stained woodwork	Up to 10 Years	Solvent or Water Based	16 Hours	20m ² /litre
Previously painted landscape timber (i.e. fencing etc.,)	Up to 8 Years	Solvent or Water Based	16 Hours	12m ² /litre
Previously painted masonry walls	Up to 15 Years	Solvent or Water Based	1 -2 Hours	14 -16m ² /litre
Previously painted masonry walls	Up to 15 Years	Solvent/Oil Based	12 Hours	8m ² /litre
Previously painted masonry walls	Up to 15 Years	Water Based	2 – 4 Hours	12 – 14m ² /litre
Previously painted metalwork	Up to 8 Years	Solvent or Water Based	4 – 8 Hours	15m ² /litre

AREA OF WORK	CERTIFICATION
All paint generally	BBA Accreditation or equivalent
Health and Safety	Current COSHH Regulations as amended
Painting Buildings	BS 6150 – Code of Practice
Workmanship on Building sites	BS 8000 – Code of Practice
Paints and varnishes	BS EN ISO 12944
Protective coating of iron and steel structures against corrosion	BS EN ISO 12944

024 The products supplied must ensure that failure free repaint and redecoration cycles of 15 years for masonry substrate and 8 years for all other substrate as a minimum will be achieved. The onus is on the Paint and Decorative Materials Manufacturer of any product to “demonstrate compliance”, whilst it is the Service Provider’s duty to ensure “premium products” are provided in all cases to reflect the established warranties.

025 Obtain undercoats and finishing coats for an individual surface from the same manufacturer.

026 Ensure paints are delivered to the Property in sealed containers as received from the manufacturer and no labels are removed or painted out. Use the paint without adulteration.

027 Under no circumstances thin paint supplied by the manufacturer unless approved by the Client. When such approval has been granted, carry out thinning with thinners of the type stated in the manufacturer’s technical data sheet.

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- 028 Execute painting in shades approved by the Client's Representative. Submit samples of tints before ordering Materials. Ensure each coat of paint matches the finished shade, and where tint types are required by the manufacturer's technical data sheet, they are used.
- 029 Provide samples of Materials to the Client's Representative for approval in sample tins filled 7/8 full after the contents of the container or kettle have been thoroughly stirred and mixed. Record all relevant details of the Materials sampled.
- 030 Immediately remove any unsatisfactory Materials from the Property and make good any Works executed with such defective Materials.
- 031 Note that the Rates include for the use of varied colours in the Works and for the execution of sample patches, as required by the Client's Representative.
- 032 Use water based paints where appropriate.

Knotting

- 033 Use a best quality shellac knotting compound, dissolved in methylated spirits. Cover all knots and resinous parts.

Stopping

- 034 Ensure stopping/filler for:
- plasterwork - is a plaster based filler applied to a PVA solution primed surface, or a proprietary filler suitable for plaster repairs;
 - internal woodwork, hardboard, fireboard and plywood - is a proprietary wood filler either suitably pre-coloured to match the base material or of a neutral colour and capable of being stained to match the required colour when stain is applied;
 - external woodwork – is a proprietary filler recommended for external use approved by the Client's Representative, (and tinted to match the colour of the stained/varnished finish where appropriate); and
 - clear finished woodwork - is tinted to match the surrounding woodwork.

Primer for alkaline surfaces

- 035 For alkaline surfaces use an alkali resistant sealer/primer and finish with a top coat of the type stated in the manufacturer's technical data sheet.

Primer for iron and steelwork

- 036 Prime iron and steelwork with a primer of the type stated in the manufacturer's technical data sheet for the subsequent finish coats.

Primer for galvanised iron and steelwork

- 037 Prime galvanised iron and steelwork with a primer that is compatible with the subsequent finish coats. Pretreat new galvanised surfaces with a mordant solution before priming.

Primer for hardboard

- 038 Where hardboard is not factory primed or sealed, use a suitable primer of the type stated in the manufacturer's technical data sheet for the subsequent finish coats.

Primer for woodwork

- 039 For woodwork, use a finishing ready-mix primer obtained from the maker of the undercoat and finishing coats.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Primer for oily or resinous timbers

- 040 For British Columbia pine (Douglas fir) or other oily or resinous timber, use an aluminium based priming paint not darker than BS 4800, Colour 00A01 approved by the Client's Representative which is compatible with the subsequent coats of the type stated in the manufacturer's technical data sheet.

Primer for stains

- 041 For stain finishes, ensure surfaces are clean, rubbed down to an even finish and lightly keyed to every coat except the top coat.

Stabilising sealer

- 042 Use a type and make of stabilising sealer recommended by the manufacturer of the undercoat and finishing coat.

Chemical stripper

- 043 Ensure chemical paint stripper is water soluble.

Anti fungal solution

- 044 Ensure an anti-fungal solution is appropriate to the surface being treated and is used in accordance with The Control of Pesticides Regulations 1986 (amended 1997) and The Pesticides Act 1998.

PREPARATION OF SURFACES

Preparations

- 045 Thoroughly prepare all surfaces to a high standard of preparatory work. Note that "prepare" used in the Schedule of Rates includes all Works described below including washing down, rubbing down, filling in pin and plug holes, priming and painting extra coats, but excluding paint removal.
- 046 Report any necessary paint removal to the Client's Representative and agree the extent of this with the Client's Representative before starting this Work. Note that no payment will be made for paint removal unless this is done.
- 047 Apply a liberal brush coat of timber preservative conforming to Building Establishment Technical Note No. 24 (or European equivalent) to existing bare non-durable timber surfaces. Allow adequate time for this to dry before overcoating.
- 048 Rub down previously painted surfaces in good condition with abrasive paper. Fill cracks as described in Paragraph 034. Subject to Paragraph 046, remove existing paint in poor condition completely using a non-caustic paint remover.
- 049 Treat stains on the ceiling before decoration to prevent them bleeding through subsequent decorative coatings with a proprietary stain stop or blocker appropriate to the substrate and in keeping with the requirements of the finish to be applied.
- 050 Use tinted undercoats if the Client's Representative so Instructs.

Approval

- 051 Where specified, obtain the approval of the Client's Representative to the preparation of surfaces before applying any coating.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Stopping

- 052 Where stopping/filling is referred to in this Section, use the appropriate stopping as described in the Materials Section.

Burning off

- 053 Burn off and rub down to remove paint from wooden surfaces. Fill in cracks, knot, prime and stop woodwork so exposed all as described for new Work, rub down with fine abrasive paper and apply one additional undercoat before painting as specified. Burning off is not permitted indoors without the express written permission of the Client's Representative.

Plaster, render, concrete and brickwork

- 054 Remove plaster or mortar splashes from the decorated surfaces by scraping. Stop all holes, cracks, etc. Brush down the whole surface to remove dust and loose material. Remove all traces of mould oil by scrubbing with water and detergent and rinsing with clean water to remove all detergent.
- 055 Allow plaster surfaces to dry out completely before decorating, (i.e. < 10% moisture content).
- 056 Remove efflorescence first by wiping dry with a dry course cloth and then with a damp cloth. Leave the surfaces for 48 hours to see if efflorescence has ceased and clean the surfaces to remove dirt, dust, etc. Allow the surfaces to dry out thoroughly before painting is commenced. When efflorescence has occurred or is suspected, defer painting as Instructed by the Client's Representative. New plaster/render should be allowed to dry for a minimum of 28 calendar days before decorating.
- 057 Cut out loose and defective rendering and make good before redecoration. Stabilise existing surfaces to be redecorated with an stabilising agent of 1:10 PVA solution or 1:3PVA solution to soffits.

Plasterboard to receive direct redecoration

- 058 Finish the joints in plasterboard ceilings to receive textured decorative finishings as described in the 'Plasterwork and Other Floor, Wall and Ceiling Finishes' Section.

Iron and steel

- 059 Remove rust, mill scale, welding slag and flux residue from iron and steel surfaces by wire brushing, scraping, hammering, flame cleaning, etc.

Previously painted metalwork

- 060 Thoroughly clean down all paintwork which is in sound condition and rub down with abrasive paper. Remove small areas of defective paint and all rust and loose scale by chipping, scraping and wire brushing back to clean metal. Prime the metal so exposed immediately after preparation with one coat of primer and apply one additional undercoat before painting.
- 061 Remove large areas of defective paint by using a non-caustic stripper appropriate to the substrate and in accordance with the technical data sheet for the subsequent coats or by chipping, scraping and wire brushing back to clean metal. In all cases where rust is apparent, scrape the rusting section and a sufficient area around it clean of all paint and rust and coat it with a rust inhibiting primer approved by the Client's Representative in addition to the priming coat described.

Defective putties

- 062 Hack out defective, cracked or uneven putties to glazing, prepare and prime the rebates as required and make good the putties before any painting is carried out. Allow putties to form a hard skin before painting with an oil based paint or allow for no less than 14 calendar days drying time where water based paint/stain is to be applied.

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Hardboard

- 063 Remove dirt and grease from hardboard surfaces. Before priming ensure all nail holes and other imperfections are stopped/filled in.

Plywood

- 064 Fill as required with a plastic based filler before priming/staining. Prime surfaces of internal plywood before painting with one coat of primer, filled as required with a plastic based filler. Rub and dust down and apply a second coat of primer/stain.
- 065 Before final priming/staining ensure that all imperfections are stopped, rubbed down and brushed off. Prime/stain surfaces of external plywood before painting with one coat of primer/stain. Where stain is to be applied use a stainable filler, or a filler pre-coloured to match the stain finish. Rub and dust down and apply a second coat of primer/stain.

Woodwork to be painted

- 066 Before fixing woodwork, rub down surfaces that will be visible after fixing. Scorch back excess resin from live knots and resin pockets. Coat all knots and resinous areas with fresh knotting. Prime all surfaces, ensure all nail holes and other imperfections are stopped/filled. Rub down the whole surface and brush off all dust before the undercoat is applied.

Previously painted woodwork

- 067 Wash down thoroughly with sugar soap or white spirit solution all paintwork which is in sound condition and allow to dry. Rub down to a smooth surface with an abrasive paper, achieving the final pre-paint finish with a fine grain abrasive paper to achieve a finish free from abrasive marks. Rinse well with clean water and allow to dry. Fill in cracks, etc., as described for new woodwork.
- 068 Remove small areas of cracked or defective paint by carefully scraping back to a firm edge. Knot, prime and stop woodwork so exposed as described for new work. Sand with fine abrasive paper and apply one additional undercoat before painting if required.
- 069 Apply a liberal coat of brush applied water repellent timber preservative conforming to the recommendations of BS 8417 to bare existing non-durable timber surfaces or surfaces with defective areas of paint film. Allow adequate time to dry before overcoating.
- 070 On existing coated timber, remove any degraded surface timber by sanding down to clean sound timber. Remove resinous exudations by heat using hot air gun. Apply 2 coats of knotting to affected areas and any exposed knots and allow to dry.
- 071 On existing coated timber, remove dirt, algae and dead fibre by means of high pressure power hosing, apply one coat fungicide and leave for 72 hours.

Woodwork to receive a clear finish

- 072 Stop/fill holes and other imperfections in surfaces that are to receive a clear finish. Rub down the whole surface and brush off all dust.
- 073 Prepare existing varnished surfaces in sound condition by cleaning down with a suitable detergent and thoroughly rinsing them. Lightly key sound existing finishes to an even finish over the entire surface ensuring that all existing finish sheen is removed.
- 074 Strip and revarnish existing varnished surfaces in unsound condition.

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Woodwork to receive stain finish

- 075 Prepare previously treated and untreated surfaces that are to receive a proprietary stain finish in accordance with the manufacturer's technical data sheet.

WORKMANSHIP

Paint

- 076 In order to eradicate any unauthorised addition of thinners or driers, or other adulteration of paint:
- give adequate supervision during the painting work to ensure that paint is not adulterated;
 - note that if cases of unauthorised or excessive thinning or other adulterations are discovered, the Client's Representative will usually exercise the power contained in this Contract to require the removal of the Staff members concerned;
 - ensure a notice is exhibited drawing the attention of Staff to the Client's requirement to use paint as supplied by the manufacturer and the consequences of a breach of this requirement; and
 - note that similar requirements will apply to Subcontractors.

Stirring of Materials

- 077 Thoroughly stir the contents of all cans and containers of Materials before and during use. Suitably strain them as and when necessary.

Application

- 078 Apply coatings by brush or roller. Use sprays only with the prior approval of the Client's Representative. Where spray application is approved it shall be applied as directed by the manufacturer, including thinning with thinners of a type and to a ratio that complies with the manufacturer's technical data sheet.

Priming of glazing beads

- 079 Prime/stain glazing beads, rebates and the backs of beads at the same time as priming/staining the window frames.

Condition of priming

- 080 If the priming/staining has in any way deteriorated or has been damaged by the time of the first coat, rub down and reprime/restain the affected portions, or the whole if necessary. Where required, touch up with the same primer/stain or equivalent all articles, such as the windows, that were primed by their manufacturers.

Coatings to be dry

- 081 Allow coatings to dry thoroughly for the time specified by the manufacturer before applying succeeding coats.

Painting windows/doors

- 082 Do not paint windows or doors in the closed position.

Rubbing down

- 083 Rub down and de-nib undercoats for paints and clear finishes to a smooth surface with abrasive paper. Remove all dust before the succeeding coat is applied.

Differing colours of undercoats

- 084 Ensure each succeeding coat of priming and undercoating paint is sufficiently different in colour to be readily distinguishable.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Unsuitable conditions

- 085 Do not apply coating:
- to surfaces affected by wet, damp, foggy or frosty weather or other unsuitable conditions;
 - to any damp surface; or
 - in temperatures below 5^o Centigrade.
 - when heat is likely to cause blistering or wrinkling.

Take all necessary precautions including restrictions on working hours, providing temporary protection and allowing extra drying time, to ensure that coatings are not adversely affected by climatic conditions before, during and after application.

Protection of wet surfaces

- 086 Take adequate care to protect surfaces whilst still wet, by the use of screens and 'wet paint' signs where necessary. Take responsibility for any damage which may be caused by or through wet paint.

Damage to adjoining surfaces

- 087 Take care not to damage or stain other Works when storing Materials, preparing surfaces, or applying paint or stains. Remove all such stains, making good the stained surface and touching up any paintwork disturbed.

Cleanliness

- 088 Keep surfaces clean and free from dust during the painting processes. Do not carry out painting in the vicinity of other operations which might cause dust. Provide a suitable movable receptacle into which all liquids (including slop washings) are placed. Ensure this is not tipped down any of the gullies, manholes, sinks, basins, water closets or any other sanitary fittings. Remove all solid refuse or inflammable residues from the Property.

Removal of ironmongery

- 089 Remove surface fixed ironmongery, fittings and door/window furniture (except hinges) before painting and refix them on completion.

Radiators

- 090 Take down radiators to allow the proper decoration of the surfaces behind. Refit the radiators and refill the systems including inhibitor and balance if required.

Protection of furniture

- 091 Protect all furniture and fittings, use dust sheets and remove items such as curtains before commencing the Works. Rehang or reinstate on completion of the Works.

Protection:

- 092 Adequately protect both internal and external surfaces which are not to be coated, by covering with dust sheets or other suitable materials. Exhibit 'Wet paint' signs and provide barriers where necessary to prevent damage to freshly applied coatings.

Concealed Joinery Surfaces:

- 093 Where one or more additional coats are specified to be applied in the factory, they must be applied to all surfaces, including those which will be concealed when incorporated into the Property.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Painting Existing Concrete:

- 094 Preparation: - Remove surface salts and other loose material with stiff brush. Leave for 48 hours and repeat process if necessary. Apply one coat of fungicide solution and leave for 72 hours, apply one coat proprietary sealer/primer, carefully remove all loose or defective areas of coating to a firm edge. Thoroughly clean by wiping down with white spirit or washing with water containing detergent. Remove heavy deposits of oil, grease, etc. with a suitable proprietary cleaning solution, sand down surfaces while still wet to provide a key, rinse off and allow to dry, patch prime as specified. fill joints, cracks, holes and other depressions with filler worked well in and finished off flush with surface. Sand smooth and remove dust, apply additional coats to areas where paint has been removed to restore the original coating thickness (Bring forward). Sand down junctions to give a flush surface.

Apply initial coat of exterior quality water based masonry paint and one finishing coat of exterior quality water based masonry paint.

Painting New Concrete:

- 095 Preparation: - Remove surface salts and other loose material with stiff brush. Leave for 48 hours and repeat process if necessary. Apply one coat of fungicide solution and leave for 72 hours, apply one coat proprietary sealer/primer, apply one coat of exterior quality water based masonry paint thinned as necessary in accordance with the manufacturer's technical data sheet. Sand down junctions to give a flush surface.

Apply initial coat of exterior quality water based masonry paint and one finishing coat of exterior quality water based masonry paint.

Painting Existing Render:

- 096 Preparation: Take back to a firm edge all areas of poorly adhering or defective coatings. Remove all loose or powdery material by vigorously brushing down with suitable stiff brushes and dust off. Where appropriate on smooth surfaces, rub down sound areas to produce the necessary key for good adhesion and dust off. Cut out and make good all cracks, holes, open joints and other imperfections etc., with an approved proprietary filler, rub down smooth and dust off. Prime all sound bare areas exposed by the removal of coatings with one coat of exterior quality water based masonry paint, thinned as necessary in accordance with the manufacturer's technical data sheet. Apply stabilising primer to all areas. Bring forward all areas which during preparation were taken back to bare substrate or disfigured/exposed by the removal of the previous coating with one coat of exterior quality water based masonry paint of the selected shade.

Apply initial coat of exterior quality water based masonry paint and one finishing coat of exterior quality water based masonry paint.

Painting New Render:

- 097 Preparation: Thoroughly clean down to remove all surface contamination, mortar splashes, nibs etc. Allow to fully dry. Cut out and make good all cracks, holes, open joints and other imperfections etc., with an approved proprietary filler, rub down smooth and dust off. Apply one coat of exterior quality water based masonry paint, thinned as necessary in accordance with the manufacturer's technical data sheet. .

Apply initial coat of exterior quality water based masonry paint and one finishing coat of exterior quality water based masonry paint.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Painting Existing Concrete/Render with Anti-Graffiti Paint:

- 098 Preparation: Carefully remove all loose or defective areas of coating to a firm edge. Thoroughly clean by wiping down with white spirit or washing with water containing detergent. Remove heavy deposits of oil, grease, etc. with a suitable proprietary cleaning solution. - Sand down surfaces while still wet to provide a key. Rinse off and allow to dry, patch prime as specified, fill joints, cracks, holes and other depressions with filler worked well in and finished off flush with surface. Sand smooth and remove dust. Apply additional coats to areas where paint has been removed to restore the original coating thickness (Bring forward). Sand down junctions to give a flush surface.

Apply initial coat of two pack water based epoxy anti-graffiti paint and one finishing coat of two pack water based epoxy anti-graffiti paint.

Painting New Concrete/Render with Anti-Graffiti Paint:

- 099 Preparation: Remove surface salts and other loose material with stiff brush. Leave for 48 hours and repeat process if necessary. Apply one coat of fungicide solution and leave for 72 hours, fill joints, cracks, holes and other depressions with filler worked well in and finished off flush with surface. Sand smooth and remove dust. Apply one coat proprietary sealer/primer. Sand down junctions to give a flush surface.

Apply initial coat of two pack water based epoxy anti-graffiti paint and one finishing coat of two pack water based epoxy anti-graffiti paint.

Painting Existing Coated Brickwork/Blockwork:

- 100 Preparation: Carefully remove all loose or defective areas of coating to a firm edge. Thoroughly clean by wiping down with white spirit or washing with water containing detergent. Remove heavy deposits of oil, grease, etc. with a suitable proprietary cleaning solution. Sand down surfaces while still wet to provide a key. Rinse off and allow to dry, patch prime as specified. Fill joints, cracks, holes and other depressions with filler worked well in and finished off flush with surface. Sand smooth and remove dust. Apply additional coats to areas where paint has been removed to restore the original coating thickness (Bring forward). Sand down junctions to give a flush surface.

Apply one initial coat of exterior quality solvent based masonry paint, and one finishing coat of exterior quality solvent based masonry paint.

Painting New Brickwork/Blockwork:

- 101 Preparation: Carefully remove all loose mortar etc. Thoroughly clean by wiping down with white spirit or washing with water containing detergent. New brickwork/blockwork: Remove surface salts and other loose material with stiff brush. Leave for 48 hours and repeat process if necessary. Apply one coat of exterior quality solvent based masonry paint thinned as necessary in accordance with the manufacturer's technical data sheet. Sand down junctions to give a flush surface.

Apply one initial coat of exterior quality solvent based masonry paint, and one finishing coat of exterior quality solvent based masonry paint.

Painting Existing Plaster – Oil based Paint:

- 102 Preparation: Remove dirt and surface deposit with a stiff brush and rub down to remove nibs, trowel marks, plaster and paint splashes. Widen cracks sufficiently to receive proprietary filler. Brush cracks to remove any loose plaster and fill with proprietary filler and rub flush with surface. Apply one coat proprietary primer/sealer.

Apply one initial coat of oil based vapour barrier paint and one finishing coat of oil based vapour barrier paint.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Painting New Plaster – Oil based Paint:

- 103 Preparation: Lightly rub over-trowelled glossy plaster with worn abrasive paper. Fill all depressions, holes and cracks and lightly rub down flush with surface, apply one coat proprietary sealer/primer.

Apply one initial coat of oil based vapour barrier paint and one finishing coat of oil based vapour barrier paint.

Painting Existing Plaster – Emulsion Paint:

- 104 Preparation: - Remove dirt and surface deposits with a stiff brush. Widen cracks sufficiently to receive proprietary filler. Brush cracks to remove any loose plaster and fill with proprietary filler and rub flush with surface. Rub down to remove nibs, trowel marks and plaster and paint splashes, lightly rub over-trowelled glossy plaster with worn abrasive paper, fill all depressions, holes and cracks and lightly rub down flush with surface, apply one coat proprietary sealer/primer.

Apply two finishing coats of emulsion paint.

Painting New Plaster – Emulsion Paint:

- 105 Preparation: - Remove dirt and surface deposits with a stiff brush. Rub down to remove nibs, trowel marks and plaster splashes, lightly rub over-trowelled glossy plaster with worn abrasive paper, fill all depressions, holes and cracks and lightly rub down flush with surface, apply one coat proprietary sealer/primer, apply one coat of emulsion paint thinned as necessary in accordance with the manufacturer's technical data sheet.

Apply two finishing coats of emulsion paint.

Painting Existing Plaster – Eggshell Paint – Fire Retardant Paint

- 106 Preparation: Thoroughly clean down the surfaces to remove all dirt, grease and surface contaminants. Carefully scrape back to a firm edge all areas of poorly adhering or defective coatings. Powdery and friable surface coatings are to be completely removed by scraping, brushing and washing. Allow the surface to fully dry before proceeding. Where appropriate rub down sound areas to produce the necessary key for good adhesion and feather broken edges of existing coating. Dust off. Make good holes, cracks and other imperfections with an approved proprietary filler, rub down and dust off.

Initial coats: Prime all sound bare areas with one coat of eggshell paint thinned in accordance with the manufacturer's technical data sheet.

Apply two finishing coats of eggshell paint.

Painting New Plaster – Eggshell Paint – Fire Retardant Paint

- 107 Preparation: Remove dirt and surface deposits with a stiff brush. Rub down to remove nibs, trowel marks and plaster splashes, lightly rub over-trowelled glossy plaster with worn abrasive paper, fill all depressions, holes and cracks and lightly rub down flush with surface, apply one coat proprietary sealer/primer, apply one coat of eggshell paint thinned in accordance with the manufacturer's technical data sheet.

Apply two finishing coats of eggshell paint.

Painting Existing Plaster – Vinyl Matt Paint

- 108 Preparation: Thoroughly clean down the surfaces to remove all dirt, grease and surface contaminants. Carefully scrape back to a firm edge all areas of poorly adhering or defective coatings. Powdery and friable surface coatings are to be completely removed by scraping, brushing and washing. Allow the surface to fully dry before proceeding. Where appropriate rub down sound areas to produce the necessary key for good adhesion and feather broken edges of existing coating. Dust off. Make good holes, cracks and other imperfections with an approved proprietary filler, rub down and dust off.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Initial coats: Prime all sound bare areas with one coat of vinyl matt paint thinned in accordance with the manufacturer's technical data sheet.

Apply two finishing coats of vinyl matt paint.

Painting New Plaster – Vinyl Matt Paint

- 109 Preparation: Remove dirt and surface deposits with a stiff brush. Rub down to remove nibs, trowel marks and plaster splashes, lightly rub over-trowelled glossy plaster with worn abrasive paper, fill all depressions, holes and cracks and lightly rub down flush with surface, apply one coat proprietary sealer/primer, apply one coat of vinyl matt paint thinned in accordance with the manufacturer's technical data sheet.

Apply two finishing coats of vinyl matt paint.

Painting Existing Painted Internal Surfaces – Anti Graffiti Paint

- 110 Preparation: Remove existing graffiti with an approved appropriate graffiti removal system, thoroughly clean down the surfaces to remove all dirt, grease and surface contaminants. Carefully scrape back to a firm edge all areas of poorly adhering or defective coatings. Powdery and friable surface coatings are to be completely removed by scraping, brushing and washing. Allow the surface to fully dry before proceeding. Where appropriate rub down sound areas to produce the necessary key for good adhesion and feather broken edges of existing coating. Dust off. Make good holes, cracks and other imperfections with an approved proprietary filler, rub down and dust off.

Prime all sound bare areas with one coat of anti graffiti paint sealer, bring forward sealed areas with anti graffiti paint primer, apply two finishing coats of anti-graffiti paint.

Painting Internal Surfaces – Anti Graffiti Paint

- 111 Preparation: Thoroughly clean down the surfaces to remove all dirt, grease and surface contaminants. Powdery and friable surface coatings are to be completely removed by scraping, brushing and washing. Allow the surface to fully dry before proceeding. Where appropriate rub down sound areas to produce the necessary key for good adhesion and feather broken edges of existing coating. Dust off. Make good holes, cracks and other imperfections with an approved proprietary filler, rub down and dust off.

Prime all sound bare areas with one coat of anti graffiti paint sealer, bring forward sealed areas with anti graffiti paint primer, apply two finishing coats of anti-graffiti paint.

Painting Existing Painted Internal Surfaces – Class "O" Fire Retardant Finish

- 112 Preparation: Remove existing graffiti with an approved appropriate graffiti removal system, thoroughly clean down the surfaces to remove all dirt, grease and surface contaminants. Carefully scrape back to a firm edge all areas of poorly adhering or defective coatings. Powdery and friable surface coatings are to be completely removed by scraping, brushing and washing. Allow the surface to fully dry before proceeding. Where appropriate rub down sound areas to produce the necessary key for good adhesion and feather broken edges of existing coating. Dust off. Make good holes, cracks and other imperfections with an approved proprietary filler, rub down and dust off. Seal marks or suspect areas and surfaces that remain powdery and friable after thorough preparation with one coat of stain blocker.

Finishing system: Apply three coats of Class "O" as Instructed by the Client's Representative. Fire retardant basecoat applied strictly in accordance with the manufacturer's technical data sheet. Apply two finishing coats of eggshell paint.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Painting New Internal Surfaces – Class “O” Fire Retardant Finish

- 113 Preparation: Thoroughly clean down the surfaces to remove all dirt, grease and surface contaminants. Allow the surface to fully dry before proceeding. Where appropriate rub down sound areas to produce the necessary key for good adhesion. Dust off. Make good holes, cracks and other imperfections with an approved proprietary filler, rub down and dust off.

Finishing system: Apply three coats of Class “O” as Instructed by the Client’s Representative. Fire retardant basecoat applied strictly in accordance with the manufacturer’s technical data sheet. Apply two finishing coats of eggshell paint.

Painting Previously Painted Internal Metal – Gloss Paint

- 114 Preparation: Thoroughly clean down to remove all surface contamination. Carefully scrape back to a firm edge all areas of damaged paint coatings. Scrape and wire brush corroded steel to produce a clean metal surface. Rub down with a suitable abrasive and dust off. All surfaces should be prepared to the minimum standard recommended in BS 7079 at the time of coating. Prime all bare metal with two coats of zinc phosphate primer, applied in accordance with the manufacturer’s technical data sheet. Bring forward primed areas with one coat of undercoat.

Apply two finishing coats of 8 years all weather protection metal gloss finish paint, applied in accordance with the manufacturer’s technical data sheet.

Painting New Internal Metal – Gloss Paint

- 115 Preparation: Thoroughly clean down to remove all surface contamination. Rub down with a suitable abrasive and dust off. All surfaces should be prepared to the minimum standard recommended in BS 7079 at the time of coating. Prime all metal with two coats of zinc phosphate primer, applied in accordance with the manufacturer’s technical data sheet. Apply one coat of undercoat.

Apply two finishing coats of 8 years all weather protection metal gloss finish paint, applied in accordance with the manufacturer’s technical data sheet.

Painting Previously Painted External Metal – Gloss Paint

- 116 Preparation: Thoroughly clean down to remove all surface contamination. Carefully scrape back to a firm edge all areas of damaged paint coatings. Scrape and wire brush corroded steel to produce a clean metal surface. Rub down to smooth edges with a suitable abrasive and dust off. All surfaces should be prepared to a minimum standard recommended in BS 7079 at the time of coating. Prime all bare metal with two coats of zinc phosphate primer or other equal approved, applied in accordance with the manufacturer’s technical data sheet. Bring forward primed areas with one coat of undercoat.

Apply two finishing coats of 8 years all weather protection metal gloss finish paint, applied in accordance with the manufacturer’s technical data sheet

Painting New External Metal – Gloss Paint

- 117 Preparation: Thoroughly clean down to remove all surface contamination. Rub down with a suitable abrasive and dust off. All surfaces should be prepared to the minimum standard recommended in BS 7079 at the time of coating. Prime all metal with two coats of zinc phosphate primer, applied in accordance with the manufacturer’s technical data sheet. Apply one coat of undercoat.

Apply two finishing coats of 8 years all weather protection metal gloss finish paint, applied in accordance with the manufacturer’s technical data sheet.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Painting Galvanised Steel – Gloss Paint

- 118 Preparation: Wash with white spirit to remove dirt and grease then wash with mild detergent solution and rinse off with clean water. Pretreat with mordant solution. Retreat non-blackened areas to achieve blackening of whole of surface. If galvanizing is defective obtain instructions before proceeding.

Apply one coat zinc phosphate primer, apply one coat of undercoat.

Apply two finishing coats of 8 years all weather protection metal gloss finish paint, applied in accordance with the manufacturer's technical data sheet.

Painting Previously Painted Internal Timber – Gloss Oil Paint

- 119 Preparation: Carefully scrape back to a firm edge all areas of poorly adhering or defective coatings. Rub down to feather broken edges of existing coating and dust off. Wash down the surfaces with soap and water, detergent solution or suitable solvent to remove all dirt, grease and surface contaminants. Whilst wet, rub down the surfaces with a suitable abrasive, taking care to avoid exposing timber on sharp edges. Finally rinse down and allow to dry. Make good all nail holes, open joints and open grain etc with an approved proprietary filler, rub down smooth and dust off. Apply two thin coats of knotting solution to all knots and resinous areas and allow to harden. Spot prime any bare metal, metal fixings, nail heads etc., with one coat of metal primer; prime all bare areas and areas exposed by the removal of coatings with one coat of wood primer, thinned as manufacturer's technical data sheet. Bring forward areas with undercoat.

Apply one coat of oil based undercoat and one finishing coat of gloss oil based paint.

Painting Previously Painted Internal Timber – Gloss Water Based Paint (Micro Porous)

- 120 Preparation: Carefully scrape back to a firm edge all areas of poorly adhering or defective coatings. Rub down to feather broken edges of existing coating and dust off. Wash down the surfaces with soap and water, detergent solution or suitable solvent to remove all dirt, grease and surface contaminants. Whilst wet, rub down the surfaces with a suitable abrasive, taking care to avoid exposing timber on sharp edges. Finally rinse down and allow to dry. Make good all nail holes, open joints and open grain etc., with an approved proprietary filler, rub down smooth and dust off. Apply two thin coats of knotting solution to all knots and resinous areas and allow to harden. Spot prime any bare metal, metal fixings, nail heads etc., with one coat of metal primer; prime all bare areas and areas exposed by the removal of coatings with one coat of wood primer, thinned as manufacturer's technical data sheet. Bring forward areas with undercoat.

Apply one coat of water based undercoat and one finishing coat of micro porous gloss water based paint.

Painting New Internal Timber – Gloss Oil Paint

- 121 Preparation: Wash down the surfaces with soap and water, detergent solution or suitable solvent to remove all dirt, grease and surface contaminants. Whilst wet, rub down the surfaces with a suitable abrasive. Finally rinse down and allow to dry. Make good all nail holes, open joints and open grain etc with an approved proprietary filler, rub down smooth and dust off. Apply two thin coats of knotting solution to all knots and resinous areas and allow to harden. Spot prime any bare metal, metal fixings, nail heads etc., with one coat of metal primer; apply one coat of wood primer.

Apply two coats of oil based undercoat and one finishing coat of gloss oil based paint.

Painting New Internal Timber – Gloss Water Based Paint (Micro Porous)

- 122 Preparation: Wash down the surfaces with soap and water, detergent solution or suitable solvent to remove all dirt, grease and surface contaminants. Whilst wet, rub down the surfaces with a suitable abrasive. Finally rinse down and allow to dry. Make good all nail holes, open joints and open grain etc with an approved proprietary filler, rub down smooth and dust off. Apply two thin coats of knotting solution to all knots and resinous areas and allow to harden. Spot prime any bare metal, metal fixings, nail heads etc., with one coat of metal primer; apply one coat of wood primer.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Apply two coats of water based undercoat and one finishing coat of micro porous gloss water based paint.

Painting Previously Painted External Timber – Exterior Quality Gloss Paint

- 123 Preparation: Thoroughly clean down surfaces to remove all dirt, grease and surface contaminants. Remove all areas of blistered, poorly adhering or defective coatings. Where flaking has occurred or coatings are defective, the entire member or section must be stripped back to the nearest joint. Open up all joints which are not tight fitting and rake out thoroughly. Rub down to feather broken edges of existing coating and dust off. Abrade the surfaces in the direction of the grain to remove any grey denatured timber and raised grain, round all sharp edges. Make good all cracks, nail holes, open joints and open grain etc., with an approved proprietary filler, rub down smooth and dust off. Apply two thin coats of knotting to all knots and resinous areas and allow to harden. Spot prime any bare metal, metal fixings, nail heads etc., with one coat of metal primer. Prime all bare areas and areas exposed by the removal of coatings with one coat of exterior preservative primer. Bring forward all primed and/or filled areas to match existing with one coat of 8 years all weather protection exterior micro porous flexible undercoat of appropriate shade.

Apply one coat of 8 year all weather protection micro porous undercoats of appropriate shade, and one finishing coat of 8 year all weather protection micro porous exterior high gloss paint.

Painting New External Timber – Exterior Quality Gloss Paint

- 124 Preparation: Thoroughly clean down surfaces to remove all dirt, grease and surface contaminants. Abrade the surfaces in the direction of the grain to remove any grey denatured timber and raised grain, round all sharp edges. Make good all cracks, nail holes, open joints and open grain etc., with an approved proprietary filler, rub down smooth and dust off. Apply two thin coats of knotting to all knots and resinous areas and allow to harden. Spot prime any bare metal, metal fixings, nail heads etc., with one coat of metal primer. Apply one coat of exterior preservative primer.

Apply one coat of 8 year all weather protection micro porous undercoats of appropriate shade, and two finishing coats of 8 year all weather protection micro porous exterior high gloss paint.

Painting Previously Painted Internal Plastic – Gloss

- 125 Preparation: Carefully scrape back to a firm edge all areas of poorly adhering or defective coatings. Rub down to feather broken edges of existing coating and dust off. Wash down the surfaces with soap and water, detergent solution or suitable solvent to remove all dirt, grease and surface contaminants. Whilst wet, rub down the surfaces with a suitable abrasive. Finally rinse down and allow to dry. Prime all bare areas with preservative primer. Bring forward all primed areas with one coat of gloss paint.

Apply one finishing coat of gloss paint.

Painting Previously Painted External Plastic – Gloss

- 126 Preparation and making good: Carefully scrape back to a firm edge all areas of poorly adhering or defective coatings. Rub down to feather broken edges of existing coating and dust off. Wash down the surfaces with soap and water, detergent solution or suitable solvent to remove all dirt, grease and surface contaminants. Whilst wet, rub down the surfaces with a suitable abrasive. Finally rinse down and allow to dry. Prime all bare areas with preservative primer. Bring forward all primed areas with one coat of 8 year all weather protection micro porous exterior gloss.

Apply one finishing coat of 8 year all weather protection micro porous exterior gloss paint.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Previously Wood-stained Internal Timber – Decorative Protection

- 127 Preparation: Carefully scrape back to a firm edge all areas of poorly adhering or defective coatings. Rub down to feather broken edges of existing coating and dust off. Wash down the surfaces with soap and water, detergent solution or suitable solvent to remove all dirt, grease and surface contaminants. Whilst wet, rub down the surfaces with a suitable abrasive, taking care to avoid exposing timber on sharp edges. Finally rinse down and allow to dry. Make good all nail holes, open joints and open grain etc., with an approved proprietary filler, rub down smooth and dust off. Touch in any bare areas with one coat of decorative wood-stain of appropriate shade, thinned as manufacturer's technical data sheet.

Apply two finishing coats of decorative wood-stain of selected shade, apply wood-stain in flowing coats, redistribute excess material by brushing before wood-stain has set, allow not less than 24 hours between coats.

New Internal Timber – Decorative Protection

- 128 Preparation: Wash down the surfaces with soap and water, detergent solution or suitable solvent to remove all dirt, grease and surface contaminants. Rinse down and allow to dry. Make good all nail holes, open joints and open grain etc., with an approved proprietary filler, rub down smooth and dust off. Apply one coat of decorative wood-stain of appropriate shade, thinned as manufacturer's technical data sheet.

Apply two finishing coats of decorative wood-stain of selected shade, apply wood-stain in flowing coats, redistribute excess material by brushing before wood-stain has set, allow not less than 24 hours between coats.

Previously Opaque Wood-stained External Timber – Decorative Protection

- 129 Preparation: Thoroughly clean down surfaces to remove all dirt, grease and surface contaminants. Remove all areas of blistered, poorly adhering or defective coatings. Where flaking has occurred or coatings are defective, the entire member or section must be stripped back to the nearest joint. Open up all joints which are not tight fitting and rake out thoroughly. Rub down to feather broken edges of existing coating and dust off. Abrade the surfaces in the direction of the grain to remove any grey denatured timber and raised grain, round all sharp edges. Make good all cracks, nail holes, open joints and open grain etc., with an approved proprietary stopper/filler designed for use with a wood-stain system, rub down smooth and dust off. Apply two thin coats of knotting solution to all knots and resinous areas and allow to harden. Prime all sound bare areas and areas exposed by the removal of coatings with one coat of 8 year all weather preservative basecoat. If required, touch in any primed areas with 8 year all weather protection stain to match the surrounding timber for colour and build. Allow to dry.

Apply two finishing coats of opaque 8 year all weather protection wood-stain of selected shade, apply wood-stain in flowing coats, redistribute excess material by brushing before wood-stain has set, allow not less than 24 hours between coats.

Opaque Wood-stained New External Timber – Decorative Protection

- 130 Preparation: Thoroughly clean down surfaces to remove all dirt, grease and surface contaminants. Abrade the surfaces in the direction of the grain to remove any grey denatured timber and raised grain, round all sharp edges. Make good all cracks, nail holes, open joints and open grain etc., with an approved proprietary stopper/filler designed for use with a wood-stain system, rub down smooth and dust off. Apply two thin coats of knotting solution to all knots and resinous areas and allow to harden. Apply one coat of 8 year all weather preservative basecoat.

Apply three finishing coats of opaque 8 year all weather protection wood-stain of selected shade, apply wood-stain in flowing coats, redistribute excess material by brushing before wood-stain has set, allow not less than 24 hours between coats.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Previously Transparent Wood-stained External Timber – Decorative Protection

- 131 Preparation: Thoroughly clean down surfaces to remove all dirt, grease and surface contaminants. Remove all areas of blistered, poorly adhering or defective coatings. Where flaking has occurred or coatings are defective, the entire member or section must be stripped back to the nearest joint. Open up all joints which are not tight fitting and rake out thoroughly. Rub down to feather broken edges of existing coating and dust off. Abrade the surfaces in the direction of the grain to remove any grey denatured timber and raised grain, round all sharp edges. Make good all cracks, nail holes, open joints and open grain etc., with an approved proprietary stopper/filler designed for use with a wood-stain system, rub down smooth and dust off. Apply two thin coats of knotting solution to all knots and resinous areas and allow to harden. Prime all sound bare areas and areas exposed by the removal of coatings with one coat of 8 year all weather preservative basecoat. If required, touch in any primed areas with 8 year all weather protection stain to match the surrounding timber for colour and build. Allow to dry.

Apply two finishing coats of transparent 8 year all weather protection wood-stain of selected shade, apply wood-stain in flowing coats, redistribute excess material by brushing before wood-stain has set, allow not less than 24 hours between coats.

Transparent Wood-stained New External Timber – Decorative Protection

- 132 Preparation: Thoroughly clean down surfaces to remove all dirt, grease and surface contaminants. Abrade the surfaces in the direction of the grain to remove any grey denatured timber and raised grain, round all sharp edges. Make good all cracks, nail holes, open joints and open grain etc., with an approved proprietary stopper/filler designed for use with a wood-stain system, rub down smooth and dust off. Apply two thin coats of knotting solution to all knots and resinous areas and allow to harden. Apply one coat of 8 year all weather preservative basecoat.

Apply three finishing coats of transparent 8 year all weather protection wood-stain of selected shade, apply wood-stain in flowing coats, redistribute excess material by brushing before wood-stain has set, allow not less than 24 hours between coats.

Previously Varnished Internal Timber – Polyurethane Varnish

- 133 Preparation: and making good: Carefully scrape back to a firm edge all areas of poorly adhering or defective coatings. Rub down to feather broken edges of existing coating and dust off. Wash down the surfaces with soap and water, detergent solution or suitable solvent to remove all dirt, grease and surface contaminants. Whilst wet, rub down the surfaces with a suitable abrasive, taking care to avoid exposing timber on sharp edges. Finally rinse down and allow to dry. Make good all nail holes, open joints and open grain etc with an approved proprietary filler, rub down smooth and dust off. Touch in any bare areas with one coat of interior polyurethane varnish or other equal approved, thinned as manufacturer's technical data sheet.

Apply two finishing coats of gloss, satin or matt interior polyurethane varnish as specified, brush well in avoiding aeration and layoff, rub down lightly between coats along the grain.

Previously Preservative Treated Sawn Timber; External

- 134 Preparation: Brush down to remove loose fibres, grey denatured timber and poorly adhering or defective coatings. Thoroughly clean down the surfaces with soap and water, detergent solution or suitable solvent to remove all dirt, grease and surface contaminants. Rinse with clean water and allow to dry. Surfaces which are contaminated with mould and/or vegetable growths should be scraped and treated with an appropriate fungicidal wash applied strictly in accordance with the manufacturer's technical data sheet. Ensure all surfaces are completely dry. Apply two thin coats of knotting solution to all knots and resinous areas and allow to dry. Spot prime all knots and bare areas with two coats of coloured timber preservative primer.

Apply one or two (as specified by Client's Representative) finishing coats of opaque fencing timber preservative of selected shade.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Preservative Treated New Sawn Timber; External

- 135 Preparation: Brush down to remove loose fibres and grey denatured timber Thoroughly clean down the surfaces with soap and water, detergent solution or suitable solvent to remove all dirt, grease and surface contaminants. Rinse with clean water and allow to dry. Apply two thin coats of knotting solution to all knots and resinous areas and allow to dry. Spot prime all knots and bare areas with two coats of coloured timber preservative primer.

Apply two finishing coats of opaque fencing timber preservative of selected shade.

Stripping Wallpaper:

- 136 Strip wall paper, lining paper, etc., clear away debris, remove dirt and surface deposits with a stiff brush, rub down to remove trowel marks, plaster and paint splashes. Lightly rub glossy plaster with worn abrasive paper. - Fill all depressions, holes and cracks with suitable filler and lightly rub down flush with surface.

Vinyl Covered Backgrounds:

- 137 Where these are to be stripped, the paper backing may be retained as a lining if in good condition and firmly adhering. Stick down any lifting edges and corners.

Treatment of Organic Growths:

- 138 Remove all loose growths and infected coatings/decorations. Apply appropriate biocidal solution to growth areas and surrounding surfaces. Scrape or brush off all dead growth. Remove infected materials immediately to ensure that no other areas become infected. Apply appropriate residual effect biocidal solution to inhibit re-establishment of growths. Biocides must be approved and registered by the Health and Safety Executive (HSE) and listed as surface biocides.

Hanging Wallpaper, Lining Paper etc., Generally:

- 139 All joints must be truly vertical and/or horizontal, straight and fully adhered with edges neatly cut to ceilings and skirtings. Finished coverings must be securely adhered, smooth and free of air bubbles, wrinkles, gaps, tears, adhesive marks and stains.

Sizing:

- 140 Where specified size surfaces with a solution of wallpaper paste diluted in accordance with the manufacturers technical data sheet.

Lining Paper:

- 141 Apply size to walls and hang lining paper with adhesive to BS 3046 with butt joints and turn all edges. When not specified otherwise, select type and weight to suit covering and background. Hang lengths with butt joints; do not overlap. Hang lengths transversely to direction of covering. Leave to dry for 24 hours before hanging covering.

Adhesive:

- 142 When not specified otherwise, type to be as recommended by the covering manufacturer or, in the absence of such recommendation, type to be approved. Adhesives to contain a fungicide and be made up in accordance with the manufacturer's technical data sheet.

Coverings:

- 143 Self edged coverings to be trimmed to a true straight edge before hanging, unless manufacturer recommends overlap joints. Hang wall coverings vertically unless specified otherwise. Hang ceiling coverings parallel to the main window wall unless specified otherwise. Isolate any metallic foil/fabric coverings from electrical contact.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Joints in Coverings:

- 144 Hang lengths with neat butt joints generally with the patterns matching where applicable. Hang lengths with neat overlapped joints only when permitted by the covering manufacturer where butt joints are impractical.

Hang lengths in one piece generally. Cross joints are only permitted where single lengths are impractical.

