
Raven
Housing Trust

Contents

GENERAL PROJECT INFORMATION

Repair First

If any element (canopy, outbuilding door, window or roof) is economically repairable, then a repair should be carried out before replacing.

Services and Fittings

The Service Provider is to protect all services and tenants' fixtures/fittings in the vicinity of the works. This may include removal, storage and refixing where appropriate and is likely to include electrical fittings.

Inclusive items

All schedule and priceable items, whether stated or otherwise, are deemed to include all making good and the removal of waste and debris arising from the works.

All schedule and priceable items, whether stated or otherwise, are deemed to include where required all necessary temporary support work to canopies and external walls.

Tradesmen/women and Materials

All work undertaken is to be carried out by suitably qualified and competent trade persons and strictly in accordance with the relevant trade associations' guidance, codes of conduct and regulations, and in accordance with current national standards.

All materials used are to be strictly in accordance with current national standards and must be used, where relevant, in accordance with manufacturers' guidance and recommendations.

Asbestos Register

Access to RHT Asbestos Register will be made available to the successful Service Provider upon award of the contract.

SPECIFICATIONS

THE FOLLOWING SPECIFICATIONS MUST BE READ IN CONJUNCTION WITH THE JCT MEASURED TERM CONTRACT 2016 EDITION AND RAVEN HOUSING TRUST AMENDMENTS.

CONCRETE REPAIRS

Repairs to Concrete – Exposed Reinforcement

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;
- 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;
- 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

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 out 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.

Remedial Works to Spalling and Cracks in Concrete Surfaces

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.

Formwork

The Service Provider is to allow for all associated temporary formwork where required.

GRP CANOPIES

GRP 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: To be approved;
    - 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.

Weather Resistance Requirement: Weathertight, with full allowance made for deflections and other movements.

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.

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.

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.

<u>Manufacture of GRP Canopies</u>

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.

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

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.

Installation of Interfaces

- General: Locate flashings, closers etc. correctly with neat overlaps to form weathertight junctions.

GRP Canopies are to be supplied by:-

Wessex Building Products**,** Wessex House, Station Works, Tisbury, Salisbury, Wiltshire, SP3 6JT

StormKing Plastics Ltd, Amington Point, Sandy Way, Amington Industrial Estate, Tamworth, Staffordshire, B77 4ED

Other similar and approved manufacturers.

Supply and Installation of Replacement Doors and Windows to Outbuildings

Project Description

This specification applies to all replacement external outbuilding doors and any associated, windows, side panels and glazed screens, which are substantially made from plastic materials, in single, sub-divided or multiple coupled frame construction.

REPLACEMENT EXTERNAL DOORS - SURVEYING AND INSTALLATION

[TOP TIER]

REPLACEMENT EXERNAL 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 Doors – General	GRP External Door sets

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 – General
        - GRP External Door sets

Initial Survey

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.

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.

The proposals are to be approved by the Client's Representative before the Service Provider commences manufacture.

Site Measurements

The Service Provider is responsible for ascertaining the correct dimensions and sizes of every existing external door in each Property.

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".

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.

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 thorough 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.

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.

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.

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.

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

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.

PVC-u profiles	25 Years
Hardware Components	10 Years (minimum)
Double Glazed Units	15 Years (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 – Outbuilding and External Stores

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.

Generally all outbuilding doors to be styled as follows:

- Tongue and Groove pattern
- Ledged and Braced Framed pattern
- Flush
- With upper panels double glazed with laminated safety glass sealed units.

Replacement External Doors

The Service Provider is responsible for ascertaining the correct dimensions and sizes of every existing external door in each Property.

General External Door Installation

All External Doors must pass testing undertaken to 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.

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).

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.

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.

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.

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.

Sills must be properly supported and fixed to ensure there is no likelihood of water penetration.

All internal reveals should be made good and plaster or decorations made good to match existing.

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.

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.

The door frame dimensions must be checked with those of the opening before removal of the existing door frame.

A craft knife should be used to score around the perimeter of the existing frame in order to minimise damage to plaster/decoration.

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.

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.

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.

Door frames must be installed plumb and square without twisting, racking or distortion of any member in accordance with the manufacturer's installation tolerances.

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.

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.

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.

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.

Where electrical wires etc., enter 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.

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.

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.

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.

The latest standard for glass units is BS EN 1279 –2 (also part 3 for gas filled types)

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

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.

All safety glass is to be permanently marked on both panes with British Standard kite marks, which are to be visible after installation.

Both sheets of glass making up the sealed double glazed unit must be safety glass where required by the above descriptions.

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

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.

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.

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.

The glazing of the doors or sidelights must be carried out immediately after the installation of the frames and casements.

On completion of external door installations, all glass to be cleaned internally and externally and left clean and free from blemishes.