Joints in Coverings - Overlapped and Cut:

- 145 Hang lengths with neat overlapped joints. Cut through when stable to a true straight edge, without damaging the background, and bond joints. Hang lengths in one piece generally. Cross joints are only permitted where single lengths are impractical.

Shading:

- 146 Use lengths in the sequence they are cut from the roll. Check each length for colour and pattern match before hanging.

Do not reverse alternate lengths unless recommended by the covering manufacturer.

Check for shade variation after hanging the first three lengths. Inform the Client's Representative of any variation before proceeding.

Graffiti Removal

- 147 Apply a low odour bio-degradable chemical remover to the graffiti treating small areas at a time.

After the detergent remover has taken effect, the surface can be cleaned using a hot/cold power washer with a fan jet head. Pressure should be restricted to less than 1500PSI to avoid possible damage to masonry surfaces.

All applications shall be carried out in accordance with current Health and Safety requirements and with the manufacturer's technical data sheet. Suitable detergent cleaners only shall be selected for the surface to be cleaned.

Mould Growth Treatment

- 148 Clean all infected surfaces and surrounding area with anti-bacterial mould growth remover.

Wash down cleaned surfaces and apply anti-fungicidal solution to prevent re-growth.

Where repainting is required proprietary anti-fungicidal paint systems shall be used.

All paint and chemical solutions must be applied strictly in accordance with the manufacturer's Health and Safety instructions on their technical data sheet, and fully comply with current Health and Safety requirements.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Cleaning Rainwater Gutters and Pipes

149 Clear all dirt and debris from inside of gutter and clean.

Clean out defective joints of gutters and seal with suitable jointing material to satisfaction of the Client.

Clean outside face of gutters, when the inside has been cleaned.

Clear all dirt and debris from inside of rainwater pipes.

Clean out defective joints of rainwater pipes and seal with suitable jointing material to satisfaction of the Client.

Clean outside face of downpipes, when the inside has been flushed.

Client’s current manufacturers/suppliers/products

150 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

GLAZING

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

GLAZING

MATERIALS

Glass

- 001 Clear float, obscured pattern and Georgian wired glass shall comply with BS 952-1.
- 002 Laminated safety, toughened glass and polycarbonate sheet shall comply with the requirements of BS EN 12600
- 003 Laminated safety glass shall comply with and meet the requirements of BS 6206.
- 004 Laminated safety glass shall comply with and meet the requirements of BS EN ISO 12543.
- 005 Panes to be accurately and squarely cut, with clean, undisfigured, free from all specks, bubbles, bladders and all other defects, and having undamaged edges and surfaces, to suit the sizes of the openings. Dimensions of edge cover and clearance, positions and materials of distance pieces, setting and location blocks to be to BS 6262 and glass and sealant manufacturer's recommendations.
- 006 For clear float glass, use 'ordinary glazing quality'.
- 007 For obscure/patterned glass, use clear cast glass either to match the existing glass or of a pattern approved by the Client's Representative.
- 008 For polished plate glass, use 'glass for glazing quality'.
- 009 For wired glass, use Georgian wired cast or Georgian wired polished plate glass, as specified. Ensure the wire extends to the edges of the glass and is free from rust. Cut Georgian wired glass to ensure that any edge is parallel to the alignment of the wires. Care to be taken to ensure that the wires in adjacent panes line up either horizontally or vertically.

Double and triple glazed units

- 010 Ensure flat dual/hermetically sealed double glazing units are manufactured using low-E coating on inner face s and have a minimum 5 (five) year guarantee. Provide details of the guarantee to the Client's Representative. Units to comply with BS EN 1279-1, with units to be clearly marked on at least one section, the spacer bar with the BS kitemark or equivalent European standard or compliance with BS EN 1279-5, the manufacturer's name and number and the date of manufacture, to the month. All units to have argon gas filling.

Secure double glazed units into rebates with double-sided PVC-u foam closed cell high density security glazing to PAS 24.

Install units in accordance with BS EN 572-2, BS 6262, BS 8000-0, the glass and Glazing Federation Glazing Manual or European equivalents.

Putty

- 011 For glazing to wood use timber slips and sealants.
- 012 On timber windows the bottom slip shall be a proprietary drained aluminium bead complete with end caps and spacers, use linseed oil putty or equivalent.

Intumescent mastic

- 013 Ensure mastic to fire doors/windows is of a type of fire protection sealant to BS 476-20 approved by the Client's Representative.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Plastic Protection Channels:

- 014 Preformed proprietary protection channel are to suit particular glass thickness, and fitted securely to bottom edge of glass.

Condensation Channels:

- 015 Proprietary pre-formed PVC-u/metal condensation channel are to be complete with stop ends, glazing gaskets and proprietary fixings. Channel to be bedded in recommended sealant to bottom member of window.

Ventilated Glazing Beads:

- 016 Proprietary pre-formed PVC-u or aluminium ventilated glazing bead are to be complete with stop ends, glazing gaskets and proprietary fixings and fixed in accordance with manufacturer's technical data sheet.

Glass Locking System:

- 017 Proprietary plastic/metal body and clip and fixed in accordance with manufacturer's technical data sheet.

WORKMANSHIP

Glazing generally

- 018 Glass generally shall comply with standards to BS 952. Undertake all glazing in accordance with BS 6262, the Glass and Glazing Federation Code of Practice and the current Building Regulations.

Ensure that glass/plastics, surround materials, primers, mastics, sealers and paints which are used together are compatible.

Glazing to be the responsibility of the unit manufacturer.

Safety Glass – to identify the grade of safety glass used, each pane should be indelibly marked so that the marking is visible after installation. The markings should include:

The manufacturer's name or trade mark;

The product number for the type of glass;*

The impact performance classification I to BS EN 12600 (or A to BS 6206)

*e.g. BS EN 12150 toughened glass;

BS EN 14449 laminated glass:

BS EN 14179 heat soaked thermally toughened glass;

Fire Glass – all glazing units forming or part of a composite unit i.e. door, window, sidelight etc., should be manufactured to allow compliance with fire testing and rated accordingly to the component unit as a whole and comply with Building Control.

- 019 Accurately and squarely cut glass with clean, undisfigured and undamaged edges and surfaces, to size with a small clearance. Provide a clearance of 3mm on timber, 5mm on PVC-u windows all round between the edge of the double glazed unit and the frame to permit drainage and ventilation. Cut Georgina Wired glass to ensure that any edge is parallel to the alignment of the wires. Care shall be taken to ensure that the wires in adjacent panes line up either horizontally or vertically.
- 020 Ensure glass, except that bedded in patent glazing strip, is bedded back and front and around the perimeter with mastic neatly trimmed and cleaned off.
- 021 Ensure glazing is sprigged to wood, or fixed with aluminium, timber beads or PVC-u beads and security clips or double edged security tape.
- 022 If gasket glazing is required, ensure the glazing gaskets and weather seals are extruded from EPDM (Ethylene Propylene Diene Monomer).

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

023 Install obscured glass in single glazing with the "rough" side to the inside of the Property. Install obscure glass to sealed double glazed units with the "rough" side to the inside of the unit and the obscure glass to the inside of the Property.

024 Seal and prime rebates and beads before glass is inserted.

Double glazing units

025 Glazing packers are to be in accordance with BS 8213 and should not obstruct the drainage with profile specific bridging packers used. Use setting blocks and distance pieces so as to centralise the glass, unit or infill within the opening and ensure that it cannot move in the wind. Use setting blocks at the bottom edge of the frame. For fixed windows, position them as near the quarter points as possible. Where it is necessary to avoid undue deflection of the frame, place them nearer the sides, but never less than 85mm from the corner. Use setting blocks that are 3mm wider than the glass unit or infill and as thick as the designed edge clearance. Allow for toeing and healing.

026 Use setting blocks that are at least 25mm in length and approximately 2 No evenly spaced for each metre of major glass dimension to BS 8213-4. For vertically pivoted windows, use setting chocks that are at least 75mm in length. Do not place blocks where these will inhibit drainage.

027 Use location blocks between the edges of the glass unit or infill and at the top and sides of the frame in an opening light.

028 Use distance pieces 25mm long and 3mm less in height than the rebate depth. Ensure the thickness is at least 3mm and such as to ensure that the glass is held firmly in the glazing rebate. Insert rigid PVC-u shims if necessary, to ensure that the distance pieces are a tight fit between the face of the glass and rebate. For beads which fit into continuous grooves, insert the first distance pieces 75mm from each corner, and the remainder at approximately 30mm centres. For beads fixed by screws or other studs, insert the distance pieces at the fixing points provided.

029 Composition of Double Glazing Units as tabled below:

DOUBLE GLAZING UNITS TO DOORS – CLEAR SAFETY		
Pane material/thickness		
Inner pane 6.8mm laminated clear low-E glass	12mm thermally broken warm edge spacer bar with 90% argon fill	Outer pane 6.8mm laminated clear glass
Overall thickness of the units: Not less than 25.6mm		

DOUBLE GLAZING UNITS TO DOORS – OBSCURE SAFETY		
Pane material/thickness		
Inner pane 6.8mm laminated clear low-E glass	12mm thermally broken warm edge spacer bar with 90% argon fill	Outer pane 6.8mm laminated obscured pattern safety glass
Overall thickness of the units: Not less than 25.6mm		

DOUBLE GLAZING UNITS TO SIDELIGHTS – OBSCURE SAFETY		
Pane material/thickness		
Inner pane 4mm toughened clear low-E glass	14mm thermally broken warm edge spacer bar with 90% argon fill	Outer pane 6.8mm laminated obscured pattern safety glass
Overall thickness of the units: Not less than 24.8mm		

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

DOUBLE GLAZING UNITS TO SIDELIGHTS – CLEAR SAFETY		
Pane material/thickness		
Inner pane 4mm toughened clear low-E glass	14mm thermally broken warm edge spacer bar with 90% argon fill	Outer pane 6.8mm laminated clear safety glass
Overall thickness of the units: Not less than 24.8mm		

DOUBLE GLAZING UNITS TO WINDOWS – CLEAR FLOAT		
Pane material/thickness		
Inner pane 4mm clear low-E glass	16mm thermally broken warm edge spacer bar with 90% argon fill	Outer pane 4mm clear glass
Overall thickness of the units: Not less than 24mm		

DOUBLE GLAZING UNITS TO WINDOWS – OBSCURE		
Pane material/thickness		
Inner pane 4mm clear low-E glass	16mm thermally broken warm edge spacer bar with 90% argon fill	Outer pane 4mm obscured pattern group 4 glass
Overall thickness of the units: Not less than 24mm		

DOUBLE GLAZING UNITS TO WINDOWS – CLEAR SAFETY		
Pane material/thickness		
Inner pane 4mm toughened clear low-E glass	16mm thermally broken warm edge spacer bar with 90% argon fill	Outer pane 4mm toughened clear glass
Overall thickness of the units: Not less than 24mm		

DOUBLE GLAZING UNITS TO WINDOWS – CLEAR SAFETY		
Pane material/thickness		
Inner pane 6.8mm laminated clear low-E glass	16mm thermally broken warm edge spacer bar with 90% argon fill	Outer pane 6.8mm laminated clear glass
Overall thickness of the units: Not less than 29.6mm		

DOUBLE GLAZING UNITS TO WINDOWS – CLEAR FLOAT		
Pane material/thickness		
Inner pane 4mm clear low-E glass	20mm thermally broken warm edge spacer bar with 90% argon fill	Outer pane 4mm clear glass
Overall thickness of the units: Not less than 28mm		

DOUBLE GLAZING UNITS TO WINDOWS – OBSCURE		
Pane material/thickness		
Inner pane 4mm clear low-E glass	20mm thermally broken warm edge spacer bar with 90% argon fill	Outer pane 4mm obscured pattern group 4 glass
Overall thickness of the units: Not less than 28mm		

DOUBLE GLAZING UNITS TO WINDOWS – CLEAR SAFETY		
Pane material/thickness		
Inner pane 4mm toughened clear low-E glass	20mm thermally broken warm edge spacer bar with 90% argon fill	Outer pane 4mm toughened clear glass
Overall thickness of the units: Not less than 28mm		

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

DOUBLE GLAZING UNITS TO WINDOWS – CLEAR SAFETY		
Pane material/thickness		
Inner pane 6.8mm laminated clear low-E glass	20mm thermally broken warm edge spacer bar with 90% argon fill	Outer pane 6.8mm laminated clear glass
Overall thickness of the units: Not less than 33.6mm		

DOUBLE FIRE GLAZING UNITS– CLEAR SAFETY		
Pane material/thickness		
Inner pane 6.8mm laminated clear low-E glass	12mm thermally broken warm edge spacer bar with 90% argon fill	Outer pane 6mm clear Georgian Wire Fire Glass
Overall thickness of the units: Not less than 24.4mm		

DOUBLE FIRE GLAZING UNITS– OBSCURE SAFETY		
Pane material/thickness		
Inner pane 6.8mm laminated clear low-E glass	12mm thermally broken warm edge spacer bar with 90% argon fill	Outer pane 6mm Georgian Wire Fire Glass obscured pattern group 1
Overall thickness of the units: Not less than 24.4mm		

FIRE GLAZING, DOUBLE FIRE GLAZING UNITS– CLEAR SAFETY		
Pane material/thickness		
Inner pane 4mm toughened clear glass	Stainless steel spacer bar with argon gas filling	Outer pane 11.0mm safety fire grade glass fully UV stable, clear
Overall thickness of the units: Not less than 24.0mm		

FIRE GLAZING, DOUBLE FIRE GLAZING UNITS– TEXTURED/PATTERNED SAFETY		
Pane material/thickness		
Inner pane 4mm toughened textured/ patterned glass	Stainless steel spacer bar with argon gas filling	Outer pane 11.0mm safety fire grade glass fully UV stable, clear
Overall thickness of the units: Not less than 24.0mm		

FIRE GLAZING, DOUBLE FIRE GLAZING UNITS– TEXTURED/PATTERNED SAFETY		
Pane material/thickness		
Inner pane 4mm toughened textured/ patterned glass	Stainless steel spacer bar with argon gas filling	Outer pane 11.0mm safety fire grade glass fully UV stable, clear
Overall thickness of the units: Not less than 24.0mm		

FIRE GLAZING, DOUBLE FIRE GLAZING UNITS– CLEAR SAFETY		
Pane material/thickness		
Inner pane 6.8mm laminated clear (safety Class A) glass	Stainless steel spacer bar with argon gas filling	Outer pane 7.0mm internal fire grade glass fully UV stable, clear
Overall thickness of the units: Not less than 24.0mm		

FIRE GLAZING, DOUBLE FIRE GLAZING UNITS– CLEAR SAFETY		
Pane material/thickness		
Inner pane 4mm toughened clear glass	Stainless steel spacer bar with argon gas filling	Outer pane 10.0mm safety fire grade glass fully UV stable, clear
Overall thickness of the units: Not less than 24.0mm		

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

FIRE GLAZING, DOUBLE FIRE GLAZING UNITS– TEXTURED/PATTERNED SAFETY		
Pane material/thickness		
Inner pane 4mm toughened textured/ patterned glass	Stainless steel spacer bar with argon gas filling	Outer pane 10.0mm safety fire grade glass fully UV stable, clear
Overall thickness of the units: Not less than 24.0mm		

FIRE GLAZING, DOUBLE FIRE GLAZING UNITS– CLEAR SAFETY LOW –E HARD COAT		
Pane material/thickness		
Inner pane 4mm toughened low-E hard coat clear glass	Stainless steel spacer bar with argon gas filling	Outer pane 10.0mm safety fire grade glass fully UV stable, clear
Overall thickness of the units: Not less than 24.0mm		

FIRE GLAZING, DOUBLE FIRE GLAZING UNITS– CLEAR SAFETY		
Pane material/thickness		
Inner pane 6.4mm laminated clear (safety Class B) glass	Stainless steel spacer bar with argon gas filling	Outer pane 7.0mm external fire grade glass fully UV stable, clear
Overall thickness of the units: Not less than 24.0mm		

Neoprene glazing gaskets

- 030 Fit glass to PVC-u windows using glazing gaskets appropriate to the window. Angle all glazing gaskets if possible, but in any event mitre all corners and comply with Clause 021 above.

Cleaning:

- 031 Remove cement and plaster based spillage whilst wet. Remove all smears and excess glazing materials. Leave glazing clean and free from scratches inside and out.

Damage:

- 032 Replace all glass and fixing materials broken or damaged before completion and redecorate.

Fire Resistant Glazing

- 033 Fire resistant Glazing Cassette to Door Sets with cassette interlocking system with male/female connectors, 24.4mm double glazing unit comprising 6.8mm laminated clear low-E safety glass inner pane, 12mm thermally broken warm edge spacer bar with 90% argon fill, 6mm clear Georgian wired fire glass or 6mm Georgian wire fire glass obscure pattern group 1, fire retardant glazing sealant as intumescent aperture lining/filler, installed in accordance with UKAS accredited report for fire resistant glazing and in accordance with glazing manufacturer’s technical data sheet.
- 034 Fire resistant Glazing Cassette to Door Sets with cassette interlocking system with male/female connectors, 26mm double glazing unit comprising 6.8mm laminated clear low-E safety glass inner pane, 12mm thermally broken warm edge spacer bar with 90% argon fill, 6mm clear Georgian wired fire glass or 6mm Georgian wire fire glass obscure pattern group 1, fire retardant glazing sealant as intumescent aperture lining/filler, installed in accordance with UKAS accredited report for fire resistant glazing and in accordance with glazing manufacturer’s technical data sheet.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

035 Fire resistant glazing to fanlights and sidelights with 24.4mm double glazing unit comprising 6.8mm laminated clear low-E safety glass inner pane, 12mm thermally broken warm edge spacer bar with 90% argon fill, 6mm clear Georgian wired fire glass or 6mm Georgian wire fire glass obscure pattern group 1, fire retardant glazing sealant as intumescent aperture lining/filler, installed in accordance with UKAS accredited report for fire resistant glazing and in accordance with glazing manufacturer’s technical data sheet, aluminium powder coated glazing bead extrusion with flexible intumescent glazing compound to entire length of glazing bead extrusion and fixing in accordance with the manufacturer’s technical data sheet.

Client’s current manufacturers/suppliers/products

036 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand Name	Manufacturer’s Details

[complete table as appropriate]

PLUMBING

**M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS –
SPECIFICATION – VERSION 7.2**

PLUMBING

GENERAL

Generally

- 001 Ensure all Materials comply with the requirements of the applicable water Utility Provider.
- 002 Use rust proofed ancillary and fixing Materials. Ensure all Materials in direct or indirect contact are compatible so as to prevent electrolytic or chemical corrosion.
- 003 Note that the Client's Properties may contain a variety of disposal systems manufactured from conventional materials and also a wide range of manufacturer's proprietary systems.
- 004 Seal any pipework entering a vertical service duct all round with intumescent sealant to prevent the passage of fire or smoke.

MATERIALS

Plastic rainwater gutters and pipes

- 005 Match the colour of the systems, the profile of gutters and the rainwater pipe jointing and fixing to the existing systems unless the Client's Representative Instructs otherwise.

Cast iron rainwater gutters and pipes

- 006 For gutters use half round or ogee. Match all new gutters and pipes to the existing system unless the Client's Representative Instructs otherwise. Time saver joints are to be used, flexi seal connectors are not to be used.

Aluminium rainwater gutters and pipes

- 007 Ensure aluminium rainwater disposal systems match the existing system.

Plastic soil and vent pipes

- 008 Ensure the colour and jointing and fixing match the existing pipework unless the Client's Representative Instructs otherwise.

Cast iron soil and vent pipes

- 009 Ensure the jointing and fixing methods match the existing pipework unless the Client's Representative Instructs otherwise. Time saver joints are to be used, flexi seal connectors are not to be used.

Plastic waste pipes, fittings and traps

- 010 Use PVC-u plastic to BS EN 1328-1 for soil/ventilating pipework and fittings. Use polypropylene plastic to BS EN 1565-1 and BS EN 1451-1 for waste and warning pipework, fittings and traps. Fully protect any external polypropylene and ABS pipes and fittings from sunlight. Ensure waste pipes, fittings and traps match the existing waste systems unless the Client's Representative Instructs otherwise.

Copper waste pipes and fittings

- 011 Ensure the gauges of pipework and types of fittings match those of the relevant existing pipework.

Plastic water supply pipes and fittings

- 012 Use blue polyethylene pipes with copper fittings for pipework laid underground for potable water supplies.

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Copper water supply pipes and fittings

013 Use lead free capillary fittings for potable water supplies.

Fittings for lead supply pipes

014 Use lead to copper mechanical joint fittings for connecting dissimilar pipes to existing lead water services.

Overflow pipes and fittings

015 Ensure the pipework for overflows complies with the same requirements as for water supply pipework.

Solder

016 Do not use lead based solders or solders containing lead in Works associated with potable water supplies. Use tin/copper or tin/silver compositions instead.

Float valves

017 Use float operated valves.

Taps

018 Use chromium plated metal taps. For lavatory basins and sinks, use 1/2 inch taps; for baths, use 3/4 inch.

019 Taps to kitchen sinks for Persons with Disabilities use:

- deck pattern chromium plated kitchen sink mixer with metal handle lever action operation control with colour discs, left hand red for hot and right hand blue for cold;

020 Taps to baths for Persons with Disabilities use:

- deck pattern chromium plated bath pillar taps suitable for both high and low pressure with metal handle lever action operation control with colour discs, left hand red for hot and right hand blue for cold;

021 Taps to wash hand basins for Persons with Disabilities use:

- vertical pattern chromium plated basin taps with metal handle lever action operation control with colour discs, left hand red for hot and right hand blue for cold;

Sanitary fittings

022 Ensure all sanitary fittings are approved by the Client's Representative.

023 For lavatory basins and pedestals, to BS 1188 and BS 3402 use white vitreous china with:

- size 560mm x 440mm, one tap hole with pedestal;
- wall brackets secured in accordance with the manufacturer's technical data sheet;
- chromium plated to BS EN 248 deck mounted mono mixer, quarter turn lever action;
- chromium plated rotative clicker waste stopper;
- polypropylene trap, 76mm seal, with combined overflow; and
- all fittings necessary to connect to services and disposal systems.

024 For hand rinse wash basins, to BS 1188 and BS 3402 use white vitreous china with:

- size 360mm x 265mm, one tap hole without pedestal;
- wall brackets secured in accordance with the manufacturer's technical data sheet;
- chromium plated deck mounted mono mixer, quarter turn lever action;
- chromium plated rotative clicker waste stopper;
- polypropylene trap, 76mm seal, with combined overflow; and
- all fittings necessary to connect to services and disposal systems.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

- 025 For corner rinse wash basins, to BS 1188 and BS 3402 use white vitreous china with:
- size 500mm x 400mm, one tap hole without pedestal;
 - wall brackets secured in accordance with the manufacturer's technical data sheet;
 - chromium plated deck mounted mono mixer, quarter turn lever action;
 - chromium plated rotative clicker waste stopper;
 - polypropylene trap, 76mm seal, with combined overflow; and
 - all fittings necessary to connect to services and disposal systems.
- 026 For baths, use heavy duty pressed steel to BS 1390, with bolt on adjustable legs.
- 027 Supply baths with:
- 1700 mm rectangular pattern, single centre tap holes, twin handle grips and slip resistant base;
 - chromium plated deck pattern over bath/shower fitting comprising height adjustable lockable slide rail, shower bracket, fastening set, shower hose (minimum 1500mm) soap dish and adjustable head outlet
 - chromium plated deck mounted mono mixer to match mono basin mixer, quarter turn lever action;
 - chromium plated rotative clicker waste stopper;
 - DN 40 polypropylene shallow seal trap with combined overflow;
 - bolt on adjustable feet
 - galvanised mild steel floor plates to be provided under bath feet; and
 - all fittings necessary to connect to services and disposal systems.
- 028 Supply baths with:
- 1500 mm rectangular pattern, single centre tap holes, twin handle grips and slip resistant base;
 - chromium plated deck pattern over bath/shower fitting comprising height adjustable lockable slide rail, shower bracket, fastening set, shower hose (minimum 1500mm) soap dish and adjustable head outlet
 - chromium plated deck mounted mono mixer to match mono basin mixer, quarter turn lever action;
 - chromium plated rotative clicker waste stopper;
 - DN 40 polypropylene shallow seal trap with combined overflow;
 - bolt on adjustable feet
 - galvanised mild steel floor plates to be provided under bath feet; and
 - all fittings necessary to connect to services and disposal systems.
- 029 Where it not feasible to install a gravity over bath/shower mixer assembly, a deck mounted quarter turn lever action chromium plated bath filler mixer taps with maximum mixed water outlet temperature for bath fill of 48 degree C, an electric shower is also to be provided over the bath.
- 030 For WC pans to BS EN 997 and BS 3402, use white vitreous china toilet pan, horizontal outlet, standard pan connector to BS 5627 to 'P', 'S' or turned 'P' coloured to match pan; and, thermoplastic Type 2 seat and cover to BS 1254, with thermoplastic colour matched plastic hinges, buffers to be either synthetic or natural rubber or thermoplastic with a minimum of two integral distance pieces or a maximum of four buffers attached to underside of seat, seat colour black or white.
- 031 For dual flush WC cisterns to BS 1125 and BS 3402, use white vitreous china type for use with close coupled suites. Ensure the cisterns are complete with:
- lid;
 - ball valve low pressure type;
 - siphon;
 - cistern to be dual flush 6 litres/4.5 litres capacity with dual flush button;
 - wall brackets;
 - cistern inlet connector to wc pan; and
 - all fittings necessary to connect to services, disposal systems and overflow.

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- 032 For Close Coupled WC Pan and Cistern to BS EN 22 and BS EN 997 use:
- White vitreous china pan to BS EN 997 and BS 3402;
 - Thermoplastic Type 2 seat and cover to BS 1254, with thermoplastic colour matched plastic hinges, buffers to be either synthetic or natural rubber or thermoplastic with a minimum of two integral distance pieces or a maximum of four buffers attached to underside of seat, seat colour black or white;
 - Standard pan connector to BS 5627 to 'P', 'S' or turned 'P' coloured to match pan;
 - White vitreous china cistern to BS 1125 and BS 3402 with lid;
 - Dual flush 6 litres/4.5 litre capacity to BS 1125;
 - Operating control, ball valve low pressure type to BS 1212-1, BS 1212-2 or BS 1212-3, diaphragm pattern of copper alloy/plastic construction with plastic float to BS 2456
 - Dual flush button operating mechanism, with cistern inlet connector to WC Pan;
 - Internal overflow into WC pan through the flush valve supplied by the manufacturer.
- 033 Provide Automatic WC Pan and Cistern use:
- Automatic WC shower toilet providing flushing, washing and warm air drying WRAS approved;
 - Combined WC/Bidet with addition of drying air to BS 3402
 - White vitreous china arrangement with low level wash down and horizontal outlet;
 - Seat and cover as supplied by manufacturer;
 - Pan connector, standard to BS 5627 'S' trap (vertical fall) or 'P' trap (horizontal) white to match pan;
 - Cistern, as supplied by the manufacturer;
 - Flushing operation, as supplied by the manufacturer;
 - Operating control, as supplied by the manufacturer;
 - Water service, 15mm cold water service only with isolation valve, from storage or mains water supply;
 - Boiler capacity, as supplied by the manufacturer;
 - Cistern capacity, as supplied by the manufacturer;
 - Internal overflow into WC pan through the flush valve supplied by the manufacturer.;
 - Electrical services, 230/240V 1 Phase 50Hz AC earthed supply, Maximum Power 1300 watts, Load 10A, Rating IPX4
 - Installation, a fused spur is required for isolation, located in accordance with the latest IET Wiring Regulations;
 - Height, to be raised above floor level to enable easy transfer from wheelchair to WC pan.
- 034 Provide Bidet to BS use;
- Standard to BS 35, BS EN 14528 and BS 3402;
 - Pedestal type in white vitreous china with over-rim supply;
 - Water supply fittings, pillar taps or centre set taps with pop up waste, chromium plated finish;
 - Standard waste, DN30 flush grated waste fitting, standard to BS EN 274-12, BS EN 274-2 and BS EN 274-3, un-slotted tail, brass, with external parts chromium plated with solid brass back nut;
 - Standard 50mm (minimum) seal polypropylene trap DN30 kite marked to BS 274-1.

Stainless steel sinks

- 035 Provide stainless steel inset sinks to BS EN 13310 and BS EN 10088 with single bowl, single drainer, 2 tap holes. Supply 0.9mm satin polish finish sinks with:
- deck pattern chromium plated sink mixer with metal handle control with colour discs, red for hot and blue for cold to ;
 - DN 40 chromium plated combined plug type waste and overflow unit with unslotted or slotted tail (for use with an appliance with overflow);
 - DN 40 polypropylene 76mm (minimum) seal trap to BS EN 274 chrome plated sink waste chain and stay with black rubber or plastic plug; and
 - all fittings necessary to connect to services and disposal systems.

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Shower trays and enclosures

- 036 Provide fibreglass level access shower trays to BS EN 14527 class 2 (CE Mark = EN14527-CL2) preferred optimum size 850mm x 1200mm (on site variations to be considered):
- Weight – loading of 380 kilos/60 stone;
 - Level access (no greater than 5mm above finished floor level at point of entry with rounded/bevelled lip);
 - Waste – shower trap with removable waste fitting (supplied as standard with shower tray) and installed in accordance with the manufacturer's technical data sheet;
 - Sealing – seal to be achieved between wall and shower with proprietary shower sealing tape, all other sealing as per manufacturer's technical data sheet and mould resistant sealant to BS EN ISO 11600 low modulus; and
 - Workmanship – tray to be installed no greater than 5mm above finished floor level with rounded /bevelled lip at point of entry. For the avoidance of doubt the point of entry is the line where the finished floor and edge of shower tray butts.
- 037 Provide fibreglass or stone resin step in shower trays to BS EN 14527 class 2 (CE Mark = EN14527 CL2), preferred optimum size 850mm x 1200mm (on site variations to be considered):
- Weight – loading of 380 kilos/60 stone;
 - Step in tray (a maximum step of 85mm is recommended);
 - Waste – shower trap with removable waste fitting (supplied as standard with shower tray) and installed in accordance with the manufacturer's technical data sheet;
 - Sealing – seal to be achieved between wall and shower with proprietary shower sealing tape, all other sealing as per manufacturer's technical data sheet and mould resistant sealant to BS EN ISO 11600 low modulus; and
 - Workmanship – tray to be installed no greater than 5mm above finished floor level with rounded /bevelled lip at point of entry. For the avoidance of doubt the point of entry is the line where the finished floor and edge of shower tray butts;
- 038 Provide fibreglass wet room former to BS EN 14527 class 2 (CE Mark = EN14527 CL2), preferred optimum size 850mm x 1200mm (on site variations to be considered):
- Weight – loading of 380 kilos/60 stone;
 - Fibreglass floor former with integral floor covering;
 - Waste – shower trap with removable waste fitting (supplied as standard with shower tray) and installed in accordance with the manufacturer's technical data sheet;
 - Sealing – seal to be achieved between wall and shower with proprietary shower sealing tape, all other sealing as per manufacturer's technical data sheet and mould resistant sealant to BS EN ISO 11600 low modulus.
- 039 Shower Tanking System, Liquid Applied Tanking To Floors:
- Acrylic based flexible waterproofing liquid applied in accordance with manufacturer's instructions as part of a shower tanking system.
 - Background: sand/cement screed.
 - Preparation: primed as recommended by manufacturer.
 - Area: to cover entire shower room floor.
- 040 Shower Tanking System, Liquid Applied Tanking To Walls:
- Acrylic based flexible waterproofing liquid applied in accordance with manufacturer's instructions as part of a shower tanking system.
 - Background: plaster skim.
 - Preparation: primed as recommended by manufacturer.
 - Area: to cover walls from floor to ceiling, a minimum of 150mm beyond dimensions of shower tray or former.
- 041 Shower Tanking System Polyester Tape:
- Reinforcement for junctions of walls, floors, shower bases, upstands, outlets, cracks and joints.
 - Applied in accordance with manufacturer's instructions as part of a shower tanking system.

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- 042 Provide shower enclosure manufactured to BS EN 14428 (CE Mark = EN14428 CA-IR-DA)
- Half height bi-fold/tri-fold toughened glass/plastic enclosures which shall not break or shall break safely;
 - Powder coated aluminium frame and plastic parts;
 - All seals to be watertight with 180 degree rise and fall hinges;
 - Magnetic closing doors with locking handle and fitted seals;
 - Fitted with full height shower curtain and H track curtain rail, supplied with all necessary heavy duty clip, fixings and hooks;
 - Curtains to be durable polyester weighted by 50 grams to prevent swing;
 - Sealing – fit as manufacturer’s technical data sheet to ensure all seals on moving parts are watertight when in operation. Fixed sealing undertaken using mould resistant sealant to BS EN ISO 11600 low modulus.
- 043 Provide shower enclosure manufactured to BS EN 14428 (CE Mark = EN14428 CA-IR-DA)
- Half height bi-fold/tri-fold toughened glass/plastic enclosures which shall not break or shall break safely;
 - Polished chrome frame and plastic parts;
 - All seals to be watertight with 180 degree rise and fall hinges;
 - Magnetic closing doors with locking handle and fitted seals;
 - Fitted with full height shower curtain and H track curtain rail, supplied with all necessary heavy duty clip, fixings and hooks;
 - Curtains to be durable polyester weighted by 50 grams to prevent swing;
 - Sealing – fit as manufacturer’s technical data sheet to ensure all seals on moving parts are watertight when in operation. Fixed sealing undertaken using mould resistant sealant to BS EN ISO 11600 low modulus.
- 044 Provide shower enclosure manufactured to BS EN 14428 (CE Mark = EN14428 CA-IR-DA)
- Full height toughened glass/plastic enclosures with watertight door seals and magnetic closing doors and fitted seal;
 - Powder coated aluminium frame and plastic parts;
 - Sealing – fit as manufacturer’s technical data sheet to ensure all seals on moving parts are watertight when in operation. Fixed sealing undertaken using mould resistant sealant to BS EN ISO 11600 low modulus.
- 045 Provide ABS Plastic grab rails:
- All rails shall be manufactured from ABS plastic (virtually indestructible plastic) and shall have a slip resistant grip with broad flanged fittings to be plastic welded to rail for fixing with non-corrosive screws to wall or floor;
 - All rails to have easy bends and no sharp corners;
 - Rails should contract in colour and luminance with the background against which they are seen;
 - It is of the utmost importance that the wall construction should allow a secure fixing of grab rail to suit changing needs or specific needs of an individual;
 - The grab rail shall be 32mm to 35mm diameter fixed with a clearance between the rail and the wall of 50mm to 60mm with a good grip when wet;
 - The rail should not deteriorate when exposed to extremes of heat and cold;
 - Sizes to suit site conditions and left or right handing;
- 046 Provide Grab Rail - single or double folding rails:
- Manufactured from 32mm to 35mm diameter mild steel and coated with a white epoxide/polyester finish and fitted with a strongly constructed locking device to enable the rail to be locked in the vertical position;
 - Double folding rails shall be fitted with a toilet roll fitment;
 - Drop down rails should be of a type that can be pulled down by a person when seated on the WC;
 - They shall incorporate vertical support struts, set back from the front edge of the rail by at least half its projection from the wall so as not to impede wheelchair access;
 - Projection of rails shall vary according to need.

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- 047 Provide Grab Rail - double folding rails with foot support:
- Manufactured from 32mm to 35mm diameter mild steel and coated with a white epoxide/polyester finish and to be used where the mechanical strength of the wall is doubtful;
 - In the down ward position the supporting leg shall take most of the applied load;
 - In the upright (Vertical) position the locking device shall enable the rail to be used as a HAND HOLD and shall not be considered as suitable as a GRAB RAIL when in the vertical position;
 - Projection of rails shall vary according to need.
- 048 Provide shower curtain tracks:
- Track may be straight, 'L' shaped or 'U' shaped;
 - Rail shall be manufactured from anodised aluminium;
 - Rail is to be easy to bend and supplied with all necessary fixing brackets and hooks;
- 049 Provide shower curtain:
- Curtain to be shower proof plastic with hem weighted by 50 grams to ensure correct hanging and supplied with all necessary clips and fixings
- 050 Provide shower seat:
- Seat to be manufactured to BS EN 12182 and BS EN 12727
 - Wall mounted seat with height adjustable support legs and be able to fold upwards when not in use;
 - Complete with fixed or detachable padded seat, back and arms for extra comfort;
 - Powder coated frame;
 - Stainless steel rawlbolt fixings to suit wall construction in accordance with the fixing manufacturer's technical data sheet;
 - Weight – not to exceed a loading of 254 kilos/40 stone;
- 051 Padded Back Rest (for toilet seat):
- Type: Back rest for disabled toilet
 - Materials:
 - Rail: 32 mm (nominal) diameter steel coated formed into shape with easy bends and no sharp corners, polyester powder coated finish.
 - Pad: Polyurethane foam, wipe clean and splash-proof
 - Colour: White, unless recommended otherwise for visual contrast.
 - Fixing: Broad flanged fittings fixed with non-corrosive screws as recommended by manufacturer and suitable for wall construction to ensure a secure fixing.
 - To withstand a maximum test load of 135kg and rated load of 90kg
 - Nominal dimensions:
 - Tube diameter: 32mm
 - Flange centres: 400mm
 - Flange diameter: 84mm
 - Tube wall thickness: 1.5mm
 - Projection from wall (with pad): 314mm
 - Pad size: 280 mm wide x 140 mm high x 60 mm thick
- 052 Bath/Shower Screen:
- Type: 6mm toughened safety glass shower screen, tested to BS EN 12600;
 - Wall post and screen profile; polished aluminium
 - Hinge; rise and fall mechanism – left or right fitting
 - Nominal dimensions; 1500mm height x 800mm wide
 - Fixing – Supplied with all necessary fixing brackets, seals, cover caps
 - Sealing – fit as per manufactures technical data sheet to ensure all seals on moving parts are watertight when in operation. Fixed sealing undertaken using mould resistant sealant to BS EN ISO 11600 low modulus

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- 053 Bath/Shower 2 Panel Screen:
- Fixed panel and door screen used to allow door opening, due to closely fitted adjacent wash hand basin;
 - Type: 6mm toughened safety glass shower screen, tested to BS EN 12600
 - Wall post and screen profile; polished aluminium
 - Hinge; rise and fall mechanism – left or right fitting
 - Nominal dimensions; 1500mm height x 1400mm wide
 - Fixing – Supplied with all necessary fixing brackets, seals, cover caps
 - Sealing – fit as per manufactures technical data sheet to ensure all seals on moving parts are watertight when in operation. Fixed sealing undertaken using mould resistant sealant to BS EN ISO 11600 low modulus
- 054 Provide thermostatic shower mixing valve to BS EN 111, BS EN 1287 BEAB Care, TMV2, YMV3 and WRAS approved:
- Thermostatic shower control to mix hot and cold water to the desired water temperature;
 - Surface mounted shower control, with extended lever control to distinguish between flow and temperature for disabled use;
 - Chrome plated finish;
 - Temperature range, Thermostatic control range 35 to 45 degrees C;
 - Inlet water supply temperatures, 15 degrees C Cold and 65 degrees C Hot;
 - Maximum hot water system temperature: 60 degrees C;
 - Automatic shut down within 3 seconds in the event of failure in the cold water supply;
 - Multi-mode showerhead with a 1m (minimum) length slide bar and soap dish, 1.5m (minimum) length flexible hose with retaining ring and all necessary fittings for surface fixing;
 - Minimum maintained pressure: 0.1bar;
 - Maximum maintained pressure: 5.0 bar;
 - Maximum static pressure: 10.0 bar;

Tanks

- 055 Ensure tanks are complete with tightly fitting removable lids. Use moulded plastic tanks to BS 4213 and BS 7181. Ensure the tank is complete with a float valve and all fittings necessary to connect the services and overflow.

Copper cylinders

- 056 Ensure hot water storage copper cylinders are to BS 1566-1 Grade 3 factory insulated, fitted with sacrificial anodes and complete with:
- immersion heater boss, cap and washer screwed boxes; and
 - all fittings necessary to connect to the primary pipework supply and draw off pipework.

Combination hot water storage units

- 057 Provide indirect or direct combination tanks to BS 3198 as appropriate. Ensure the proprietary units are complete with:
- sacrificial anodes;
 - insulation;
 - float valve;
 - immersion heater boss, cap and washer, screwed boxes; and
 - all fittings necessary to connect to the primary supply, draw off and overflow pipework.

Insulation

- 058 Use preformed, fully flexible, closed cell elastomeric insulation fire rated as insulation for hot and cold pipework that meets the requirements of the Utility Provider.

Paint

- 059 Ensure paint used in repairs complies with the "Painting and Decorating" Section.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

WORKMANSHIP

Water supply

- 060 Support pipework at centres recommended by the manufacturer with approved clips or brackets of a type to suit the background to which it is required to be fixed.
- 061 Ensure that pipes used in repairs are similar to the existing pipework, but repair lead pipework using appropriate plastic pipe and approved compression fittings. Do not use copper pipework for repairs to lead pipework. Use either compression or lead free solder capillary ring fittings.

Sanitary appliances

- 062 Properly install sanitary fittings. Take care to ensure that integral overflows are not obstructed with jointing compounds. Fix sanitary fittings securely to structure without taking support from pipe lines, level and plumb and fall to drain as intended, use jointing and bedding compounds as recommended by the manufacturer's of appliances, accessories and pipes technical data sheets to form watertight joints between appliances and backgrounds (except cisterns) , and between appliances and discharge pipes, Ensure that noiggins, bearers etc., necessary to support sanitary appliances and fittings are accurately postioned and securely fixed.
- 063 Isolate waste, taps and other fittings from the sanitary fittings with the appropriate flexible washers making an effective seal.
- 064 On cisterns, obtain from manufacturer, float operated valve matched to pressure of water supply, fix overflow pipe to falls and located to give visible warning of discharge.
- 065 Assemble taps, fix securely, making a watertight seal with the appliance, a suitable set of flanged insert plug/sleeve and washers shall be fitted to each and evert tap for securing tap in position and for anti-rotation purpose.
- 066 Assemble wastes and overflows to appliances, bed in waterproof joint compound and fix with a resilient washer between appliance and backnut.

Rainwater Harvesting- Design Criteria

- 067 The collection tank is to be buried. Rainwater is to enter the drainage system through sealed gullies and pass through a pre-filter to remove leaves and other debris prior to entering the collection tank. A submersible pump controlled by the monitoring and sensing panel is to deliver recycled rainwater on demand. The non-potable distribution pipework to the washing machine, cleaner's tap, outside tap and toilets etc., must either be a boosted system or configured for a header tank in the loft, with mains supply back-up with monitors and sensors located located in or adjacent to the header tank.
- 068 Rainwater harvesting systems must include an automatic switchover to the mains water back-up supply, upon depletion of the stored rain water.

Grey Water Recycling – Design Criteria

- 069 Waste water from baths, showers and washbasins collected by conventional pipework, is to collected in a pre-treatment sedimentation tank to remove larger dirt particles. Water then is to pass to the aerobic treatment tank in which cleaning bacteria ensure that all bio-degradable substances are broken down. The water then passes onto a third tank, where an ultra-filtration membrane is to remove all particles larger than 0.00005 mm, (this includes viruses and bacteria) to disinfecting the recycled grey water. A fourth tank is to store the clean water from where it is pumped on demand under the control of monitors and sensors in the control panel. Recycled grey water may be used for toilet and urinal flushing, for laundry and general cleaning, and for outdoor use such as vehicle washing and garden irrigation. If there is insufficient space, then the tanks may be buried but with adequate arrangements for maintenance access.
- 070 Grey water harvesting systems must include an automatic switchover to the mains water back up supply, upon depletion of the stored grey water.

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Client’s current manufacturers/suppliers/products

071 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

MAINTENANCE OF THERMOSTATIC MIXING VALVES

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

THERMOSTATIC MIXING VALVE MAINTENANCE

General Requirements

- 001 The Service Provider shall be deemed to have read the whole of this Specification together with the Client's requirements' and will be deemed to have included in his Tendered Rates for full compliance.

The Service Provider shall provide a 24-hour, 365 days per year (366 for a leap year) responsive maintenance service for the period of the Service to allow for breakdown or malfunction of any appliance, or installation and the replacement of any defective or missing components or installation parts previously specified. This service is to ensure that the appliances and installations are left in a safe and fully operational condition. The details of any repair are to be noted by the engineer for registering on the Service Provider's database (as provided by the Client's Representative).

Asset Register

- 002 The Service Provider must ensure that all the asset registers are supplied to the Client's Representative during the first 12 months of the Contract Period.

Maintenance Reports

- 003 The Service Provider shall ensure that, following all inspection visits, conditional reports shall be in electronic format, including all specialist reports and test equipment printouts, and uploaded onto the Client's IT system.

Manufacturer's Requirements

- 004 Where manufacturer's instructions exceed the requirements of this document they shall be adhered to in their entirety.

Access

- 005 The Service Provider shall ensure that he undertakes a risk assessment and provides a method statement for his means of access to allow for inspection and testing.
- 006 All works shall be carried out in strict accordance with the requirements of "The Work at Height Regulations 2005".
- 007 The Service Provider shall ensure that all Staff employed upon this Contract are suitable trained and experienced and competent to work at height.

Guidance

- 008 The Service Provider shall refer to the Specification and to the British Standards Institution publications for detailed guidance. Other guidance is available from the HSE, NHS Estates, the Water Regulations Advisory Scheme and the Thermostatic Mixing Valve Manufacturer's Association.

The Service Provider shall pay particular attention to:

- NHS Estates Health Guidance Note – 'SAFE' hot water and surface temperatures.
- Building Regulation Approved Documents
- Thermostatic Mixing Valve Manufacturer's Association Recommended Code of Practice for Safe Water Temperatures.
- HSE document L8: The prevention and control of legionellosis (including Legionnaires' disease).
- The Water Supply (Water Fittings) regulations.
- WRAS Water Regulations Guide.
- BS EN 1287 'Sanitary tap ware – low pressure thermostatic mixing valves'
- BS 7942 Thermostatic Valves for use in care establishments.
- BS 8558 Specification for design, installation, testing and maintenance of services supplying water for domestic use within buildings and their curtilages.

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Minor Repairs

009 The Service Provider shall, during testing, carry out minor repairs such as tightening joints, replacement of clips, etc., to achieve a pass status and make appliances safe to ensure compliance with BS EN 1111.

Periodic Inspections and Testing

010 Inspection and testing of thermostatic mixing valves must unless otherwise Instructed by the Client’s Representative be carried out in accordance with the requirements tabled below;

Item No.	Item	Frequency	Action	Notes
Installation Information				
1.	<p>The Service Provider shall examine records pertaining to each TMV.</p> <p>All TMVs should be identified by a unique asset number.</p> <p>In particular the Service Provider shall ensure the presence of the following information:</p> <p>‘As-fitted’ drawings Manufacturer’s installation and maintenance manual Commissioning and testing records. Maintenance records</p>			
Testing				
2.	Water Treatment	6 Monthly	<p>Measure temperature of water flow at normal flow rate and after allowing stabilisation.</p> <p>Repeat temperature test at approximately ¼ normal flow rate.</p> <p>Temperature range should be as required in Health Guidance Note ‘Safe’ hot water and surface temperatures (Section 3 Table 1).</p>	Use a digital thermometer of known accuracy, with a minimum refresh rate of 4 times per second.
3.	Fail Safe Action	6 Monthly	Isolate cold water supply. Ensure all hot water ceases to flow in time specified by manufacturer for valve type.	
4.	Flow Rate	6 Monthly	Measure flow rate. Compare flow to commissioning data and previous maintenance records.	Undertake maintenance as appropriate

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Item No.	Item	Frequency	Action	Notes
Routine & Responsive Maintenance				
5.	TMV – General	Annually	Examine for leaks. Examine for corrosion. Examine connections, hoses and outlets. Examine fixings. Descale in accordance with manufacturer’s instructions. Sterilise shower heads as required by legionella risk management plan.	
6.	Pipework	Annually	Examine for leaks. Examine hangers and supports, adjust as necessary. Examine for corrosion. Examine thermal insulation. Record hot and cold water temperatures.	
7.	Isolation Valves	6 Monthly	Examine for leaks. Test valves for free travel. Repack if necessary. Examine for corrosion.	
8.	Strainers	6 Monthly	Examine general medical condition. Clean strainers and filters.	
9.	Repairs		If repairs are necessary, all works shall be carried out in strict compliance with manufacturer’s recommendations and requirements. Upon completion of works the TMV shall be recommissioned in accordance with the manufacturer’s instructions. Record commissioning data.	

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Client’s current manufacturers/suppliers/products

011 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

HEATING

General Requirements

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

HEATING

General Requirements

Service Provider's Conduct

- 001 The Client is intent on providing an expeditious, safe and efficient maintenance service to its Customer's and consequently the Service Provider shall do his utmost to promote and enhance the image and reputation of the Client in this respect.
- 002 The Service Provider shall require his Staff engaged upon the Works to be properly and presentably dressed in appropriate uniforms or workwear.
- 003 The Service Provider shall ensure that his Staff shall perform their duties in an orderly and quiet manner as may be reasonable and practicable having regard to the nature of the duties being performed by them.
- 004 The need to maintain the highest standards of hygiene and courtesy whilst the Service Provider's Staff are engaged upon the Works is paramount and in particular consideration must be given to users and occupiers when working in or near occupied premises. The Service Provider shall observe all of these provisions and also ensure that the said Staff do not cause a nuisance and or disturbance to users and occupiers when they are working in or near occupied premises.
- 005 The Client's Representative is empowered by this provision to give written notice to the Service Provider requiring him to remove from the Works forthwith any Staff member of the Service Provider engaged upon the Works, if he is not satisfied in any way with the respective Staff members apparel, conduct, manner, or ability. The Service Provider shall on receipt of such notice comply forthwith and remove the Staff member from the Client's Property and the Staff member shall not be employed or engaged upon or in connection with the Works whilst the Contract remains in force.
- 006 The Client's Representative will from time to time poll Customer's to obtain their views on the effectiveness of the service provided by the Service Provider and the manner adopted by his Staff when discharging their duties. The results of the poll will be taken into account when considering the needs for resourcing future repair and maintenance programmes.

Registered Service Provider

- 007 The Service Provider shall have and maintain throughout the Contract Period registration with the:-
- (a) GAS SAFE Register or such other body as may from time to time be approved by the Health and Safety Executive and
 - (b) OFTEC or such other body as may from time to time be approved by the Health and Safety Executive and
 - (c) HETAS or other such body as may from time to time be approved by the Health and Safety Executive and
 - (d) National Inspection Council for Electrical Installation Contracting (NICEIC) and/or Electrical Service Providers Association (ECA) or alternatively, the Service Provider may employ a Subcontractor who is registered with the National Inspection Council for Electrical Installation Contracting and/or Electrical Service Providers Association in order to undertake electrical work in connection with the Works or be registered with an approved electrical licence to practice system. An example of a licence to practice system is SparkSafe.

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- 008 In the event that the Service Provider's GAS SAFE or OFTEC or HETAS OR NICEIC or ECA registration becomes suspended or withdrawn or has any conditions attached for whatever reason, the Service Provider shall immediately notify the Client's Representative in writing giving full details of the reasons for such and the proposed or intended action and time-scale for gaining reinstatement of its registration(s). With immediate effect from the date of suspension or withdrawal of its registration(s) and until reinstatement The Service Provider shall, subject to approval of the Client's Representative, be required to employ a suitably registered Subcontractor to undertake Works under the Contract.
- 009 Should the Service Provider be unable within a period of two weeks to engage a suitably registered Subcontractor which meets the Client's Representative's approval and or the period of suspended or withdrawn registration(s) exceeds or is likely to exceed four weeks then, the Client may at its sole discretion terminate the Service Provider's employment under the Contract in writing with immediate effect. Such action on the part of the Client shall constitute a valid termination in accordance with the Contract Conditions.

Electrical Installations

- 010 The Service Provider shall as part of the installation of a new/replacement gas or oil fired or biomass central heating installation, check and test all electrical installations and fittings associated with the Heating Installations and Heating Appliances covered by this Contract, so as to ensure their safe operation. All remedial work will comply fully with the latest IET Regulations.

PERFORMANCE SPECIFICATION FOR HEATING INSTALLATIONS

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

PERFORMANCE SPECIFICATION FOR HEATING INSTALLATIONS

SPECIAL CONDITIONS

Special Conditions

- 001 The following special conditions apply to all new boiler central heating and hot water services installations and boiler replacement and boiler renewal installations.
- 002 The Service Provider shall be GAS SAFE, OFTEC or HETAS registered. All operatives, engineers and technicians shall be suitability qualified.
- 003 The Service Provider shall provide a full list of the operatives who will be involved in the Contract prior to the commencement date. This list shall include the operatives' names, career history, qualifications, etc.
- 004 This information shall be updated as and when required throughout the duration of the Contract.
- 005 **The Service Provider should note that following completion of the works, a 24 hour, 7 days/week, including Public Holidays, emergency call-out service shall be provided for the duration of the 12 months Defects Liability Period.** The emergency call-out number shall be provided on a sticker placed on the boiler enclosure.
- 006 The Service Provider is to provide written notification of all emergency call-outs giving details of faults/defects and response times which should be countersigned by the Customer.

Service Provider Design

- 007 The Service Provider carries the Design responsibilities for the new domestic central heating and hot water services installations, or for the boiler replacement/renewal installations.
- 008 The Service Provider will be required to provide a statement of skills, knowledge and experience which will cover:
- Membership of a relevant professional body.
 - Familiarity with the construction processes in the circumstances of the project and the impact of design on Health and Safety.
 - Awareness of relevant Health and Safety and fire safety legislation and appropriate risk assessment methods.
 - The Health and Safety practices of the designer for Design work carried out.
 - The people to be employed to carry out the work, their skills and training, this is likely to include external resources where necessary and is to be reviewed in association with the design requirements.
 - Technical facilities to support the Design, particularly in the circumstances of the project.
 - The method of communicating Design decisions.
 - How information and instructions will be communicated to the Customer's. Ideally this should be provided by a person with specific training, e.g. City and Guilds in Energy Advice.
 - This information shall be forwarded to the Client's Representative.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

009 INSTALL AND MAINTAIN REPLACEMENT GAS (WALL MOUNTED CONDENSING BOILER) CENTRAL HEATING SYSTEM

Replacement operations will be as follows and to include all labour and materials necessary for the completion of the installation

Design

The Service Provider shall carry out an initial survey of each Property and prepare and submit the Design information for the replacement of the heating system in compliance with the Client's Specification.

The Service Provider shall submit a completed "Survey Schedule and Cost Estimate" to the Client's Representative for clearance and approval.

The Service Provider shall carry out all necessary Customer consultation.

The Service Provider shall obtain all necessary statutory approvals; for the Works (including the payment all necessary fees and administration charges in connection therewith).

Removal of Existing System

The Service Provider shall include for carefully draining down, disconnection and removal of the complete existing Client's and or Customer installed heating system; remove/seal off as necessary all pipe work thereto, remove fireplace hearth and surround, build up chamber opening, core ball and sweep flue; supply and insert permanent ventilator and extend and make good plaster, skirting to match existing.

The Service Provider shall remove all redundant radiators and exposed pipe work as necessary and remove the feed and expansion cistern, all pipe work, and insulation and any support platforms. The hot water cylinder, pipe work, immersion heaters, insulation and support stool are also to be removed. All existing electric cable, conduit and accessories shall be removed and all surfaces made good.

Replacement installation

The Service Provider shall supply temporary heat (a minimum two 3 Kilowatt electric panel type heaters having time and temperature control; for the complete duration of the Works and maintain Customer's mains electricity supply, mains water supply and bathroom facilities at end of each working day.

The Service Provider will also ensure that Customer's property and possessions are protected with the Property cleaned at the end of each working day and on completion of all of the Works.

The Service Provider shall supply and install a gas wall mounted condensing boiler complete with fixing gig and all gas pipe work connections thereto, including any alterations to existing and all new heating pipe work, domestic hot and cold water pipe work as applicable; all pipe work insulation, all condensate pipe work to waste or gully or to and including construction, if necessary, of a soak-a-way.

Supply and install a complete boiler flue to comply with BS 5440 Part 1, all in accordance with the boiler manufacturer's flue options where necessary, with a flue terminal wire guard if required, including forming all structural openings and all necessary builders work and making good.

The Service Provider shall supply and install a fireproof ceiling above a boiler if located in a store or below stairs as required.

Provide eaves/guttering protection heat shields above flue terminal. Provide and install a plume kit.

The Service Provider shall supply and install in all habitable rooms a radiator to provide the calculated heat output required in each Property type, including grounds to stud walls where required. Rear halls and porches are not deemed to be a habitable room.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Supply and install new heating circulator complete with valves, including dedicated electrical circuit and flexible cable connection to the pump.

Thermostatic radiator valves to be fitted to all rooms fitted with a radiator except in rooms where a controlling room thermostat (standard or programmable is fitted).

Supply and install a lock shield radiator valve to all rooms fitted with a radiator, including an additional lock shield valve in lieu of a thermostatic valve where the room thermostat is fitted.

The control of space heating and hot water systems shall be provided with time and temperature control in accordance with the Client's Specification including electrical circuit and all connections to each item of control equipment.

Supply and install new feed and expansion cistern, complete with insulation jacket, support platform, lid, float valve, overflow and warning pipework.

Supply and install new hot water cylinder, complete with factory fitted foam insulation, 3kW immersion heater, cylinder stool including new dedicated electrical circuit having a heating boost switch and new flexible cable connection to the immersion heater.

The Service Provider shall provide a tiled fire surround and hearth in accordance with F30 (3) Code of Practice for Electric Fires, with an electric inset focal point fire provided, including dedicated electrical circuit and flexible cable connection to the fire from DP switch concealed within the fabric of the building.

The Service Provider shall Design, install and test all new dedicated electrical circuits in accordance with the latest Edition of the IET Wiring Regulations for:

- Gas boiler installation including heating/hot water system control and all accessories
- Boiler house/compartment light circuit including bulkhead fitting and lamp where required
- Electric inset electric focal point fire circuit including flexible cable
- Electric immersion heater circuit including heating boost switch circuit and flexible cable

The Service Provider shall also provide all labels where necessary, test and provide to the Client an EIC (Electrical Installation Certificate) for all Works completed.

Where necessary provide ventilated pipe casings to all gas pipe work in accordance with GSUIR.

The Service Provider shall make good/replace as necessary insulation to all exposed pipe work in roof space and all necessary new insulation to pipelines in accordance with the Client's specification.

The Service Provider shall provide all necessary pipe casings to pipe work where exposed. All pipe casings to be painted with 2 No. coats of undercoat and finished with one coat of white gloss paint.

Completion

On completion of the replacement installation of a boiler and hot water system, together with associated equipment such as pipe work, circulating pump, radiators and system controls, the Service Provider shall check the system for air locks and vent as necessary and the system and all equipment should be tested and commissioned in accordance with the manufacturer's instructions.

The Service Provider shall provide the fuel for testing.

The heating system is to be thoroughly cleaned and flushed out before the installation of a new boiler.

During the final filling of the system, a chemical water treatment inhibitor meeting the boiler manufacturer's specification or other appropriate standard should be added to the primary circuit to control corrosion and the formation of scale and sludge.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

The Service Provider shall upload unto the Client's IT system, all test certificates and records as requested in the Client's specification.

The Service Provider shall give the Customer sufficient information about the Property, including operational and maintenance instructions of the installed building services and controls and other details so that each Property can be operated and maintained in an energy efficient manner to use no more fuel than is reasonable in the circumstances.

Without comprising health and safety requirements, the instructions should explain to the Customer how to operate the system efficiently to include:

- How to make adjustments to the timing, temperature and flow control settings; and
- What routine maintenance is necessary to enable each system to be maintained at reasonable efficiency throughout their service life

The Service Provider shall provide an information pack supplied in an A4 clear plastic envelope and containing a copy of the central heating system's manufacturers operational instructions/booklets for each major component.

The Service Provider shall notify in writing to the local Building Authority and the Client's Representative confirming that all fixed building services have been properly commissioned not more than five days after completion of the commissioning Works.

A Health & Safety File shall be uploaded unto the Client's IT system in accordance with the current CDM (Construction Design Management) Regulations, on completion of the works.

Boiler Manufacturer's Warranty

The Work will also include the provision of a manufacturer providing evidence of a warranty for each boiler installed by the Service Provider.

The warranty guarantees the repair of all defects to the boiler at no cost to the Client (including the cost for all parts, labour and any other charges) for a period of 10 years from the date of installation of the boiler.

The warranty shall be given by the manufacturer directly to the Client and the manufacturer agrees that from the commencement date to the end of the warranty period of the agreement, labour to carry out any repairs is provided by the Service Provider but is transferable to the Client's new service provider either after the end date of this Contract or upon termination of the Contract.

The Client will undertake to have the warranted boiler installed under this Contract.

The Client will undertake to have the warranted boiler serviced annually either under this Contract or a subsequent contract.

Service Provider's Central Heating Warranty

The work will also include the provision of a Service Provider's warranty for each replacement central heating system installed by the Service Provider and this warranty must provide for the following features

The warranty guarantees the repair of all defects and any Customer's misunderstanding or abuse to the replacement central heating system at no cost to the Client (including the cost of all parts, labour and any other charges) **for a period of 12 months from the date of installation of the replacement heating system.**

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Routine and Responsive Maintenance Service

For the avoidance of doubt, the replacement central heating system installed under this part of the service, with immediate effect, is repaired by the Service Provider under the routine and response maintenance service of this Contract, however while the replacement central heating system is under the Service Provider's 12 month warranty, no payment will be made for the installation under the routine and responsive maintenance service during this time.

As part of the Service Provider's routine and responsive maintenance service of this Contract the Service Provider is responsible for obtaining all parts and recovering all associated labour costs or any other expenses, directly from the boiler manufacturer under the boiler manufacturer's warranty.

010 INSTALL AND MAINTAIN REPLACEMENT GAS (COMBINATION CONDENSING BOILER) CENTRAL HEATING SYSTEM

Replacement operations will be as follows and include all labour and materials necessary for the completion of the installation

Design

The Service Provider shall carry out an initial survey of each Property and prepare and submit the Design information for the replacement of the heating system in compliance with the Client's Specification.

The Service Provider shall submit a completed "Survey Schedule and Cost Estimate" to the Client's Representative for clearance and approval.

The Service Provider shall carry out all necessary Customer consultation.

The Service Provider shall obtain all necessary statutory approvals for the Works; (including the payment of all necessary fees and administration charges in connection therewith).

Removal of Existing System

The Service Provider shall include for carefully draining down, disconnection and removal of the existing Client's and or Customer installed heating system; remove/seal off as necessary all pipe work thereto, remove fireplace hearth and surround, build up chamber opening, core ball and sweep flue; supply and install a permanent ventilator and extend and make good plaster, skirting to match existing.

The Service Provider shall remove all redundant radiators and exposed pipe work as necessary, remove the feed and expansion cistern, the cold water storage tank, all pipe work, and insulation and any support platforms. The hot water cylinder, pipe work, immersion heaters, insulation and support stool are also to be removed. All existing electric cable, conduit and accessories shall be removed and all surfaces made good.

Replacement installation

The Service Provider shall supply temporary heat (a minimum of two 3 Kilowatt electric panel type heaters; having time and temperature controls); for the complete duration of works and maintain Customer's mains electricity supply, mains water supply and bathroom facilities at end of each working day.

The Service Provider will also ensure that Customer's property is protected and the Property cleaned at the end of each working day and on completion of all of the Works.

The Service Provider shall supply and install a gas wall mounted combination boiler complete with fixing gig; all gas pipe work connections thereto, including any alterations to existing and all new heating pipe work and domestic hot and cold water pipe work as applicable; pipe work insulation; all condensate pipe work to waste or gully or to and including construction, if necessary, of a soak-a-way.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Supply and install complete boiler flue to comply with BS 5440 Part 1, all in accordance with the boiler manufacturer's flue options; with a flue terminal wire guard if required, including forming all structural openings; all builders work and making good.

The Service Provider shall supply and install a fireproof ceiling above a boiler if located in a store or below stairs as required.

Provide eaves/guttering protection heat shields above flue terminal. Provide and install a plume kit.

The Service Provider shall supply and install in all habitable rooms a radiator to provide the calculated output required in each Property type; including grounds to stud walls where required.

Supply and install new heating circulator complete with valves, including dedicated electrical circuit and flexible cable connection to the pump.

Thermostatic radiator valves to be fitted to all rooms with a radiator except in rooms where a controlling room thermostat (standard or programmable is fitted).

Supply and install a lock shield radiator valve to all rooms fitted with a radiator, including an additional lock shield in lieu of a thermostatic valve where the room thermostat is fitted.

The control of space heating system shall be provided with time and temperature control in accordance with the Client's Specification including electrical circuit and all connections to each item of control equipment.

The Service Provider shall replace the existing wc cistern valve with new high-pressure valve where required and include for installing a pressure reduction valve and pressure vessel where necessary.

The Service Provider shall make good/replace as necessary insulation to all exposed pipe work in roof space and all necessary new insulation to pipelines, where applicable.

The Service Provider shall provide a tiled surround and hearth in accordance with F30 (3) Code of Practice for Electric Fires, together with an electric inset focal point fire provided, including dedicated electrical circuit and flexible cable connection to the fire from DP switch concealed within the fabric of the building.

The Service Provider shall design, install and test all new dedicated electrical circuits in accordance with the latest Edition of the IET Wiring Regulations for:

- Gas boiler installation including heating system control and all accessories
- Electric Boiler house/compartment light circuit including bulkhead fitting and lamp where required
- Electric inset electric focal point fire circuit including flexible cable

The Service Provider shall also provide all labels where necessary, test and provide to the Client an EIC (Electrical Installation Certificate) for all Works completed.

The Service Provider shall supply and install fireproof ceilings above boiler if located in a store or under stairs as required.

The Service Provider shall also provide labels where necessary, test and upload onto the Client's IT system a EIC (Electrical Installation Certificate) for all Works completed.

Where necessary provide ventilated pipe casings to all gas pipe work in accordance with GSUIR.

The Service Provider shall make good/replace as necessary insulation to all exposed pipework and all necessary new insulation to pipelines, in accordance with the Client's Specification.

The Service Provider shall provide all necessary pipe casings to pipework where exposed. All pipe casings to be painted 2 No. coats of undercoat and 1 No. coat of white gloss paint.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Completion

On completion of the replacement installation of a boiler and hot water system, together with associated equipment such as pipe work, circulating pump, radiators and system controls, the Service Provider shall check the system for air locks and vent as necessary and the systems and all equipment shall be tested and commissioned in accordance with the manufacturer's instructions.

The Service Provider shall provide the fuel for testing.

The heating system to be thoroughly cleaned and flushed out before installing a new boiler. During the final filling of the system, a chemical water treatment inhibitor meeting the boiler manufacturer's specification or other appropriate standard should be added to the primary circuit to control corrosion and the formation of scale and sludge.

The Service Provider shall upload onto the Client's IT system, all test certificates and records as requested in the Client's Specification.

The Service Provider shall give the Customer sufficient information about the Property, including operational and maintenance instructions of the installed building services and controls and other details so that each Property can be operated and maintained in an energy efficient manner to use no more fuel than is reasonable in the circumstances.

Without comprising health and safety requirements, the instructions should explain to the Customer how to operate the system efficiently to include:

How to make adjustments to the timing, temperature and flow control settings; and

What routine maintenance is necessary to enable each system to be maintained at reasonable efficiency throughout their service life.

The Service Provider shall provide an information pack supplied in an A4 clear plastic envelope and containing a copy of the central heating system's manufacturer's operational instructions/booklets for each major component.

The Service Provider shall notify in writing to the local Building Authority and the Client's Representative confirming that all fixed building services have been properly commissioned not more than five days after completion of the commissioning works.

A Health & Safety File shall be uploaded onto the Client's IT system in accordance with the current CDM (Construction Design Management) Regulations, on the completion of the Works.

Manufacturers Boiler Warranty

The work will also include the provision of a manufacturer providing evidence of a warranty for each boiler installed by the Service Provider.

The warranty guarantees the repair of all defects to the boiler at no cost to the Client (including the cost for all parts, labour and any other charges) for a period of 10 years from the date of installation of the boiler.

The warranty shall be given by the manufacturer directly to the Client and the manufacturer agrees that from the commencement date to the end of the warranty period of the agreement, labour to carry out any repairs is provided by the Service Provider but is transferable to the Client's new service provider either after the end date of this Contract or upon termination of the Contract.

The Client will undertake to have the warranted boiler installed under this Contract.

The Client will undertake to have the warranted boiler serviced annually either under this Contract or a subsequent contract.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Service Provider’s Central Heating Warranty

The Work will also include the provision of a Service Providers warranty for each replacement central heating system installed by the Service Provider and this warranty must provide for the following features.

The warranty guarantees the repair of all defects and any Customer’s misunderstanding or abuse to the replacement central heating system at no cost to the Client (including the cost of all parts, labour and any other charges) **for a period of 12 months from the date of installation of the replacement heating system.**

Routine and Responsive Maintenance Service

For the avoidance of doubt, the replacement central heating system installed under this part of the service, with immediate effect, is repaired by the Service Provider under the routine and responsive maintenance service of this contract, however while the replacement central heating system is under the Service Provider’s 12 month warranty, no payment will be made for the installation under the routine and responsive maintenance service during this time.

As part of the Service Providers routine and responsive maintenance service of this Contract the Service Provider is responsible for obtaining all parts and recovering all associated labour costs or any other expenses, directly from the boiler manufacturer under the boiler manufacturer’s warranty.

011 INSTALL AND MAINTAIN REPLACEMENT GAS (CONDENSING SYSTEM BOILER) CENTRAL HEATING SYSTEM

Replacement operations will be as follows and include all labour and materials necessary for the completion of the installation

Design

The Service Provider shall carry out an initial survey of each Property and prepare and submit the Design information for the replacement of the heating system in compliance with the Client’s Specification.

The Service Provider shall submit a completed “Survey Schedule and Cost Estimate” to the Client for clearance and approval.

The Service Provider shall carry out all necessary Customer consultation.

The Service Provider shall obtain all necessary statutory approvals for the Works (including the payment of all necessary fees and administration charges in connection therewith).

Removal of Existing System

The Service Provider shall include for carefully draining down, disconnection and removal of the complete existing Client’s and or Customer installed heating system; remove/seal off as necessary all pipe work thereto, remove fireplace hearth and surround, build up chamber opening, core ball and sweep flue; supply and install a permanent ventilator and extend and make good plaster, skirting to match existing. The Service Provider shall remove all redundant radiators and exposed pipe work as necessary , remove the feed and expansion cistern, the cold water storage tank, all pipe work, and insulation and any support platforms. The hot water cylinder, pipe work, immersion heaters, insulation and support stool are also to be removed. All existing electrical cable, conduits and accessories shall be removed and all surfaces made good.

Replacement Installation

The Service Provider shall supply temporary heat (a minimum of two 3 Kilowatt electric panel type heaters; having time and temperature controls: for the complete duration of Works and maintain Customer’s mains electricity supply, mains water supply and bathroom facilities at end of each working day.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

The Service Provider will also ensure that Customer's property is protected and the Property cleaned at the end of each working day and on completion of all of the Works.

The Service Provider shall supply and install a Gas wall mounted system boiler complete with fixing gig; all gas pipe work connections thereto, including any alterations to existing and all new heating pipe work and domestic hot and cold water pipe work as applicable; pipe work insulation; all condensate pipe work to waste or gully or to and including construction, if necessary, of a soak-a-way.

Supply and install complete boiler flue to comply with BS 5440 Part 1, all in accordance with the boiler manufacturer's flue options; with a flue terminal wire guard if required; including forming all structural openings; all builders work and making good. Provide and install a plume kit.

Provide eaves/guttering protection heat shields above flue terminal.

The Service Provider shall supply and install a fireproof ceiling above a boiler if located in a store or below stairs as required.

The Service Provider shall supply and install in all habitable rooms a radiator to provide the calculated output required in each dwelling type; including grounds to stud walls where required.

Supply and install new heating circulator complete with valves, including dedicated electrical circuit and flexible cable connection to the pump.

Thermostatic radiator valves to be fitted to all rooms with a radiator except in rooms where a controlling room thermostat (standard or programmable is fitted).

Supply and install a lock shield radiator valve to all rooms fitted with a radiator, including an additional lock shield in lieu of a thermostatic valve where the room thermostat is fitted.

The control of space heating system shall be provided with time and temperature control in accordance with the Client's Specification including electrical circuit and all connections to each item of control equipment.

The Service Provider shall make good/replace as necessary insulation to all exposed pipe work in roof space and all necessary new insulation to pipelines, where applicable.

The Service Provider shall provide a tiled surround and hearth in accordance with F30 (3) Code of Practice for Electric Fires, together with an electric inset focal point fire provided, including dedicated electrical circuit and flexible cable connection to the fire from DP switch concealed within the fabric of the Property.

The Service Provider shall design, install and test all new dedicated electrical circuits in accordance with the latest Edition of the IET Wiring Regulations for:

- Gas boiler installation including space heating and system control and all accessories
- Electric Boiler house/compartiment light circuit including bulkhead fitting and lamp where required
- Electric inset electric focal point fire circuit including flexible cable to fire

The Service Provider shall also provide all labels where necessary, test and provide to the Client's Representative an EIC (Electrical Installation Certificate) for all Works completed.

The Service Provider shall also provide labels where necessary, test and upload onto the Client's IT system an EIC (Electrical Installation Certificate) for all Works completed.

Where necessary provide ventilated pipe casings to all gas pipe work in accordance with GSUIR.

The Service Provider shall make good/replace as necessary insulation to all exposed pipework and all necessary new insulation to pipelines, in accordance with the Client's specification.

The Service Provider shall provide all necessary pipe casings to pipework where exposed. All pipe casings to be painted 2 No. coats of undercoat and 1 No. coat of white gloss paint.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Completion

On completion of the replacement installation of a boiler and hot water system, together with associated equipment such as pipe work, circulating pump, radiators and system controls, the Service Provider shall check the system for air locks and vent as necessary and the system and all equipment should be tested and commissioned in accordance with the manufacturer's instructions.

The Service Provider shall provide the fuel for testing.

The heating system to be thoroughly cleaned and flushed out before installing a new boiler.

During the final filling of the system, a chemical water treatment inhibitor meeting the boiler manufacturer's specification or other appropriate standard should be added to the primary circuit to control corrosion and the formation of scale and sludge.

The Service Provider shall provide and upload onto the Client's IT system, all test certificates and records as requested in the Client's Specification.

The Service Provider shall give the Customer sufficient information about the Property, including operational and maintenance instructions of the installed building services and controls and other details so that each Property can be operated and maintained in an energy efficient manner to use no more fuel than is reasonable in the circumstances.

Without comprising health and safety requirements, the instructions should explain to the Customer how to operate the system efficiently to include:

- How to make adjustments to the timing, temperature and flow control settings; and
- What routine maintenance is necessary to enable each system to be maintained at reasonable efficiency throughout their service life.

The Service Provider shall provide an information pack supplied in an A4 clear plastic envelope and containing a copy of the central heating system's manufacturers operational instructions/booklets for each major component.

The Service Provider shall notify in writing to the local Building Authority and the Client's Representative confirming that all fixed building services have been properly commissioned not more than five days after completion of the commissioning works.

A Health & Safety File shall be uploaded onto Client's IT system in accordance with the current CDM (Construction Design Management) Regulations, on the completion of the Works.

Manufacturers Boiler Warranty

The Work will also include the provision of a manufacturer providing evidence of a warranty for each boiler installed by the Service Provider.

The warranty guarantees the repair of all defects to the boiler at no cost to the Client (including the cost for all parts, labour and any other charges) for a period of 10 years from the date of installation of the boiler.

The warranty shall be given by the manufacturer directly to the Client and the manufacturer agrees that from the commencement date to the end of the warranty period of the agreement, labour to carry out any repairs is provided by the Service Provider but is transferable to the Client's new service provider either after the end date of this Contract or upon termination of the Contract.

The Client will undertake to have the warranted boiler installed under this Contract. The Client will undertake to have the warranted boiler serviced annually either under this Contract or a subsequent contract.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Service Provider’s Central Heating Warranty

The Work will also include the provision of a Service Provider’s warranty for each replacement central heating system installed by the Service Provider and this warranty must provide for the following features. The warranty guarantees the repair of all defects and any Customer’s misunderstanding or abuse to the replacement central heating system at no cost to the Client (including the cost of all parts, labour and any other charges) **for a period of 12 months from the date of installation of the replacement heating system.**

Routine and Responsive Maintenance Service

For the avoidance of doubt, the replacement central heating system installed under this part of the service, with immediate effect, is repaired by the Service Provider under the routine and responsive maintenance service of this contract, however while the replacement central heating system is under the Service Providers 12 month warranty, no payment will be made for the installation under the routine and response maintenance service during this time.

As part of the Service Provider’s routine and responsive maintenance service of this Contract the Service Provider is responsible for obtaining all parts and recovering all associated labour costs or any other expenses, directly from the boiler manufacturer under the boiler manufacturer’s warranty.

012 INSTALL AND MAINTAIN REPLACEMENT OIL (CONDENSING BOILER) CENTRAL HEATING SYSTEM

Replacement operations will be as follows and to include all labour and materials necessary for the completion of the installation

Design

The Service Provider shall carry out an initial survey of each Property and prepare and submit the Design information for the replacement of the heating system in compliance with the Client’s Specification.

The Service Provider shall submit a completed “Survey Schedule and Cost Estimate” to the Client’s Representative for clearance and approval.

The Service Provider shall carry out all necessary Customer consultation.

The Service Provider shall obtain all necessary statutory approvals; for the Works (including the payment all necessary fees and administration charges in connection therewith).

Removal of Existing System

The Service Provider shall include for carefully draining down, disconnection and removal of the complete existing Client’s and or Customer installed heating system; remove/seal off as necessary all pipe work thereto, remove fireplace hearth and surround, build up chamber opening, core ball and sweep flue; supply and insert permanent ventilator and extend and make good plaster, skirting to match existing where required.

The Service Provider shall remove all redundant radiators and existing pipe work as necessary and remove the feed and expansion cistern, all pipe work, and insulation and any support platforms. The hot water cylinder, pipework, immersion heater, insulation and support stool are also to be disconnected and removed. All electric cable, conduits and accessories shall be removed and all surfaces made good.

The Service Provider shall allow for the breaking up and removal of existing concrete/paving slabs boiler house/cabinet bases and existing installed concrete/paving slabs oil storage tank bases either installed by the Client and or a Customer.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Replacement installation

The Service Provider shall supply temporary heat (a minimum of two 3 Kilowatt electric panel type heaters having time and temperature control) for the complete duration of the works and maintain Customer's mains electricity supply, mains water supply and bathroom facilities at end of each working day.

The Service Provider will also ensure that Customer's property and possessions are protected and the Property cleaned at the end of each working day and on completion of all of the Works.

The Service Provider shall supply and install an oil fired condensing boiler (outdoor type) complete with concrete base; oil pipe work connections thereto; including any alterations to existing and all new heating pipe work, domestic hot and cold water pipe work as applicable; all pipe work insulation, all condensate pipe work to waste or gully or to and including construction, if necessary, of a soak-a-way.

Supply and install a complete low level boiler flue assembly to comply with BS 5440 Part 1, all in accordance with the boiler manufacturer's installation instructions, with all flue extensions; bends; supports and a flue terminal wire guard if required. Supply and install a plume kit.

The Service Provider shall supply and install in all habitable rooms a radiator to provide the calculated heat output required in each Property type, including grounds to stud walls if required. Rear halls and porches are not deemed to be a habitable room.

Supply and install new heating circulator complete with valves, including dedicated electrical circuit and flexible cable connection to the pump.

Thermostatic radiator valves to be fitted to all rooms fitted with a radiator except in rooms where a controlling room thermostat (standard or programmable is fitted).

Supply and install a lock shield radiator valve to all rooms fitted with a radiator, including an additional lock shield valve in lieu of a thermostatic valve where the room thermostat is fitted.

The control of space heating and hot water systems shall be provided with time and temperature control in accordance with the Client's Specification including electrical circuit and all connections to each item of control equipment.

Supply and install new feed and expansion cistern, complete with insulation jacket, support platform, lid, float valve, overflow and warning pipework.

Supply and install new hot water cylinder, complete with factory fitted foam insulation, 3kW immersion heater, cylinder stool including new dedicated electrical circuit having a heating boost switch and new flexible cable connection to the immersion heater.

The Service Provider shall supply and install a new bunded oil storage tank in accordance with the Client's Specification; and form base.

Supply and install oil supply pipe laid in 450 deep trench including breaking/taking up and reinstating paving or concrete of any type and/or grassed topsoil; backfill and disposal of surplus spoil, granular bed/haunching/surround; galvanised or 150 diameter PVC-u ducting including all necessary fittings, filter shut off valve, de- aeration device, and fire valve. Provide an external plastic coated galvanised steel casing to fire valve and/or de- aeration device.

The Service Provider shall provide a tiled fire surround and hearth in accordance with F30 (3) Code of Practice for Electric Fires, with an electric inset focal point fire provided, including dedicated electrical circuit and flexible cable connection to the fire; from DP switch concealed within the fabric of the Property.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

The Service Provider shall Design, install and test all new dedicated electrical circuits in accordance with the latest Edition of the IET Wiring Regulations for:

- Oil boiler installation including heating/hot water system control and all accessories
- Boiler house/compartment light circuit including bulkhead fitting and lamp where required
- Electric inset electric focal point fire circuit including flexible cable to fire
- Electric immersion heater circuit including heating boost switch circuit and flexible cable

The Service Provider shall also provide all labels where necessary, test and upload unto the Client's IT system an EIC (Electrical Installation Certificate) for all works completed.

The Service Provider shall make good/replace as necessary insulation to all exposed pipe work in roof space and all necessary new insulation to pipelines in accordance with the Client's Specification.

The Service Provider shall provide all necessary pipe casings to pipe work where exposed. All pipe casings to be painted with 2 No. coats of under coat and finished with one coat of white gloss paint.

Completion

On completion of the replacement installation of a boiler and hot water system, together with associated equipment such as pipe work, circulating pump, radiators and system controls, the Service Provider shall check the system for air locks and vent as necessary and the system and all equipment should be tested and commissioned in accordance with the manufacturer's instructions.

The Service Provider shall provide the fuel for testing.

The heating system to be thoroughly cleaned and flushed out before installing a new boiler

During the final filling of the system, a chemical water treatment inhibitor meeting the boiler manufacturer's specification or other appropriate standard should be added to the primary circuit to control corrosion and the formation of scale and sludge.

The Service Provider shall upload unto the Client's IT system, all test certificates and records as requested in the Client's Specification.

The Service Provider shall give the Customer sufficient information about the Property, including operational and maintenance instructions of the installed building services and controls and other details so that each Property can be operated and maintained in an energy efficient manner to use no more fuel than is reasonable in the circumstances.

Without comprising health and safety requirements, the instructions should explain to the Customer how to operate the system efficiently to include:

- How to make adjustments to the timing, temperature and flow control settings; and
- What routine maintenance is necessary to enable each system to be maintained at reasonable efficiency throughout their service life.

The Service Provider shall provide an information pack supplied in an A4 clear plastic envelope and containing a copy of the central heating system's manufacturers operational instructions/booklets for each major component.

The Service Provider shall notify in writing to the local Building Authority and the Client's Representative confirming that all fixed building services have been properly commissioned not more than five days after completion of the commissioning works.

A Health & Safety File shall be uploaded unto the Client's IT system, in accordance with the current CDM (Construction Design Management) Regulations and issued to the Client's Representative on the completion of the Works.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Boiler Manufacturer’s Warranty

The Work will also include the provision of a manufacturer providing evidence of a warranty for each boiler installed by the Service Provider.

The warranty guarantees the repair of all defects to the boiler at no cost to the Client (including the cost for all parts, labour and any other charges) for a period of 10 years from the date of installation of the boiler.

The warranty shall be given by the manufacturer directly to the Client and the manufacturer agrees that from the commencement date to the end of the warranty period of the agreement, labour to carry out any repairs is provided by the Service Provider but is transferable to the Client’s new service provider either after the end date of this Contract or upon termination of the Contract.

The Client will undertake to have the warranted boiler installed under this Contract.

The Client will undertake to have the warranted boiler serviced annually either under this Contract or a subsequent contract.

Service Provider’s Central Heating Warranty

The work will also include the provision of a Service Provider’s warranty for each replacement central heating system installed by the Service Provider and this warranty must provide for the following features.

The warranty guarantees the repair of all defects and any Customer’s misunderstand or abuse to the replacement central heating system at no cost to the Client (including the cost of all parts, labour and any other charges) **for a period of 12 months from the date of installation of the replacement heating system.**

Routine and Responsive Maintenance Service

For the avoidance of doubt, the replacement central heating system installed under this part of the service, with immediate effect, is repaired by the Service Provider under the routine and responsive maintenance service of this contract, however while the replacement central heating system is under the Service Provider’s 12 month warranty, no payment will be made for the installation under the routine and responsive maintenance service during this time.

As part of the Service Providers routine and responsive maintenance service of this Contract the Service Provider is responsible for obtaining all parts and recovering all associated labour costs or any other expenses, directly from the boiler manufacturer under the boiler manufacturer’s warranty.

013 INSTALL AND MAINTAIN REPLACEMENT WOOD PELLET BOILER CENTRAL HEATING SYSTEM

Replacement operations will be as follows and to include all labour and materials necessary for the completion of the installation

Design

The Service Provider shall carry out an initial survey of each Property and prepare and submit the Design information for the replacement of the heating system in compliance with the Client’s Specification.

The Service Provider shall submit a completed “Survey Schedule and Cost Estimate” to the Client’s Representative for clearance and approval.

The Service Provider shall carry out all necessary Customer consultation.

The Service Provider shall obtain all necessary statutory approvals for the Works (including the payment all necessary fees and administration charges in connection therewith).

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Removal of Existing System

The Service Provider shall include for carefully draining down, disconnection and removal of the complete existing heating system; remove/seal off as necessary all pipe work thereto, remove fireplace hearth and surround, build up chamber opening, core ball and sweep flue; supply and insert permanent ventilator and extend and make good plaster, skirting to match existing.

The Service Provider shall remove all redundant radiators and existing pipe work as necessary and remove the feed and expansion cistern, all pipe work, and insulation and any support platforms. The hot water cylinder, pipe work, immersion heaters, insulation and support stool are also to be removed. All existing electric cable, conduits and accessories shall be removed and all surfaces made good.

Replacement installation

The Service Provider shall supply temporary heat (a minimum of two 3 Kilowatt electric panel type heaters having time and temperature control); for the complete duration of the works and maintain Customer's mains electricity supply, mains water supply and bathroom facilities at end of each working day.

The Service Providers will also ensure that Customer's Property and possessions are protected and the Property cleaned at the end of each working day and on completion of all of the Works.

The Service Provider shall supply and install an Outdoor Wood Pellet boiler in accordance with the Client's Specification; including all alterations to existing and all new heating pipework; and domestic hot and cold water pipework as applicable; pipework insulation; all condensate pipework to waste or gulley or to and including construction if necessary of a soak-away.

The Service Provider shall form a base for the boiler with either a concrete or pre-cast concrete flags.

Where a remote boiler is proposed include for the following; 450 deep trench excavation including breaking/taking up and reinstating paving or concrete of any type and/or grassed topsoil; backfill and disposal of surplus spoil, granular bed/haunching/surround; 150 diameter PVC-u ducting; pipe work; pipe work insulation and electrical cable; automatic air separator complete with A.A.V. and vertical flue support bracket.

Supply and install manufacturer's recommended vertical flue complete with anti-downdraft cowl. Vertical flues shall be complete with all bends and fittings as necessary as specified and approved by the boiler manufacturers and installed in strict accordance with their instructions.

The Service Provider shall supply and install in all habitable rooms a radiator to provide the calculated heat output required in each Property type, including grounds to stud walls if required. Rear halls and porches are not deemed to be a habitable room.

Supply and install new circulator complete with valves, including a dedicated electrical circuit and flexible cable connection to the pump.

Thermostatic radiator valves to be fitted to all rooms fitted with a radiator except in rooms where a controlling room thermostat (standard or programmable is fitted).

Supply and install a lock shield radiator valve to all rooms fitted with a radiator, including an additional lock shield valve in lieu of a thermostatic valve where the room thermostat is fitted.

The control of space heating and hot water systems shall be provided with time and temperature control in accordance with the Client's Specification including electrical circuit and all connections to each item of control equipment.

Supply and install new feed and expansion cistern, complete with insulation jacket, support platform, lid, float valve, overflow and warning pipework.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Supply and install new hot water cylinder, complete with factory fitted foam insulation, 3kW immersion heater, cylinder stool including new dedicated electrical circuit having a heating boost switch and new flexible cable connection to the immersion heater.

The Service Provider shall provide a tiled fire surround and hearth in accordance with F30 (3) Code of Practice for Electric Fires, with an electric inset focal point fire provided, including dedicated electrical circuit and flexible cable connection to the fire from DP switch concealed within the fabric of the Property.

The Service Provider shall design, install and test all new dedicated electrical circuits in accordance with the latest Edition of the IET Wiring Regulations for:

- Wood Pellet boiler installation including heating/hot water system control and all accessories
- Boiler house/compartment light circuit including bulkhead fitting and lamp where required
- Electric inset focal point fire circuit including flexible cable to fire
- Electric immersion heater circuit including heating boost switch circuit and flexible cable

The Service Provider shall also provide all labels where necessary, test and upload onto the Client's IT system an EIC (Electrical Installation Certificate) for all Works completed.

The Service Provider shall make good/replace as necessary insulation to all exposed pipe work in roof space and all necessary new insulation to pipelines in accordance with the Client's Specification.

The Service Provider shall provide all necessary pipe casings to pipe work where exposed. All pipe casings to be painted with 2 No. coats of under coat and finished with one coat of white gloss paint.

Completion

On completion of the replacement installation of a boiler and hot water system, together with associated equipment such as pipe work, circulating pump, radiators and system controls, the Service Provider shall check the system for air locks and vent as necessary and the system and all equipment should be commissioned in accordance with the manufacturer's instructions.

The Service Provider shall provide the fuel for testing.

The heating system to be thoroughly cleaned and flushed out before installing a new boiler.

During the final filling of the system, a chemical water treatment inhibitor meeting the boiler manufacturer's specification or other appropriate standard should be added to the primary circuit to control corrosion and the formation of scale and sludge.

The Service Provider shall upload onto the Client's IT system, all test certificates and records as requested in the Client's Specification.

The Service Provider shall give the Customer sufficient information about the Property, including operational and maintenance instructions of the installed building services and controls and other details so that each Property can be operated and maintained in an energy efficient manner to use no more fuel than is reasonable in the circumstances.

Without comprising health and safety requirements, the instructions should explain to the Customer how to operate the system efficiently to include:

- How to make adjustments to the timing, temperature and flow control settings; and
- What routine maintenance is necessary to enable each system to be maintained at reasonable efficiency throughout their service life

The Service Provider shall provide an information pack supplied in an A4 clear plastic envelope and containing a copy of the central heating system's manufacturers operational instructions/booklets for each major component.

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The Service Provider shall notify in writing to the local Building Authority and the Client confirming that all fixed building services have been properly commissioned not more than five days after completion of the commissioning works.

A Health & Safety File shall be uploaded onto the Client's IT system, in accordance with the current CDM (Construction Design Management) Regulations, on the completion of the Works.

Boiler Manufacturer's Warranty

The Work will also include the provision of a manufacturer providing evidence of a warranty for each boiler installed by the Service Provider.

The warranty guarantees the repair of all defects to the boiler at no cost to the Client (including the cost for all parts, labour and any other charges) for a period of 10 years from the date of installation of the boiler.

The warranty shall be given by the manufacturer directly to the Client and the manufacturer agrees that from the commencement date to the end of the warranty period of the agreement, labour to carry out any repairs is provided by the Service Provider but is transferable to the Client's new service provider either after the end date of this Contract or upon termination of the Contract.

The Client will undertake to have the warranted boiler installed under this Contract.

The Client will undertake to have the warranted boiler serviced annually either under this Contract or a subsequent contract.

Service Provider's Central Heating Warranty

The Work will also include the provision of a Service Provider's warranty for each replacement central heating system installed by the Service Provider and this warranty must provide for the following features.