Any glass with scratches cracks or defects to be replaced by the Service Provider at no charge.

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.

Glass shall be at least the minimum thickness to meet wind load requirements of BS 6262 and BS 6375.

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.

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.

Delivery to site of sidelights/doors etc.,

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;
- 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

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.

Sidelights/doors/glazing units (if applicable) shall not be flat-packed, but stood vertically during transportation.

Sidelights/doors/glazing units in storage to be "kept apart" preferably with soft packing to reduce risk of transport/handling damage.

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.

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

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.

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.

The sample external door/sidelight (upon acceptance) will form the "benchmark external door/sidelight" for the remainder of the project.

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

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.

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.

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.

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.

Allow for protection of floor coverings, furniture and Customer's belongings throughout the duration of the Works.

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.

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.

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.

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

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.

Fixings must incorporate a combination square/cross recess drive to provide a non-magnetic stick fit.

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.

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.

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 – • Frame width up to 1200mm – no fixings • >1200mm to <2400mm – one central fixing • >2400mm to 3600mm – two equally spaced fixings

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 –

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	Up to 15mm maximum
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	

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.

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

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.

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).

Insulated Cavity Closers and Insulation to Jambs

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.

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, heads and 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 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.

Rigid PVC-u casing enclosing insulation with single flange to internal leaf to provide a key for plastering; or Rigid PVC-u casing enclosing insulation with double flange to internal and external leaf.

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.

Making Good

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.

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.

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	**External Bead**

	(3 sides)	(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		

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.

Internal finishing trims shall be compatible with the Material of the door frame and must be colour-matched

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

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

Sealants must comply with BS EN 11600 and be low modulus grade

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.

Repairing damaged prefinished coatings on site

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

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

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;
- 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;

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 Doors

The Service Provider is required to take digital photographs of each completed door installation.

The photograph should clearly show the completed internal reveals and identified by address and room

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.

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).

REPLACEMENT EXTERNAL AND FLAT ENTRANCE DOORS – GENERAL

[MIDDLE TIER]

REPLACEMENT EXTERNAL AND FLAT ENTRANCE DOORS - GENERAL

Secured by Design:

This section is to be read in conjunction with the general specification for 'Replacement 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.

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.

These may be GRP composite door sets complete with a Secured by Design approved locking mechanism.

Sample doors complete with proposed locking mechanisms are to be supplied for the approval of the Client's Representative.

Door Sets

The Door sets must meet the performance standards set out in this Specification.

The door-sets supplied must be to exactly the same specification as those tested.

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.

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.

Door sets which are deemed to be outside the fitting tolerances must be remade at no further expenses to the Client.

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.

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.

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.

Door Performance Requirements

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

All doors must be completely draught free when closed. The doors are to meet the **Severe Exposure Rating** category

Double Glazing

All double glazing to any external doors and their associated side lights (or, within 400mm of the door lock) must have at least one pane of laminated glass to comply with Secured by Design.

Door and side light glazing must be 24 mm hermetically sealed double glazing units manufactured with laminated glass.

Door Frames

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.

All frames must have a factory fitted removable weather-strip to frames and weather-strip to the bottom edge of doors.

Door frame set back must be 65 mm minimum reveal to external face of wall.

New lintels to external doors/ sidellights 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.

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

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.

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.

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.

Doors to have multi-point lever handle security locking mechanism meeting BS 3261 and to comply with (and stamped) Secured by Design.

Multi-point locking espagnolette system to be provided.

Cylinder and Keys: All cylinders to be nickel plated on brass finish.. 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.

Doors generally fitted with level handles operational both sides of door.

Door numerals must be provided to each replacement door of each Property.

Composite Doors - Generally

It is intended to renew outbuilding doors and frames with composite doors.

Where fanlights are above the doors, the fanlights and frames are to be included as part of the renewal.

All doors and locks to meet Secure by Design British Standard.

Installation

The Service Provider is responsible for surveys and installation of the doors at the same time as the windows installations.

The Service Provider will be responsible for ensuring the correct installation of each door-set.

The door-set shall be placed on a concrete threshold and bedded on a low Modulus Silcone, 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.

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.

Note: Under no circumstances shall expanding foam be accepted as a method of fixing.

Timber Architraves and Sills

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.

All gaps to walls or gaps to joints are to be sealed prior to decorations.

Painting of Timber Sundries

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.

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.

GRP EXTERNAL DOOR-SETS AND SCREENS

[LOWER TIER]

GRP ENTRANCE DOOR-SETS AND SCREENS

General

This section is to be read in conjunction with the general specification for 'Replacement External Doors – Surveying and Installation' and 'Replacement External Doors – General'.

This Specification is intended to describe the performance criteria to be obtained for the manufacture, supply and installation of 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.