The warranty guarantees the repair of all defects and any Customer's misunderstanding or abuse to the replacement central heating system at no cost to the Client (including the cost of all parts, labour and any other charges) **for a period of 12 months from the date of installation of the replacement heating system.**

Routine and Responsive Maintenance Service

For the avoidance of doubt, the replacement central heating system installed under this part of the service, with immediate effect, is repaired by the Service Provider under the routine and responsive maintenance service of this contract, however while the replacement central heating system is under the Service Providers 12 month warranty, no payment will be made for the installation under the routine and responsive maintenance service during this time.

As part of the Service Provider's routine and responsive maintenance service of this contract the Service Provider is responsible for obtaining all parts and recovering all associated labour costs or any other expenses, directly from the boiler manufacturer under the boiler manufacturer's warranty.

014 REPLACEMENT OF EXISTING BOILER (ANY TYPE) WITH OR WITHOUT CONTROLS

Replacement operations will be as follows and to include all labour and materials necessary for the completion of the installation

Design

The Service Provider shall carry out an initial survey of each Property and prepare and submit the Design information for the replacement of the heating boiler in compliance with the Client's Specification. The Service Provider shall submit a completed "Survey Schedule and Cost Estimate" to the Client's Representative for clearance and approval by the Client's Representative.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

The Service Provider shall carry out all necessary Customer consultation.

The Service Provider shall obtain all necessary statutory approvals for the Works (including the payment of all necessary fees and administration charges in connection therewith).

Removal of Existing Boiler

The Service Provider shall include for carefully draining down, disconnection and removal of the existing Client's and/or Customer installed heating boiler (any type); boiler pipework connections, boiler electrical connections remove/seal off as necessary all pipe work thereto, and make good all works.

The Service Provider shall allow for the breaking up and removal of existing concrete/paving slabs boiler house/cabinet bases and existing concrete or paving slabs oil storage tank bases either installed by the Client and/or Customer.

New Boiler Installation (any type) with no controls

The Service Provider shall supply temporary heat (a minimum of two 3 Kilowatt electric panel type heaters having time and temperature control; for the complete duration of the Works and maintain Customer's mains electricity supply, mains water supply and bathroom facilities at end of each working day.

The Service Provider will also ensure that Customer's property and possessions are protected and the Property cleaned at the end of each working day and on completion of all of the Works.

The Service Provider shall supply and install a gas condensing boiler any type, oil fired condensing boiler any type or biomass boiler (outdoor type) complete with boiler fixing gig where applicable, concrete base for outdoor type boiler; oil pipe work connections thereto; including any alterations to existing and all new heating pipe work, domestic hot and cold water pipe work as applicable; all pipe work insulation, all condensate pipe work to waste or gully or to and including construction, if necessary, of a soak-a-way.

Supply and install a complete low level boiler flue assembly to comply with BS 5440 Part 1, all in accordance with the boiler manufacturer's installation instructions, with all flue extensions; bends; supports and a flue terminal wire guard if required. Supply and install a plume kit.

The Service Provider shall supply and install if required a new replacement bunded oil storage tank in accordance with the Client's Specification; and form base.

The Service Provider shall include for the gas carcass to be replaced if required from the existing meter cupboard to the gas boiler in all cases, and shall extend the carcass to the cooker position in the Kitchen and re-connect the Customer's natural gas cooker appliance including stability chain if not already fitted. If the Customer has an electric cooker then the gas supply is to be capped off at this point.

Supply and install if required oil supply pipe laid in 450 deep trench including breaking/taking up and reinstating paving or concrete of any type and/or grassed topsoil; backfill and disposal of surplus spoil, granular bed/haunching/surround; galvanised or 150 diameter PVC-u ducting including all necessary fittings, system filters, shut off valve, de- aeration device, and fire valve provide an external plastic coated galvanised steel casing to fire valve and/or de- aeration device where required.

New Boiler Installation with controls

Notwithstanding the above identified works for boiler replacement systems with no controls; the following additional works are to be included in the all in rate for boiler replacement (any type) with controls;

- a) Disconnect and remove existing heating control system equipment and components excluding electrical wiring, and provide and install new replacement programmer, motorised valves, room thermostat, hot water control thermostat; providing new final connections to all control system equipment in accordance with Client's Specification.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

- b) Disconnect existing heating circulator pump excluding electrical wiring and replace with new circulator including valves; providing new final connection to circulator in accordance with Client's Specification.
- c) Disconnect and remove all existing thermostatic radiator valves to all radiators and replace with new valves in accordance with the Client's Specification.

All works are to be in accordance with the Client's Specification.

Completion

On completion of the replacement of a boiler (any Type) (with or with no controls); the Service Provider shall check the system for air locks and vent as necessary and the system and all equipment should be tested and commissioned in accordance with the manufacturer's instructions.

The Service Provider shall provide the fuel for testing.

The existing heating system is to be thoroughly cleaned and flushed out before installing a new boiler.

During the final filling of the system, a chemical water treatment inhibitor meeting the boiler manufacturer's specification or other appropriate standard should be added to the primary circuit to control corrosion and the formation of scale and sludge.

The Service Provider shall provide and upload to the Client's IT system, all test records and certificates in the Client's Specification.

The Service Provider shall give the Customer sufficient information about the boiler, including operational and maintenance instructions of the installed building services and controls and other details so that each boiler can be operated and maintained in an energy efficient manner to use no more fuel than is reasonable in the circumstances. Without comprising health and safety requirements, the instructions should explain to the Customer how to operate the system efficiently to include:

- How to make adjustments to the timing, temperature and flow control settings; and
- What routine maintenance is necessary to enable each system to be maintained at reasonable efficiency throughout their service life.

The Service Provider shall provide an information pack supplied in an A4 clear plastic envelope and containing a copy of the central heating system's manufacturers operational instructions/ booklets for each major component. The Service Provider shall perform all duties and carry out all requirements described in Client's Service Information.

The Service Provider shall notify in writing to the local Building Authority and the Client's Representative confirming that all fixed building services have been properly commissioned not more than five days after completion of the commissioning works.

A Health & Safety File shall be uploaded onto the Client's IT system in accordance with the current CDM (Construction Design Management) Regulations, on the completion of the Works.

Boiler Manufacturer's Warranty

The Work will also include the provision of a manufacturer's warranty for each boiler installed by the Service Provider. The warranty guarantees the repair of all defects to the boiler at no cost to the Client (including the cost for all parts, labour and any other charges) for a period of 10 years from the date of installation of the boiler.

The warranty shall be given by the manufacturer directly to the Client and the manufacturer agrees that from the commencement date to the end of the warranty period of the agreement, labour to carry out any repairs is provided by the service but is transferable to the Client's new service provider either after the end date of this Contract or upon termination of the Contract.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

The Client will undertake to have the warranted boiler installed under this Contract.

The Client will undertake to have the warranted boiler serviced annually either under this Contract or a subsequent contract.

Service Provider's Defects Liability Period

The Work will also include the provision of a Service Providers defects liability period for each boiler replaced by the Service Provider during which time the Service Provider will repair all breakdowns and rectify all faults caused by Customer's misunderstanding and/or abuse to the boiler and system at no cost to the Client (including the cost of all parts, labour and any other charges) **for a period of 12 months from the date of installation of the replacement heating system.**

Routine and Responsive Maintenance Service

For the avoidance of doubt, the replacement boiler installed under this part of the service and the central heating system, with immediate effect, is repaired by the Service Provider under the routine and responsive maintenance service of this contract, however while the boiler renewal system is under the **Service Provider's 12 month defects liability period**, no payment will be made for the installation under the routine and responsive maintenance service during this time.

As part of the Service Provider's routine and responsive maintenance service of this contract the Service Provider is responsible for obtaining all parts and recovering all associated labour costs or any other expenses, directly from the boiler manufacturer under the boiler manufacturer's warranty.

Initial Survey

- 015 Following instruction, the Service Provider shall include for an initial survey of the Property. Access arrangements shall be made direct with the Customer.
- 016 The initial survey for replacement installations will be for the purposes of determining the:
- Information for heat loss calculations, i.e. room/window dimensions, wall construction, number of external walls, cavity wall insulation etc.
 - Layout for radiators, pipework routes, etc.
 - Location of boiler (and cylinder if appropriate).
 - Size and adequacy of pressure of incoming water main.
 - Location of cold water main stopcock.
 - Location for cable routes and adequacy of equipotential bonding.
 - Number and location of extract fans, flues and chimneys.
 - Thickness of existing roof space insulation.
 - Condition of CWS cistern and Bye Law 30 compliance.
 - Condition of insulation to domestic pipe work in roof space.
 - Any dwelling condensation problems.
 - Window frame type: material, glazing type, and condition and if draught proofed.
 - Solid wall, if any.
 - Any other roof insulation and its thickness, e.g. flat roofs.
 - Customer installed appliances
 - LPG or natural gas cooker installation

Continuity of Services

- 017 The Service Provider will leave the Properties with all services in proper working order at the end of each working day. Under no circumstances shall Customer's be without the use of these services and facilities overnight.
- 018 Ensure that an alternative form of heating is available for the Customer during the period of works. The alternative form of heating will be a minimum of **Two 3kw electric floor standing panel heaters max** (in line with requirements on Gas Breakdowns), with time and temperature controls.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Elderly and Vulnerable Customer's

- 019 Special care and consideration must be given when planning and executing Work in Properties occupied by elderly or vulnerable Customer's. This may include, but is not limited to: temporary decant or respite arrangements, enhanced or reduced working hours, additional temporary heating etc.

Gas and Electrical Supplies

- 020 Under **no circumstances** must work be started in any Property that is not fitted with all services and meters etc. Arranging for the gas supply and where an electrical supply and meters may be required is the Service Provider's responsibility and the Utility Provider's should be notified of this before the Properties are programmed.
- 021 However, the Service Provider after seeking the Client's Representative's approval will make his own arrangements to have the supply of gas put on to a property. This will be paid for as an extra to the Contract on an individual basis providing supporting documentation is submitted with the Valuation.

Electrical Work

- 022 All electrical work must be carried out by an NICEIC, ECA Service Provider, or be registered with an approved licence to practice system, an example of which is SPARKSAFE, and who must issue a current approved IET Electrical Installation Completion (EIC) certificate for each individual installation.
- 023 Where all the electrical requirements in the dwelling to BS 7671; Regulation 701.411.3.3 are met, supplementary equipotential bonding may be omitted. Therefore, before work of any nature proceeds in the Property the electrical installation must be tested.
- 024 No installation will be accepted for payment unless such certificate is provided. Equally a note must be made on the certificate that all bonding has been completed in accordance with the latest edition (Edition number to be stated) of the IET Regulations.
- 025 The Service Provider is to inspect the loft space of the dwelling and establish the depth of insulation existing, if below the minimum requirements of 270mm, the Service Provider is to report the actual depth to the Client's Representative who will determine what further action is required. The cost of upgrading any insulation, loft hatch insulation and insulated catwalks will be reimbursed at the rates in the Schedule of Rates, these rates are deemed to include the cost of moving and reinstating any Customer content stored in the loft.

DESIGN PROCESS

Design Criteria

- 026 The Design criteria for the replacement of the central heating installation, boiler replacement or boiler renewal is as follows.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

027 The replacement heating system shall be Designed with due consideration to the installation, commissioning, operation, maintenance and repair of components, appliances and the system. Heating systems shall be designed to achieve and maintain the following minimum room temperatures when the ambient external temperature is -4°C, the heating flow being 82° (max) and temperature difference across the pumped system 11° (max), with the circulating pump running and the air change rate is as detailed below.

Habitable Room	Room Temperature	Air
Living Room	21°C	1.5
Dining Room	21°C	1.5
Kitchen/Dining Room	21°C	2
Bed Sitting Room	21°C	1.5
Circulating spaces	18°C	1.5
Bathrooms	23°C	3
WC's	23°C	2
Kitchens	18°C	2
Bedrooms	18°C	N/A
Mobility (Standard)	21°C throughout	As rooms above

Where extract fans are fitted, the Service Provider shall allow for 60 l/s for Kitchens with an extract fan or 30//s with a cooker hood and 15 l/s for Bathrooms.

A rear hall or a porch are not deemed to be habitable rooms.

028 With regard to heat loss calculations, these shall be calculated in accordance with Chartered Institute of Building Services Engineers Environmental Guide A, and BS EN 12831 with the following factors shall be allowed.

1. The Service Provider is to inspect the loft space of the Property and establish the depth of insulation existing, if below the minimum requirements of 270mm, the Service Provider is to report the actual depth to the Client's Representative who will determine what further action is required. The cost of upgrading any insulation, loft hatch insulation and insulated catwalks will be reimbursed at the rates in the Schedule of Rates, these rates are deemed to include the cost of moving and reinstating any Customer content stored in the loft.
2. Radiators shall be fitted under windows where possible and in all cases on exterior walls.
3. A 10% contingency shall be allowed on the total system design to allow for general heating and pipe losses.
4. It shall be assumed that adjacent properties are heated to 10°C for heat loss calculation purposes.
5. A 3KW hot water load shall be allowed for when sizing the boiler.
6. Calculations for the heating pipe sizes should not exceed 1.5 m/s to ensure quiet operation.

All heat loss calculations shall be forwarded as part of the Design Information to the Client's Representative.

Conditions of Temperature Guarantee – For information only as existing systems

029 The temperature in any room or other area will be ascertained by a mercury in glass thermometer suspended at a point 1.5m from the flow in the centre of the room or other area.

030 When the outside temperature is not less than -4°C the system is to be guaranteed to achieve the heating standards described above, provided the following conditions are satisfied:

1. The internal volume of any room or other area served by one radiator must not exceed 1450 cubic feet (42 cubic metres). In a room which exceeds 1450 cubic feet (42 cubic metres) in volume, more than one radiator will be required in order to obtain the heating standards referred to.

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2. The system must have been operated continuously for not less than 24 hours and must continue to operate fully with clock controller overridden and air temperature and hot water thermostatic controls correctly set and the boiler flow temperatures set at 180°F (82°C).
3. There must not be more than the specified air change per hour in any room or other area.

Design Information

- 031 The Service Provider shall submit details of the initial survey.
1. An electronic scaled working drawing layout of each Property type, identifying each floor space, showing radiator positions and sizes together with proposed, valves, pipe sizes, pipework routes, cold water and domestic hot water services, control system and electrical cable routes. The location of the boiler and cylinder (if applicable) shall also be included on the drawing.
 2. Heat loss calculations.
- 032 The Service Provider will require written agreement from the Client to the Design proposals before site works can start.
- 033 Failure of the Service Provider to provide working drawings, schedules and calculations may lead to additional time and costs being incurred by the Client which shall be passed on to the Service Provider to bear.
- 034 The approval by the Client's Representative of such drawings, schedules and calculations covers only the general principles of the Work concerned and does not absolve the Service Provider from carrying out the Works in accordance with the Specification and good engineering practice.
- 035 The Client's Representative shall have the right to change the Service Provider's Design with no financial implications to the Client. The Service Provider is to comply with all Customer requirements with regard to radiator location in each room at no financial implication to the Client. The Service Provider is to explain the full extent of the works i.e. radiator positions, pipework routes, boiler position, controls, and all other mechanical services contained within the Contract to the Customer and then request the Customer to sign the Customer Agreement Form. The Customer Agreement Form shall be produced by the Service Provider and submitted to the Client for approval at the pre-contract meeting.
- 036 In Void Properties the Service Provider is to allow for further attendance. This is to include, contacting new Customer's and making arrangements for testing and commissioning.
- 037 When these documents have been forwarded through to the Client's Representative, a completion certificate for the Works will be issued. The defects liability period will run from the date of the Client's certificate.

Regulations and Standards

- 038 The Design and installation of new heating and hot water systems shall comply with all appropriate Regulations, British Standards and Codes of Practice.
- 039 In particular, the Design of the system shall be in accordance with BS EN 12828: Specification for forced circulation hot water central heating systems for domestic premises:
- 040 The Works shall comply with the Gas Safety (Installation and Use) Regulations including latest amendments and shall also be in accordance with the manufacturer's technical data sheet and Building Regulations and amendments and Technical Booklet F1.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

- 041 With regard to implementation of the Works, the Service Provider shall also take into account the following Health and Safety Regulations.
- Management of Health and Safety at Work Regulations 1999
 - Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) 2013
 - Manual Handling Operations Regulations 1992 as amended 2002.
 - The Control of Substances Harmful to Health Regulations 2002 (COSHH)
 - The Provision and Use of Work Equipment Regulations 1998 (PUWER).
 - Electricity at Work Regulations 1989.
 - Construction (Health, Safety and Welfare) Regulations 1998.
- 042 Electrical works shall be in accordance with BS 7671, The Requirements for Electrical Installations (latest edition) and The Electricity Safety, Quality and Continuity Regulations (ESQCR).

STANDARD SPECIFICATION

General Preamble

- 043 Where Properties are occupied during the Works the Service Provider shall take all reasonable steps to ensure that inconvenience and disturbance to the Customers is minimised.
- 044 Once Work commences in a Property it must be continuous without interruption until completion.
- 045 The Service Provider is to allow for protection of all fixtures and fittings including carpets. Move, take up, refit and replace all furniture, fittings and fixtures as may be necessary to execute the Works. Re-position items of furniture and appliances at the end of each working day whether Work is completed or not.
- 046 The Service Provider must protect and maintain existing services at all times, inform the Customer's prior to disconnection and adaptation Works, which are to be for the minimum period possible. No services are to be left disconnected overnight.
- 047 The Service Provider is to make good to all adjacent structures and surfaces disturbed during the Works, whether specifically mentioned or not. Any damage caused by carelessness or want of skill on **the part of the Service Provider shall be immediately made good at the Service Provider's expense.**
- 048 All carpets, floor coverings, underlay, hardboard, floorboards, etc (excluding laminated wood flooring) to be properly and professionally re-fitted on completion of the installation.
- 049 Materials or tools must not be stored within the Property including communal areas or gardens.

PERFORMANCE SPECIFICATION

BOILERS

- 050 The Service Provider shall design for and install boilers which are ErP A+++ rated high efficiency with evidence of a Low No-x rating condensing boiler as manufactured by a manufacturer to be approved by the Client's Representative.
- 051 Boilers shall be sized by the Service Provider to suit. All boilers are to be fitted according to manufacturer's technical data sheet and compression type fittings shall be used to facilitate easy removal for repair. The Service Provider shall include for filling loop and the optional pipe cover accessory as supplied by the boiler manufacturer.
- 052 All boilers shall carry a minimum ten year's manufacturer's guarantee with a minimum ten year parts and labour warranty and this shall be arranged to run from the date of the completion certificate. The Service Provider is to provide a boiler installation record secured to the inside of the lower casing giving the Service Provider's name and address and the date of installation.

**M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS –
SPECIFICATION – VERSION 7.2**

- 053 The heating installation shall be cleansed through the use of a permanent in-line magnetic filter to ensure effective magnetic filtration.
- 054 Servicing: The filter shall be accessible to carry out a visual inspection of the canister chamber to ensure all system debris has been successfully removed during boiler servicing.
- 055 The Client's preferred option is for an open vented system to be Designed and installed where appropriate. The Service Provider shall obtain the Client's Representative's approval for a sealed system Design and installation.
- 056 The Service Provider shall supply and install the boiler in an agreed position with the Client's Representative, on an external wall to the outside and in accordance with the manufacturer's technical data sheet.
- 057 The Service Provider shall size the boiler in accordance with the following:
- Total of all radiator outputs
 - Total of all pipework losses
 - Hot water load (minimum 3kW to be allowed)
- 058 The Service Provider shall total the above and add 20% to the load for intermittent heating before selecting the appropriate size boiler.
- 059 The Service Provider shall supply and install an additional expansion vessel of appropriate size if the system volume is beyond that which can be accommodated by the built in expansion vessel.
- 060 The Service Provider shall supply and install a complete boiler flue system in accordance with the manufacturer's technical data sheet and BS 5440-1. The Service Provider shall terminate the flue a suitable location and supply and install a flue terminal guard as necessary.
- 061 **BOILER, GAS FIRED CONDENSING CONVENTIONAL TYPE**
Standard: To BS EN 15502, High Efficient **ErP** A+++ rated
Low NOX classification
Type: Wall Mounted
Casing Finish: Vitreous Enamel
Controls/Accessories: All as per boiler manufacturer
Heat Exchanger: Stainless Steel
Boiler Flue: To BS 5440 and in accordance with manufacturer's flue options
Commissioning of gas fired boiler to be carried out by boiler manufacturer's representative
Boiler manufacturer to provide a 10 year parts and warranty to the Client
- 062 **BOILER, GAS FIRED CONDENSING COMBINATION TYPE**
Standard: To BS 15502, High Efficient **ErP** A+++ rated
Low NOX classification
Type: Wall Mounted
Casing Finish: Vitreous Enamel
Controls/Accessories: All as per boiler manufacturer
Heat Exchanger: Stainless Steel
Boiler Flue: To BS 5440 and in accordance with manufacturer's flue options
Commissioning of gas fired boiler to be carried out by boiler manufacturer's representative
Boiler manufacturer to provide a 10 year parts and warranty to the Client

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- 063 BOILER, GAS FIRED CONDENSING SYSTEM TYPE
Standard: To BS 6798 and BS 7074 Low NOX classification
Type: Wall Mounted
Casing Finish: Vitreous Enamel
Controls/Accessories: All as per boiler manufacturer
Heat Exchanger: Stainless Steel
Boiler Flue: To BS 5440 and in accordance with manufacturer's flue options
Commissioning of gas boiler to be carried out by boiler manufacturer's representative
Boiler manufacturer to provide a 10 year parts and warranty to the Client
- 064 BOILER, OIL FIRED CONDENSING CONVENTIONAL TYPE
Standard: TO BS799 and OFS A100, High Efficient ErP A+++ rated
Type: Floor Mounted
Casing finish: Mild steel
Controls/Accessories: All as per boiler manufacturer
Boiler Flue: To BS 5440 and in accordance with manufacturer's flue options
Commissioning of oil fired boiler to be carried out by boiler manufacturer's representative
Boiler manufacturer to provide a 10 year parts and warranty to the Client
- 065 BOILER, OILL FIRED CONDENSING OUTDOOR TYPE
Standard: To BS 799 and OFS A100, High Efficient ErP A+++ rated
Type: Floor mounted, outdoor with patented weather proof casing
IP Rating: IPX4
Controls/Accessories: All as per boiler manufacturer
Boiler Flue: To BS 5440 and in accordance with manufacturer's flue options
Commissioning of oil fired boiler to be carried out by boiler manufacturer's representative
Boiler manufacturer to provide a 10 year parts and warranty to the Client.
- 066 BOILER, WOOD PELLET
Standard: To BS EN 303
Type: Floor mounted, outdoor with patented weatherproof case, enclosing the boiler and 100kg hopper
IP Rating: IPX4
Controls: Low pellet level sensor with warning beacon, high limit thermostat, back burning protection, fuel overload, combustion control, modulation control, frost protection and safety valve
Boiler Flue: To 5410 and in accordance with manufacturer's flue options
Commissioning of wood pellet boiler to be carried out by the boiler manufacturer's representative
Boiler manufacturer to provide a 10 year parts and warranty to the Client.
- 067 OIL STORAGE TANKS, PLASTIC
Standard: To BS 5410, and constructed and certified to OFTEC standard OFS T100
Type: Horizontal bunded oil fuel storage tank
Capacity: The capacity of the oil tank shall be in accordance with BS 5410 Clause 6.2.1: Table 2
Accessories: All as per tank manufacturer
Oil Supply: Top outlet option
Location: To BS 5410, and current Building Regulations on a suitable concrete base
Domestic Oil Tank Bases Construction and Design: To Client's standard requirements
Where a tank of a lesser capacity is required due to limited space, **any cost adjustment is deemed to be included.**

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068 FIRE WALLS FOR OIL STORAGE TANKS

Standard: To BS 5410

Method: The tank should be protected in one of the following ways:

- a) Isolating the tank, including any integral bund, by placing it at a distance from any building or other potential source of fire or;
- b) Protecting the tank, including any integral bund, by a physical barrier.

Where the above criteria for distance cannot be met, and where steel stand physical barrier screens are required, certification will be required that the screen panels satisfies the performance requirements specified in BS 476-22 Clause 5, for a non-loading beating fire wall with a fire resistance of 30 minutes and shall be installed in accordance with the manufacturer's instructions.

Where it is necessary to provide panel type fire walls, any cost adjustment is deemed to be included.

069 OIL SUPPLY (TIGER OIL DE-AERATOR)

Standard: To BS EN 12514-2

System Type: Single pipe system, with de-aerator device, bottom of oil storage tank below or level with burner

Location: To be fitted to be fitted externally to the boiler in accordance with BS 5410 and the manufacturer's installation instructions.

Installation: The assembly to be fully concealed in a manufactured enclosure of suitable size constructed from powder coated mild sheet steel, plugged and securely fixed to a wall.

070 OIL FILTER

Standard: To BS EN 12514-2

Location: To BS 5410, and as specified by the appliance manufacturer

Installation: To be fitted on the oil supply pipe between the isolating valve and the appliance.

071 FIRE VALVE

Standard: To BS 5410

Compliance: Fire valves shall comply with OFTEC Standard OFS E101

Installation: Where the boiler is positioned externally outside the building, the valve body shall be fitted at least 1m away from the appliance with its sensor over the burner. The fire valve assembly to be fully concealed in a manufactured enclosure of suitable size constructed from powder coated mild sheet steel, plugged and securely fixed to a wall.

072 OIL MONITORING SYSTEM

Standard: To BS EN 60335

Type: Two parts, comprising a tank mounted transmitter and a plug in receiver with integral antenna located in the dwelling

Power Supply: Receiver 230 – 240V/ 1/50Hz

Transmitter: 3V Lithium cell

Battery Life: 10 years (estimated life)

Communication: Wireless to BS EN 300 -220

Transmitter: To monitor the level of fuel inside the tank and relay the data via a secure wireless connection to the receiver unit

Receiver Unit: The receiver unit shall be securely fixed to an electrical socket outlet plate and connected a galvanised wall mounted fixing box, spurred off the kitchen ring main circuit.

073 GUARD FOR PIPELINES

Pipelines: Exposed on external walls to be fully concealed by covering with a powder coated mild sheet steel box section profile of suitable size, flanged, plugged and securely fixed to the wall.

074 GUARD FOR EXTERNALLY LOCATED FIRE VALVE ASSEMBLY

Installation: For externally located heating appliances, the oil supply should be cut off at least ONE m away from the appliance. The fire valve assembly to be fully concealed in a manufactured enclosure of suitable size constructed from powder coated mild steel sheet, plugged and securely fixed to the wall.

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075 GUARD FOR EXTERNALLY LOCATED TIGER OIL DE-AERATOR

Installation: The tiger oil de-aerator is to be installed externally to the boiler cabinet all in accordance with BS 5410 and to the Manufacturer's instructions. The assembly to be fully concealed in a manufactured enclosure of suitable size constructed from powder coated mild sheet steel, plugged and securely fixed to the boiler cabinet.

076 SYSTEM CIRCULATION

Space heating systems and domestic hot water primary circuits should have fully pumped circulation. If the boiler manufacturer's instructions advise installation of a bypass, an automatic bypass valve should be provided and the manufacturer's instructions on minimum pipe length followed.

CIRCULATING PUMP

Standard: To BS EN 16297, BS EN 60335, EUP Directive 2005/32/EC and EC 640/2009

System: For Low temperature hot water heating system

EEI Rating: = 0.23

System Resistance: The flow rate shall be sufficient to circulate the maximum boiler output against the system resistance

Installation: To be installed in a readily accessible position in accordance the manufacturer's installation instructions

Maintenance: Provide 2No. pump valves to enable removal/replacement without need to drain down

Electrical Supply: 230 – 240V 1/50Hz

077 The Service Provider shall supply and install adequate ventilation in accordance with the manufacturer's technical data sheet and BS 5440-2.

078 The Service Provider shall supply and install high and low level ventilation grilles when the boiler is installed within a cupboard. Such grilles shall be suitably sized in accordance with manufacturer's requirements.

079 The Service Provider shall show the position of the boiler on the working drawings.

080 The Service Provider shall supply and install a 15 mm galvanized steel pipe from the pressure relief valve on the boiler and run it to outside to discharge in a safe location. The Service Provider shall show the position of the boiler on the working drawings.

081 The Service Provider shall supply, install and deliver a pipe cover accessory.

082 The Service Provider shall supply and install in the cold water mains supply prior to entering the boiler, a branch connecting with a filling loop which connects between the cold mains and the heating flow. The filling loop shall complete with all valves in accordance with Water Regulations and manufacturer's recommendations. The filling loop is to be located in an accessible place.

Radiators

083 All radiators are to be the steel panel convector type to the latest edition of BS EN 442-1 and BS EN 442-2 to achieve the required design temperatures listed in 027 and shall be installed by way of brackets. Radiators shall be round top, with four BSP connections.

084 Radiators shall, be fitted below windows to give a clearance of not less than 25mm from the underside of the sill to the top of the radiator, with a minimum clearance from the underside of the radiator to the finished floor level not be more than 150mm, or less than 100mm.

085 The length of the radiator must be such that it is not greater than the width of the window opening and not less than 100mm within the width of the of the window opening.

086 Radiators shall not be positioned back to back on internal walls.

087 Radiator fixings shall be arranged to suit the wall construction.

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- 088 All valves will be watertight and connected to radiators with PTFE tape unless manufacturer's technical data sheet state otherwise.
- 089 Each radiator shall be fitted with a chrome plated thermostatic radiator valve (except in room where room stat fitted) and 15mm back seating type lock shield valve. The lock shield radiator valve cover shall be screwed down. Radiator connections shall be at the bottom and opposite ends. A brass air release valve is to be fitted on the flow side top connection.
- 090 A drain off tapping shall be fitted at every lowest point in the system.
- 091 All radiators installed in any specific project shall be selected from the same radiator manufacturer's approved list.
- 092 Reflective foil shall be fitted behind all radiators on external walls. The foil shall be cut neatly, 25mm smaller than radiator dimensions and fixed in accordance with manufacturer's recommendations behind the radiator-fixing bracket.
- 093 In dwellings which previously had radiators installed the new radiators are to be the same size to match existing.
- 094 If no cylinder is to be installed, a suitably sized radiator is to be installed in the airing cupboard as required.
- 095 Two no air vent keys are to be left with each installation with the exception of sealed system installations where no keys are to be left.
- 096 The radiators shall be supplied with a good priming coat and left for the Customer's to decorate. Where radiators are found to be scratched or damaged, the Service Provider shall replace the same at no extra cost to the Contract.
- 097 The Service Provider shall show all radiator positions, numbered with a radiator schedule showing the individual radiator number, radiator height, radiator length, radiator type, radiator output and type of connection on the Service Provider's working drawing.

Pipes and Fittings

- 098 All heating, primary, cold, hot, mains water pipework and gas pipework shall be installed in BS EN 1057 R250 Table X light gauge copper with fitted brass or copper integral solder ring capillary type joints and general pipework fittings to BS EN 1254-3, all Kite mark certified.
- 099 All fittings and solder used shall be lead-free and carry the UP or SS lead-free mark. Do not use formed bends on exposed pipework, except for small offsets. Form changes of direction with radius fittings.
- 100 All pipes to be of even bore, clean and smooth throughout, commercially straight and free from grooving, blistering or other surface marks and free from any corrosive oxide etc. All ends shall be cut square and all burrs removed with a reamer to restore the bore.
- 101 Easy sweep fittings are to be used. Square tees and elbows shall not be accepted. Union joints shall be provided as necessary to permit easy removal of all apparatus.
- 102 All pipework shall be supported at a minimum of 900 mm centres, at high or low level, with either screw on brackets or white plastic clips with one screw per clip.
- 103 Spacing for copper pipelines to be fixed securely and true to line at the following maximum centres:
- | | |
|------------------------|---------------------------------------|
| 15mm and 22mm pipe OD: | 1200mm horizontal and 1800mm vertical |
| 28mm and 28mm pipe OD: | 1800mm horizontal and 2400mm vertical |
| 35mm and 42mm pipe OD: | 2400mm horizontal and 3000mm vertical |

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- 104 Heating pipework routes shall, where possible be at skirting level and shall be arranged in a neat and orderly manner and concealed where possible. Pipework through walls shall be sleeved. Additional supports to be located within 150mm of connections, junctions and changes of direction.
- 105 In Properties with solid floors, heating pipework shall be run in the upper floor voids with pipe drops to lower floor radiators. Pipes drops to be fully encased in plywood pipe casing from ceiling to skirting level, painted two coats of undercoat and finished with on coat white gloss paint. The Service Provider shall include for carefully lifting and replacing floorboards. Any flooring damaged is deemed to be replaced at the Service Provider's expense. All pipes to be sleeved where they pass through masonry or concrete. The maximum notch depth shall be 25mm and located between 0.07 and 0.25 of span from support. Notches within the central 2 quarters of span are not allowed.
- 106 Sleeves are to be of suitable size to allow free expansion of the pipework. Sleeves shall be cut square at each end and shall be of sufficient length to finish flush with the finished face of wall or ceiling, and 6mm proud of the finished surface of floors. All excessive gaps between the inside surface of the sleeves, and pipes passing through boiler house walls shall be filled with fire resistant materials. The weight of pipework shall not be borne by the sleeves. It is the Service Provider's responsibility to ensure that pipes are not bedded in by making good.
- 107 No pipes shall be run in concrete screeds or in floors overlaid with sound insulation materials, ie insulated floating floors.
- 108 The run of pipework shall be in accordance with the layout indicated on the drawings supplied by the Service Provider for approval.
- 109 The actual run of pipework shall be approved by the Client's Representative before such Work is put in hand, and all pipes shall be installed in a neat and workman-like manner. Pipes shall be laid to graded falls as necessary to facilitate draining and venting, adequately supported with provision for expansion and brackets suitably placed. Vertical pipes shall be dropped plumb and all lines shall be parallel to each other. Pipework shall be installed without springing or forcing.
- 110 All pipes shall follow the contour of the Property. Where pipes enter floors or ceilings, they shall be taken in square. All pipes and fittings shall be kept at least 150 mm away from the lighting or power cables, conduits etc.
- 111 The Service Provider shall be held liable and entirely responsible for making all provision necessary to allow full expansion and contraction of all pipework and apparatus. Failure to make such provision, which results in damage to the installation or to the Property and its contents, shall be held to be the responsibility of the Service Provider, who must make good all damage free of cost to the Client.
- 112 The Service Provider shall supply and install the heating flow and return pipework from the boiler to the pump and motorised valve complete with all isolating valves. From the motorised valves the heating shall split to feed the hot water cylinder and radiators within each room, as shown on the Service Provider's working drawings.
- 113 The Service Provider is to flush out the heating services at least twice prior to filling and adding inhibitor to the system.
- 114 The Service Provider shall connect to the existing hot water service, cold feed and open vent serving the dwelling. All the above pipework will be shown on the Service Provider's working drawings.
- 115 The Service Provider shall supply and install a cold water main from the nearest existing point to feed the boiler in 15 mm pipe as shown on the Service Provider's working drawing if a system boiler is installed. All the above pipework shall be shown on the Service Provider's working drawings.
- 116 The Service Provider shall supply and install at low points of the heating system, a lock shield type drain cock to BS 2879, to enabling each Heating and HWS system to be drained down when required.

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Natural Gas Supplies

- 117 The natural gas supply to all appliances will conform strictly to BS 6891.
- 118 The Service Provider shall include for the gas carcass to be replaced from the meter position to the gas boiler in all cases. In addition, they shall extend the carcass to the cooker position in the kitchen and re-connect the Customer's gas cooker appliance including stability device if not already fitted. If the Customer has an electric cooker then the gas supply is to be capped off at this point.
- 119 The Service Provider is to ensure that the supplies are of sufficient size (minimum 22mm to boiler, 22mm to the cooker position, to supply the volume of gas required to allow the appliances to function effectively and in accordance with the manufacturer's technical data sheet. The new gas carcass is to be run from the existing gas meter position.
- 120 The Service Provider shall supply and install a bayonet fitting 600 mm from finished floor level on the gas supply to the cooker. The Service Provider is to connect the cooker to the new gas supply with approved new flexible connector.
- 121 The Service Provider is to include soundness checks, smoke and spillage tests. The Client may provide a representative on occasions to be present at tests.
- 122 The Service Provider is to provide the Client's Representative with a signed certificate of the gas safety checks and gas pressure test within the operation and maintenance manuals.
- 123 All the above shall be shown on the Service Provider's working drawings.
- 124 Test for soundness and purge in accordance with BS 6891.
- 125 Upon completion the gas pipework is to be pressure tested (may be witnessed on occasions by the Client's Representative) for 15 minutes at a pressure of 20mbar.

Hot Water Storage Requirements

- 126 Standard: To BS 1566
1. Vented copper hot water storage cylinders should comply with the heat loss and heat exchanger requirements.
 2. Hot water storage combination units should comply with BS 3198
 3. Primary storage systems should meet the insulation requirements of the Hot Water Association Performance specification for thermal stores
 4. Unvented hot water storage system products should comply with BS EN 1287 or an equivalent standard as set out by an accredited test body such as the British Board of Agreement, the Water Research Council, or KIWA.

Heat Loss: The standing loss for all hot water storage vessels an a), b), c) and d) should not exceed where:
 $V = 1.15 \times (0.2 + 0.051V^{2/3})$ kWh/day where V is the volume of the cylinder

Labelling: All hot water vessels should carry a label with the following information

1. type of vessel (vented, combination unit types or thermal store);
 2. nominal capacity in litres;
 3. standing heat loss in kWh/day
 4. heat exchanger performance in kW
 5. reference to product compliance with relevant standard 9e.g. BS 1566, BS EN 12897) and logos of accreditation bodies as required.
 6. Storage capacity: To C.I.B.S.E. Guide G. For domestic installations a cylinder of approximately 120 litres (min) is usually adequate.
- 127 The new units will be complete with sacrificial anodes and adequate thermal insulation of the CFC reduced type and comply with the Water By-Laws.

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- 128 The cylinders to be fitted on a new stool.
- 129 The Service Provider shall include for a 750mm long immersion heater facility rated at 3kW and thermostat to BS EN 60335 -2-73.
- 130 The Service Provider shall supply and install a new 22mm gate valve on the cold feed, heating flow and return pipework to the cylinder.
- 131 The Service Provider shall show the position of the cylinder on the working drawings.

SYSTEM CONTROLS

132 TIME CONTROL OF SPACE AND WATER HEATING

The control of space heating and hot water systems shall be provided with time and temperature controls as follows:

1. 2 channel programmer with separate timing to each circuit
2. for Properties with a total usable floor area greater than 150 m², timing of the separate space heating zones can be achieved with separate timing to each circuit
3. where the hot water is produced instantaneously, such as with a combination boiler, time control is only required for space heating zones

133 TEMPERATURE CONTROL OF SPACE HEATING

Separate temperature control of zones within the Property should be provided by:

1. room thermostats
2. individual radiator controls such as thermostatic radiator valves (TRVs) on all radiators other than in the reference room (with thermostat)

134 TEMPERATURE CONTROL OF DOMESTIC HOT WATER

Domestic hot water systems should be provided with a cylinder thermostat, immersed type in BSP outlet on storage vessel, to control the zone valve

135 Room thermostats shall be positioned as follows:

- In a hallway.
- 1800mm above floor level.
- Away from radiators or direct heat source, direct sunlight, external doors or draughts.

136 A wiring centre shall be provided and be located as shown on the Service Providers drawings.

137 Where fitted, the HWS cylinder shall incorporate a immersed type cylinder thermostat inserted in a pocket on the cylinder and set at 60°C.

138 The automatic pump overrun period should be set to 20 seconds.

139 An automatic bypass will be fitted to all systems including combination boilers should the boiler manufacturer's technical data sheet advise that this is a requirement of the installation.

140 A frost thermostat is to be provided if the boiler is located in a position where frost damage may occur.

141 Final connection to the boiler shall be carried out by the Service Provider.

142 The above controls shall be shown on the Service Provider's working drawings.

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ELECTRICAL INSTALLATION

- 143 The Service Provider shall be responsible for the electrical installation associated with the replacement heating installations. This shall include the following electrical circuits from a new metallic consumer to be located in the existing meter cupboard. Where due to space restrictions the new consumer unit cannot be fitted in the existing cupboard; the Service Provider shall install the consumer unit in a separate wooden meter enclosure. **The cost of the enclosure will be deemed to be included in the costs:**
- 144 Provision of new dedicated electrical circuit fitted to the new hot water storage cylinder immersion heater, including new flexible cable connection. The Service Provider shall allow for replacing the existing heater face plate switch in the dwelling where necessary with a heating boost switch with timed settings.
- 145 Provision of dedicated electrical circuit for the heating boiler including system control wiring and all necessary accessories. The Service Provider shall provide and install where required a bulkhead light fitting to assist with all necessary maintenance or breakdown call outs.
- 146 Provision of dedicated electrical circuit for the electric focal point inset fire, including a 20A DP switch fitted adjacent fire on chimney breast, with flexible connection concealed within the fabric of the Property to connect to inset fire.
- Electric Direct Acting Day Rate Focal Inset Fire
 - Standard: To BS EN 60335 -1
 - Approval : BEAB/CE MARK
 - Type: Direct Acting Electric Inset Fire, to fit chimney opening
 - Heater Type: Fan Convention
 - Max Heat Output: 2kW
 - Coal Bed: One piece with switchable choice for flame effect independent of heat source
 - Noise: Fan noise suppressed to 50dB max, when in operation
 - Lights: LED bulbs for long life and low energy consumption
 - Controls: ON/OFF switch with multiple heat settings and thermostat control
 - Fixing: To be securely fixed to hearth or surround
- 147 Cables shall be installed above ceilings, below floors and should be concealed in walls.
- Cables concealed in masonry walls should be enclosed in conduit.
- Cables should be withdrawable through either continuous conduit, or where it not feasible to conceal the cable system, through the provision of a continuous trunking system.
- Cables should be installed without joints other than at equipment and terminal fittings. **JUNCTION BOXES ARE NOT PERMITTED.**
- Cables should be supported and fixed to the requirements of BS 7671.
- Cables should be sleeved passing through masonry walls with conduit bushed at both ends.
- Cables installed across floor joists should be threaded through holes neatly bored in joists at least 50mm from floor or ceiling.
- PVC insulated cables must not come into contact with polystyrene insulation or organic timber preservative.
- Cables concealed within a wall or partition should comply with BS 7671.
- 148 All routing of trunking shall be done in a workmanlike manner and shall be arranged to be unobtrusive in terms of its layout.
- 149 All cabling used for final connections to boilers or hot water service cylinders shall be multi core heat resistant EP rubber insulated or HOFR sheathed flexible cable or heat resistant PVC flexible cable.

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- 150 The Service Provider shall include for upgrading earth and supplementary equipotential bonding to the new system in accordance with the latest IET Regulations.
- 151 Equipotential earthing shall be completed where necessary back to the main consumer unit and the Utility Provider’s incoming cut out.
- 152 All control wiring associated with the installation shall be supplied and installed by the Service Provider.
- 153 **Recommended Minimum Standards for Insulation of Pipework in Wet Central Heating Systems**

Standard: To BS 5422

Pipes should be insulated to comply with the maximum permissible heat loss, and labelled accordingly, as follows:

- 1. Primary circulation pipes for heating an hot water circuits wherever they pass outside the heated living space or through voids which communicate with and are ventilated from unheated spaces
- 2. Primary circulation pipes for domestic hot water circuits should be insulated throughout their length, subject only to practical constraints imposed by the need to penetrate joists and other structural elements
- 3. All pipes connected to hot water storage vessels, including the vent pipe, should be insulated for at least 1 m from their points of connection to the cylinder (or they should be insulated up to the point where they become concealed)
- 4. If secondary circulation is used, all pipes kept hot by that circulation should be insulated.
- 5. Extra provision may need to be made to protect heating and hot water pipe work in unheated areas against freezing

Where insulation is labelled as complying, it must not exceed the following heat loss levels:

Pipe Outside Diameter	Maximum Heat Loss*
8mm	7.06W/m
10mm	7.23W/m
12mm	7.35W/m
15mm	7.89W/m
22mm	9.12W/m
28mm	10.07W/m
35mm	11.08W/m
42mm	12.19W/m
54mm	14.12W/m

* In accessing the thickness of insulation required, standardised conditions should be assumed in all compliance calculations, based on a horizontal pipe at 60°C in still air at 15°C.

- 154 All pipework running under ground floor suspended floors, through unheated areas (ducts, cupboards, or in loft spaces shall be provided with rigid pipe insulation and where necessary frost protection. All primary flow and return pipework and all pipework within airing cupboards shall also be insulated.
- 155 All insulation shall be Class 1, minimum 25mm thick nitrile rubber (CFC and HCFC free), all suitable for Class A1, and shall be fitted after testing. Mineral fibre insulation shall not be acceptable.
- 156 All slit lengths and butt joints shall be glued together using the adhesive recommended by the manufacturer, so that no pipe fitting or valve/cock is kept uninsulated.

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Feed and Expansion Cistern

- 157 The Service Provider shall supply and install a plastic 18 litre feed and expansion cistern in accordance with the current Water Regulations if an open vented system is to be used. The Service Provider shall supply and install purpose made lids and insulation jacket for the feed and expansion cistern. The Service Provider shall supply and install overflows of suitable size to the feed and expansion cistern and discharge it in an appropriate location.
- 158 The Service Provider shall supply and install an open vent and cold feed to the heating system in accordance with the boiler manufacturer's technical data sheet.
- 159 Connect boiler to cold main supply via a combined filling/double check valve kit. Ensure that the flexible link is not left in position and to comply with the current Water By-laws.
- 160 Service Provider is to supply and install a suitable wooden frame and support the feed and expansion cistern. The frame shall transfer all the live load to the roof trusses or surrounding walls. The framework shall be made from 50mm x 25mm wood battens with a minimum of four cross supports. The feed and expansion cistern shall be sited on 25mm marine plywood

Safety Discharge

- 161 Where a safety discharge pipe is fitted, this shall be fitted to the manufacturer's technical data sheet and shall be arranged to discharge externally in a safe location and timed back to the wall.

Condensate Discharge

- 162 Wherever possible, the condensate pipe shall be routed and terminated so the condensate drains away from the boiler under gravity to a suitable internal water discharge point such as an internal soil and vent stack, internal kitchen, bathroom or washing machine waste water pipe of similar.
- 163 Where it is not possible, so that the condensate drains away from the boiler under gravity, the Service Provider shall provide for the installation of a condensate pump to drain the condensate away to a suitable water discharge point in accordance with the boiler manufacturer's instructions. **Where a condensate pump is required by Design it shall be deemed to be included in the costs.**
- 164 Where no other discharge method is possible, the use of an externally-run condensate discharge drainage pipe terminating at a suitable water discharge point or purpose-designed soak away may be considered. The pipe shall be run internally as far as possible before going externally, and the pipe diameter shall be increased to 32mm before it passes through the wall to the exterior. The pipe should take the shortest and least exposed route to the discharge point, and shall fall as steeply as possible away from the boiler with no horizontal runs in which condensate might stand. The use of fittings and shall be kept to a minimum and any internal burrs on cut pipe work should be removed so that the internal pipe section is as smooth as possible. Where the pipe terminates over an open drain or gully, the pipe should terminate below the grating level, in order to minimise the wind chill at the open end.
- 165 The external condensate discharge pipe shall be insulated using suitable waterproof and weather resistant pipe insulation.

Flues and Guards

- 166 The Service Provider shall include for flues and guards associated with the required appliances and these shall be fitted in accordance with manufacturer's technical data sheet. This shall include all associated builders work and making good.
- 167 The Service Provider shall also include for the provision of all access equipment on properties of two storeys or below.
- 168 The room sealed combination boiler flues shall be sited 200 mm down from the soffit outside.

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- 169 A suitable terminal guard shall be fitted where flue terminals are less than 2m above ground level.
- 170 Weathering slates where required shall be manufactured from milled lead to BS EN 12588 lead.
- 171 These requirements must be applied for any boiler manufacturer's flue option.

Ventilation

- 172 The Service Provider shall include for the provision of necessary ventilation to comply with the Regulations and Standards. Ventilation provision shall be identified as necessary on the design drawings.

Combustion and Ventilation Requirements

- 173 The provision of combustion and ventilation requirements for the central heating boilers must comply completely with BS 5540-2 whichever of the following is required.

Compartments for Boilers

- 174 Where the design requires a boiler to be located in a bedroom, the Service Provider shall provide and fit a suitable compartment to enclose the boiler installation and all pipe work etc; and provide the necessary boiler compartment ventilation in accordance with the current BS 5440-2.

The cost of the compartment for the boiler is deemed to be included in the unit rate for that Property type.

Existing Heating Appliances and Installations

- 175 The Service Provider shall include for carefully draining down, disconnection and removal of all existing Client and or Customer installed heating and hot water appliances and associated appliances and making good. This shall include properties with partial heating systems, combined hot water/cold water storage and expansion tank packs, etc., and include removal of:
- All redundant pipework and electrical cables and making good to all disturbed surfaces.
 - All oil tanks, any physical barriers, concrete bases, support walls, boiler cabinets and external oil fuel pipework.
 - Removal of the existing hot water storage tank or cylinder and associated redundant pipework.
 - Removal of the gas carcass within the Property.
 - Removal of the existing heating system in its entirety.
 - Removal of existing controls and wiring.
- 176 In all cases the Service Provider should allow for removal of solid fuel open fires and room heaters, bricking up flue apertures, render and set, fixing plaster vent with a permanent ventilator, renewing skirting, making good to all disturbed surfaces clearing away, and leave ready for redecoration.

Existing Equipment Removal Prior to Boiler Upgrade

- 177 The items detailed herein apply in general terms and are intended to be indicative of Works that may be required dependent upon the extent of the boiler replacement and any system upgrade. They are not intended to be carried out regardless of the Works required.
- 178 Remove and make good:
1. All types of solid fuel appliances
 2. All types of electric heating and hot water appliances
 3. All types of old gas heating & hot water appliances
 4. All types of fireplace surround and hearths.
 5. Fix terracotta vent cap and louvre air brick to any redundant solid fuel chimney
 6. Carefully remove any Customer's own appliances including fires, wall heaters, circulators and multipoint water heaters and return them to the tenant
 7. Any pipework, flues, fittings, ducting etc, associated with the above

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Existing Chimneys

- 179 The Service Provider is to be responsible for arranging and including within his tendered rates for the thorough sweeping of all existing chimneys and providing a certificate to that effect.

Tiled Surrounds

- 180 The existing tiled hearth and surround is to be removed. The opening is to be bricked up and plastered to feather in with existing plasterwork on the chimney breast. A permanent ventilator is to be fitted in this new brickwork. The chimney is to be capped and the hearth made good.

Builder's Work

- 181 The Service Provider shall be responsible for undertaking all builders work in connection with the installation, including holes, making good decorations to match existing following the removal of redundant equipment and after the installation of new equipment.

182 Detailed Requirements on Builders Work

1. Make good to all ceilings and walls to plaster finish and to match existing decorations as closely as possible
2. Remove all redundant tank supports from cupboards and make good.
3. Remove any coal bunkers made redundant by the heating installation, bag any coal up and return to the customer.
4. Any disturbed areas around chases cut for ducts across solid floors for pipework are to be tiled together with the duct covers to match existing floor tiles as near as practical.
5. Any areas, where boilers, tiled hearths and warm air units and circulators have been removed, will be made good to the following standard:
 - Straighten and level floor and provide and install floor tiling to match existing everywhere the floor finish has been disturbed;
 - Make good all holes and cracks and opening left in walls and ceilings and around fireplaces to plaster finish and to match existing decorations as closely as possible; and
 - Should a warm air unit be removed from a compartment and the compartment is such that the door does not go to floor level, then a false floor consisting of batten and 22 mm plywood will be built in that compartment at the lower level of the door.
6. Any chimneys and flues made redundant as a result of removing appliances are to be:
 - Thoroughly swept;
 - Have a terracotta vent terminal supplied and fitted on top of the chimney;
 - The base of the chimney is to be permanently sealed and a suitable air vent is to be fitted above the base to ensure the chimney is vented at all times; and
 - Any flue that is not part of the structure of the property and had the sole purposes of providing flue arrangements for a removed gas appliance is to be removed in its entirety. Weathered where necessary and all holes left as a result of this removal are to be made good to match existing.
7. Wherever floor boards are lifted, they are to be replaced if damaged and all boards are to be screwed and countersunk into position. Should a laminate or other similar floor construction be encountered then the Customer must be advised that they should make their own arrangements to have such floor lifted prior to works commencing. Alternatively the Service Provider may lift the flooring upon the Customer signing a disclaimer to the effect that neither the Client nor the Service Provider is responsible for any damage that may arise or for the floor's reinstatement.

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8. Any plaster damaged or holes left in ceilings as a result of removing any cylinders or associated pipework are to be made good to plaster finish.
9. All ducting, grilles, register and vents that can be removed practically whenever a warm air unit is replaced shall be removed and made good to the required standards.
10. Alterations to compartments that are to be utilised for boilers are to be allowed for, this is also to include removal of architrave, door handles or any shelves or shelving of any construction.

Hot press/Airing/Cylinder Cupboards

- 183 Adapt existing cupboard to accommodate new cylinder, pipe work and any necessary ancillary heating equipment where necessary, this is to include removal of the architrave and door, and re-fixing and any alterations or re-fixing of existing shelving as necessary.

Health and Safety File

- 184 During the pre-construction phase, the principal designer shall prepare a health and safety file appropriate to the characteristics of the project.
- 185 The file must contain information about the current project likely to be needed to ensure health and safety during any subsequent Work, such as maintenance, cleaning, refurbishment or demolition.
- 186 When preparing the health and safety file, information on the following should be considered for inclusion:
 - A brief description of the Work carried out;
 - Any hazards that have not been eliminated through the design and construction processes, and how they have been addresses (e.g. surveys or other information concerning asbestos or contaminated land);
 - Key structural principles (e.g. bracing, sources of substantial stored energy – including pre or post tensioned members) and safe working loads for floors and roofs;
 - Hazardous materials used (e.g. lead paints and special coatings);
 - Information regarding the removal or dismantling of installed plant and equipment (e.g any special arrangements for lifting such equipment);
 - Health and safety information about equipment provided for cleaning or maintaining the structure;
 - The nature, location and markings of significant services, including underground cables, gas/oil supply equipment; fire-fighting equipment etc.,; and
 - Information and as built drawings of the Property, its plant and equipment (e.g. the means of safe access to and from service voids and fire doors).
- 187 There should be enough detail to allow the likely risks to be identified and addressed by those carrying out the Work.
- 188 However, the level of detail should be proportionate to the risks.
- 189 The file should **not** include things that will be of no help when planning future construction work such as pre-construction information, the construction phase plan, contractual documents, safety method statements etc.
- 190 Information must be in a convenient form, clear, concise and easily understandable.
- 191 The Service Provider shall upload unto the Client's IT system the Health and Safety File on completion of the works.

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Scaffolding

- 192 The Service Provider is to provide, erect, maintain and dismantle on completion tower scaffolding. Include for gaining access, ladders, boards and physical ties where necessary. The cost of scaffolding is only reimbursed when provided on properties above two storeys.
- 193 All scaffolding works are to be agreed by the Client's Representative prior to erection. In multi occupancy Properties, the Service Provider's customer liaison officer is to notify all Customer's 48 hours prior to erection of scaffolding.

Cold Water Storage Tank

- 194 Where the existing tank is defective; the Client's Representative may provide an Order to renew the cold water storage tank with a new, 227 litres capacity actual to be constructed of plastic material; to include new ball valve and float, lid, Byelaw 30 kit and insulation jacket; allow for draining down/chlorination and refilling system; alterations and re-connecting pipe work and overflow, remove old tank and test on completion.

SAP Ratings and Energy Performance Certificate

- 195 Upon completion of the installation the Service Provider is to provide an Energy Performance Certificate for the Property.

MAINTENANCE OF SYSTEMS

Boiler Label

- 196 The Service Provider is to supply a self-adhesive label and fit the label to each boiler on completion. The label shall contain the following information:
1. Service Provider's name.
 2. Service Provider's phone number.
 3. Service Provider's emergency call out number.
 4. Date of installation of system.
 5. Gas safe registration number.
 6. Signature of commissioning engineer.
- 197 A sample of the label shall be submitted for approval at the pre-contract meeting.

Defects Liability Period

- 198 The Service Provider shall be responsible for both the new boiler and the heating system within each Property with the exception of any previously installed gas fires and gas cooker from the date of completion of each section of Works.
- 199 The Service Provider shall be liable for all defects until the end of the 12 months defects liability period and all defects are corrected. Any faults that occur during the defects period on the new and existing mechanical plant and equipment shall be repaired at the Service Provider's own expense.
- 200 Any nuisance calls made by Customer's for not operating the system correctly shall be at the Service Provider's own expense for attendance to such calls.
- 201 The Service Provider is to provide a repair service line that is open 24 hours. The Service Provider must respond within 2 hours to all breakdown calls 24 hours a day. Calls can come from any of the following sources (Call Centre, On-Call Officer or Client. The number of the service line is to be given to the Client's Representative at the pre-contract meeting.)

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- 202 The Service Provider is to provide and forward a report to the Client's IT system within one day of any fault being reported to the Service Provider with the following information.
1. Date and time of which the fault is reported to Service Provider.
 2. Date and time the Service Provider arrived to rectify fault.
 3. Date and time the fault was rectified
 4. Description of fault.
 5. Materials used in rectifying the fault.
 6. Name of Customer.
 7. Address of the Customer.
 8. Signature of the Customer and printed name.
 9. Signature of the fitter and printed name.
- 203 The Client shall not accept a delay of more than 12 hours to repair any part of the heating or hot water system.
- 204 If the Service Provider fails to meet the 12 hour repair time the Client reserves the right to have the repair effected by another Client Party and a counter charge shall be levied against the Service Provider.

Annual Service

- 205 Appliances installed by the Service Provider are to be inspected, tested, serviced and landlord safety certified during the defects liability period at no additional cost to the Client.

System Preparation and Water Treatment

- 206 Standard: To BS 7593
- a) Central heating systems should be thoroughly cleaned and flushed out before installing a new boiler
 - b) During final filling of the system, a chemical water treatment inhibitor meeting boiler manufacturer's specification or other appropriate standard should be added to the primary circuit to control corrosion and the formation of scale and sludge
 - c) The Service Provider should also refer to the boiler manufacturer's installation instructions for appropriate treatment products and special requirements for individual boiler models
 - d) Where the mains total water hardness exceeds 200 parts per million, provision should be made to treat the feed water to water heaters and the hot water circuit of combination boilers to reduce the rate of accumulation of lime scale.

Commissioning

- 207 On completion of the installation of a boiler and hot water storage system, together with associated equipment such as pipe work, pumps and controls, the equipment shall be commissioned in accordance with the manufacturer's instructions. These instructions will be specific to the particular boiler or hot water storage system. The Service Provider should give a full explanation of the system and its operation to the Customer, including the manufacturer's user manuals where provided.
- 208 If the Service Provider carries out any Works on the hot and cold water services within each Property then the Service Provider shall chlorinate all hot and cold water services in accordance with BS EN 806 -5, HSG 70 and the current edition of the Water Regulations. Prior to chlorination the Service Provider shall flush out all hot and cold water services.
- 209 The Service Provider shall record the services chlorinated during the works on the Client's Chlorination Certificate.
- 210 To ensure adequate cleaning of replacement systems the Service Provider will flush out the heating flow and return pipework and radiators prior to connection to the boiler at least twice, and power flush with a recommended descaling/flushing agent.

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- 211 The replacement boiler is to be isolated from the system until the system water is clean, in accordance with the manufacturer's technical data sheet.
- 212 An analysis/purity test of the heating circuit water will form part of the post inspection quality checks and the Client's Representative will select samples to be taken throughout the duration of the works and sent to the water treatment provider for independent testing and reports forwarded to the Client's Representative.
- 213 The filling loop is to be removed and capped and secured with a spring clip or pipe clip adjacent to mains feed and heating circuit connections.
- 214 It is the Service Provider's responsibility to give one week's prior notice to the Client's Representative of when the flushing of the new system will take place in each Property. The Service Provider will also provide a certificate stating that the flushing was undertaken in accordance with both the boiler manufacturer's and the flushing agent manufacturer's technical data sheet.
- 215 Upon completion of the pipework installations, the installations shall be filled with clean water and then subjected to a hydraulic pressure test and the Service Provider shall upload onto the Client's IT system the Hydraulic Test Certificate.
- 216 Heating and HWS primary systems shall be subjected to a test pressure of 6.0 bar or twice the working head. HWS and cold water service pipework shall be subjected to a test pressure of one and a half times the working head. The test periods shall not be less than 30 minutes. All the above pressure tests shall be recorded on the Client's Hydraulic Test Certificate.
- 217 After the hydraulic tests have been carried out to the satisfaction of the Client's Representative, each system is to be heat tested in accordance with the Client's Specification.
- 218 Boiler burner pressure, functional checks and all flame supervision devices should be checked as recommended in the manufacturer's installation instructions. The whole system should be balanced to provide an even temperature distribution.
- 219 The Service Provider shall test and regulate the systems to the satisfaction of the Client's Representative with the Heat Test uploaded onto the Client's IT system.
- 220 The Service Provider shall upload onto the Client's IT system an EIC (Electrical Installation Certificate) for the electrical installation within each dwelling.
- 221 Gas installations shall be tested.
- 222 Any defects of workmanship, materials, performance or other irregularities which become apparent during the tests shall be rectified at the Service Provider's expense.
- 223 All tests may be carried out to the satisfaction of the Client's Representative.
- 224 Unless otherwise indicated, the Service Provider is to give a minimum notice of one week prior to site tests in order that the Client's Representative at their discretion, may be present at such tests.
- 225 On completing the testing of the system within each Property the Service Provider shall upload onto the Client's IT system a landlord's safety record and a service/maintenance check list to be passed to the Client's Representative within 24 hours of the tests being completed within each Property.
- 226 The Service Provider is to notify immediately the Client's Representative of any Customer installed appliance.
- 227 The Service Provider shall be responsible for providing the whole of the testing equipment required.

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- 228 The Service Provider shall upload unto the Client's IT system the following test certificates and records for each dwelling completed.
- Gas Landlords Gas Safety Record (CP12)
 - Oil Landlord Safety Record (CD12)
 - Electrical Installation Certificate (EIC)
 - Boiler Commissioning Certificate
 - Benchmark Booklet (copy of)
 - Hydraulic Test Certificate
 - Heat Test Certificate
 - Chlorination Certificate where works have been carried out to hot and cold water services
 - Record of Analysis/Purity test record from water treatment provider
 - ErP Package Label
 - Notice of application to Building Control Authority for all necessary approvals
 - Notice from Service Provider to Building Control Authority confirming fixed building services have been properly commissioned
 - Manufacturer's Warranty Form
 - Customer Agreement Form for the works to be undertaken (To be provided by the Service Provider)
 - Customer Satisfaction Sheet (To be provided by the Service Provider)
- 229 The Client's Representative will carry out post inspection quality check on all systems installed. The Client's Representative and the boiler manufacturer will be present during the commissioning of a number of the initial systems and will be making random inspection to monitor commissioning procedures.

Customer's Instructions

- 230 The Service Provider shall ensure the manufacturer's installation and servicing instructions and user instructions are left with the Customer following completion of the work.
- 231 In addition to the manufacturer's technical data sheet, an A4 size laminated sheet giving simple clear basic instructions and guidance should be included.
- 232 The Service Provider shall thoroughly explain and demonstrate to the Customer the operation of the system and check their understanding.
- 233 The Service Provider should ensure that the system is set up ready for the Customer's own requirements. The Customer should be asked about their lifestyle and heating requirements, rather than the "standard" heating pattern being imposed.
- 234 In instances where the Customer's first language is not English or alternatively where there are communications difficulties, the Client shall be advised.

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Client’s current manufacturers/suppliers/products

235 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand Name	Manufacturer’s Details

[complete table as appropriate]

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REPLACEMENT HEATING INSTALLATION: Example Check List

[Client to amend as appropriate]

Item	Work Description	Deemed included within All-in Central Heating Renewal Rates	Reimbursed through Schedule of Rates
	General		
1.0	Removal of all Client's and or Customer installed existing appliances (gas, oil, LPG, warm air, solid fuel, electrical) and making good. This shall include properties with partial heating systems, complete heating systems, combined hot/cold water storage and expansion vessel packs , etc., Removal of gas and or oil fuel pipelines, oil tanks, concrete/paving slabs boiler house bases and oil tank bases etc.,	✓	
1.1	Patch plaster walls for decorations following strip out, total area not exceeding 2m2.	✓	
1.2	Removal of all redundant pipework and cables and make good to all disturbed surfaces.	✓	
1.3	Removal of the existing hot water storage tank or cylinder and associated redundant pipework where required.	✓	
1.4	Removal of the gas carcass within the Property.	✓	
1.5	Removal of the cold water supply pipework serving the sink, bath and basin and any hot water pipework servicing washing machines and dishwashers.	✓	
1.6	Removal of the existing heating and hot water system in its entirety.	✓	
1.7	Removal of all existing control equipment and associated wiring and accessories.	✓	
1.8	Removal of gas fires which are to be isolated and the gas supply capped, bricking up flue apertures, render and set, fixing plaster vent with permanent ventilator, renewing skirting, making good to all disturbed surfaces clearing away, and leave ready for redecoration.	✓	
1.9	Fitting of restraint chains to gas cookers		✓
1.10	All builders work in connection with the installation, including holes, making good decorations to match existing following the removal of redundant equipment and after the installation of new equipment.	✓	
1.11	Undertake all surveys, prepare working drawings, prepare all calculations, prepare radiator schedules, obtain Customer's approval, obtain Client's Representative's approval. The Service Provider shall carry out all necessary Customer consultation.	✓	

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Item	Work Description	Deemed included within All-in Central Heating Renewal Rates	Reimbursed through Schedule of Rates
	Hot and Cold Water Plumbing		
2.1	Connect to the existing hot water service, cold feed and open vent serving the Property. All the above pipework will be shown on the Service Provider's working drawings.	✓	
2.2	Supply and install a cold water main from the nearest existing point to feed the boiler in 15 mm pipe as shown on the Service Provider's working drawing if a system boiler is installed.	✓	
	Heating Plumbing		
3.1	Supply and install the heating flow and return pipework from the boiler to the pump, motorised valves and magnetic filter as shown on the Service Providers drawings. From the motorised valve the heating shall split to feed the hot water cylinder and radiators within each room, as shown on the Service Provider's working drawings.	✓	
3.2	Supply and install at low points of the heating system, a lock shield drain cock to BS 2879, complete with loose keys.	✓	
	Gas Plumbing		
4.1	The gas carcassing to be replaced to the new appliance from the meter position in all cases. In addition, they shall extend the carcass to the cooker position and re-connect the Customer's own appliance including stability device if not already fitted. If the Customer has an electric cooker then the gas supply is to be capped off at this point. The Service Provider is to ensure that the supplies are of sufficient size, to supply the volume of gas required to allow the appliances to function effectively and in accordance with the manufacturer's instructions.	✓	
4.2	Supply and install a bayonet fitting 600 mm from finished floor level on the gas supply to the cooker.	✓	
4.3	Install a gas cock prior to the cooker for isolation purposes.	✓	
	Boilers		
5.1	Install any type of boiler which are to be SEDBUK A rated high efficiency with evidence of a Low No-x rating condensing boiler as manufactured by a manufacturer approved by the Client's Representative.	✓	
5.2	Supply and install in the cold water mains supply prior to entering the boiler, a branch connecting with a filling loop which connects between the cold mains and the heating flow. The filling loop shall be complete with all valves in accordance with Water Regulations and manufacturer's recommendations.	✓	
5.3	Provide a minimum ten year's manufacturer's guarantee with a minimum ten year parts and labour warranty and this shall be arranged to run from the date of the completion certificate.	✓	

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Item	Work Description	Deemed included within All-in Central Heating Renewal Rates	Reimbursed through Schedule of Rates
5.4	Provide a boiler installation record secured to the inside of the lower casing giving the Service Provider's name and address and the date of installation.	✓	
5.5	All new boilers are to be fitted with a "magnetic filter" on the return pipe to the boiler in accordance with manufacturer's instructions.	✓	
5.6	Supply and install a complete boiler flue system in accordance with the manufacturer's technical data sheet and BS 5440 Part 1. The Service Provider shall terminate the flue at a suitable location and supply and install a flue terminal guard as necessary. Supply and install plume kit.	✓	
5.7	Supply and install adequate ventilation in accordance with the manufacturer's technical data sheet and BS 5440-2.	✓	
5.8	Supply and install high and low level ventilation grilles when the boiler is installed within a cupboard. Such grilles shall be suitably sized in accordance with manufacturer's requirements.	✓	
5.9	Supply and install an additional expansion vessel of appropriate size if the system volume is beyond that which can be accommodated by the built in expansion vessel.	✓	
5.10	Supply and install a 15 mm galvanized steel pipe from the pressure relief valve on the boiler and run it to outside to discharge in a safe location.	✓	
5.11	Supply, install and deliver a pipe cover accessory.	✓	
5.12	Where necessary supply and install a safety discharge pipe, this shall be fitted in accordance with the manufacturer's technical data sheet and shall be arranged to discharge externally in a safe location and tied back to the wall.	✓	
5.13	Supply and install all condense pipes which shall be preferably run internally and terminated in accordance with the manufacturer's technical data sheet and recommendations. If run externally they must be secure and lagged with external waterproof lagging of 19mm thick to BS standard.	✓	
5.14	Supply and install all flues and condensation drain pipes associated with the required appliances and which shall be fitted in accordance with manufacturer's technical data sheet. This shall include all associated builders work and making good.	✓	
5.15	Service Provider shall also include for the provision of all access equipment on Properties of two storeys or below.	✓	
5.16	The Service Provider shall include for a suitable terminal guard to be fitted where flue terminals are less than 2m above ground level.	✓	

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Item	Work Description	Deemed included within All-in Central Heating Renewal Rates	Reimbursed through Schedule of Rates
	Radiators		
6.1	Supply and install radiators complete with brackets and be fitted with a chrome plated thermostatic radiator valve (except in room where room stat fitted) and 15mm type chrome lock shield isolating valve. Radiator connections shall be at the bottom and opposite ends. Air release valve are to be fitted on the flow side top connections.	✓	
6.2	Supply and install reflective foil to be fitted behind all radiators on external walls. The foil shall be cut neatly, 25mm smaller than radiator dimensions and fixed in accordance with manufacturer's recommendations behind the radiator-fixing bracket.	✓	
6.3	Supply and install a drain off tapping fitted at lowest point in the system.	✓	
6.4	The radiators shall be supplied with a good priming coat.	✓	
	Cylinders		
7.1	Where a system boiler is provided, the Service Provider shall include a new high recovery foam insulated indirect cylinder of appropriate size for dwelling (minimum storage capacity 120 litres). The cylinder shall be pre insulated of an appropriate grade for the installation The cylinder shall be located in the existing hot press. The Service Provider shall include for a 22mm cold feed to this cylinder from the main storage tank and also for a 22mm vent pipe.	✓	
7.2	Supply and install a 750mm long immersion heater facility rated at 3kW and thermostat to BS EN 60335 -2-73 and heater booster switch.	✓	
7.3	Supply and install a new 22mm gate valve on the cold feed, heating flow and return pipework to the cylinder.	✓	
	Controls		
8.1	Supply and install programmer to incorporate a manual override facility and to be an electro-mechanical programmer and be located in the kitchen, wireless programmers may also be installed if approved by the Client's Representative	✓	
8.2	Supply and install 22mm motorised valves complete with actuator motor to be located as shown on the Service Providers drawings complete with isolating valves.	✓	
8.3	Supply and install room thermostat. A wireless room thermostat may also be installed if approved by the Client's Representative.	✓	

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Item	Work Description	Deemed included within All-in Central Heating Renewal Rates	Reimbursed through Schedule of Rates
8.4	Supply and install wiring centre in accordance with the manufacturer's installation instructions to be located as shown on the Service Provider's drawings.	✓	
8.5	Supply and install an immersed cylinder thermostat set at 60°C in a cylinder provided pocket.	✓	
8.6	Supply and install an automatic bypass to be fitted to all systems including combination boilers should the boiler manufacturer's technical data sheet advise that this is a requirement of the installation.	✓	
8.7	Supply and install a frost thermostat to be provided if the boiler is located in a position where frost damage may occur.	✓	
8.8	Supply and install a heating pump in an accessible location. The pump shall be sized to provide the correct flow rate against the system resistance.	✓	
	Insulation		
9.1	Supply and install insulation to all pipework running under ground floor suspended floors, through unheated areas (ducts, cupboards, or in loft spaces in accordance with the Client's Specification. All primary pipework and pipework within hot presses shall also be insulated.	✓	
	Water storage Tanks		
10.1	Supply and install a plastic 18 litre feed and expansion cistern in accordance with the current Water Regulations if an open vented system is to be used.	✓	
10.2	Supply and install purpose made lids and insulation jacket for the feed and expansion cistern.	✓	
10.3	Supply and install overflows of suitable size to the feed and expansion cistern and discharge it in an appropriate location.	✓	
10.4	Supply and install an open vent and cold feed to the heating system in accordance with the boiler manufacturer's technical data sheet.	✓	
10.5	Supply and install a framework to support the feed and expansion cistern. The framework shall transfer all the live load to the floor or surrounding walls. The framework shall be made from timber with a minimum of four cross supports. The feed and expansion cistern shall be sited on 25mm marine plywood.	✓	

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Item	Work Description	Deemed included within All-in Central Heating Renewal Rates	Reimbursed through Schedule of Rates
	Electrical Installation		
11.1	Supply and install if required a new electrical circuit from consumer unit and connect to the new immersion heater via a heater booster switch.	✓	
11.2	If a new consumer unit is required this will be a surface non-combustible unit with lid, and complete with: main control switch to BS EN 60439-3; sufficient RCBO's to accommodate all the sub-circuits scheduled for the Property; a minimum of 20% spare ways for future capacity; and each protective device to be permanently labelled to identify each circuit and rating.		✓
11.3	Provision of new electrical circuit and connect to Boiler any type and system control equipment and accessories.	✓	
11.4	Circuit wiring shall be carried out using 2.5mm ² PVC/PVC insulated cables. All routing of trunking shall be done in a workmanlike manner and shall be arranged to be unobtrusive in terms of its layout.	✓	
11.5	Supply and install final connections for boilers, heating circulators, electric inset fire and immersion heater which shall be heat resisting 3 core 2.5mm ² butyl. Include for the upgrading of supplementary earth bonding to a new system in accordance with the latest IET Regulations.	✓	
11.6	Earth bonding shall be completed where necessary back to the main consumer unit or meter.	✓	
11.7	All control wiring associated with the installation shall be supplied and installed by the Service Provider.	✓	
	Commissioning and Testing		
12.1	If any Works are undertaken on the hot and cold water Services within each Property then the Service Provider shall chlorinate all hot and cold water services in accordance with BS 6700, HSG 70 and to the current edition of the Water Regulations. Prior to chlorination the Service Provider shall flush out all hot and cold water services. The services chlorinated during the works are to be recorded on the Client's Chlorination Certificate.	✓	
12.2	Flush out the heating flow and return pipework and radiators prior to connection to the boiler at least twice, with the boiler manufacturer's recommended descaling/flushing agent and power flushing machine. The Service Provider will also provide a certificate stating that the flushing was undertaken in accordance with both the boiler manufacturer's and the flushing agent manufacturer's technical data sheet.	✓	

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Item	Work Description	Deemed included within All-in Central Heating Renewal Rates	Reimbursed through Schedule of Rates
12.3	The filling loop is to be removed and capped and secured with a spring clip or pipe clip adjacent to mains feed and heating circuit connections.	✓	
12.4	Upon completion of the pipework installations, water pipework shall be filled with clean water and then subjected to a hydraulic pressure test and the Service Provider shall complete the Client's Hydraulic Test Certificate.	✓	
12.5	Heating and HWS primary systems shall be subjected to a test pressure of 6.0 bar or twice the working head. HWS and cold water service pipework shall be subjected to a test pressure of one and a half times the working head. The test periods shall not be less than 30 minutes. All the above pressure tests shall be recorded on the Client's Hydraulic Test Certificate.	✓	
12.6	After the hydraulic tests have been carried out to the satisfaction of the Client's Representative, each system is to be cleaned and dosed and a heat test shall be carried out.	✓	
12.7	Main burner pressure, gas rate, functional checks and flame supervision device should be checked as recommended in the manufacturer's installation instructions. The whole system should be balanced to provide an even temperature distribution.	✓	
12.8	The Service Provider shall regulate the systems to the satisfaction of the Client's Representative and the results shall be recorded on the Client's Commissioning Certificate and Heat Test Certificate.	✓	
12.9	The Service Provider shall upload onto the Client's IT system an Electrical Installation Certificate for the electrical installation within each dwelling.	✓	
12.10	Upload onto the Client's IT system a signed certificate of the gas safety checks and gas pressure test within the operation and maintenance manuals.	✓	
12.11	Test for soundness and purge in accordance with BS 6891 and certify.	✓	
12.12	Upon completion the gas pipework is to be pressure tested (may be witnessed by the Client's Representative) for 15 minutes at a pressure of 20mbar.	✓	
12.13	Flush out the heating services at least twice prior to filling and adding inhibitor to the system.	✓	

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Item	Work Description	Deemed included within All-in Central Heating Renewal Rates	Reimbursed through Schedule of Rates
12.14	At the time of commissioning following the successful cleaning of the system the Service Provider will add the boiler manufacturer's recommended corrosion inhibitor approved by the Client's Representative, dosed in accordance with the manufacturer's technical data sheet, into the heating system after the system has been tested.	✓	
	Customer's Instructions		
13.1	Ensure the manufacturer's installation and servicing instructions and user instructions are left with a responsible person on site together with an A4 size laminated sheet giving simple clear basic instructions and guidance.	✓	
13.2	Supply a radiator vent key and for thoroughly explaining to the Customer, demonstrating the operation of the system and checking their understanding.	✓	
13.3	Ensure that the system is set up ready for the Customer's own requirements. The Customer should be asked about their lifestyle and heating requirements, rather than the "standard" heating pattern being imposed.	✓	
13.4	In instances where the Customer's first language is not English or alternatively where there are communications difficulties, the Client's Representative shall be advised.	✓	
	Health & Safety File		
14.1	During the pre-construction phase, the principal designer shall prepare a health and safety file appropriate to the characteristics of the project which shall contain information relating to the project which is likely to be needed during any subsequent project to ensure the health and safety of any person. The information required per Scheme shall be agreed with the Client's Representative prior to commencing the Works:	✓	
	Scaffolding		
15.1	Provide, erect, maintain and dismantle on completion tower scaffolding. Include for gaining access, ladders, boards and physical ties where necessary.	✓	
15.2	The cost of scaffolding is only reimbursed when provided on Properties above two storeys.		✓
	SAP Ratings and Energy Performance Certificate		
16.1	Upon completion of the heating installation the Service Provider is to provide an Energy Performance Certificate for the Property.	✓	

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Item	Work Description	Deemed included within All-in Central Heating Renewal Rates	Reimbursed through Schedule of Rates
	Maintenance of System		
17.1	Supply a self-adhesive label and fit the label to each boiler on completion. The label shall contain the information listed in clause 196:	✓	
17.2	Accept responsibility for both the new boiler and the heating system within each Property with the exception of any previously installed gas fires and gas cooker from the date of completion of each section of Works.	✓	
17.3	Accept liability for all defects until the end of the 12 months defects liability period and all defects are corrected. Any faults that occur during the defects period on the new and existing mechanical plant and equipment shall be repaired at the Service Provider's own expense.	✓	
17.4	Provide a repair service line that is open 24 hours. The Service Provider must respond within 2 hours to all breakdown calls 24 hours a day. Calls can come from any of the following sources (Call Centre, On-Call Officer or Client. The number of the service line is to be given to Client at the pre-contract meeting.)	✓	
17.5	Provide a report sheet to the Client within one day of a fault being reported to the Service Provider with the information listed in clause 202.	✓	

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

REPLACEMENT BOILER (WITHOUT AND WITH CONTROLS): Example Check List

[Client to amend as appropriate]

Item	Work Description	Deemed included within All-in Boiler Renewal Rates	Reimbursed through Schedule of Rates
	General		
1.0	Removal of Client's and or Customer installed existing boiler of any type and boiler flue and making good.	✓	
1.1	Patch plaster walls for decorations following strip out, total area not exceeding 2m2.	✓	
1.2	Removal of all redundant pipework and cables where required and make good to all disturbed surfaces.	✓	
1.3	Removal of existing control equipment, wiring and accessories.	✓	
1.4	All builders work in connection with the installation, including holes, making good decorations to match existing following the removal of redundant equipment and after the installation of new equipment.	✓	
1.5	Undertake all surveys, prepare working drawings, prepare all calculations, obtain Customer's approval, obtain Client's Representative's approval. The Service Provider shall carry out all necessary Customer consultation.	✓	
	Hot and Cold Water Plumbing		
2.1	Connect to the existing hot water service, cold feed and open vent serving the dwelling. All the above pipework will be shown on the Service Provider's working drawings.	✓	
2.2	Supply and install if necessary a cold water main from the nearest existing point to feed the boiler in 15 mm pipe as shown on the Service Provider's working drawing if a system boiler is installed.	✓	
	Heating Plumbing		
3.1	Supply and install or modify the heating flow and return pipework from the boiler to the pump and motorised valves and magnetic filter, as shown on the Service Providers drawings. From the motorised valves the heating shall split to feed the hot water cylinder and radiators within each room, as shown on the Service Provider's working drawings.	✓	
3.2	Supply and install at low points of the heating system, a Lock shield drain cock to BS 2879, complete with loose keys.	✓	

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Item	Work Description	Deemed included within All-in Boiler Renewal Rates	Reimbursed through Schedule of Rates
	Gas Plumbing		
4.1	The gas carcassing to be replaced to the new appliance from the meter position in all cases. In addition, the Service Provider shall extend the carcass to the cooker position and reconnect the Customer's cooker including stability device if not already fitted. If the Customer has an electric cooker then the gas supply is to capped off at this point. The Service Provider is to ensure that the supplies are of sufficient size, to supply the volume of gas required to allow the appliances to function effectively and in accordance with the manufacturer's instructions.	✓	
4.2	Supply and install a bayonet fitting 600 mm from finished floor level on the gas supply to the cooker.	✓	
	Boilers etc		
5.1	Install boilers which are SEDBUK A rated high efficiency with evidence of a Low No-x rating condensing boiler as manufactured by a manufacturer approved by the Client's Representative.	✓	
5.2	Supply and install in the cold water mains supply prior to entering the boiler, a branch connecting with a filling loop which connects between the cold mains and the heating flow. The filling loop shall complete with all valves in accordance with Water Regulations and manufacturer's recommendations.	✓	
5.3	Provide a minimum ten year's manufacturer's guarantee with a minimum ten year parts and labour warranty and this shall be arranged to run from the date of the completion certificate.	✓	
5.4	Provide a boiler installation record secured to the inside of the lower casing giving the Service Provider's name and address and the date of installation.	✓	
5.5	All new boilers are to be fitted with a magnafilter on return pipe.	✓	
5.6	Supply and install a complete boiler flue system in accordance with the manufacturer's technical data sheet and BS 5440-1. The Service Provider shall terminate the flue a suitable location and supply and install a flue terminal guard as necessary.	✓	
5.7	Supply and install adequate ventilation in accordance with the manufacturer's technical data sheet and BS 5440-2.	✓	
5.8	Supply and install high and low level ventilation grilles when the boiler is installed within a cupboard. Such grilles shall be suitably sized in accordance with manufacturer's requirements.	✓	

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Item	Work Description	Deemed included within All-in Boiler Renewal Rates	Reimbursed through Schedule of Rates
5.9	Supply and install an additional expansion vessel of appropriate size if the system volume is beyond that which can be accommodated by the built in expansion vessel.	✓	
5.10	Supply and install a 15 mm galvanized steel pipe from the pressure relief valve on the boiler and run it to outside to discharge in a safe location.	✓	
5.11	Supply and install a pipe cover accessory.	✓	
5.12	Where necessary supply and install a safety discharge pipe, this shall be fitted to the manufacturer's technical data sheet and shall be arranged to discharge externally in a safe location and tied back to the wall.	✓	
5.13	Supply and install all condense pipes which shall be preferably run internally and terminated in accordance with the manufacturer's technical data sheet and recommendations. If run externally they must be secure and lagged with external waterproof lagging of 19mm thick to applicable BS standard.	✓	
5.14	Supply and install all flues and condensation drain pipes associated with the required appliances and which shall be fitted in accordance with manufacturer's technical data sheet. This shall include all associated builders work and making good.	✓	
5.15	Service Provider shall also include for the provision of all access equipment on Properties of two storeys or below.	✓	
5.16	The Service Provider shall include for a suitable terminal guard to be fitted where flue terminals are less than 2m above ground floor level.	✓	
	Controls		
6.1	Supply and install programmer to incorporate a manual override facility and to be an electro-mechanical programmer and be located in the kitchen, wireless programmers may also be installed if approved by the Client's Representative.	✓	
6.2	Supply and install 22mm motorised valves with isolating valves complete with actuator motor to be located as shown on the Service Providers drawings.	✓	
6.3	Supply and install room thermostat A wireless room thermostat may also be installed if approved by the Client's Representative.	✓	

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Item	Work Description	Deemed included within All-in Boiler Renewal Rates	Reimbursed through Schedule of Rates
6.4	Supply and install wiring centre in accordance with the manufacturer's to be located as shown on the Service Providers drawings.	✓	
6.5	Supply and install an immersed cylinder thermostat set at 60°C in a hot water cylinder provided pocket.	✓	
6.6	Supply and install an automatic bypass to be fitted to all systems including combination boilers should the boiler manufacturer's technical data sheet advise that this is a requirement of the installation.	✓	
6.7	Supply and install a frost thermostat to be provided if the boiler is located in a position where frost damage may occur.	✓	
6.8	Supply and install a heating pump in an accessible location. The pump shall be sized to provide the correct flow rate against the system resistance.	✓	
	Insulation		
7.1	Supply and install insulation to all pipework running under ground floor suspended floors, through unheated areas (ducts, cupboards, or in loft spaces shall be provided with rigid pipe insulation. All primary pipework and pipework within airing cupboards shall also be insulated.		✓
	Water storage Tanks		
8.1	If the existing cold water storage tank is defective, renew tank with new 227 litres actual and constructed of a plastic material acceptable to the Client's Representative, include for new ball valve and float, lid, Byelaw 30 kit and rigid insulation, allow for turning water on/off, draining/refilling system, adjusting and connecting pipework and overflow, remove old tank and test on completion.		✓
	Electrical Installation		
9.1	Re-connect existing switched connection fused connection to new boiler of any type.	✓	
9.2	Circuit wiring shall be carried out using 2.5mm ² PVC/PVC insulated cables All routing of trunking shall be done in a workmanlike manner and shall be arranged to be unobtrusive in terms of its layout.	✓	
9.3	Supply and install final connections to boiler and system control equipment which shall be heat resisting 3 core 2.5mm ² butyl Include for upgrading where necessary the supplementary earth bonding in accordance with the latest IET Regulations.	✓	

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Item	Work Description	Deemed included within All-in Boiler Renewal Rates	Reimbursed through Schedule of Rates
9.4	Earth bonding shall be completed where necessary back to the main consumer unit or meter.	✓	
9.5	All existing control wiring associated with the installation shall be retained and final connections to equipment shall be provided by the Service Provider.	✓	
	Commissioning and Testing		
10.1	If any works are undertaken on the hot and cold water services within each dwelling then the Service Provider shall chlorinate all hot and cold water services in accordance with BS 6700, HSG 70 and the current edition of the Water Regulations. Prior to chlorination the Service Provider shall flush out all hot and cold water services. The services chlorinated during the works are to be recorded on the Client's Chlorination Certificate.		✓
10.2	Flush out the heating flow and return pipework and radiators prior to connection to the boiler at least twice, with the boiler manufacturer's recommended descaling/flushing agent and power flushing machine. The Service Provider will also provide a certificate stating that the flushing was undertaken in accordance with both the boiler manufacturer's and the flushing agent manufacturer's technical data sheet.	✓	
10.3	The filling loop is to be removed and capped and secured with a spring clip or pipe clip adjacent to mains feed and heating circuit connections.	✓	
10.4	Upon completion of the pipework installations, water pipework shall be filled with clean water and then subjected to a hydraulic pressure test and the Service Provider shall complete the Client's Hydraulic Test Certificate.	✓	
10.5	Heating and HWS primary systems shall be subjected to a test pressure of 6.0 bar or twice the working head. HWS and cold water service pipework shall be subjected to a test pressure of one and a half times the working head. The test periods shall not be less than 30 minutes. All the above pressure tests on the Client's Hydraulic Test Certificate shall be uploaded onto the Client's IT system.	✓	
10.6	After the hydraulic tests have been carried out to the satisfaction of the Client's Representative, each system is to be cleaned and dosed and a heat test shall be carried out.	✓	

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Item	Work Description	Deemed included within All-in Boiler Renewal Rates	Reimbursed through Schedule of Rates
10.7	Main burner pressure, gas rate, functional checks and flame supervision device should be checked as recommended in the Manufacturer's installation instructions. The whole system should be balanced to provide an even temperature distribution.	✓	
10.8	The Service Provider shall regulate the systems to the satisfaction of the Client's Representative and the results shall be recorded on the Client's Commissioning Certificate and Heat Test Certificate.	✓	
10.9	The Service Provider shall upload onto the Client's IT system an Electric Test Certificate for the electrical installation within each dwelling.	✓	
10.10	Upload onto the Client's IT system with a signed certificate of the gas safety checks and gas pressure test within the operation and maintenance manuals.	✓	
10.11	Test for soundness and purge in accordance with BS 6891 and certify.	✓	
10.12	Upon completion the gas pipework is to be pressure tested (may be witnessed by the Client's Representative) for 15 minutes at a pressure of 20mbar.	✓	
10.13	Flush out the heating services at least twice prior to filling and adding inhibitor to the system.	✓	
10.14	At the time of commissioning following the successful cleaning of the system the Service Provider will add the boiler manufacturer's recommended corrosion inhibitor approved by the Client's Representative, dosed in accordance with the manufacturer's technical data sheet, into the heating system after the system has been tested.	✓	
	Customer's Instructions		
11.1	Ensure the manufacturer's installation and servicing instructions and user instructions are left with a responsible person on site together with an A4 size laminated sheet giving simple clear basic instructions and guidance.	✓	
11.2	Ensure that the system is set up ready for the Customer's own requirements. The Customer should be asked about their lifestyle and heating requirements, rather than the "standard" heating pattern being imposed.	✓	
11.3	In instances where the Customer's first language is not English or alternatively where there are communications difficulties, the Client's Representative shall be advised.	✓	

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Item	Work Description	Deemed included within All-in Boiler Renewal Rates	Reimbursed through Schedule of Rates
	Health & Safety File		
12.1	During the pre-construction phase, the principal designer shall prepare a health and safety file appropriate to the characteristics of the project which shall contain information relating to the project to ensure the health and safety of any person. The information required per Scheme shall be agreed with the Client's Representative prior to commence to commence the works.	✓	
	Scaffolding		
13.1	Provide, erect, maintain and dismantle on completion tower scaffolding. Include for gaining access, ladders, boards and physical ties where necessary.	✓	
13.2	The cost of scaffolding is only reimbursed when provided on Properties above two storeys.		✓
	SAP Ratings and Energy Performance Certificate		
14.1	Upon completion of the installation the Service Provider is to provide an Energy Performance Certificate for the dwelling.	✓	
	Maintenance of System		
15.1	Supply a self-adhesive label and fit the label to each boiler on completion. The label shall contain the information listed in clause 196.	✓	
15.2	Accept responsibility for the new boiler from the date of completion of each section of works.	✓	
15.3	Accept liability for all defects until the end of the 12 months defects liability period and all defects are corrected. Any faults that occur during the defects period on the new and existing mechanical plant and equipment shall be repaired at the Service Provider's own expense.	✓	
15.4	Provide a repair service line that is open 24 hours. The Service Provider must respond within 2 hours to all breakdown calls 24 hours a day. Calls can come from any of the following sources (Call Centre, On-Call Officer or Client. The number of the service line is to be given to Client's Representative at the pre-contract meeting.)	✓	
15.5	Provide a report sheet to the Client within one day of a fault being reported to the Service Provider with the information listed in clause 202.	✓	

ELECTRICAL WORKS

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

ELECTRICAL WORKS

GENERAL

Regulations

- 001 Ensure all electrical Works are carried out in accordance with the latest edition (complete with amendments) of the Requirements for Electrical Installations published by the Institution of Engineering and Technology ("the IET Regulations").

Equipotential bonding

- 002 Standard to BS7671 Installation: Connect the following metallic parts to the main earthing terminal, where they are extraneous-conductive parts to:
- metal water installation pipes;
 - metal gas installation pipes, as near practical to the point of entry of the service into the premises and before any branch pipework where the meter is fitted externally. Where practicable the connection shall be made within 600mm of the meter outlet union where the meter is installed internally;
 - central heating system pipework;
 - other installation pipework (including oil and gas supply pipes) and ducting; and
 - exposed metallic structural parts of the building.

Sizes of bonding conductors are given in BS 7671.

Supplementary equipotential bonding

- 003 Standard to BS7671 General: Within the zone formed by the main equipotential bonding, provide connections to:
- baths;
 - sinks;
 - exposed pipes; and
 - heating systems.

In locations containing a bath or shower, supplementary equipotential bonding is to comply with BS7671 Regulation 701.

Sizes of supplementary equipotential bonding conductors are given in BS7671.

Standard to BS7671: Electrical equipment and/or electrical circuits installed in a room containing a bath or shower shall have RCD protection, complying with BS7671 Regulation 701.411.3.3.

Standard to BS7671: Where all electrical requirements in the dwelling to BS 7671 Regulation 701.411.3.3 are met, supplementary equipotential bonding as Clause 003 may be omitted.

MATERIALS

Earth Electrode

- 004 Standard to BS7671
General: Conductive part, which may be embedded in the soil or in a specific conductive medium, in contact with the earth;
Materials: Copper, with hardened steel driving cap, hardened steel tip and phosphor bronze coupling screws;
Mechanical protection: Each earth electrode shall be protected from mechanical damage by enclosing in a heavy duty cast-iron box with lid or a heavy duty concrete box with lid. The earth lead shall be enclosed, where exposed in heavy gauge galvanised steel conduit. Permanent labels to BS 951 indelibly marked "Safety Electrical Earth Do Not Remove" shall be attached to the earth lead at both the meter cupboard and at the electrical electrode.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Conduit/trunking/ducting

005 Do not use surface conduit or trunking without an Instruction to do so from the Client's Representative.

Steel Conduit and fittings

006 Standard to BS 7671

Type: Plain threadable rigid conduit;

Size: In accordance with BS 7671;

Fittings: Circular boxes shall be malleable cast-iron;

Finish: Class 4 hot dipped galvanised;

Mounting/support: Conduit shall be secured to surfaces using galvanised steel clips/saddles;

Mounting/support: Conduit shall be secured to surfaces using galvanised steel clips/saddles

Installation: Use maximum practical lengths to minimise number of joints. Form bends by machine and remove burrs from cut ends. Use bends and or/junction boxes at changes of direction. Elbows or tees shall not be used without the consent of the Client's Representative. Conduit system to be secured using brass screws and fibre/plastic plug. Boxes must be fixed independently of conduit. Tightly screw all joints to ensure electrical continuity, with no thread showing. All threads to be treated with rust inhibiting paint. Use expansion couplings where conduit crosses movement joints in structure. Make secure connections to boxes, trunking etc., with screwed coupling and provide rubber bushes at open ends.

PVC-u conduits and fittings

007 Ensure PVC-u conduits and fittings comply with the following:

- strength: heavy gauge super high impact;
- shape/colour: round, white;
- jointing: push fit and solvent welded;
- fittings: standard;
- mounting/support: screw the conduit to surfaces using the conduit manufacturer's clips/saddles;
- use maximum practical straight lengths to minimise number of joints;
- use proprietary bends and/or junction boxes at changes of direction;
- do not use elbows, tees or site formed bends without the approval of the Client's Representative;
- secure the conduit system using boxes, plated screws and fibre/plastic plugs;
- fix boxes independently of the conduit; and
- form secure joints, using expansion couplings where recommended by the manufacturer and connectors at equipment and terminal fittings.

PVC-u surface cornice trunking system

008 Use PVC-u surface cornice trunking in conjunction with mini trunking for the mechanical protection of sub-mains cables and final circuit cables in accessible locations at ceiling level, where approved by the Client's Representative. Ensure the trunking complies with the following:

- fittings: use the manufacturer's standard fittings;
- colour: white;
- mounting/support: secure to surfaces using plated screws and fibre/plastic plugs; and
- use proprietary units to form junctions and changes of direction wherever possible.

PVC-u surface mini-trunking system

009 Use PVC-u surface mini-trunking for the mechanical protection of final circuit cables in accessible locations. Ensure the trunking complies with the following:

- fittings: use the manufacturer's standard fittings;
- colour: white;
- mounting/support: secure to surfaces using plated screws and fibre/plastic plugs; and
- use proprietary units to form junctions and changes of direction wherever possible.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Fire stopping of trunking/ducting

- 010 Seal trunking/ducting internally with firmly packed rock fibre or intumescent type material supplied by the trunking/duct manufacturer.

Cables generally

- 011 Ensure cables are BASEC certified. Use cables in the locations and for the uses specified in the table below:

Location/Use:	Cable Type:
General (includes central heating, ventilation and smoke detector systems)	PVC insulated and sheathed
Conduit system (complete)	PVC insulated and sheathed or PVC insulated only
Sub-mains distribution	PVC split concentric
Sub-mains distribution armoured and PVC sheathed	PVC insulated, PVC sheathed, steel wire armour and PVC sheathed
Fire alarm system	PVC insulated and sheathed
Immersion heater (final connection)	EP rubber/HOFR sheath, Heat resistant PVC flexible cable

PVC-u insulated and sheathed cables and PVC-u insulated split concentric cables

- 012 Colour code cables for identification.

Electrical accessories generally (wall mounted)

- 013 Ensure wall mounted accessories for the connection and control of power, lighting and low voltage equipment are:
- manufactured using white moulded plastic;
 - complete with surface or flush type mounting box except where specified otherwise;
 - from the same manufacturer in a single installation; and
 - marked to show their function where they are a control switch for e.g. an immersion heater, a cooker, a refrigerator, a washing machine or a circulating pump etc.,.
- 014 Ensure metal boxes for flush mounting switches and sockets are manufactured from galvanised steel complete with an earth terminal.
- 015 Fix all boxes using brass screws, fibre or plastic plugs.

Electrical accessories generally (ceiling mounted)

- 016 Ensure ceiling mounted accessories for the connection and control of power, lighting and low voltage equipment:
- are manufactured using white moulded plastic;
 - are complete with mounting box where required;
 - are from the same manufacturer where used in a single installation;
 - are fixed with brass or sheradised screws, with fibre or plastic plugs as required; and
 - in conduit systems have a white insulated break-ring between the ceiling roses and cord switches and the respective terminal boxes.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Consumer unit

- 017 Ensure consumer units:
- have a surface non-combustible pattern unit complete with lid;
 - have a main switch of 80/100 amp DP rating;
 - are fitted with RCBO's to BS EN 61009-1;
 - located adjacent to the meter at the incoming supply position; and
 - have each way permanently labelled to identify the circuit and rating.
- 018 In installations without Protective Multiple Earthing it must be a surface non-combustible unit complete with lid, fitted with RCBO's to BS EN61009-1 and must be labelled to correspond to the following circuit allocations:

Circuit No Allocations	RCBO Rating
Lighting Downstairs	6
Lighting Upstairs	6
Boiler	6
Immersion Heater	16
Kitchen Ring Main Circuit	32
Shower	45
Cooker	32
Power Ring Main Circuit – RCD/RCBO protected	32
Mains Powered Smoke Alarms	6

Residual current device/residual current circuit device (RCD/RCCD)

- 019 Ensure RCDs and RCCDs:
- function as both isolators and switches;
 - have a current rating of 80 amp DP;
 - have a sensitivity of 30m amp; and
 - are complete with an insulated cover or terminal shrouds.

Residual current circuit breaker (RCCB)

- 020 Ensure RCCBs:
- function as both isolators and switches;
 - have a current rating of 63 amp DP;
 - have a sensitivity of 30mA; and
 - have a white PVC enclosure.

Residual current circuit breaker with override protection (RCBO)

- 021 Ensure RCBOs:
- function as both isolators and switches;
 - have a current rating of 80A DP;
 - have a sensitivity of 30mA; and
 - are complete with an insulated cover or terminal shrouds.

ISCO connectors

- 022 For ISCO connectors ensure:
- the covers and bases are manufactured from black phenolic resin material; and
 - the connector blocks are manufactured from brass with electro-tin finish.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Door bells

- 023 Ensure door bells:
- are primary mains supply, transformer , 6v secondary outlet;
 - have a white bell push PVC-u cover; and
 - are screw fixed.

Bulkhead light fitting (fluorescent) (metal base)

- 024 Ensure metal base bulkhead light fittings:
- have a corrosion resistant die-cast or pressed metal base complete with a vandal resistant diffuser;
 - have the wiring within the fitting protected by heat resistant sleeving;
 - are installed complete with a 20W compact fluorescent lamp with integrated control gear;
 - lamp efficacy to be greater than 45 lumens per circuit-watt;
 - controlled manually by Customers; and
 - are screw fixed.

Bulkhead light fittings (fluorescent) (polycarbonate base)

- 025 Ensure polycarbonate base bulkhead light fittings:
- have a heavy duty polycarbonate base with a vandal resistant diffuser;
 - have the wiring within the fitting protected by heat resistant sleeving;
 - are installed complete with a 20W compact fluorescent lamp with integrated control gear;
 - lamp efficacy to be greater than 45 lumens per circuit-watt;
 - controlled manually by Customers; and
 - are screw fixed.

Photocell sensor

- 026 Ensure sensors to control the landlord's lighting installation are:
- complete with a baseholder and wall mounting bracket;
 - screw fixed to masonry or concrete; and
 - fixed in a position approved by the Client's Representative.

TV aerial installation

- 027 Ensure TV aerial installations:
- consist of 20mm diameter PVC-u conduit complete with co-axial cabling run from roof level; and
 - terminate at a white plastic surface mounted outlet box complete with a white plastic cover plate with single co-axial TV outlet.

Time switch (24 hour)

- 028 Ensure time switches:
- have a 24 hour and quartz control mechanism;
 - are a 20 amp single pole, single throw time switch; and
 - have 2 'on' and 2 'off' programmes with a day omitting device and independent motor connections.

Smoke detectors

- 029 Ensure smoke detectors:
- have white PVC-u for the housing;
 - have a minimum 10 year life expectancy;
 - include a photo-electronic sensor to BS EN 14604;
 - are 240 V mains operated with a sealed-in rechargeable Lithium cell back up supply; and
 - include a full function test/hush button control, automatic reset, Green and Red LED indicators to confirm alarm status and low power cell warning signal.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Heat detectors

- 030 Ensure heat detectors:
- have white PVC-u housing;
 - have a minimum 10 year life expectancy;
 - comprise a fixed temperature fast response thermistor sensor with a range of 54° – 62° centigrade to BS 5446-2;
 - are 240V mains operated with a sealed-in rechargeable Lithium cell back up supply; and
 - include or have a test button control function, Green and Red LED indicators to confirm alarm status and low power cell warning signal.

Carbon monoxide detectors

- 031 Ensure carbon monoxide detectors:
- have white PVC-u housing;
 - have a minimum 10 year life expectancy;
 - incorporate an electrochemical cell sensor module;
 - are battery operated to BS EN 50291 fixed with security screws to ceiling;
 - sensor power pack life 10 years;
 - include a continuous self check function monitor with test/hush facility;
 - have a pre-alarm warning LED;
 - include LEDS for battery power pack life, CO level and fault status; and
 - have a CO gas test feature.

Fixing electrical accessories/equipment

- 032 Position accessories accurately and squarely to the vertical and horizontal axes. Where not shown otherwise, align adjacent accessories on the same vertical or horizontal axis (as appropriate). Agree the mounting heights with the Client's Representative.

Multi-gang switches

- 033 Connect switches so that there is a logical relationship with the lights.

WORKMANSHIP

Installation generally

- 034 Install, test and commission the electrical work in accordance with the latest IET Regulations and the design and performance requirements set out in this Section so as to provide a safe, well insulated, earth protected system capable of supplying the anticipated maximum demand.
- 035 Ensure all installation Works are carried out by qualified electricians fully conversant with the latest IET Regulations to good workmanship by skilled (electrical) or instructed (electrical) persons and proper Materials shall be used in the electrical installation.
- 036 Do not allow the number of Apprentices and Trainees at a Property to exceed the number of qualified electricians.
- 037 Ensure all installation Works are carried out under the direct supervision of a "Qualifying Manager" named in the List of Approved Service Providers issued by the National Inspection Council for Electrical Installation Contracting (or European equivalent).
- 038 Use only the types of fastenings, bushes, glands, terminals, connectors, clips, clamps and all other minor accessories necessary to complete the installation that are recommended by the manufacturer of the electrical equipment being installed.
- 039 Avoid contact between dissimilar metals. Use corrosion resistant fastenings in locations where moisture is present or may occur.

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- 040 The Service Provider must rectify, free of charge to the Contract, any Work which in the opinion of the Client's Representative has not been properly executed and must replace free of charge to the Contract any Materials which do not comply with this Specification.
- 041 The Service Provider must confirm the voltage and frequency of the supply before ordering any equipment.
- 042 The Service Provider must include in his tender for the provision of all fixings and the making good by qualified tradesmen to the satisfaction of the Client's Representative all damage to walls, ceilings, decorations and fittings.
- 043 Dust sheets are to be used and every consideration given to Customer's property.
- 044 After work is completed each day all systems will be left in a safe usable condition and all dust and mess cleared up.

Circuit chart

- 045 Standard to BS 7671
Regulation No. 514.19
Requirements: For simple domestic electrical installations the information required in Regulation 514.9 may be given in a Schedule
Schedule: A laminated durable copy of the Schedule relating to the Consumer Unit(s) shall be provided securely fixed within or adjacent to each Consumer Unit.

Electricity supply

- 046 Note that the electricity supply is nominally 240 volt AC, single phase, 50 hertz, 2 wire.

System of wiring

- 047 For concealed wiring, use PVC sheathed 600/1000 volt grade cable of the size and type specified. Wherever possible, run it in within floor, roof and ceiling voids.
- 048 Run cables along the sides of joists at the mid point. Clip them at 450mm centres using cable clips of tinned brass secured by nonferrous fixing pins, screws, clips or a similar fixing. Support the wire and equipment located between the joists by a wood bearer of a size of at least 100x25mm.
- 049 Install the cable:
- with a minimum clearance of 150mm to all heating, gas and waste pipes or ducts; and
 - physically separated from other wiring not associated with lighting and power supplies.
- 050 Where cables cross flooring joists they must be passed through small holes drilled through the centre of the joists. These holes must not exceed 25mm diameter.
- 051 Ensure cables leaving or crossing joists do so at right angles to the longitudinal side of the joist, on trusses or binders. Do not notch or saw joints. Ensure that cables do not run in positions where they are susceptible to damage by floor nails.
- 052 Do not run cables in roof spaces on the top of joists or insulation. All cables in a roof space shall be clipped to horizontal timber tray supported on battens secured above roof trusses and kept clear of thermal insulation.
- 053 Install cables leaving roof voids and within floor spaces or passing through any part of the structure in conduit or trunking as specified.
- 054 Ensure cables in solid floor that are either laid in screed or in a ceiling void are drawn in through rigid PVC-u conduit as specified and run continuously from the consumer unit to the outlet served.
- 055 Do not install cables within wall cavities.

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056 Contain all wiring to each flat within that flat.

057 Fit conduits complete and then draw the cable through.

Cables installed in plastered walls

058 Protect cables by rigid PVC-u metric super high impact heavy gauge conduit where no conduit exists at present. Reuse existing conduit where approved by the Client's Representative.

059 Ensure new conduits are in continuous lengths, smooth in bore, true in size, and terminating in roof spaces and within floor spaces with a minimum projection of 50mm. Provide inside outlet boxes with a universal cleat.

060 Ensure new conduits are vertical and chased into the wall, such that the finished wall will provide a minimum of 10mm plaster cover. Adequately fix the conduit with sheradised nails and saddle clips, such that during the plastering processes, there is no tendency for plaster to push the conduit forward and reduce the cover.

Cables installed in plasterboard partitions

061 In plasterboard partitions with a timber core, draw cables through the partition between the timber studding and noggins. Where timber work occurs, take the cable over the face of the timber by a small chase through the plasterboard and into the timber. Make good the chase with a suitable plaster material finished smooth and flush. Ensure cables installed in partitions are vertical.

062 Take due account of any insulation within the partition when sizing the cables so as to prevent overheating.

Conduit installed on the surface

063 Use super high impact light gauge PVC-u metric rigid conduit and accessories on fairfaced brickwork or unplastered surfaces in heating cupboards, stores, garages, plant rooms, meter compartments and similar areas.

064 Support the conduit by PVC-u spacer bar saddles and wood screws and rawlplugs at intervals not exceeding 400mm.

065 Allow for the expansion of PVC-u conduit.

066 Install the conduit only vertically or horizontally.

Where new cables are to be installed in or under solid floors

067 Protect cables by rigid PVC-u round super high impact heavy gauge conduit laid in continuous lengths from the consumer unit to the outlet served, run in a diagonal line. Use the proper outlet and inspection bends and tees. Adequately fix the whole system to avoid any displacement by subsequent building trades.

Requirements for PVC-u conduit systems

068 Install no more cables in each circular conduit than necessary to permit easy insertion and withdrawal. Do not install more than the maximum recommended in the latest IET Regulations. Demonstrate to the Client's Representative that cables can be easily withdrawn and inserted in any section of the installation. If this cannot be done using the existing conduit, then provide new conduit.

069 Use conduits, boxes, fittings and accessories from the same manufacturer and with suitable fixings for the application. Ensure circular conduit is at least 20mm in diameter.

070 Ensure PVC-u outlet boxes and equipment do not become distorted during plastering. Install boxes flush with the finished plaster and the sides vertical, using 1.25" No. 8 woodscrews and rawlplugs or equivalent fixing.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Use of cable trunking

- 071 Use cable trunking to improve the appearance at points in the installation where a number of conduits terminate or share a common route, and/or at the meter intake positions for the formation of distribution board/local isolator assemblies. Use compact miniature trunking of the appropriate size.
- 072 Use PVC-u trunking with fitted end covers. Provide a separate earth continuity conductor.
- 073 Connect trunking to equipment by appropriate screwed couplers, bushes and shakeproof washers, or flanged couplings.
- 074 Connect trunking to PVC-u conduit by "threaded to plain" adaptors with lock nuts, or clip in adaptors.
- 075 Clean out trunking before cable is drawn in.
- 076 Ensure the number of cables installed in trunking does not exceed the space factor specified in the IET Regulations.

Conductors

- 077 Ensure all cables comply with British Cable Association recommendations (or European equivalent).
- 078 Carefully remove any insulation in making terminations without causing damage to the conductor. Double the wiring to fill the terminations.
- 079 Take the sheath of PVC-u sheathed cable inside the outlet boxes or the pattress of ceiling fittings and similar equipment.
- 080 Securely clamp flexible cords and fit suitable grommets to all terminal boxes.
- 081 Use cables of the following types and sizes complete with integral earth continuity:

Concealed wiring - copper 2 core and earth PVC 600/1000 volt grade	
Lighting sub-circuits - 1.5mm sq	Dependent upon length of circuit and to comply with the latest IET Regulations
Boiler circuits - 1.5mm sq	
Ring circuits - 2.5mm sq	
Radial circuits - 2.5mm sq	
Cooker circuit - 10.0mm sq	
Shower circuit - 10.0mm sq	
2/3 Kw Immersion Heater - 2.5mm sq	
3 Kw Water Heater - 2.5mm sq	
Flexible cords and cables - heat resistant insulation 300/500 volt grade	
Lighting - pendant lamp holder	0.75mm sq 2 core heat resistant silicone rubber insulated white circular
Lighting - final internal connection for enclosed tungsten fittings in bathrooms, garages, and for exterior light fittings	0.75mm sq 3 core heat resistant butyl rubber
2/3 Kw Immersion heater	2.5mm sq EP rubber/HOFR sheath or heat resistant PVC flexible cable
3 kw Water heater	2.5mm sq EP rubber/HOFR sheath or heat resistant PVC flexible cable

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Lighting Circuits

- 082 Install wiring by the loop-in system. Ensure there are no joints or connectors in the final-circuit from the consumer distribution unit.
- 083 Install a maximum of two live pairs and one switch pair at each point. Install the wiring for 2-way switching between switch points. Terminate the earth conductor in each lighting and switch point.
- 084 Install lighting points and arrange the system such that:
- 2/3 bedroom Properties are provided with two 6 amp circuits; and
 - small 1 bedroom Properties are provided with one 6 amp circuit in the consumer distribution unit.
- 085 Limit the number of points controlled by one 6 amp RCBO way to 10. If an installation has an excess of 20 lighting points then provide three 6 amp RCBO circuit ways.
- 086 Ensure pendant type cord grip, all insulated lampholders and ceiling roses are white plastic and are complete with 225mm of flexible cable as specified for a standard height ceiling. For non-standard Properties, adjust the length of the flexible cable to give a 2.1 metre (7ft) clearance from the lampholder to the floor. Ensure lampholders are all of the insulated heat resisting pattern.
- 087 Ensure interior light switches (except in bathrooms) are white plastic, flush fitting, single pole, rocker operated 5 amp AC units, mounted in boxes with adjustable fixing lugs. Gang the switches as required, using a multiple plate cover.
- 088 Where flush fittings and switches cannot be used, mount single pole rocker operated 5 amp AC surface type switches on matching moulded white plastic boxes.
- 089 Install light switches at a distance of between 450 and 1200mm above the floor level to the centre of the switch, and at least 150mm from the nearest door frame, unless the Client's Representative Instructs otherwise.
- 090 Ensure light switches in bathrooms are white plastic 5 amp AC surface pattern operated by a non-conductive pull cord and knob and hang not more than 900mm above floor level. Fit them close to the wall and well clear of the door to the room.
- 091 Support ceiling fittings that are wired and located between joists by wooden bearers of a minimum size of 100x25mm fixed to the joists at both ends of the bearer.
- 092 Do not provide lamps except where specifically required by the Schedule of Rates.

13 amp ring circuit installation

- 093 Connect sockets in ring circuits without spurs using cable as specified, with both ends of each circuit terminated in one 32 amp RCBO at the consumer distribution unit.
- 094 Prevent overloading of circuits by providing specified appliances with separate final-circuits.
- 095 For Properties with a total internal floor area not exceeding 100 square metres on a single level, provide one ring circuit with appropriate numbers of sockets or fused connection units connected to the ring and one kitchen ring main.
- 096 Properties with a total internal floor area exceeding 100 square metres or Properties on two or more levels, are to have a minimum of two ring circuits with the appropriate number of sockets or fused connection units connected to the ring, in addition to a kitchen ring main.
- 097 Locate sockets and fused connector boxes in the same positions as those existing. Ensure they are 13 amp 3 pin white flush pattern. Gang sockets as required, with a multiple plate cover.
- 098 Use surface pattern sockets protected with a RCBO device in garages, and elsewhere on fair face brickwork.

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099 Ensure sockets have switches unless otherwise specified.

100 Ensure the positions of sockets relative to the floor level are as follows:

Location	Dimensions for socket outlets to floor level
Garages, laundry areas	450mm - 1200mm
General living areas, hall, landings, etc.	450mm - 1200mm
Elderly persons' Properties	450mm - 1200mm
Bedrooms (except elderly persons' Properties)	450mm - 1200mm
Kitchens (preferred dimension from bottom of outlet to worktop)	Within 100mm and 300mm above worktop level

101 In kitchens, where necessary, increase the above dimensions to ensure a satisfactory match with the layout of the wall tiles. Sockets to be aligned level with each other throughout the room. Agree the exact position of sockets with the Client's Representative before installation to ensure a satisfactory position in relation to storage cupboards and shelves, etc.

102 Recess socket boxes into the walls to just below plaster level and provide them with adjustable fixing lugs.

Cooker circuit

103 For cooker circuits, provide one final-circuit connected to one 32 amp RCBO at the consumer distribution unit using cable as specified.

104 Locate a flush fitting, white plastic cooker control unit with a 45 amp DP main cooker control switch, complete with neon indicator, horizontally within 150-1200mm maximum from the edge of the cooker spaces Instructed by the Client's Representative. Ensure the dimension from the top of the unit to the floor is 1400mm and from the side of the cooker to the centre line of the unit is 150mm. Where a Customer owns a separate hob and oven, provide a separate 45A DP switch and cooker connection unit below worktop for each appliance.

105 Ensure a cooker control unit that is located between storage cupboards or shelves and working top surfaces aligns with other sockets around the worktop.

106 Connect the cooker circuit in the cooker control unit. Extend it to terminate in a cooker cable connector outlet mounted 450mm above the finished floor level and immediately adjacent to the cooker. Terminate the cooker wiring at the cooker connector outlet box where no electric cooker is provided. Connect the cooker if the Customer has one.

Immersion heaters

107 For heater circuits, provide one final sub-circuit connected to one 16 amp RCBO at the consumer distribution unit using cable as specified.

108 Provide for the heater to be controlled by a heating boost switch to BS EN 60669-1 or BS EN 60730-1 located above the worktop in the kitchen with a 20A switch located adjacent to the hot water cylinder in the hot press.

109 Use flush fitting units where switches are located outside the hot press. Where flex outlets are located inside the hot press, use either surface or flush fitted units.

110 Terminate the circuit adjacent to the heater using suitable cable and 20A switch. Make the final connection with heat resistant flexible cable as specified and run so as to prevent the hanging of clothes, etc., on the cable.

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111 When the supply cable is exposed within a hot press, protect cables with mini-trunking as specified.

Showers

112 For shower circuit, provide one final sub-circuit connected to one 45amp RCBO at the consumer distribution unit using cable as specified. Provide for the shower to be controlled as near as practicable to the shower unit, by a white 45amp AC, DP neon light or indicating flag pull cord switch located in bathroom.

113 New showers are to be 8.7KW electric shower unit to BS EN 60335-2, BEAB, BEAB CARE, RNIB, CE marked and WRAS approved complete with installation set maximum temperature control, phased shut down, low pressure indicator, installation set timer setting, including plugging walls as necessary, connect to water and electrical supplies including provision of shower circuit including mini-trunking or rigid PVC-u conduit chased to walls etc., incorporating RCBO protection, controlled with 45A DP switch with neon light or indicator flag, all adjustments to pipework, adjust electrical supply as necessary, fill, test, and undertake tests, provide certificate, and remove all waste.

Showers are to be supplied with fixed sliding rail, twist and lock shower head mechanism, shower hose with adjustable shower head outlet and soap dish.

Smoke Heat Detectors

114 Smoke alarms must be approved by the Client's Representative and must be installed to BS 5839:Part 6 and must be of the mains powered type. The mains power must be supplied from an independent circuit of the distribution board and protected by a suitably rated RBCO breaker. The Service Provider must provide the necessary wiring for interconnection of the units. Installation must be strictly as specified by the manufacturer. One set of instructions must be left on site for Customers' use. The alarm system shall be tested and a certificate supplied to the Client's Representative in accordance with BS 5839 Part 6

115 Detectors must be mains operated with either battery or capacitor back up.

116 In premises of two levels, an optical detector is required in each of the circulation spaces and the main habitable room. Manufacturer's technical data sheet requirements must be strictly adhered to.

117 Wiring must be in PVC twin and earth cable looped from an independent circuit at the distribution board.

118 Interconnection must be made using PVC triple and earth cable between the two detectors, using the third core for interconnection, such that in the event of either surrounding the other must also sound.

Installation control and distribution

119 Install, test and commission the electrical work in accordance with the latest IET Requirements for Electrical Installation ensuring compliance with design and performance, to provide a safe, well insulated, earth protected system capable of supplying the anticipated maximum demand.

120 Ensure the consumer equipment consists of a non-combustible metal consumer unit with lid complying with the latest IET Regulations complete with:

- main control switch to BS EN 61439-3;
- sufficient RCBO's to accommodate all the sub-circuits scheduled for the Property; and
- additional 20% spare way capacity to the number of electrical circuits installed.

121 Ensure sufficient space is available for the Utility Provider's metering and service cutouts. If required, provide a panel which satisfies the requirements of the Utility Provider for mounting meters, cutout and other equipment.

122 Supply and install PVC connection tails to the Utility Provider's point of supply, using correct coding and matching the cross sectional area to the main isolating switch rating.

123 Upgrade all earthing and bonding to conform to the latest IET Regulations. Do not use metal trunking as an earthing conductor.

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- 124 Meter tails are to be neatly fixed and clipped as specified.
- 125 Provide all equipment white in colour.
- 126 Clearly identify each way on distribution equipment.
- 127 Ensure the mounting height of equipment is such that persons of average height can reach all fuses, switchgear, etc., from floor level without assistance.
- 128 Conceal cables above the ceilings and maintain access to the cable runs.
- 129 Enclose cables run in cupboards in mini-trunking.
- 130 Before and on starting the Works, obtain approval from the Client's Representative to the proposed routes of cable runs and wiring circuits.
- 131 Agree any alterations to the agreed routes of wiring circuits with the Client's Representative before starting the Works on them.
- 132 If Works are carried out before having agreed the routes with the Client's Representative, return and reroute and rewire cable runs and circuits where Instructed by the Client's Representative.

Standardisation of components

- 133 Use matching components with all lighting switches, sockets, fused spurs and similar equipment used in the Works, being from the same manufacturer.

Customer's fittings

- 134 Refix any existing fittings installed by the Customer, provided the fitting conforms to the latest IET Regulations.
- 135 Notify the Client's Representative of any Customer's fitting which does not meet the latest IET Regulations and which will therefore not be rewired or reconnected.

Removal of floor boarding, etc

- 136 Carefully remove any floor boarding necessary for the installation of cables. Saw through the tongues only and replace the boards in a workmanlike manner. Joists to be drilled only for the installation of cables. Ensure any new floor boarding is identical in width and thickness. Remove all debris from the joist and roof spaces.
- 137 Make good all plaster disturbed by the removal of fittings to a true and level surface.
- 138 Do not disfigure timber frames and mouldings by sawing or chiselling out for the insertion of cables.
- 139 Where the removal of mouldings, etc. is necessary, ensure the replacement is carried out by a qualified tradesman and that the replacement surface matches the existing surface.

Existing roof insulation

- 140 Where the roof insulation must be moved for the electrical installation, carefully move it to one side. On completion of the electrical Works carefully replace it to its original position. Take care to cover lengths of cable with insulating material to ensure the current rating of the cable(s) is not unduly altered.

Removal of old cables and fittings

- 141 Remove old cables and redundant switches, sockets, clips, boxes, etc. from roof spaces, exposed walls and other noticeable places and make good any disturbed surfaces.

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COMPLETION

Inspection and testing

- 142 Ensure that on completion and before being energised, any installation is tested in accordance with the latest IET Regulations.
- 143 Give not less than 24 hours' notice to the Client's Representative before commencing the testing.
- 144 After satisfactory completion of tests, submit copies of all inspection and completion certificates, with all associated schedules and test results if applicable, to the Client's Representative.
- 145 Note the testing instrument serial numbers on the test certificates.
- 146 All charges for testing or re-testing must be borne by the Service Provider.
- 147 The Service Provider must provide all the test instruments and test equipment required, make all arrangements for connections of the mains supply and issue to local authority supply company all appropriate test notices.
- 148 The Service Provider must affix to the distribution board a notice in accordance with the latest IET Regulations.

Report and certificates

- 149 Ensure all inspections, reports and test certificates and forms are the current version at the time of the test and are in the standard format published by IET, the National Inspection Council for Electrical Installation Contracting (NICEIC), the Electrical Contractors' Association (ECA) or other certifying and testing body approved by the Client's Representative.
- 150 For minor Works or alterations to an electrical installation which involve a change or modification to an existing single circuit, provide a certificate for Minor Electrical Installation Works.
- 151 Issue an Electrical Installation Completion Certificate for Major Works or alterations to electrical installations which involve:
 - a change or modification to two or more existing circuits;
 - the addition of one or more new circuits to an existing installation; or
 - a new installation.
- 152 Provide an electrical installations condition report when specifically Instructed by the Client's Representative.

Operating Instructions

- 153 Each consumer unit must be supplied with an operating instruction card which must be mounted adjacent to the unit.
- 154 The Service Provider must leave with the Customer printed instructions regarding operation of the consumer unit trip switch.
- 155 The instruction leaflet for the smoke detectors must be left in a safe place either by the electricity meter or consumer unit.

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Client’s current manufacturers/suppliers/products

156 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand Name	Manufacturer’s Details

[complete table as appropriate]

MAINTENANCE OF ELECTRIC HEATING INSTALLATIONS

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

MAINTENANCE OF ELECTRIC HEATING INSTALLATIONS

General Requirements

- 001 The Service Provider shall be deemed to have read the whole of this Specification together with the Client's requirements' and will be deemed to have included in his Tendered Rates for full compliance.

The Service Provider is required to provide a 24 hour breakdown service 365 (366 for a leap year) days per annum.

Asset Register

- 002 The Service Provider must ensure that all the asset registers supplied by the Client's Representative prior to the commencement of the Contract are verified during the first 12 months of the Contract Period and any discrepancies made known, in writing, to the Client's Representative.
- 003 At the commencement of the Contract, a set of services drawings may be issued to the Service Provider who shall ensure that, during each maintenance service element, the respective drawing shall be marked up by him to indicate the actual installed services. At the completion of each element the marked-up drawings shall be returned to the Client's Representative.

Maintenance Reports

- 004 The Service Provider shall ensure that, following all inspection visits, conditional reports shall be submitted to the Client's Representative in electronic format, including all specialist reports and test equipment printouts.
- 005 The Service Provider shall provide to the Client's Representative copies of the site risk assessment, method statement and COSHH assessments issued to the Service Provider's Staff including his specialist Subcontractors.

Manufacturer's Requirements

- 006 Where manufacturer's instructions exceed the requirements of this document they shall be adhered to in their entirety.

Permit to Work Certification

- 007 If it is deemed necessary by the Client's Representative for the need for a permit to be issued before any Work is undertaken on the installation, the Service Provider shall ensure his compliance with the permit to work system as employed by the Client.

Access

- 008 The Service Provider shall ensure that he undertakes a risk assessment and provides a method statement for his means of access to allow for inspection and testing.
- 009 All Works shall be carried out in strict accordance with the requirements of "The Work at Height Regulations 2005".
- 010 The Service Provider shall ensure that all Staff employed upon this Contract are suitably trained and experienced and competent to work at height.

Minor Repairs

- 011 The Service Provider shall, during testing, carry out minor repairs such as tightening joints, replacement of clips, etc to achieve a pass status and make appliances safe to ensure compliance with the Client's requirements.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Periodic Inspections and Testing

- 012 Inspection and testing of storage and convector heater installations must unless otherwise Instructed by the Client's Representative be carried out in accordance with the requirements tabled below;

Routine and Responsive Maintenance

- 013 The Service Provider shall provide a 24-hour, 365 days per year (366 for a leap year) responsive maintenance service for the period of the Service to allow for breakdown or malfunction of any appliance, or installation and the replacement of any defective or missing components or installation parts previously specified. This service is to ensure that the appliances and installations are left in a safe and fully operational condition. The details of any repair are to be noted by the engineer for registering on the Service Provider's database (as provided by the Client's Representative).
- 014 All Works in connection with the installations to be arranged by the Service Provider.
- 015 For breakdowns the Service Provider is expected to complete 80% of such repairs at first fix or as a minimum within one day and 100% within two days. The aim of this requirement is to minimise any disruption to the Customer relating to use of water/space heating facilities.
- 016 Where the above is not achievable with parts being unavailable from impressed or local stockist the Service Provider is to immediately notify the Customer and the Client's Representative and provide time scales for completion of the Works where replacement parts are required.
- 017 On receipt of a request being made by the Client's Representative and/or the Customer the Service Provider shall comply with the following:-

a) **EMERGENCY CALLOUT ATTENDANCE WILL MEAN THE FOLLOWING:**

Emergency call out to be responded to immediately and no later than 2 hours and completed or made safe within 4 hours.

Breakdown repairs are to be completed within the stipulated attendance timescales, with every effort being made to complete on a first call, first fix basis, where this cannot be achieved the timescales as mentioned above will apply.

b) **URGENT CALLOUT ATTENDANCE WILL MEAN THE FOLLOWING:**

Urgent Call Out To be responded to immediately and no later than 24 hours and completed within 48 hours.

- c) Ensure that each engineer is equipped with an adequate impressed van stock of parts to deal with most eventualities. A comprehensive stock of impressed spare parts, shall also be kept at the Service Provider's control point and store to enable items such as cylinders and where applicable immersion heaters to be replaced immediately.

- d) If rectification of the fault is not possible at the time of attendance the fault must be rectified within the previously stated time scales.

In the event of rectification not being considered possible as aforesaid, the Service Provider shall immediately notify the Client's Representative and the Customer giving the reasons as to why, and inform the Client's Representative and the Customer when the repair will be completed. The Client's Representative must satisfy himself that suitable alternative temporary arrangements for hot water and heating are in place.

Notwithstanding the generality of the Service Provider's obligations hereunder, the expression "component part" shall include the parts listed elsewhere hereof and any other specialist controls associated with a particular installation.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

- e) Ensure that the Customer is kept informed of the situation at all times.
- f) Upon completion of a breakdown, the satisfaction card is to be left with each Customer, the approved work document is to be duly completed and a copy of such is to be sent to the Client’s Representative.
- g) In addition to the requirements detailed previously the Service Provider shall also allow to provide the following Services, which shall be included for within the rate per appliance:
 - 1. Advise on efficient and correct use of appliance and installations.
 - 2. Instruct new and existing Customers on the operation of appliances and installations.
 - 3. Resetting of controls for any reason.
 - 4. All calls where a Customer maintains an appliance or installation is faulty, even if no such fault is found to exist.
 - 5. All calls where the fault reported is due to controls being incorrectly set.
 - 6. Repairs due to Customer damage.
- h) The breakdown element of the works shall be priced in accordance with the schedules shown elsewhere in this document and shall be inserted in The Price Framework.
- i) The Service Provider is to provide on a daily basis a breakdown status report on each site visited.

018 Before attending a breakdown the Service Provider should contact the Customer to ascertain where reasonably possible as to the authenticity of the call to establish if the malfunction is due to Customer error such as installation/control adjustments or electricity failure.

Client’s current manufacturers/suppliers/products

019 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Storage Heaters

Item No.	Item	Frequency	Action	Notes
1.	General	5 Yearly	All storage heaters shall be inspected, tested and maintained in strict accordance with the manufacturer's recommendations and requirements	On older models be vigilant for the presence of asbestos. Report suspect appliances.
2.	Cases	5 Yearly	Examine fixings. Examine general mechanical condition of cases and cabinets. Tighten screws and fixings as necessary. Clean cases and cabinets. Remove all fluff, dust and dirt from interior and exterior, including fans, grilles and ducts. Examine the location of the storage heater to ensure that it does not present a fire risk.	
3.	Fans	5 Yearly	Clean and examine fans, motors and bearings. Examine filters, clean or renew as necessary. Examine fan housings and ductwork. Test performance.	
4.	Elements	5 Yearly	Examine connections. Examine terminals for oxidation, corrosion and tightness. Clean and tighten as necessary. Test insulation resistance. Test element resistance.	Note the condition of the thermal blocks, report to the Client's Representative any signs of deterioration.
5.	Controls	5 Yearly	Clean and examine controls, control switches and pilot lights. Examine time switches. Examine over-ride controls. Examine thermostats, test calibration. Examine terminal connections. Examine condition of wiring.	Discuss operational effectiveness with user to determine control settings. Comment upon location of external thermostats.
6.	Meters & Electricity Supply	5 Yearly	Examine meters at supply position. Ensure time clocks are correct and supply charge to storage heaters during 'off peak' periods.	
7.	Electrical Installation	5 Yearly	Examine flexible cables for wear, fraying braid and brittle insulation. Examine connections. Examine fused connection unit to electrical installation. Check fuse rating. Test insulation resistance. Examine earthing arrangements and test continuity.	

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Fan Convectors

Item No.	Item	Frequency	Action	Notes
1.	Visual Inspection	5 Yearly	Visually examine each heater, replace missing fixings, if cabinet damaged report condition. Check operation of local isolation switch and indicator lights – switch off.	Report defects to Client's Representative. Report any findings of Asbestos Cement type boarding within heater cabinets or forming ducts through walls to Client's Representative.
2.	Cleaning	5 Yearly	Remove access panels, expose Heater Battery and Fan Assembly. Vacuum clean heater interior. Remove filter (if fitted) and clean thoroughly. Clean out heater battery and fan assembly using high pressure airline and vacuum collection. Ensure fins are correctly aligned.	Report defects to Client's Representative. Report if not fitted or faulty to Client's Representative.
3.	Electrical Inspection and Testing, General	5 Yearly	Examine all internal wiring and test insulation. Check and test earth connections. Ensure all fuses are correctly rated. Check operation of in-built room thermostat/change speed thermostat. Check operation of low temperature cut out thermostat.	Record readings and report defects to Client's Representative.
4.	Electrical Inspection and Testing, Motors	5 Yearly	Lubricate fan bearings to manufacturer's recommendations. Examine and test insulation to all motors and test earth continuity to the motor casings.	Report defects to Client's Representative. Record readings
5.	Mechanical Inspection	5 Yearly	Check operation of isolating lockshield valves on heater battery.	

SPECIFICATION FOR SMOKE, HEAT AND CARBON MONOXIDE DETECTORS

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

OPTICAL SMOKE ALARM TECHNICAL SPECIFICATION

001 The Optical Smoke Alarm shall have the following features:

- The Smoke Alarm shall carry the BSI Kitemark to indicate type testing to BS EN14604. It will meet the requirements of Grade D (and exceed the requirements of Grades E and F) as defined in BS 5839. It carries the CE mark to indicate conformance to Low Voltage and Electromagnetic Compatibility Directives.
- The alarm shall have an optical (photoelectric) sensor with large volume chamber and large high sensitivity photodiode. The sensor chamber shall have an insect resistant fine mesh screen with holes less than 0.030 inches.
- The alarm shall operate on a 230V AC Mains Power Supply with built-in tamper proof Rechargeable Vanadium Pentoxide Lithium standby cells, capable of lasting at least 10 years and powering the alarm initially for at least 6 months in the event of mains power failure.
- The Lithium cell manufacturer shall endorse a minimum 10 year life expectation for the rechargeable cells.
- The alarm shall be supplied with a built-in surface mounting plate, with integral terminal block and cable cover and incorporate a foam gasket fitted to the mounting plate to prevent dust ingress into the unit. The alarm shall connect to the mains and interconnect/control connections automatically as it slides on to the mounting plate. The alarm shall disconnect from the mains and interconnect/control connections as it slides off the mounting plate, without the need for a lead and connector.
- All mains wiring shall be covered by a cable cover so that the mains cable is not visible when the Smoke Alarm is removed from the ceiling, obviating the need for a ceiling pattress or dry lining box.
- The alarm shall have a built-in sounder giving a minimum sound output of 85dB(A) at 3 metres. The diameter of the piezo disc in the sounder shall measure 35mm and have wire contacts soldered directly on to the piezo disc.
- There shall be an interconnection capability so that if one alarm sounds all interconnected alarms sound.
- A remote test facility via a separate Remote Control Switch shall be available to test circuitry, sensor and horn (red LED shall flash rapidly) and to activate all interconnected alarms in the system. The Remote Control Switch shall also have a remote 'Locate' facility (to audibly identify the source of an alarm signal when the system is sounding). All units except the alarm that has triggered and sent out the interconnect signal shall be silenced when this switch is activated. The Remote Control Switch shall also have a 'Silence' facility for false alarm control. Pressing and resetting the 'Silence' switch shall silence nuisance alarms. A red LED on the alarm cover shall flash every 10 seconds to indicate that alarm is in 'Hush' mode and automatically reset in approximately 10 minutes.
- The alarm shall have an automatic self-test feature which tests the chamber every 40 seconds and the unit bleeps (without red LED flash) if it is degraded.
- The alarm shall be provided with a manual integral test/hush button to test circuitry, sensor and horn and activate all interconnected alarms in the system. This button shall also operate a 'Hush' feature to silence nuisance alarms. A red LED shall flash every 10 seconds to indicate that alarm is in 'hush' mode and shall automatically reset after approximately 10 minutes.
- The alarm shall have a separate green LED mains indicator light to confirm integrity of mains power supply.
- The alarm shall have a separate red LED which will flash every 40 seconds to indicate full auto test of circuitry and the rechargeable cells. The red LED shall flash rapidly in alarm condition and flash once every ten seconds whilst the unit is in a de-sensitive (hush) condition.
- The alarm shall have an RF (Radio Frequency) wireless interconnect capability when used with an RF base. In this case other RF products can be connected.
- Control via an optional wall-mounted Hardwired or RF Remote Control Switch shall also be available.
- The alarm shall have a low power cell-warning signal, which must operate with or without mains power present.
- The alarm shall be provided with an anti-tamper locking device to prevent unauthorised removal of the alarm without the use of a tool.
- The alarm shall be supplied with a dust cover fitted to protect it from contamination during installation.
- The alarm shall be supplied with two separate sets of instructions - one for the installer and one for the user.
- The alarm shall have a 5 Year guarantee.

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HEAT ALARM TECHNICAL SPECIFICATION

002 The Heat Alarm shall have the following features:

- The Heat Alarm shall carry the BSI Kitemark to indicate type testing to BS 5446 for a Class A1 device. It shall be CE marked to indicate conformance to BS EN 60065 Low Voltage, and BS EN 50081-1 and BS EN 50082-1 Electromagnetic Compatibility Directives.
- The alarm shall be of the fixed temperature thermistor type, temperature range 54°C to 62°C (129°F - 144°F).
- The alarm shall operate on a 230V AC Mains Power Supply and have built-in tamper proof Rechargeable standby cells, capable of lasting at least 10 years and powering the alarm initially for at least 6 months in the event of mains power failure.
- The rechargeable cell manufacturer shall endorse a minimum 10 year life expectation for the rechargeable cells.
- The alarm shall be supplied with a built-in surface mounting plate, with integral terminal block and cable cover and incorporate a foam gasket fitted to the mounting plate to prevent dust ingress into the unit. The alarm shall connect to the mains and interconnect/control connections automatically as it slides on to the mounting plate. The alarm shall disconnect from the mains and interconnect/control connections as it slides off the mounting plate, without the need for a lead and connector.
- All mains wiring shall be covered by a cable cover so that the mains cable is not visible when the alarm is removed from the ceiling, obviating the need for a ceiling pattress or dry lining box.
- The alarm shall have a built-in sounder giving a minimum sound output of 85dB(A) at 3 metres. The diameter of the piezo disc in the sounder shall measure 35mm and have wire contacts soldered directly on to the piezo disc.
- There shall be an interconnection capability so that if one alarm sounds all interconnected alarms sound.
- A remote test facility via a separate Remote Control Switch shall be available to test circuitry, sensor and horn (red LED shall flash rapidly) and to activate all interconnected alarms in the system. The Remote Control Switch shall also have a remote 'Locate' facility (to audibly identify the source of an alarm signal when the system is sounding). All units except the alarm that has triggered and sent out the interconnect signal shall be silenced when this switch is activated. The Remote Control Switch shall also have a 'Silence' facility for false alarm control. Pressing and resetting the 'Silence' switch shall silence nuisance alarms. A red LED on the alarm cover shall flash every 10 seconds to indicate that alarm is in 'Hush' mode and automatically reset in approximately 10 minutes.
- The alarm shall be provided with a manual integral test/hush button to test circuitry, sensor and horn and activate all interconnected alarms in the system. This button shall also operate a 'Hush' feature to silence nuisance alarms. A red LED shall flash every 10 seconds to indicate that alarm is in 'hush' mode and shall automatically reset after approximately 10 minutes.
- The alarm shall have a separate green LED mains indicator light to confirm integrity of mains power supply.
- The alarm shall have a separate red LED which shall flash every 40 seconds to indicate full auto test of circuitry and the rechargeable cells. The red LED shall flash rapidly in alarm condition and flash once every ten seconds whilst the unit is in a de-sensitive (hush) condition.
- The alarm shall have an RF (Radio Frequency) wireless interconnect capability when used with an RF base. In this case other RF products can be connected.
- Control via an optional wall-mounted Hardwired or RF Remote Control Switch shall also be available.
- The alarm shall have a low power cell-warning signal, which must operate with or without mains power present.
- The alarm shall be provided with an anti-tamper locking device to prevent unauthorised removal of the alarm without the use of a tool.
- The alarm shall be supplied with a dust cover fitted to protect it from contamination during installation.
- The alarm shall be supplied with two separate sets of instructions - one for the installer and one for the user.
- The alarm shall have a 5 year guarantee.

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MAINS POWERED CARBON MONOXIDE (CO) ALARM

003 The Mains Powered Carbon Monoxide Alarm shall have the following features:

- The CO Alarm shall carry the BSI Kitemark to indicate type testing to BS EN 50291. It shall be CE marked to indicate conformance to Low Voltage and Electromagnetic Compatibility Directives.
- The alarm shall have a new generation electrochemical cell type carbon monoxide sensor which checks CO level every 70 seconds. Each unit shall be calibrated and tested in CO gas to ensure accuracy. The sensor module should plug into base of unit and should be replaced after 5 years. The amber 'Fault' light should flash once every 40 seconds (without a beep) to indicate the sensor should be replaced. Replacement sensor modules shall be readily available at modest cost. It shall not require an electrician to change the sensor.
- The alarm shall have a high level of selectivity - no false alarms when exposed to the following interference gases for 2 hours: (as per UL2034sec.38) Methane 500ppm, Butane 300ppm, Heptane 500ppm, Ethyl Acetate 200ppm, Isopropyl Alcohol 200ppm and Carbon Dioxide 1000ppm.
- The alarm shall be 220 – 240V AC, 50 Hz mains powered. Power consumption shall be: 1 Watt, 60mA. The alarm shall be supplied complete with sealed-in tamper proof Panasonic Rechargeable Vanadium Pentoxide Lithium standby cells, designed to last at least 10 years without the need for replacement and can power the unit for a minimum 30 days in the event of mains failure. The rechargeable cells shall be monitored and if they start to be depleted (i.e. with mains off) or if they become defective the unit should beep every 40 seconds. The cell manufacturer shall endorse a minimum 10 yr life expectation for the rechargeable cells.
- The alarm shall be supplied with a surface mounting plate, with integral terminal block, cable cover and incorporate a foam gasket fitted to the mounting plate to prevent dust ingress into the unit. The terminal block shall be permanently fitted to the mounting plate. The built-in rechargeable cells shall connect as the alarm is slid on to the mounting plate. There shall be an option for conduit (up to 25 x 16mm) to be attached to the top or bottom of the unit for surface wiring. The unit shall be able to be ceiling or wall mounted.
- The alarm shall have a hard-wire interconnect capability such that if one alarm sounds all interconnected alarms sound. Additionally, an RF interconnect option shall be available when used with an Interface Module.
- A remote test facility via a separate Remote Control Switch shall be available to test circuitry, sensor and horn (red LED shall flash rapidly) and to activate all interconnected alarms in the system. The Remote Control Switch shall also have a remote 'Locate' facility (to audibly identify the source of an alarm signal when the system is sounding. All units except the alarm that has triggered and sent out the interconnect signal shall be silenced when this switch is activated. The Remote Control Switch shall also have a 'Silence' facility for false alarm control. Pressing and resetting the 'Silence' switch shall silence nuisance alarms. A red LED on the alarm cover shall flash every 10 seconds to indicate that alarm is in 'Hush' mode and automatically reset in approximately 10 minutes.
- On first power up the Red and Amber LED's shall flash once; after 2 minutes settling, the unit shall operate normally.
- The alarm shall have a green LED indicator light that confirms integrity of mains power supply.
- The alarm shall have low and high level indicators - red LED indicator light shall flash every 2 seconds at 50ppm CO (sounder operate within 60-90 mins); flash twice every second at 100ppm CO (sounder operate within 10-40 mins); flash 4 times per second at 350ppm CO (sounder operate within 3 minutes)
- The alarm shall have a fault indicator - amber LED flash and horn beep every 40 seconds if a fault is detected.
- The alarm shall have a manual test/hush button - test button to test circuitry and horn. Pressing and releasing the test button when the unit is sensing CO shall silence the alarm for 4 minutes. It must only silence once until the gas clears. At 300ppm CO the unit shall not silence due to the increased danger.
- The alarm shall have a quick CO Gas Test to reduce the time for testing with CO from at least 4 - 5 minutes to less than 10 seconds.
- The alarm shall have a memory feature - pressing test button must record if CO has been detected during a period of absence: red LED off – no CO recorded; red LED flashes twice (every 40 seconds) – 50ppm CO recorded; red LED flashes 4 times (every 40 seconds) –100ppm; red LED flashes 8 times (every 40 seconds) - 300ppm CO recorded. Pressing the test button for 20 seconds must reset the memory.

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- The alarm shall have a built in sounder to give a minimum output of 85dB(A) at 3 metres. The sound output shall be modulated - 3 rapid pulses followed by a 1½ second pause, repeated until reset. This easily differentiates it from a typical smoke alarm.
- The alarm shall have an automatic reset facility of alarm test when button is released and after an alarm state when CO gas clears.
- The alarm shall have a tamper resistant cover, which cannot be removed from mounting plate without releasing catch with a small screwdriver. There shall be an optional locking screw that can be screwed into the side to prevent removal. The rechargeable cells must not be suitable for use with other products and must be soldered on to the circuit board.
- The alarm shall have an operating temperature range: -10°C to +40°C (14°F - 104°F). 15% to 95% relative humidity (non-condensing).
- The alarm shall have a 5 Year Guarantee.

MULTI-SENSOR DETECTORS (SMOKE)

004 The Multi Sensor Detector (Sensor) shall have the following features:

- The detector shall carry the BSI Kitemark to indicate type testing to BS EN 14604: 2005. It will meet the requirements of Grade D (and exceed the requirements of Grades E and F) as defined in BS 5839: Pt.6: 2013 and shall carry the CE mark to indicate conformance to low voltage and electromagnetic compatibility directives.
- The detector shall have multiple sensing elements - Optical (photoelectric) sensor with high sensitivity photodiode and welded insect resistant fine mesh screen, coupled with a fixed temperature thermistor type heat sensor. This shall enhance fire-sensing performance, when compared to single sensor detectors, whilst reducing nuisance alarms.
- The detector should be powered from the 230V AC mains power supply with built-in tamper proof rechargeable vanadium pentoxide lithium standby cells, capable of lasting at least 10 years and powering the detector in the event of mains power failure.
- The Lithium cell manufacturer shall endorse a minimum 10-year life expectation for the rechargeable cells. The cells shall be automatically monitored and a red LED shall flash along with a single beep if the cells are low on power (this signal shall operate with or without mains power present).
- The detector shall be supplied with an `Easi-fit` built-in surface mounting plate, with integral terminal block and cable cover. The detector shall connect to the mains and interconnect/control connections automatically as it slides on to the mounting plate. The detector shall disconnect from the mains and interconnect/control connections as it slides off the mounting plate, without the need for a lead and connector. All mains wiring shall be covered by a cable cover so that the mains cable is not visible when the detector is removed from the ceiling, obviating the need for a ceiling pattress or dry lining box.
- An encased horn assembly shall be fitted and give a minimum sound output of 85dB (A) at 3 metres. The diameter of the piezo disc in the sounder shall measure 35mm, and be securely held with silicone mastic to prevent creepage and premature horn failure. Additionally, soldered contacts shall be used in order to eliminate failures due to corrosion and arcing that are associated with commonly used pressure contacts.
- The detector shall have a hard-wire interconnect capability so that if one detector sounds all interconnected detectors sound. Additionally, the detector must have an RF interconnection option when used with a RadioLINK+ Module. In this case other RF products, e.g. alarms for the deaf and control switches shall be available for use as an option.
- The detector shall have a manual integral test/hush button that operates as follows:
 - Press and hold to test circuitry, sensor, horn and activate all interconnected alarms in the system.
 - Press and hold to check the detectors memory – If unit has been into alarm state within the previous 24hrs, the detector will emit short beeps when tested as opposed to the full alarm sound.
 - Press and release to operate 'Hush' feature to silence nuisance alarms. Red LED on the detector cover will flash every 10 seconds to indicate that the detector is in 'Hush' mode and will automatically reset after approximately 10 minutes.

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- The detector shall have comprehensive indicating LEDs as follows:
 - Constant green LED shall show to indicate mains power is present
 - Red LED will flash every 40 seconds to indicate full auto test of circuitry and the rechargeable cells
 - Red LED shall flash rapidly when the unit is in an alarm state. The red LED shall also give two flashes every 40 seconds to indicate the detector has been in an alarm state within the previous 24hrs
 - The amber LED shall flash once every 40 seconds to indicate that the smoke sensing chamber is contaminated and requires cleaning
 - The amber LED shall flash once every 40 seconds along with a single beep to indicate that there is a fault with one of the sensor elements
- The detector shall have built-in AudioLINK data extraction. This shall work via an App that can be downloaded to a compatible smartphone or tablet. The app will receive an audible code from the alarm and will then show an alarm status report detailing the following information:
 - Fire activations — number of activations and the time since last activation
 - Age (run-time)
 - Battery level
 - Low battery warnings — number of times low battery warning beeps have been emitted and the time since last warning
 - Sensor status
 - Test button activations — number of times test button has been pressed and the time since last activation
 - Detector removal — number of times the alarm has been removed from its base and the time since last removal
 - Dust Compensation Level – lets you know how contaminated the sensor chamber is
- The detectors shall have a unique dust compensation feature to vastly reduce false alarms due to contamination. The unit shall automatically monitor the contamination in the smoke sensing chamber and adjust the alarm trigger threshold accordingly. In standby mode, the compensation shall be in 'slow state' whereas if the unit is initially powered up, the compensation shall be in 'fast state' – the unit shall automatically find the correct threshold within 45 seconds.
- The unit shall have remote Test Alarm, Silence Alarm and Locate Alarm functions via a separate Remote Control Switch to give the following:
 - Test Alarm - to test circuitry, sensor and horn and to activate all interconnected alarms in the system.
 - Locate Alarm - to audibly identify source of alarm signal when system is sounding. All units except the alarm that has triggered and sent out the interconnect signal will be silenced.
 - Silence Alarm – to silence nuisance alarms. Red LED on the alarm cover will flash every 10 seconds to indicate that alarm is in 'Silence' mode. Automatically resets in approximately 10 minutes.
- The mounting plate shall have an anti-tamper locking device to prevent unauthorised removal of the detector without the use of a tool and also foam gasket to prevent air draughts and dust ingress into the rear of the unit.
- The detector shall have an operating range of: 0°C to 40°C. 0% to 95% (non-condensing) relative humidity.
- The detector shall have the following dimensions: 140mm dia. x 54mm depth.
- The detector shall have a 5 Year guarantee. 10 years for the battery.

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RADIOLINK+ ALARM MODULE

- 005 The Radiolink + Alarm module shall have the following features:
- The Module shall comply with RF conformance standard EN300220-1 in accordance with EN300220-2 and EMC performance standard EN301489-1 in accordance with EN301489-3.
 - The Module shall fit the smoke and heat alarms to allow RadioLINK interconnection between them.
 - The module shall easily plug into the back of the aforementioned alarm series.
 - The module shall have a radio frequency: 868 MHz band in accordance with RandTTE Directive 1999/5/EC – this band shall be designated for use with security products and only allows a 1% duty cycle, so continuous transmission and interference from external sources is extremely remote, and would be illegal.
 - Up to 20 modules (in the alarms) shall be used in one system.
 - Modules shall be in factory code when received (they will all communicate with each other). They shall be 'House Coded' to eliminate the risk of adjacent properties communicating with each other. After House Coding they shall only communicate with other units coded at the same time.
 - Repeater function: where distance or obstructions cause range restrictions, the module shall have a built-in multi-level repeater. On receiving an RF signal from another alarm, the unit shall automatically re-transmit the signal to other alarms in the system. This shall provide multiple signal paths to give a strong and robust system.
 - The module shall have a 5 Year guarantee.

HEAT SENSOR DETECTOR

- 006 The Heat Sensor Detector shall have the following features:
- The detector shall carry the BSI Kitemark mark to indicate type testing to BS 5446: Pt.2:2003, Class A1. It shall meet the requirements of Grade F as defined in BS 5839: Pt.6: 2013. It shall carry the CE mark to indicate conformance to Low Voltage and Electromagnetic Compatibility Directives.
 - The detector shall be of the fixed temperature thermistor type, temperature range 540C to 620C (1290F - 1440F).
 - The detector shall be powered by a built in 10 Year Lithium battery with Radio Link capacity, designed to outlast the usable life of the Alarm.
 - Radio frequency shall be 868 MHz band in accordance with RandTTE Directive 1999/5/EC – this band has been designated for use with security products and only allows a 1% duty cycle.
 - The detector shall have a low battery warning signal, which beeps every 40 seconds for 30 days to indicate when replacement of the alarm is required.
 - The detector shall have a built in sounder giving a minimum sound output of 85dB (A) at 3m. The sounders contacts shall be soldered directly on to the piezo disc for additional security.
 - The detector shall be provided with an integral test button to test circuitry, sensor and horn and activates all interconnected alarms in the system.
 - The detector shall have an automatic self-test feature which tests the chamber every 40 seconds and unit beeps (without a red LED flash) if a fault is detected. External alarm RF signal shall operate the sounder (without red LED flash) until it receives an 'Alarm Cancel' RF signal. Receiver must remain on for an additional 11 seconds to check for further alarm signals.
 - Units shall be supplied in factory code when received (they will all communicate with each other).
 - They shall have the facility to be "House Coded" to eliminate the risk of adjacent properties communicating with each other. After House Coding they must only communicate with other units coded at the same time. The method of house coding shall be as follows: operate the "House Code" button on the underside of the alarm, then place and twist alarm on to the base plate. Repeat this with all alarms in the system. A blue LED will flash through the front cover. Each alarm will "Learn" the serial numbers of all units in the system. The units will return to normal standby mode after 15 minutes.
 - The detector shall feature a Multi-Level Repeater Function to enable the improvement of the signalling range.
 - The detector shall come complete with installation/user instructions
 - The detector shall have the following dimensions: 115 x50mm.
 - The detector shall have a 5 year guarantee.

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RADIO FREQUENCY (RF) MOUNTING BASE

007 The Heat Sensor Detector shall have the following features:

- The mounting base shall be designed to allow smoke and heat alarms to be installed without the use of a hard wired interconnect, instead using a radio frequency signal to operate the interconnect feature. The unit shall be powered from the 230V AC mains power supply. The unit shall have built-in tamper proof rechargeable vanadium pentoxide lithium standby cells, capable of lasting at least 10 years and powering the base initially for at least 2 months in the event of mains power failure.
- The product shall be CE marked to indicate conformance to BS EN 60065:1998 (Electrical Safety), EN300220-1 V1.3.1 (2000-09) (RF Performance), EN301489 V1.4.1 (2002-08) (EMC) and be 3rd party tested for electrical safety in accordance with Annex K of BS 5446: Pt.1: 2000.
- Radio frequency shall be 868 MHz band in accordance with RandTTE Directive 1999/5/EC – this band has been designated for use with security products and only allows a 1% duty cycle.
- The base shall provide a low battery warning signal e.g. an LED indicator flashes every 10 seconds to indicate depleted battery. External alarm RF signal shall operate the sounder on the smoke alarm (without red LED flash) until it receives an alarm cancel signal. Receiver must remain on for additional 11 seconds to check for further signals.
- Units shall be supplied in factory code (they will all communicate with each other). They shall have the facility to be 'House Coded' to eliminate the risk of adjacent properties communicating with each other. After House Coding they must only communicate with other bases coded at the same time.
- The method of House Coding shall be as follows: operate the 'House Code' switch on all bases in the system. An Amber LED on the side of each base will flash. Each base will 'learn' the serial numbers of all units in the system. The units will return to normal standby mode automatically after 30 minutes unless manually reset before that time. The mounting base shall feature a Multi-Level Repeater Function to enable improvement of the signalling range. The unit shall have a remote house code entry feature which will allow new devices to be added to the existing system if additions are required, without the need to put every device into house code.
- The unit shall have the capability to allow an RF control switch to control hard-wired alarms.
- The unit shall feature an Easi-Fit design with integral terminal block for connection of mains supply. A 'Knock out' in the side of the base shall be provided to allow standard or mini trunking to be used.
- The mounting base shall have the following dimensions: - 140mm dia. x 20mm depth.
- The unit shall have a 5 year guarantee.

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RADIO LINK ALARM CONTROLLER

- 008 The Radio Link Alarm Controller shall have the following features:
- Install a wall mounted, completely wireless Alarm controller powered by 3V lithium battery with >10 year life.
 - Button functions:
 - Test: Test Alarms
 - Locate: Identify triggered alarms
 - Silence: Silence Alarms
 - Fire - Illuminates when fire detected
 - CO - Illuminates when CO detected
 - EOL - Illuminates to indicate End of Life
 - Memory: Diagnostics: Walk round test, extended two minute test
 - Dimensions: Product - 90mm x 90mm x 30mm
 - CE certified (RF) EN 300 220-2
 - (EMC) EN 301 498-1 and EN 301 498-3 (EMC)
 - The unit shall have a 5 year guarantee.

Client’s current manufacturers/suppliers/products

009 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

MAINTENANCE TO MICRO-GENERATION APPLIANCES

GENERAL

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GENERAL

Applicability

- 001 This initial general section applies to all subsequent sections of this Specification of Workmanship and Materials (**"this Specification"**).
- 002 This Specification is drafted as a series of instructions that the Service Provider must ensure are complied with in relation to the Works. Each instruction includes all tasks necessary to comply fully with the instruction and the Schedule of Rates item(s) to which it relates.
- 003 The Schedule of Rates payments, as adjusted by the Service Provider's tendered Rates, include for carrying out all tasks required by this Specification. No further payment is due to the Service Provider in respect of any such tasks beyond the payments provided for in the Schedule of Rates.
- 004 Specifications across a number of trades may be relevant to each Schedule of Rates item. The Service Provider must comply with all requirements of this Specification applicable to the specific type of Works to be undertaken.
- 005 References to Paragraphs and Sections in this Specification are to the applicable Paragraph and Section of this Specification.

Standards of workmanship and Materials

- 006 Carry out and complete all Works:
- in accordance with Good Industry Practice;
 - in accordance with the Client's Policies;
 - in accordance with any specific requirements for those Works in this Specification; and
 - to the satisfaction of the Client's Representative (acting reasonably).
- 007 To the extent that the standard of any Works has not been specified in this Contract, agree the relevant standard for the Works with the Client's Representative before their execution. Where particular Works or working methods are to be "approved by" "agreed with" or are indicated to be "subject to the approval of" the Client's Representative, give the Client's Representative adequate notice when such approval or agreement is needed and retain evidence of all approvals given, and items that have been agreed, by the Client's Representative.
- 008 To the extent that it is necessary to Design any aspect of the Works, in preparing those Designs use the reasonable skill and care to be expected of an experienced maintenance Service Provider that is skilled in undertaking works similar to the Works.
- 009 Maintain all existing lines and levels at all times and carry through new work to the same lines and levels unless otherwise Instructed by the Client's Representative.

European and British Standards & Codes of Practice

- 010 Ensure all Works undertaken and all Materials used in those Works comply with all applicable European and British Standards and Codes of Practice that are current at the time of their use.
- 011 References in this Specification of Workmanship and Materials to any European and British Standard or Code of Practice are to be construed as references to the version current at the time the Order is undertaken.
- 012 Where a specific European and British Standard or a Code of Practice is referred to, this sets out the minimum acceptable standard of Materials or workmanship.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Materials

- 013 The Client wishes to standardise the use of Materials across its Properties. This is in order to simplify parts requirements and van stock loads, to improve its repairs processes and to reduce maintenance costs. Wherever possible, match all Materials used to materials currently used in the Properties, particularly in terms of their parts requirements and repair procedures. In this Specification the Client has set out details of its current Materials to which the Service Provider is required to standardise.
- 014 Where this Specification indicates that Materials are to be “approved by the Client’s Representative”, provide samples of the proposed Materials to the Client’s Representative for approval. Any Materials that comply with the functionality and compatibility (including aesthetic compatibility) requirements of this Specification may be proposed. No further approval is required for any Materials listed in this Specification as being the Client’s currently used Materials. The purpose of the Client’s Representative’s decision on the use and approval of such Materials is to ensure that they meet the Client’s requirements for functionality and compatibility. The decision of the Client’s Representative on this is final.
- 015 Where this Specification requires Materials to be matched to existing Materials or finishes, this match is subject to the approval of the Client’s Representative.
- 016 Do not use any Prohibited Materials in carrying out the Works. Prohibited Materials are those Materials which are generally accepted or (having regard to Good Industry Practice) are reasonably suspected of:
- being harmful in themselves;
 - being harmful when used in a particular situation or in combination with other Materials;
 - becoming harmful with the passage of time; or
 - being damaged by or causing damage to the structure in which they are to be affixed.
- 017 Materials are to be regarded as harmful if, in the context of their use in the Works (whether alone or in combination with other materials) they:
- are prejudicial to health and safety;
 - may pose a threat to the structural stability or the physical integrity of any Property; or
 - could materially reduce the normal life expectancy of any part of the Property.
- 018 Use, fix and apply all Materials strictly in accordance with the manufacturer’s recommendations, directions or instructions.
- 019 Participate in joint initiatives with the Client and other Client Party to establish supply chain agreements.
- 020 Where appropriate suggest (economically viable) amendments to this Specification where those amendments may lead to an improvement in environmental performance or sustainability.
- 021 Provide all information the Client’s Representative reasonably requests regarding the environmental impact of the supply and use of any Materials and goods the Service Provider selects for use in the Works.

MICRO-GENERATION HEATING

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

GENERAL REQUIREMENTS

Immediate Response Service

- 001 The Service Provider shall maintain an office at a location from which the Works may reasonably be undertaken within the response times required, during normal working hours and out of hours. The Service Provider shall be equipped to receive calls and orders however transmitted (telephone, radio, fax, email) and provide the Client's Representative with a single telephone number that can be published.

Service Provider's Conduct

- 002 The Client is intent on providing an expeditious, safe and efficient Maintenance and Repair Service to its Customers and consequently the Service Provider shall do his utmost to promote and enhance the image and reputation of the Client in this respect.
- 003 The Service Provider shall require his Staff engaged upon the Works to be properly and presentably dressed in appropriate uniforms or workwear.
- 004 The Service Provider shall ensure that his Staff shall perform their duties in an orderly and quiet manner as may be reasonable and practicable having regard to the nature of the duties being performed by them.
- 005 The need to maintain the highest standards of hygiene and courtesy whilst the Service Provider's Staff are engaged upon the Works is paramount and in particular consideration must be given to Customers and occupiers when working in or near occupied premises. The Service Provider shall observe all of these provisions and also ensure that the said Staff do not cause a nuisance and or disturbance to Customers and occupiers when they are working in or near occupied premises.
- 006 The Client's Representative is empowered by this provision to give written notice to the Service Provider requiring him to remove from the Works forthwith any Staff member engaged upon the Works, if he is not satisfied in any way with the respective Staff members apparel, conduct, manner, or ability. The Service Provider shall on receipt of such notice comply forthwith and remove the Staff member from the Client's premises and the Staff member shall not be employed or engaged upon or in connection with the Works whilst the Contract remains in force.
- 007 The Client will from time to time poll its Customers to obtain their views on the effectiveness of the service provided by the Service Provider and the manner adopted by his Staff when discharging their duties. The results of the poll will be taken into account when considering the needs for resourcing future repair and maintenance programmes.

Registered Service Provider

- 008 The Service Provider shall have and maintain throughout the Contract Period registration with the:-
- (a) Microgeneration Certification Scheme (MCS) or such other body as may from time to time be approved by regulation and
 - (b) National Inspection Council for Electrical Installation Contracting (NICEIC) and/or Electrical Service Providers Association (ECA) or alternatively, the Service Provider may employ Staff to be approved by the Client's Representative under the Contract, who are registered with the National Inspection Council for Electrical Installation Contracting and/or Electrical Service Providers Association in order to undertake electrical work in connection with the Works.
- 009 All works shall comply with Part 'J' and 'P' Building Regulations by either obtaining Building Regulation approval or self certification by registered company.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

- 010 In the event that the Service Provider's MCS or NICEIC or ECA registration becomes suspended or withdrawn for whatever reason, the Service Provider shall immediately notify the Client's Representative in writing giving full details of the reasons for such and the proposed or intended action and time-scale for gaining reinstatement of its registration(s). With immediate effect from the date of suspension or withdrawal of its registration(s) and until reinstatement the Service Provider shall, subject to approval of the Client's Representative be required to employ on a domestic sub-contract basis a suitable registered sub-contractor to undertake Works under the Contract.
- 011 Should the Service Provider be unable within a period of two weeks to engage a suitably registered sub-contractor which meets the Client Representative's approval and or the period of suspended or withdrawn registration(s) exceeds or is likely to exceed four weeks then, the Client may at its sole discretion terminate the Service Provider's employment under the Contract in writing with immediate effect. Such action on the part of the Client shall constitute a valid termination in accordance with the Contract Conditions.

Existing Systems

- 012 The Client does not guarantee the condition or composition of fluid within wet systems. The cost of the removal of sediment and/or the re-establishment of the correct water/anti-corrosion fluid (or any other chemical) mix shall be deemed to be included in the **Schedule of Rates**, and/or the Service Provider's tendered **Percentage Adjustment**.

Existing Micro-Generation Installations and Appliances

- 013 As far as the Client is aware, its existing Micro-Generation Installations and Appliances have been installed and maintained with due regard to both the British Standards and the Regulations:-

Types of micro-generation installed can include;

- Electricity generation technologies;
 - Solar powered or photovoltaic (PV) systems
 - Micro turbines either wind or hydro
- Heat generation technologies
 - Solar thermal hot water
 - Ground source heat pumps
 - Air source heat pumps
 - Bioenergy
- Co-generation technologies
 - Hydrogen energy and fuel cells
 - Combined Heat and Power (CHP)

and the maintenance of which is to be undertaken by Microgeneration Certification Scheme (MCS) accredited engineers in strict accordance with the relevant manufacturer's instructions

- 014 The Service Provider in carrying out the Works shall have due regard to all the above and shall not do anything which will compromise or degrade the integrity of the Micro-generation Installations and or Appliances.

Reinstatement to be Provided by the Service Provider

- 015 The Service Provider will be required to cut out any chases in floors, ceilings or walls, remove and refix insulation, floorboards, panels and the like to expose pipework for maintenance, repair, exploratory or investigation purposes and on completion to reinstate affected areas, insulation and surfaces to their original condition.
- 016 Any exposed Work left unattended shall be protected and temporarily covered by the Service Provider at his own cost.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Leaks to Pipes Laid in Floors

- 017 The Service Provider shall be required to open up the floor of any Property to trace and identify the source of the leak. The Service Provider will drain down the system, remove the defective pipe and/or fittings and carry out the repair using capillary fittings. The system is to be recharged and left standing for 2 hours to test the repair. The Service Provider will make good the floor, in the case of screeded floors these shall be made good with asphalt or cement and grano compacted to completely encase the pipework subsequent to covering the pipework with an approved sleeve or wrapping tape. The floor will be allowed to dry out and the Service Provider will then recommission and put into use the heating system.
- 018 Alternatively the Service Provider may wish to seek dispensation from the Client's Representative to bypass the defective pipe in the floor or wall with an exposed run of pipe connected into the circuit at expedient points. The Service Provider should not on any account undertake this alternative without first obtaining the Client's Representative's approval.

Maintenance and Repair Records

- 019 On each occasion the Service Provider gains access to a Property for the purpose of carrying out the Works, he shall before leaving the Property, forthwith complete forms appropriate to the type of work undertaken in the form and manner prescribed hereafter.
- 020 The Service Provider shall at his own cost, provide for each Property a sufficient quantity of forms and notices, for the purposes of recording in ink from time to time, information in respect of the Heating Installations and Heating Appliances. The format and content of the said forms and notices shall be subject to the overriding approval of the Client's Representative and where required by statute, the Health & Safety Executive.
- 021 The Service Provider shall record upon the forms and notices, general information as follows:-
- (1) The address of the Property to which the form applies.
 - (2) Details of the respective Micro-generation Installations and or Appliances and their location in the Property, clearly indicate any Micro-generation Installations or Appliances which have not previously been contained in the Service Provider's and or Client's records.
 - (3) Any changes to previously recorded details of Micro-generation Installations and or Appliances.
 - (4) The name of the firm and the name and signature of the firm's employee who undertook any Work, inspection or check and the date and time of the undertaking.

- 022 In addition, the Service Provider shall record specific information upon the forms and notices as follows:-

Annual Service Log;

- 023 Details of all Work undertaken during the annual inspection and service.

Repairs Log;

- 024 Details of all Work undertaken in response to a request for day to day repairs.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Landlord's Micro-generation Safety Record;

025 Details of the routine annual inspection and service as follows:-

- (i) the date on which the appliance was checked;
- (ii) the address of the Property at which the appliance is installed;
- (iii) the name and address of the Client responsible for the Property (or their agent) at which the appliance is installed;
- (iv) a description of and the location of each appliance checked;
- (v) any defect identified;
- (vi) any remedial action taken;
- (vii) confirmation that the routine annual service has included an examination of:-
 - (a) the effectiveness of any appliance,
 - (b) the appliances operation pressure and heat input,
 - (c) the appliances operation so as to ensure its safe functioning and,
- (viii) the name and signature of the individual carrying out the annual service and inspection; and
- (ix) the registration number with which that individual or his Employer is registered, with MCS.

Actions arising from Forms and Notices

026 The forms and notices completed by the Service Provider shall be dealt with and the information thereon, delivered to persons in the form and manner prescribed hereafter:-

The Service Provider shall obtain the signature endorsement of the Customer of the respective Property upon the forms, to provide evidence that the Service Provider has undertaken an examination of the Micro-generation Installations or Appliances.

The original documents should be delivered to the Client's Representative within **two** working days of the visit;

The Service Provider should retain a copy of the documents for his own records.

A copy only of the Landlord's Micro-generation Safety Record also signed by the individual who undertook the routine annual inspection and service, should be handed to the Customer.

However, if the Customer refuses to sign the Landlord's Micro-generation Safety Record (or the occupier at the time is a minor), the Service Provider should in each case, deliver the unsigned copy of the said Safety Record signed by the individual who undertook the routine annual inspection and service to the Client's Representative, together with a list of the unsigned documents in the batch of documents.

In the case of the Customer's advice notice issued to the Customer in respect of a Micro-generation Installation or Appliance owned by them or for which they are entirely responsible, copies of the said notices should be delivered to the Client's Representative with the contemporaneous batch of forms.

Service Label

027 The Service Provider shall at his own cost provide a durable heat resisting self-adhesive label of a type to be approved by the Client's Representative. Immediately upon completion of a routine annual inspection and service and or repair to any Micro-generation appliance and or heating system the Service Provider shall enter in ink upon the label information as follows:-

- Name of the firm,
- Date of the routine annual inspection and service and or repair together with details of Work undertaken
- The signature of the engineer who undertook the routine annual inspection and service and other Works.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

- 028 Upon completion of the entries on the label the Service Provider shall affix the label in a prominent place on or near the appliance subject of the routine inspection and service and or repair.

Repairs Works Order

- 029 The Service Provider immediately after responding to a repair Order issued by the Client's Representative, shall provide electronically the nature of the repair undertaken, the date and time when the repair was executed or provide this data electronically
- 030 In addition, the Service Provider shall obtain the Customer's signature on the rear of the Order to indicate that the heating system and or appliance has been left in working order. The Order shall be attached to the respective account submitted by the Service Provider in accordance with the Contract Conditions.

Materials and Components

- 031 All Materials used shall comply with British Standards, current at the time and only approved replacement parts or components shall be fitted when servicing, maintaining or repairing any Micro-generation Installation or Appliance. Wherever possible Materials, replacement parts and or components fitted by the Service Provider shall be on a like for like basis but in any case, shall be of comparable quality and finish and be consistent with the performance requirements of the respective systems unless the defective material, part and or component was of an inferior quality to the relative British Standard in which case the Material, replacement part and or component provided by the Service Provider will be at least to current British Standards and be consistent with the performance requirements of the respective installation system and be subject to the Client's Representative's approval. Workmanship shall comply with the current British Standard Codes of Practice.

Annual Servicing

- 032 The annual inspection and servicing specifications specified hereafter are model requirements only and the Service Provider shall at his own cost and as part of his undertaking in respect of the Works, obtain the manufacturer's service and maintenance requirements for the respective Micro-generation Installations and Appliances and any other information which will enable the Service Provider to identify the full service, maintenance and repair requirements necessary to meet his obligations under the Contract and consequently enable the Client to fulfil its obligations to its Customers.

Response Maintenance

- 033 Wherever the Service Provider undertakes any response maintenance on a Micro-generation appliance, he shall immediately thereafter examine:-
- (a) the effectiveness of the appliance,
 - (b) its operating pressure and heat input,
 - (c) its operation so as to ensure its safe functioning.

Any defects disclosed by the examination should be immediately dealt with by the Service Provider, in accordance with the Contract Conditions.

Electrical Installations

- 034 The Service Provider shall as part of the routine annual service and inspection, check and test all electrical installations and fittings associated with the Micro-generation Installations and Appliances covered by this Contract, so as to ensure their safe operation. All remedial work will comply fully with the latest edition of the IET Regulations.

All works shall comply with Part 'P' Building Regulations by either obtaining Building Regulation approval or self certification by registered company.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Decorative Casings

- 035 The Service Provider shall at his own cost carry out repairs to appliances, decorative casings and finishes.

Service/Test Certificate

- 036 The Service Provider following the successful completion of the routine annual inspection and service shall provide to the Client no later than 7 days after completion of the service a certificate in a form to be agreed with the Client's Representative which must be signed by the Service Provider's Contracts Manager.
- 037 In respect of Sheltered Accommodation, Hostels, Residential Care Accommodation, Dwellings in Multiple Occupation or similar with Independent Boilers a copy of the Certificate is to be provided for display prominently within the Property and the Service Provider is to allow within his tendered rates for the provision of a copy of the relevant certificate to each Customer served by the independent Micro-generation appliance.
- 038 In respect of Sheltered Accommodation, Hostels, Residential Care Accommodation, Dwellings in Multiple Occupation or similar with Communal Boilers a copy of the certificate is to be provided for display within the communal areas of the Property and the Service Provider is to allow within his tendered rates for the provision of a copy of the relevant certificate to each Customer served by the Communal Micro-generation Appliance or Installation.

MATERIALS

Air Source Heat Pump

- 039 The Client's preference is for an externally mounted air-to-water air source heat pump (ASHP) with an internal heat store. The ASHP should be located near the home, with good air circulation and on a solid concrete base. The system should be MCS and Renewable Energy Association (REA) approved. Ideally, it should have an inverter-driven heat pump compressor.
- 040 All ASHP systems should be installed with underfloor heating or suitable oversized radiators to maximise system efficiency.
- 041 Heating zones should be independently programmable with a central controller to set the heat demands on the system.
- 042 All systems should have the ability to connect with solar thermal panels to create a full renewable system. External fan units must be designed to protect people from danger and prevent the ability for injury or damage. Protection measures must be agreed with the Client's Representative.
- 043 Heating controls must be simple to understand and use. The system should come with at least a 3 year product and installation warranty.
- 044 All heating systems require an electronic time programmer with separate control for heating and hot water.
- 045 The programmer must be capable of running hot water and heating either separately or together, with at least two on/off periods per day.
- 046 Heating controls must be approved by the Client's Representative prior to finalising the heating design.
- 047 The Service Provider is required to provide a demonstration to the Client's Representative at handover on how to use the heating system.
- 048 If the heating and hot water system combines a number of Low and Zero Carbon Technology (LZCT) together or LZCT with gas central heating, for example, solar thermal panels with a gas boiler system, the Client will require the systems to be operated from a single electronic programmer.

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- 049 The entire heating installation must be checked for leaks after the system has been flushed and be pressure tested in accordance with manufacturer's requirements.
- 050 The system must be filled with water and any trapped air removed. A Gas Safe commissioning certificate must be available at handover. Particular attention is to be paid to commissioning the heating system to ensure that it is installed and set up to perform in accordance with the design.

Solar Photovoltaic Panels

- 051 The Client's preference is for monocrystalline Photovoltaic (PV) panels with self cleaning glass. The panel, frame and fixings must have MCS and British Board of Agrément (BBA) approval.
- 052 Installations to individual Properties should be connected to the household electrical system and communal systems should be connected to the communal landlord electrical system.
- 053 Single phase or three phase GSM enabled Passiv Systems Compatible Elster generation meters should be installed, as appropriate.
- 054 The panel should have a 25 year manufacturing warranty cover. The frame, fixtures and fittings should have a 5 year product and workmanship warranty. The inverter should have a 5 year warranty cover.
- 055 The system should meet either G59 or G83 grid compliance criteria. All proposals must be agreed by the Client's Representative.

Solar Thermal Panels

- 056 The Client's preference is for MCS and Solar Keymark approved evacuated tube Solar Thermal (ST) systems. The ST system should be a pressurised closed loop system with an appropriate expansion vessel.
- 057 The hot water cylinder must be a twin coil system with the bottom coil used for ST and the upper coil for the primary hot water circuit. A 3kW electric immersion must be installed.
- 058 A temperature controller should be installed with sensors in the collector and cylinder to automate the pump.
- 059 The solar panels must have a 5 year product and installation warranty cover.

Combined Heat and Power Generating Boilers

- 060 Combined heat and power generating boilers (CHP) must convert over 90% of their fuel into electricity and useful heat.
- 061 CHP boilers must generate a minimum of 1kw of electricity per hour and a maximum of 24kw of thermal output.

Solid Fuel Biomass and Wood Burning Boilers

- 062 Solid fuel biomass boilers must use wood pellet fuel from an approved renewable or recycled source.
- 063 All solid fuel boilers must convert over 90% of their fuel into useful heat.

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Client’s current manufacturers/suppliers/products

064 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

MODEL ANNUAL SERVICE REPAIRS AND MAINTENANCE SPECIFICATIONS

SOLAR THERMAL INSTALLATIONS

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

MODEL ANNUAL SERVICE SPECIFICATION, REPAIRS AND MAINTENANCE PARTICULAR TO ANY SOLAR THERMAL INSTALLATION,

- 001 The Service Provider shall have and maintain throughout the Contract Period registration with MCS or be a member of a class of persons approved for the time being by regulation.
- 002 The Service Provider shall undertake routine servicing, maintenance and repairs to solar thermal installations under this specification as follows:-
- 1) The solar thermal panel or tubes installed on or in roofs
 - 2) The solar hydraulic pump and solar controller
 - 3) Installation pipework
 - 4) Solar hot water cylinders.
- 003 The Contract will include for the annual inspection and service as described and in accordance with the manufacturer's recommendations, replacement of all defective materials, parts and components and any additional visits, during or outside normal working hours, to maintain the whole installation in good and safe working order.
- 004 The Service Provider shall be responsible for defining the full nature of the annual inspection and service which together with the day to day response service, repairs and maintenance ordered from time to time by the Client's Representative and defined and undertaken by the Service Provider will ensure the safe operation at all times throughout the currency of the Contract, the Client's solar thermal panels or tubes installation and systems. The routine annual inspection and service shall be carried out in accordance with but not limited to, the recommendations of the manufacturer of the solar thermal panels or tubes installation and systems outlined hereafter.

Solar Thermal Panels and Tubes General Requirements	
1	Check general, condition of solar thermal panels or tubes installed on roof before commencing service.
2	Remove any debris, blown leaves etc that may hinder servicing and operation of solar thermal panel or tubes.
3	Cut off overhanging branches for non tree preservation order trees limiting operation of solar thermal panel or tubes.
4	Clean panels or tubes with iodised water
5	Check operation of solar hydraulic pump, overhaul pump if necessary, clean filters, change hydraulic fluids, adjust
6	Check operation of solar controller, adjust as necessary
7	Check installation pipework and cylinder/storage tank for any leaks
8	Check operation of solar thermal installation and adjust settings on controls, cylinder thermostat etc
9	Affix completed service label adjacent to cylinder.
10	Make good and clear away all debris to approved tip

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Client’s current manufacturers/suppliers/products

005 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

AIR SOURCE HEAT PUMPS

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

MODEL ANNUAL SERVICE SPECIFICATION, REPAIRS AND MAINTENANCE PARTICULAR TO ANY AIR SOURCE HEAT PUMPS

- 001 The Service Provider shall have and maintain throughout the Contract Period registration with MCS or be a member of a class of persons approved for the time being by regulation.
- 002 The Service Provider shall undertake routine servicing, maintenance and repairs to air source heat pumps under this specification as follows:-
- 1) The air source heat pump
 - 2) The inverter
 - 3) Installation pipework and radiators
 - 4) Cylinders.
- 003 The Contract will include for the annual inspection and service as described and in accordance with the manufacturer's recommendations, replacement of all defective materials, parts and components and any additional visits, during or outside normal working hours, to maintain the whole installation in good and safe working order.
- 004 The Service Provider shall be responsible for defining the full nature of the annual inspection and service which together with the day to day response service, repairs and maintenance ordered from time to time by the Client's Representative and defined and undertaken by the Service Provider will ensure the safe operation at all times throughout the currency of the Contract, the Client's air sourced heat pumps, installation and systems. The routine annual inspection and service shall be carried out in accordance with but not limited to, the recommendations of the manufacturer of the air source heat pump installation and systems outlined hereafter.

Air Source Heat Pump General Requirements	
1	Check general, condition of air source heat pump before commencing service.
2	Remove any debris, blown leaves etc that may hinder servicing and operation of air source heat pump.
3	Clean external surfaces of air source heat pump unit with iodised water.
4	Check operation of air source pump, overhaul pump if necessary, clean filters, change e filters, adjust
5	Check operation of inverter, adjust as necessary
6	Check installation pipework, radiators and cylinder/storage tank for any leaks
7	Check operation of installation and adjust settings on controls, cylinder thermostat etc
8	Affix completed service label adjacent to cylinder.
9	Make good and clear away all debris to approved tip

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Client’s current manufacturers/suppliers/products

005 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

GROUND SOURCE HEAT PUMPS

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

MODEL ANNUAL SERVICE SPECIFICATION, REPAIRS AND MAINTENANCE PARTICULAR TO ANY GROUND SOURCE HEAT PUMPS

- 001 The Service Provider shall have and maintain throughout the Contract Period registration with MCS or be a member of a class of persons approved for the time being by regulation.
- 002 The Service Provider shall undertake routine servicing, maintenance and repairs to ground source heat pumps under this specification as follows:-
 - 1) The ground source heat pump
 - 2) The inverter
 - 3) Installation pipework and radiators
 - 4) Cylinders.
- 003 The Contract will include for the annual inspection and service as described and in accordance with the manufacturer's recommendations, replacement of all defective materials, parts and components and any additional visits, during or outside normal working hours, to maintain the whole installation in good and safe working order.
- 004 The Service Provider shall be responsible for defining the full nature of the annual inspection and service which together with the day to day response service, repairs and maintenance ordered from time to time by the Client's Representative and defined and undertaken by the Service Provider will ensure the safe operation at all times throughout the currency of the Contract, the Client's ground source heat pumps, installation and systems. The routine annual inspection and service shall be carried out in accordance with but not limited to, the recommendations of the manufacturer of the ground source heat pump installation and systems outlined hereafter.

Ground Source Heat Pump General Requirements	
1	Check general, condition of ground source heat pump before commencing service.
2	Remove any debris, blown leaves etc that may hinder servicing and operation of ground source heat pump.
3	Clean external surfaces of ground source heat pump unit with iodised water.
4	Check operation of ground source pump, overhaul pump if necessary, clean filters, change e filters, adjust
5	Check operation of inverter, adjust as necessary
6	Check installation pipework, radiators and cylinder/storage tank for any leaks
7	Check operation of installation and adjust settings on controls, cylinder thermostat etc
8	Affix completed service label adjacent to cylinder.
9	Make good and clear away all debris to approved tip

M3NHF SCHEDULE OF RATES – RESPONSIVE MAINTENANCE & VOID PROPERTY WORKS – SPECIFICATION – VERSION 7.2

Client’s current manufacturers/suppliers/products

005 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

INJECTED DAMP PROOF COURSES AND FUNGUS/BEETLE ERADICATION

INJECTED DAMP PROOF COURSES AND FUNGUS/BEETLE ERADICATION

GENERAL REQUIREMENTS

Generally

- 001 Ensure chemical injection damp proof course Works are undertaken by specialist installers/subcontractors approved by the Client's Representative.
- 002 Ensure fungus/beetle eradication Works are undertaken by specialist installers/subcontractors approved by the Client's Representative.
- 003 Provide a warranty supported by an insurance policy in terms approved by the Client's Representative for chemical injection damp proof course system or fungus/beetle eradication. Hand the policy for each Property to the Client's Representation on completion of the Works to that Property.
- 004 **Protection of Property:** It is the responsibility of the Service Provider and his specialist installers/subcontractors to avoid all unnecessary damage to the Property and its contents. Particular care should be taken if the Property has bitumen or pitch floors and/or dampproof courses, since bitumen could be leached by the solvents present in some damp-proofing fluids.
- 005 Carpets, vinyl floors, furniture and decorations should be adequately protected from contact with the chemicals. Most of the fluids used can damage plant life and adequate precautions should be taken to prevent spillages in gardens.
- 006 Before any Work is commenced by the damp proof course specialist installer/subcontractor it is important that the occupier/owner of the adjoining property should be advised of the proposed Work and if possible carry out inspection and record condition of the relevant walls in their dwelling.

WORKMANSHIP

Chemical injection damp proof course

- 007 BS 6576 deals with the methods of installing chemical damp proof courses.

Chemical injection damp-proof course systems are to be Agrément certified and are to be either:

- Silane/Siloxane emulsions (A silicone micro-emulsion in concentrated form) with solution to be injected at pressure up to 350kPa for mortar injection and 500pKa for brickwork; or
- Potassium methyl silicate (An aqueous silicate solution in concentrated form) applied by low pressure injection; or
- Ready to cream emulsion on a Silane/Siloxane base for masonry injection by means of a low pressure sprayer or cartridge gun.

Main considerations:

1. The horizontal spacing of injection holes must not exceed 150mm. This is to ensure that an overlap of saturated zones occurs thus forming a continuous damp proof barrier;
2. All external walls such as yard or screen walls and not themselves having damp proof courses must be drilled and injected vertically not less than 1200mm high where they butt against main Property walls. Care must also be taken at steps between Properties of different floor levels when a proprietary silicate render tanking will be necessary;
3. When the internal walls are being re-plastered after treatment the bottom edge of the plaster must be no closer than 25mm from floor level. This is extremely important when injection is associated with solid floors;
4. The recommended floating coat of plaster should be 1:1:6 Cement/Lime/Sand which should include an additive to inhibit the re-occurrence of hygroscopic salts. Gypsum based absorbent lightweight plaster must not be used;

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5. Allow at least 2 days for the solvent to evaporate, and ventilate rooms to build up of inflammable vapour;
6. After plastering use emulsion paints only. Do not decorate with wallpaper for at least 6 months after injection. The Property should be dried out between 6 and 12 months depending on the thickness of the wall; and
7. The installation of a damp proof course does not itself prevent the development of timber decay. Any timbers at risk from fungal decay or insect damage should be treated in accordance with the prescribed methods.

008 Neatly and fully fill holes which are exposed to view with 1:1:6 cement:lime:sand mortar. Match the mortar to the existing masonry in colour and texture. Inform the Client's Representative before starting the Works and obtain approval of the appearance of the first few holes before completing the remainder.

009 Take effective measures to ventilate and dry out damp building fabric as soon as possible. Allow a minimum of 48 hours to ventilate spirit based formulations and as long as practicable for drying out the fabric. Obtain the approval of the Client's Representative to the methods to be used.

010 Drying time:

Chemical damp-proof courses do not always become effective immediately after insertion into a wall and there may be a delay of some weeks before the damp-proof course barrier is formed.

The overall drying time of a Property after insertion of a damp-proof course is dependent on this and many other factors. As a general guide an average house constructed of 215mm walls should be free from the residual moisture resulting from damp within a year of treatments, provided any additional sources of dampness has also been eliminated.

It must be remembered that the amount of water in the wall before injection is exactly the same as after injection. It is this water concentration which diminishes over the 6-12 month time period as the injection process has cut off its source of supply. If this is remembered and understood many of the questions raised after Order completion can be forestalled.

Cutting out Decayed or Infested Timber

011 Cut out the decayed or infested timber along the grain for one metre beyond the last visible sign of attack. Minimise any damage to sound building fabric and ensure adequate propping and shoring.

Repairs to timber internal door frames

012 Form the joint of the new and existing timber by a 45° - 60° splice. For the new timber, use redwood from a source approved by the Client's Representative. Joint the new timber to the existing with galvanised screws or nails or plug and screw it to the wall. Ensure the new timber matches the profile of the existing timber.

Repairs to timber external door and window frames and the cills of timber window frames

013 Form the joint of the new and existing timber by a 45° - 60° splice. For the new timber use a preservative treated redwood from a source approved by the Client's Representative. Dip all cut ends in similar preservative fluid before fixing them in position. Joint the new timber to the existing timber with galvanised screws or nails or plug and screw it to the wall. Ensure the new timber matches the profile of the existing timber.

Replacing structural members

014 Joint the new and existing timber by a half-lapped joint. The joint should have a length of at least twice the depth of the timber members; the new timbers should make-up the bottom section of the joint if timbers are horizontally placed. For the new timber, use a preservative treated whitewood from a source approved by the Client's Representative. Existing timbers ends exposed by cutting/jointing must be treated with preservative. Joint the new timber to the existing with coach bolts. Ensure the new timber matches the profile of the existing timber.

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Chemicals for treatment

- 015 Use only chemical formulations approved under the Health and Safety Executive (HSE) and listed on the HSE website under non-agricultural pesticides.

Dry rot, wet rot and insect infestation

- 016 Treat dry rot, wet rot and insect infestation as advised in BRE Digest 299(Dry Rot) and BRE Digest 345 (wet Rot) and /or BRE Expert Collection 7 "Condensation and dampness", BRE Report 453 (Insect Damage) or equal and approved by the Client's Representative and in accordance with relevant British/European and HSE Standards.

Basic Principles: the important issues are as follows:-

1. Prevention of further entry of dampness into the building;
2. Drying out to remove existing dampness;
3. Eradication of the fungus and repair of the damage caused.

Disposal of defective timber

- 017 Dispose of defective timber immediately and safely to a tip approved by a waste regulation authority. Prevent contamination of other parts of the Property. It is considered good practice for the Service Provider carrying out the removal to avoid future contamination.

Sterilisation for Fungus Eradication

- 018 Completely sterilise the surface with approved fungicide by coarse spraying of fluid preparation or direct application by brush with heavy bodied preservative paste. Timber preservatives and biocides must be approved under the Control of Pesticides Regulations (COPR). The approvals procedure is operated by the Health and Safety Executive (HSE) which deals with non-agricultural products. A list of approved products is published and kept up to date on the HSE's website.

Sterilisation for beetle eradication

- 019 Completely sterilise the surface with approved fungicide/insecticide by coarse spraying/brush application of fluid preparation.

Sterilisation for woodworm

- 020 Inject an insecticide approved by the Client's Representative into existing woodworm holes.

Irrigation

- 021 Irrigate walls with a fungicide approved by the Client's Representative. Bore holes in the wall as necessary for the introduction of the liquid.

Plaster to control dampness or after insertion of a new damp proof course or system

- 022 General:

The function of the new plaster is to hold back the hygroscopic salts introduced into the wall structure through rising damp, and to prevent them from migrating through to the surface of the new plaster.

The re-plastering operation should be carried out as long as possible after the injection of the damp-proof course.

Additives may be incorporated in the plaster undercoat to increase resistance to hygroscopic salt migration, provided they do not prevent the passage of moisture vapour. The new plaster work must not be a vapour barrier. Premixed gypsum plasters must not be used as undercoats.

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The damp-proof course must not be bridged by plasters internally, or by renders externally. A gap of 25mm must be left at base of plaster on inside walls to prevent contact with solid floors.

It is recommended that the removal of the old plaster is carried out to a position not less than 300mm above either the last detectable signs of dampness or the damp-proof course line itself. For chemical damp-proof courses, the recommendations of the damp-proof course installer should be followed regarding the use of:

- Water-proofers or salt inhibitors in render mixes;
- Premixed "renovating" plasters. Agrément certified for application to salt contaminated substrates.

- 023 Arrange for the Client's Representative to inspect and approve the brickwork background before starting any replastering.
- 024 Apply a plaster after the insertion of a new damp proof course or system consisting of three coats of cement sand backing and gypsum hemihydrate formulated finish with a total plaster thickness in accordance with Good Industry Practice as follows:
- the first coat comprising a cement sand (1:3) scratch coat with an additive approved by the Client's Representative;
 - the second coat comprising cement sand (1:3) with no additive mixture, applied whilst the first coat is still green and then ruled to alignment and scratched to form a key; and
 - the finishing coat comprising gypsum hemihydrate formulated finish.
- 025 Alternatively, if the Client's Representative so approves, use a two coat lightweight aggregate plaster with a total plaster thickness of at least 13mm as follows:
- on normal backgrounds:
 - for the first coat: use a renovating plaster scratch coat containing a perlite lightweight aggregate and a waterproofing/salts inhibiting additive; and
 - for the second coat: use a finishing plaster coat containing fine lightweight aggregate; or
 - on low suction backgrounds:
 - for the first coat: use a slurry keying aid as recommended by the plaster manufacturer; and
 - immediately follow it by a tight coat of renovating plaster and leave it for a minimum of 36 hours before applying the finishing plaster.
- 026 For normal two coat systems of a total of 13mm thickness, apply the floating coat in a single application, ruled to alignment and scratched to form a key. If the maximum thickness of the backing coat required exceeds 12mm use a scratch or dubbing out coat to bring out to a level surface. Ensure the coat does not exceed 11mm, is well scratched, and is allowed to dry before the application of the subsequent coat.

Physically Inserted Damp Proof Courses to Existing Walls

- 027 Carefully cut joint of brickwork, blockwork or masonry to prevent structural damage, install a continuous damp proof course barrier to rising damp with polyethylene to BS 6515 weighting not less than 1.55kg per m² to full width of wall and finish, externally to finish flush with face of wall, internally to form a minimum 150mm lap with damp proof membrane.
- 028 Carefully cut joint of brickwork, blockwork or masonry to prevent structural damage, install a continuous damp proof course barrier to rising damp with bituminous felt to BS 6398 weighting not less than 0.48kg per m² to full width of wall and finish, externally to finish flush with face of wall, internally to form a minimum 150mm lap with damp proof membrane.

Mastic asphalt tanking/damp proof membranes

- 029 Where these are horizontal, apply them as follows:
- base: existing concrete;
 - preparation: laid to falls;
 - separating layer: none;
 - certification: asphalt kitemark certified;
 - thickness: at least 20mm; and
 - finish: smooth floated.

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030 Where these are vertical, apply them as follows:

- base: existing concrete or brickwork;
- preparation: key a vertical surface;
- certification: asphalt kitemark certified;
- thickness: at least 20mm; and
- finish: smooth floated.

General technical requirements

031 Lay each horizontal coat in a single operation to provide a secure, free draining and completely watertight floor.

032 Unless otherwise specified, use ancillary products and accessories recommended by the asphalt manufacturer.

Primer

033 Use a primer recommended by the manufacturer of the material to be bonded. Apply by mopping, brushing or spraying to achieve an even and full cover of the surface. Allow to dry thoroughly before covering.

Bonding compound(s)

034 Unless specified otherwise, use oxidised bitumen of a grade recommended by the manufacturer of the material for the conditions and type of surface. Heat it and lay it at a temperature sufficient to ensure bonding over the whole surface. Do not overheat it.

Preparation of bases - renewing existing asphalt

035 Agree with the Client's Representative the extent of the area(s) to be renewed.

036 Remove, renew and waterproof each area on the same day, unless the Client's Representative Instructs otherwise.

037 Adequately protect existing and new area(s) of floors against damage during the execution of the Works. Where removal results in accidental damage to existing elements which are to remain, agree the proposed repair or replacement with the Client's Representative.

Keying to concrete

038 Clean off mould oil with detergent. Use Materials recommended for the purpose by the asphalt manufacturer. Either prime the surface with a proprietary bituminous emulsion or apply a proprietary keying mix of cement and slurry incorporating a bonding agent.

Keying to brickwork/blockwork

039 Ensure that all joints are lightly recessed by brushing or other means. Prime the wall surface with a proprietary bitumen and rubber emulsion recommended by the mastic asphalt manufacturer.

Keying to metal

040 Apply a keying primer to all metal pipes, metal lathing, etc.

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Asphalt/accessories - suitability of base

- 041 Before laying asphalt ensure that:
- the horizontal base is to even falls with no areas which will pond;
 - the surfaces to be covered are firmly fixed, clean, dry, smooth, free from frost, contaminants, voids and protrusions; and
 - all preliminary work including formation of upstands, kerbs, sumps, grooves, chases, expansion joints, etc., and fixing of battens, fillets, anchoring plugs/strips, flashings, outlets, pipesleeves, ventilators, etc., is complete and satisfactory.

Application of asphalt

- 042 Ensure thorough mixing when remelting and do not heat to more than 230 deg.C.
- 043 Do not use reheated asphalt.
- 044 Apply each coat to an even thickness using suitable gauges. Float to a smooth surface free from imperfections and crazing. Apply successive coats without delay and within the same working period.
- 045 Ensure there is complete fusion of the asphalt at all joints so as to give a continuous watertight membrane. Clean and heat the edges of previously laid coats by poulticing with hot asphalt. Remove and discard the poultice and cut away the edge to remove sand rubbed material before jointing. Lay new asphalt whilst the poulticed surface is still hot. Do not torch.
- 046 Stagger junctions of bays in successive coats by at least 150mm.
- 047 Pierce any blows and make good affected areas while the asphalt is still at a working temperature.
- 048 Form solid fillets in all internal angles, fully fused to the asphalt coating and at least 40mm wide on face and at an angle of approximately 45 degrees to the horizontal.
- 049 Maintain the full thickness of the asphalt around all external angles.
- 050 Turn the asphalt into splayed chase at the top edge of skirtings and vertical work. Finish the top surface with a splay to shed water away from the wall, maintaining full thickness.
- 051 Form watertight joints around all pipes, gullies and other penetrations.
- 052 Finish asphalt to a smooth flat surface, free from lipping, pitting, scars and other imperfections. Sand rub all horizontal surfaces while the asphalt is still warm, using clean, coarse sand from natural deposits, passing a 600 micron sieve and retained on a 210 micron sieve.

Redecoration

- 053 Resulting efflorescence – It should be of benefit in concluding to discuss the phenomenon known as efflorescence which is one of the most difficult building defects to appreciate and not easy to explain to Customers.

After injection has been completed and re-rendering has been carried out, the walls of the Property will, slowly at first, commence to dry out.

At this time efflorescence, in the form of crystallised salts, will usually become apparent on the internal walls also to a lesser degree on the external walls. This is because the internal temperature is greater, thus causing the remaining moisture which is now entrapped above the new chemical damp=proof course, to slowly evaporate.

The time which rising damp has been present in the Property will usually determine the amount of efflorescence which will occur.

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Moisture in the form of rising damp carries with it, ground salts. Over a period of years these salts become saturated within the main fabric of the wall and on drying through evaporation of the moisture from the wall, crystallise as dry salts. It is bad building practice to try to prohibit their movement. If brickwork was effectively sealed against the movement of efflorescing salts, crystallization would still take place but in this case internally within the brickwork. The expanding salts could then do irreparable damage to the construction.

After complete drying out, the efflorescence should be brushed off, allowing the Customer to proceed with normal wall papering etc.,

054 Painting:

Impervious wall coatings should not be applied until the walls are dry.

This could take as long as twelve months, and certainly not less than six months from the installation of the damp-proof course.

One coat of matt emulsion paint is particularly recommended for use in the interim period.

After re-plastering, decoration should be **restricted to matt emulsion and water based paints** which are porous and allow the wall to breathe.

Decoration with impermeable finishes such as gloss paint and vinyl paints or wallpapers should be delayed for at least one year.

Client’s current manufacturers/suppliers/products

055 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

PEST CONTROL

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PEST CONTROL

General Requirements

- 001 The Service Provider is to provide a pest treatment service upon the instructions of the Client's Representative in respect of all pests at all domestic and corporate and communal facility premises and land owned or managed by the Client.
- 002 Detailed below are the specific Requirements. The Contract must therefore comprise of the following elements:
- Routine treatment
 - Responsive treatment
 - Out of Hours Emergency Works
- 003 The Service Provider or his approved Subcontractor shall decide on the methods, equipment and materials that should be used in a treatment with due regard to the health and safety of his Staff, the Customer and their family, staff of the Client, the general public and any household pets.
- 004 The Service Provider or his approved Subcontractor will be required to carry out the Works in accordance with the Codes of Practice issued by the British Pest Control Association including any future amendments to those Codes or such other Codes or guidance which in the opinion of the Client's Representative is of an equal or better standard and the Client's Environmental Policy.
- 005 The Service Provider or his approved Subcontractor shall pay attention to:
- The Public Health Act 1936;
 - The Public Health Act 1961;
 - Prevention of Damage by Pest Act 1949;
 - Wildlife and Countryside Act 1981;
 - Food and Environmental Protection Act 1985;
 - Health and Safety at Work Act 1984;
 - Management of Health and Safety at Work Regulations 1992;
 - Control of Substances Hazardous to Health 1988;
 - Personal Protective Equipment at Work Regulations 1992;
 - Provision and Use of Work Equipment Regulations 1992;
 - Control of Pesticides Regulations 1986;
 - Environmental Protection Act 1990; and
 - The UK Rodenticide Stewardship Regime
- 006 The Client will retain the responsibility of enforcement under the Prevention of Damage by Pests Act 1949 and may carry out inspections in addition to those made by the Service Provider or his approved SubService Provider or his approved Subcontractor and will arrange the service of notices on third parties where it considers it necessary.
- 007 The Service Provider or his approved Subcontractor is to contact the relevant Public Health Co-ordination Team for the local authority area where the infested dwelling, corporate or communal facility or land is located, if the infestation present is of a size that the Service Provider or his approved Subcontractor believes it cannot be dealt with within the contracted number of visits, or there's harbourage on site that requires clearing in order to reduce the incidence of re-infestation.
- 008 The Service Provider or his approved Subcontractor should be a member of the British Pest Control Association or the National Pest Control Technicians Association.
- 009 All rodent control Works undertaken by the Service Provider or his approved Subcontractor are to be in accordance with the best practice specified within the Rat and Mouse Control Procedures manual March 2019 issued by the Chartered Institute of Environmental Health.

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Operational Requirements

- 010 The Service Provider shall notify the Client's Representative of all accidental occurrences involving persons, animals or property on the premises treated by the Service Provider or his approved Subcontractor.
- 011 All baits laid by the Service Provider or his approved Subcontractor which remain on the premises shall be removed and disposed of in a safe manner in accordance with the Regulations current at that time.
- The Service Provider or his approved Subcontractor will remove and dispose of any pest carcasses which result from the pest treatment and dispose of them in a safe and hygienic manner in accordance with the Regulations current at that time.
- 012 The Service Provider must inform the Client's Representative of details of the chemicals to be employed, together the details of toxic properties, antidotes and precautions that may be necessary to prevent damage or injury to persons, animals and property.
- 013 The Service Provider or his approved Subcontractor shall supply the occupier of any premises treated with a statement of the poison used on the premises and the appropriate precautions in emergency, medical or veterinary treatment.
- 014 The Service Provider will keep a record of all treatments carried out in enough detail as to indicate the extent of each infestation and the number and position of baits laid. A monthly report is to be provided to the Client's Representative summarising which pests treated,
- 015 The Service Provider will provide the Client's Representative with quarterly and annual statistics as the numbers of Works Orders raised by pest, category, time of response and time to resolve the infestations.
- 016 The Service Provider will provide the Client with a qualified scientific advisory and identification service in relation to rodent control including the provision of expert evidence at court proceedings as and when required.
- 017 The Service Provider is deemed to have included within the rates in the Schedule of Rates and their tendered percentage adjustment for **all visits required** to continue the appropriate treatment until the affected domestic and corporate and communal facility Property and/or land are free from the reported pests.
- 018 Where infestation is found to originate from or extend to an adjoining Property owned and managed by the Client. That Property shall be treated accordingly as a variation to the original Works Order.
- 019 Where infestation is found to originate from or extend to an adjoining Property not owned or managed by the Client, The Service Provider will give advice on treatment to the owner/occupier of that property, and report his findings to the Client's Representative.

Emergency or Urgent Treatment

- 020 If in the opinion of the Client's Representative, an instruction issued during the normal working day for pest treatment is of such a nature as to warrant being treated as an emergency, then the Service Provider or his approved Subcontractor shall attend at the Property within 2 hours of the instruction being given for Emergency Treatment, having given the occupier of that property a Triage call within 15 minutes of receiving the Emergency Works instruction being given. No additional payment will be made for Works undertaken as Emergency Treatment, other than the applicable rate in the Schedule of Rates or other Tendered Rates.
- 021 If in the opinion of the Client's Representative, an instruction for pest treatment is of such a nature as to warrant being treated as urgent, then the Service Provider or his approved Subcontractor shall attend at the Property within 4 hours of the instruction being given for Urgent Treatment, having given the occupier of that property a Triage call within 15 minutes of receiving the Emergency Works instruction being given. No additional payment will be made for Works undertaken as Urgent Treatment, other than the applicable rate in the Schedule of Rates or other Tendered Rates.

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Permit to Work Certification

- 022 It is deemed necessary by the Client's Representative for working in confined spaces permit to be issued before any Work is undertaken on the system, the Service Provider or his approved Subcontractor shall ensure his compliance with the permit to work system as employed by the Client.

Access

- 023 The Service Provider or his approved Subcontractor shall ensure that he undertakes a risk assessment and provides a method statement for his means of access to allow for inspection and testing.
- 024 All Works shall be carried out in strict accordance with the requirements of "The Work at Height Regulations 2005".
- 025 The Service Provider or his approved Subcontractor shall ensure that all Staff employed upon this Contract are suitably trained and experienced and competent to work at height.

Staff

- 026 The Service Provider or his approved Subcontractor shall only employ Staff who have been properly trained in the use of pesticides and rodenticides for all types of pests, both vertebrate and invertebrate and valid certificates of training are to be provided to the Client's Representative both at the commencement of the Contract and on an annual basis.

Approval of Pesticides and Rodenticides

- 027 The Service Provider or his approved Subcontractor shall submit details of all pesticides and rodenticides that the Service Provider or his approved Subcontractor propose to use in providing the pest treatment/control service. Such details are to include the trade name and chemical formulation of the proposed pesticides and rodenticides.
- 028 If in the opinion of the Client's Representative any pesticides and rodenticides proposed by the Service Provider or his approved Subcontractor are unsuitable or subsequently become unsuitable for any reason, then the Service Provider or his approved Subcontractor must immediately cease to use such pesticides and rodenticides and suggest alternative pesticides and rodenticides for the approval of the Client's Representative.
- 029 The Service Provider or his approved Subcontractor must not use any other pesticides and rodenticides other than those approved by the Client's Representative without the express written consent of the Client's Representative.

Investigations

- 030 The Service Provider will be required to give the fullest co-operation in cases of alleged poisoning from pest treatments being carried out by the Service Provider or his approved Subcontractor. This may include a full investigation carried out at the Service Provider's cost including post-mortems where considered necessary by the Client's Representative, an initial report to the Client's Representative on the remedial action to be taken and a final report to the Client's Representative detailing all findings and actions taken.

Surveys

- 031 The Client's Representative may request the Service Provider to undertake an investigative survey in relation to any type of pest at any Property and/or land owned or managed or proposed to be owned or managed by the Client.
- 032 Upon completion of the investigative survey, the Service Provider shall immediately a written report of their findings and recommendations for appropriate treatment.

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033 The Service Provider will be reimbursed the rate for Investigative Pest Control Treatment Surveys in the Schedule of Rates for undertaking such surveys.

Pest Treatment – Rats and Mice

034 On receipt of an instruction or a Works Order from the Client's Representative the Service Provider or his approved Subcontractor shall make a visit to the Property, and shall investigate the nature and extent of the rat and mice pest infestation and shall commence a suitable means of Treatment.

035 The Service Provider or his approved Subcontractor shall keep a record of the treatment undertaken, including number and position of bait stations, traps and any other equipment or material used.

036 The Service Provider or his approved Subcontractor shall arrange with the Customer or occupier of the Property a convenient time and date (which shall not be more than 10 days from the date of the initial visit) to return to make subsequent visits to monitor the progress of the treatment, renew bait as necessary vary the treatment if considered necessary and to take any other steps to complete the treatment as speedily as possible and in a manner which is consistent with good practice and safety considerations.

037 On the occasion of the initial visit the Service Provider or his approved Subcontractor shall arrange for the Customer or occupier of the Property to be notified by means of a written notice which shall be completed by the Service Provider or his approved Subcontractor's representative or operative giving details of the treatment undertaken and essential safety information. A further notice shall be re-issued on each subsequent visit with updated information and advice. Such notices shall be supplied by the Service Provider or his approved Subcontractor at no cost to the Client. The design and wording of such notice shall be agreed with the Client's Representative.

038 The Service Provider or his approved Subcontractor shall continue to make such visits to the address until such time as the treatment has been satisfactorily concluded, save that following the second visit (inclusive of the initial visit) and if the treatment has not been satisfactorily concluded, the Service Provider or his approved Subcontractor shall report to the Client's Representative on the conduct of the treatment and discuss with him any difficulties that have arisen and submit his proposals for the future conduct of the treatment.

039 The Client's Representative shall decide as to the future conduct of the treatment for rat and mice infestation and the Service Provider or his approved Subcontractor must carry out the instructions of the Client's Representative forthwith. For the avoidance of doubt such decision may require the Service Provider or his approved Subcontractor to continue and satisfactorily conclude the treatment at no further cost to the Client, although such a decision will not unreasonably be made.

040 Subject to the provisions of Clause 039 payment shall be made by the Client in accordance with the appropriate rates specified in the Schedule of Rates only on the successful completion of the rat or mice infestation treatment.

Pest Treatment - Fleas, Bedbugs and Cockroaches

041 On receipt of an instruction or a Works Order from the Client's Representative the Service Provider or his approved Subcontractor shall attend the Property, and investigate the nature and extent of the fleas, bedbugs and cockroach pest infestation and shall commence a suitable means of treatment.

042 The Service Provider or his approved Subcontractor shall keep a record of the treatment undertaken, including type of pest, materials used, location and extent of infestation and any other equipment or material used in the treatment.

043 On the occasion of the attendance specified in Clause 041 the Service Provider or his approved Subcontractor shall arrange for the Customer or occupier of the Property to be notified by means of a written notice which shall be completed by the Service Provider or his approved Subcontractor's Staff giving details of the treatment undertaken and essential safety information. Such notices shall be provided by the Service Provider or his approved Subcontractor at no cost to the Client. The design and wording of such a notice shall be agreed with the Client's Representative.

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- 044 The Service Provider or his approved Subcontractor shall normally conclude the treatment for fleas, bedbugs and/or cockroaches in one visit. If in the opinion of the Service Provider or his approved Subcontractor a subsequent visit is required to satisfactorily conclude the treatment, he shall submit a written report to the Client's Representative on the facts of the case, and make recommendations on any further measures that may be required to satisfactorily conclude the treatment.
- 045 On receipt of such a report, the Client's Representative shall decide as to the future conduct of the treatment and the Service Provider or his approved Subcontractor shall carry out the instructions of the Client's Representative forthwith. For the avoidance of doubt such decision may require the Service Provider or his approved Subcontractor to continue and satisfactorily conclude the treatment at no further cost to the Client, although such a decision will not unreasonably be made.
- 046 Payment for the treatment shall be made by the Client in accordance with the appropriate rates specified in the Schedule of Rates only on the successful completion of the fleas, bedbugs and cockroaches treatment.

Pest Treatment – Wasps and Hornets

- 047 On receipt of an instruction from the Client's Representative and attendance at the Customer's address, the Service Provider or his approved Subcontractor shall investigate the nature and extent of the wasp or hornet pest infestation and shall commence a suitable means of treatment.
- 048 The Service Provider or his approved Subcontractor shall keep a record of the wasp or hornet treatment undertaken, including type of pest, materials used, location and extent of infestation and any other equipment or material used in the treatment.
- 049 On the occasion of the attendance specified in Clause 047 the Service Provider or his approved Subcontractor shall arrange for the Customer to be notified by means of a written notice which shall be completed by the Service Provider or his approved Subcontractor's Staff giving details of the treatment and essential safety information. Such notices shall be provided by the Service Provider or his approved Subcontractor at no cost to the Client. The design and wording of such a notice shall be agreed with the Client's Representative.
- 050 The Service Provider or his approved Subcontractor shall normally conclude treatment for wasps and hornets in one visit. If in the opinion of the Service Provider or his approved Subcontractor a subsequent visit is required to satisfactorily conclude the beetle, wasp or hornet treatment, he shall submit a written report to the Client's Representative on the facts of the case, and make recommendations on any further measures that may be required to satisfactorily conclude the bees, wasps or hornets treatment.
- 051 On receipt of such a report, the Client's Representative shall decide as to the future conduct of the wasp or hornet treatment and the Service Provider or his approved Subcontractor shall carry out the instructions of the Client's Representative forthwith. For the avoidance of doubt, such decision may require the Service Provider or his approved Subcontractor to repeat, continue and satisfactorily conclude the treatment at no further cost to the Client although such a decision will not unreasonably be made.
- 052 Payment for the wasp or hornet treatment will be made by the Client in accordance with the appropriate rates specified in the Schedule of Rates.

Pest Treatment - Beetles, Ants, Psocids and Flies

- 053 On receipt of a Property and investigate instruction or Works Order from the Client's Representative, the Service Provider or his approved Subcontractor shall attend at the nature and extent of the pest infestation and shall commence a suitable regime of beetles, ants, psocids and flies treatment.
- 054 The Service Provider or his approved Subcontractor shall keep a record of the treatment undertaken, including type of pest, materials used, location and extent of infestation any other equipment or material used in the beetles, ants, psocids and flies treatment.

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- 055 On the occasion of the attendance specified in Clause 053 the Service Provider or his approved Subcontractor shall arrange for the Customer or occupier of the Property to be notified by means of a written notice which shall be completed by the Service Provider or his approved Subcontractor's representative or operative giving details of the Treatment and essential safety information. Such notices shall be provided by the Service Provider or his approved Subcontractor at no cost to the Client on request. The design and wording of such a notice shall be agreed with the Client's Representative.
- 056 The Service Provider or his approved Subcontractor shall normally conclude Treatment in one visit. If in the opinion of the Service Provider or his approved Subcontractor a subsequent visit is required to satisfactorily conclude the Treatment, he shall submit a written report to the Client's Representative on the facts of the case, and make recommendations on any further measures that may be required to satisfactorily conclude the Treatment.
- 057 On receipt of such a report, the Client's Representative shall decide as to the future conduct of the beetles, ants, psocids and flies treatment and the Service Provider or his approved Subcontractor shall carry out the instructions of the Client's Representative forthwith. For the avoidance of doubt, such decision may require the Service Provider or his approved Subcontractor to repeat, continue and satisfactorily conclude the beetles, ants, psocids and flies treatment at no further cost to the Customer or Client although such a decision will not unreasonably be made.
- 058 Payment for the beetles, ants, psocids and flies treatment shall be made by the Client in accordance with the appropriate rates specified in the Schedule of Rates.

Pest Treatment - Pigeons

- 059 Proofing of areas used by pigeons for perching or roosting can be undertaken using barriers, spikes, nets and wire to great effect, in addition more active systems like shock strips, audible scarers and optical gels can be used to create negative associations in birds wishing to land or roost on buildings.
- 060 For a heavy Pigeon infestation, the Service Provider or his approved Subcontractor may have to employ methods of control such as shooting, trapping or flying of predatory birds.

Pest Treatment – Use of Spring Traps

- 061 The use of spring traps can be used to control a number of species where toxic control measures may be illegal or inappropriate. However, the Service Provider or his approved Subcontractor must ensure that their control measures are legal, humane and are carried out with sensitivity.
- 062 The Service Provider or his approved Subcontractor are required to conform with the legislative requirements of the following:

Wildlife and Countryside Act 1981, (England, Wales and Scotland)
Wildlife (Northern Ireland) Order 1985.
Protection of Animals Act 1911
BASC Trapping Pest Mammals Code of Practice.
- 063 All spring traps are required to conform with the requirements of the following:

Pest Act 1954,
Agricultural (Scotland) Act 1948
Wildlife and Natural Environment Act 2011 (Northern Ireland)
- 064 Break back traps approved by the Small Ground Vermin Traps Order 1958 for small vermin and spring traps for mole control can be used as control measures to which the rules for spring traps do not apply. Break back traps should be used appropriately and checked as regularly as the Service Provider or his approved Subcontractor assessment dictates. Legislation such as the Animal Welfare Act 2006 may still be breached if such traps are not applied in a humane manner.

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- 065 Spring Traps must always be set after consulting the manufacturer's technical data sheet regarding pest species and trap location. Where recommended by the manufacturer, traps should be set in an artificial or natural tunnel to prevent the access of non-target species. Every effort should be made to avoid trapping non target species. The Service Provider or approved Subcontractor in using spring traps must be able to recognize the signs and evidence of pest activity.
- 066 The entrance of trap tunnels should be restricted (with sticks, for example) to prevent the entry of non-target species, and the spring traps should be firmly anchored in the treatment area.
- 067 Spring traps should be checked at least once a day, or more often where legislation requires it, spring traps should not be set in open or accessible areas where members of the public, animals and pets can gain easy access to them.
- 068 The Service Provider or approved Subcontractor's Staff should always wear suitable Personal Protective Equipment when dealing with dead bodies and traps to prevent the transmission of rodent borne disease.
- 069 The capture and trapping of Edible Dormouse (*Glis glis*) must be done under the terms of a Class License WML-CL02. This is available from Natural England (<http://www.naturalengland.org.uk/ourwork/regulation/wildlife/species/edibledormice.aspx>)

Pest Treatment – Use of Live Capture Traps

- 070 The Service Provider or his approved Subcontractor may use live capture traps to control a number of species that cannot be treated with toxic compounds, and also allow Service Provider or his approved Subcontractor to be species specific with their control measures to enable non-target species to be released. However, the Service Provider or his approved Subcontractor must ensure that their control measures are legal, humane and are carried out with sensitivity in accordance with the Animal Welfare Act 2006.
- 071 The Service Provider or his approved Subcontractor are required to conform with the legislative requirements of the following:
- Wildlife and Countryside Act 1981, (England, Wales and Scotland)
 - Wildlife (Northern Ireland) Order 1985.
 - Wild Mammals (Protection) Act 1996
- 072 Live capture cage traps should be large enough to accommodate the target species e.g. Fox, Muntjac Deer, Mink, Black Rat and Grey Squirrel. Cages should be inspected at least once every day and , target species must be humanely dispatched at the most suitable opportunity and not released in contravention of Wildlife and Countryside Act 1981, (England, Wales and Scotland) or Wildlife (Northern Ireland) Order 1985.
- 073 The body should be responsibly disposed of, non target species must be released unharmed as soon as possible.
- 074 Traps must not be set in a position where the captured animal will be exposed to extremes of temperature or the risk of flooding.
- 075 Non – poisonous bait can be used to attract pest species into cage traps. However, care should be taken to avoid attracting domestic animals as injury to a domestic species can result in prosecution under The Criminal Damage Act 1971.
- 076 Where domestic cats can be shown to be feral (1st generation born wild) live capture trapping followed by humane dispatch is an appropriate control measure if the animals are posing a risk to health or to native species. However, cat owners cannot be held liable for their animal's action, and every effort should be made to determine if the cat is a pet by, for example, allowing a vet to check for the presence of a microchip.

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Pest Treatment - Bees

- 077 Bees, both feral (semi-wild) and colonised, are important beneficial insects and are not normally considered as pests. They live either in the wild in nests as feral colonies or as colonies in hives managed by beekeepers. In either case, they will only sting people if strongly provoked. Because of their beneficial role, every effort should be made to avoid carrying out control treatments against any bees. Treatment with a pesticide should be considered only as a last resort, as there is a risk that foraging, non-target honey bees find a nest which has been treated, they may come into contact with the treatment and may carry away contaminated honey. This can lead to contamination of honey destined for food use, serious bee kills, and the destruction of hives
- 078 The Service Provider or his approved Subcontractor are required to conform with the legislative requirements of the following:
Food and Environment Protection Act 1985
Control of Pesticides Regulations 1986
Health & Safety at Work Act 1974
Management of Health & Safety at Work Regulations 1999
Control of Substances Hazardous to Health 2002
Biocidal Product Regulations 2012
- 079 If instructed by the Client's Representative to treat a feral honey bee nest, the Service Provider or his approved Subcontractor should assess the situation carefully, as to whether people have been stung by honey bees from the nest, or are they at risk because of its location? If the nest is not causing any risk to public health, then the Service Provider or his approved Subcontractor should carefully consider the alternatives before carrying out a treatment.
- 080 If the swarm has only recently formed where possible it should be left undisturbed and allowed to move on. This will usually occur within 48 hours. • If the swarm is in a sensitive area and is easily accessible, it can probably be collected and re-housed in a suitable hive.
- 081 The Service Provider or his approved Subcontractor may use a bait hive which is a container containing a pheromone lure to attract the queen. If the Service Provider or his approved Subcontractor do not have the expertise to do this, they should contact the local branch/division of the British Beekeeper's Association for assistance.
- 082 If the swarm has already invaded a Property, it is unlikely that it can be collected, but if it has only recently taken up residence in a chimney, it may be possible to persuade it to move on using non-pesticidal smoke. This is time critical; if a swarm has taken up residence in a building or void is it wise to assume that they have been in situ for more than 48 hours. This is enough time for the swarm to build comb and for the queen to resume egg laying. This will mean that the swarm is now established and will not move on.
- 083 If the swarm has been in residence for some time (more than 6 months) it will not be possible to get it to move on, so it may be necessary to take control action. It would be best to do this during the Winter from January to mid-March, when the honey cells are capped and the stores are at their lowest. The numbers of bees at this time will also be at their lowest levels. This will reduce the quantity of pesticide required and will allow for an efficient and clean removal of the contaminated comb and stores, if the Customer or occupier of the Property can be persuaded to live with the bees until then.
- 084 It is inevitable that there will be some residual smells from the honey and comb following removal, also the queen pheromone will be lingering. This will make it more likely that another swarm may take residence the following year as the smell of an old colony can be irresistible to scouts looking for a new nest site. It is therefore recommended that the smell be masked or destroyed, by use of deodorising compounds.
- 085 The decision to treat will depend on whether it is possible to close off the entrance(s) to the nest after treatment. It may be possible to use extension lances to get the insecticide to the nest, but it may require access equipment in order to close off entrances safely.

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- 086 Treatment with a non residual insecticide may be possible. Blocking off gaps is still required, because all pesticides have a half life where they are still viable after application, it is therefore possible given the right conditions for foragers from other managed hives to find the unattended honeycomb and call their own hive into robbing mode within 12/24 hours.
- 087 If the Service Provider or his approved Subcontractor considers treatment is the best option, they should make use of the British Beekeepers Association's spray liaison scheme. This will enable local beekeepers to be warned by their own Spray Liaison Officer where one exists. It is important for the Service Provider or his approved Subcontractor to liaise with local beekeepers in this way before treating a nest. Members of the British Beekeepers Association can provide advice and can sometimes remove accessible feral honey bee colonies, avoiding the need to use pesticides.
- 088 The entrances to feral bee's nests are often high up on a building, sometimes associated with the chimney. If this is the case, then consideration may need to be given to working from access equipment in order to carry out the treatment and to cap off the entrance to the nest. This introduces all the hazards involved with working at height and this work should only be attempted by technicians suitably trained in this.
- 089 If the nest is associated with a chimney, care should be taken to assess whether the nest is inside the flue or in the cavity surrounding the flue. If inside the flue, the implications of sealing it off are potentially serious if it is still in use. It is strongly recommended that no treatment be carried out until arrangements have been put in place to remove the combs, which may involve the partial demolition and rebuilding of the chimney.
- 090 In accordance with the Control of Pesticides Regulations 1986, only technicians who have been suitably trained in the use of the appropriate insecticide, application equipment and personal protective equipment, so that they are competent to do the work, should carry out such a treatment.
- 091 Only insecticides that are 'Approved for Use' by the Health and Safety Executive should be used. The label should be read in detail and all instructions followed.
- 092 The requirement to "take every reasonable action to prevent foraging honey bees from gaining access to the treated nest, by removing the combs or blocking the nest entrances" still applies, even though this phrase may not be on the label of the product concerned. This requirement is implicit in the Food and Environment Protection Act 1985 with reference to non-target species and is of particular importance in this situation given the likelihood of neighbouring bee colonies robbing the treated nest.
- 093 To reduce the risk of bees from other colonies gaining access to the treated nest whilst ensuring that all bees from the problem colony are controlled, it may be appropriate for the treatment to be carried out just before dusk, with the nest entrances being closed as soon as possible (i.e. first thing the next day).
- 094 In accordance with The Management of Health and Safety at Work Regulations 1999, a suitable and sufficient risk assessment for site activities and actions and a COSHH assessment for pesticide preparations must also be documented. The final choice of the product to use will depend on the site-specific risk assessment, which should be in writing, which will in turn affect the COSHH Assessment.
- 095 The removal of the treated honey combs must be treated as 'Controlled Waste' and disposed of via a licensed waste carrier to a licensed waste contractor as 'Non-Hazardous Waste'. The Service Provider or his approved Subcontractor should use a "Duty of Care Transfer Note" to legalise the transfer to another person. The recommended EWC Code is 20.01.99, as for dead mice, rats, insects and pigeons. Use of a biocide on the honeycombs or other associated debris materials would not render the waste 'hazard classified' i.e. H14-ecotoxic would not be invoked.
- 096 Other biocides would need to be assessed to ascertain if any hazard classification of the treated materials was appropriate. The EWC Code may depend on the types of pesticide used to kill the nest, and is at the discretion of the individual.
- 097 These considerations conclude that the classification of the waste is non-hazardous and disposal could be undertaken at landfill sites. However, there is a very high risk to bee colonies if they were able to access contaminated honeycombs at the landfill tip. This might arise, for example, if incomplete covering of torn waste bags occurred. For this reason disposal via incineration should be the preferred option.

ENERGY PERFORMANCE CERTIFICATES

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SPECIFICATION FOR ENERGY PERFORMANCE CERTIFICATES

- 001 The Service Provider is to produce any Energy Performance Certificate ("EPC") when requested by the Client's Representative as one EPC, usually completed at any of the following occasions:
- 1 On the completion of all and any works affecting the EPC score, to include
 - Work to upgrade energy systems and the recording of details of energy appliances controls and fuels;
 - Renewal of windows and/or external door(s);
 - Internal or external wall insulation;
 - Roof space insulation upgrade;
 - Floor insulation upgrade.
 - 2 Where no energy related Works are planned, on site with the permission of the Service Provider during the Works.
 - 3 On a special request to inspect the property and prepare an EPC prior to commencing Works.
 - 4 By arrangement with a housing officer to obtain access to an occupied or unoccupied Property prior to re-letting or sale, with the EPC quickly returned thereafter.
- 002 EPCs are to be produced by suitably qualified Domestic Energy Assessors ("DEA's") accredited with National Energy Services (NES) Ltd.
- 003 Members of the Scheme shall have suitable professional indemnity cover in force.
- 004 The DEA shall observe the terms and conditions of this accreditation, and it is the responsibility of the DEA/successful Service Provider to ensure all necessary evidence etc., is retained for the purposes of audit by the accreditation scheme. The Service Provider shall also provide this information to the Client's Representative on request at any time.
- 005 Should any DEA Accreditation Scheme audit failures be recorded by the DEA/contracting organisation as part of this process, the Service Provider is to bring this to the attention of the Client's Representative, and ensure that any necessary remedial action is taken such that the data that underpins every previously issued and newly issued EPC, and the EPC itself is a true reflection of the Property being assessed.
- 005 The actual data collected as part of this process will be appropriate for that required to produce EPCs at the time, and as per any guidelines produced by NES/Elmhurst. The data collected is to be input into the NES online portal, such that an EPC can be produced.
- 006 The Service Provider is to retain a copy of all EPCs produced.
- 007 The responsibility and cost associated with the defective certificates rest with the DEA who provided the certificate. If the DEA responsible for a defective EPC cannot be contacted, or is no longer practicing as a DEA, then the Accreditation Scheme through which they lodged the certificate shall take responsibility for rectifying the underlying data and replacing the defective certificate.
- 008 The actual digital data entered into EPC software as part of this process will be appropriate for that required to produce EPCs at the time, and as per any guidelines produced by the accreditation authority. The data collected is to be in NES/Elmhurst (or other equal and approved) format and uploaded onto the energy related module of the Client's Asset Management database system or other approved IT system, at a maximum interval of one month, such that a new EPC can be issued from this data by any other DEA subsequently engaged by the Client.
- 009 The Service Provider is also to retain pdf versions of all EPCs produced for 15 years, suitably indexed, and also returned to the Client at the end of the Contract.
- 010 The particular Unique Property Reference Number and any other data required to assign EPC datasets to the Client's Asset Management property database system shall be correctly entered into each digital EPC record before uploading into the accreditation scheme database and forwarding to the Client's Representative.

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- 011 The Service Provider is to provide the Client's Representative with the RRN, PRRN, and address of every Property for which an EPC has been produced. This information is to be provided by email on the same day as production of the EPC.
- 012 EPC's for Void Properties are to be produced within 5 working days of a Property becoming void.
- 013 EPC's in respect of all other works described in Clause 001 are to be produced within 1 working day of the Service Provider's pre-commencement survey, and an updated EPC within 5 working days of the completion of the Work being undertaken.
- 014 The Client will nominate one accreditation scheme for use in producing all EPCs for the Client and may require from the scheme that DEAs attend extra training CPD sessions to ensure the correct recording of survey data for Client's Properties. The training and venues will be provided by the Client.
- 015 The cost of lodging the Energy Performance Certificates onto databases described above is deemed to be included in the Rates in the Price Framework.
- 016 Certificates for Properties in the social and private rented sector which use Multiple EPC Production Techniques (e.g. sampling and multiple certification or the common values approach) Where such techniques have been used, this will be noted on digital records. Properties shall have procedures in place that undertake additional QA checks to ensure that government requirements in this area are met. Digital records for heating systems boilers and controls shall not be created using these techniques unless separate evidence for their existence is available and is retained.
- 017 The cost of providing Energy Performance Certificates is deemed to be included in the Rates indicated in the Price Framework.