This Specification is applicable to ALL Properties and the Service Provider's price must cover the location of all Properties and doors being renewed.

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 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

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. 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.

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.

Allow choice options as table below.

Element	**Options**
Door Colour	White (RAL 9003) Black (RAL 9005)
	Blue (RAL 5004)
	Red (RAL 3002)
	Green (RAL 6009)
Glazing	Obscure - Cotswold
Ironmongery	Satin Chrome
Surface Finish	Wood grain effect Smooth Finish

Generally all outbuilding doors to be styled as follows:

- Tongue and Groove pattern
- Ledged and Braced Framed pattern
- Flush
- With upper panels double glazed with laminated safety glass sealed units.

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.

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.

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.

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.

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

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.

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.

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.

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.

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.

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).

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

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.

The Service Provider will be responsible to any damage to 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

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 were possible.

Take care to carefully remove remaining Customer fixtures and store to one side for reinstalling and refix on completion.

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.

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

The Service Provider must ensure that all door-sets and their installation fully satisfy the relevant standards detailed.

Manufacture, fabrication and installation should be suitable in all respects for: Low Rise Domestic Structures

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.

No frame extensions or make up pieces are to be used to compensate for incorrectly measured openings.

Construction of Door and Frame

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.

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;

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.

Glazing

All glazing apertures are to be internally beaded with the double glazed units securely fixed using mechanical means.

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

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.

All external doors must be hung on 1½ pairs of heavy duty butt hinges.

Fire door to be hung on 2 pairs of hinges and must be CE Marked and be compliant with BS EN 1935:2002 and tested to BS 476:22 or BS 1634.

Hinges shall have high corrosion resistance, greater than BS EN 1670 grade 4.

Doors to have multi-point lever handle security locking mechanism meeting BS 3261 and to comply with (and stamped) Secured by Design

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.

Installation of Door-sets

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.

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.

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.

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

All sidelights, fanlights, door frames etc., profiles are to be obtained from the same approved system manufacturer.

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.

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

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.

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.

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.

All sidelights, fanlights, door frames etc., will be constructed with the profile manufacturer's current guidelines 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.

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

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.

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.

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

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

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.

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.

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.

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.

If any panels have any fixtures/fitting etc. attached, they are to contain a ply reinforcement.

Obscure glass to be Cotswold pattern or an obscure pattern of level 5 as a minimum.

Hardware Specification for Fanlights and Sidelights

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.

Insulated Panels

On full floor to head height frames, lower panels will be coloured insulated panels to match door panelling. All panels will achieve a min thermal resistance equal to or better than the glazed area above.

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

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.

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.

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.

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

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.

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.

Completion

On completion of all Works thoroughly clean all adjacent surfaces affected by the Works.

All builders rubbish both internally and externally must be removed during and on completion of the Works.

WINDOW SPECIFICATION - REPLACEMENT WINDOWS

REPLACEMENT WINDOWS - SURVEYING AND INSTALLATION

[TOP TIER]

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

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

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.

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.

The proposals are to be approved by the Client's Representative before the Service Provider commences manufacture.

Site Measurements

The Service Provider is responsible for ascertaining the correct dimensions and sizes of every existing window in each Property.

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.

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.

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 thorough 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.

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.

The use of make up pieces (clip-on's / knock-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.

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.

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

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 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
Hardware Components	10 Years (minimum)

Double Glazed Units	15Years (minimum)

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

Generally the design of windows to be replaced with storm-proof casements projecting top and side swing hinge.

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.

The Service Provider is responsible for ascertaining the correct dimensions and sizes of every existing window in each Property.

General Window Installation

All Windows and sidelights are to achieve an 'A' energy rating certificated by the British Fenestration Rating Council (BFRC).

All windows must 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.

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).

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.

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.

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.

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.

Windows must be properly supported and fixed to ensure there is no likelihood of water penetration.

All internal reveals should be made good and plaster or decorations made good to match existing.

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.

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.

The window dimensions must be checked with those of the opening before removal of the existing window.

A craft knife should be used to score around the perimeter of the existing frame in order to minimise damage to plaster/decoration.

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.

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.

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.

Windows must be installed plumb and square without twisting, racking or distortion of any member in accordance with the manufacturer's installation tolerances.

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.

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.

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.

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.

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.

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.

Bathrooms/WC windows must have obscured glazed window panes internally and one clear pane externally forming the double glazed units.

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.

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.

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.

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.

The latest standard for glass units is BS EN 1279 –2 (also part 3 for gas filled types).

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

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.

All safety glass is to be permanently marked on both panes with British Standard kite marks, which are to be visible after installation.

Both sheets of glass making up the sealed double glazed unit must be safety glass where required by the above descriptions.

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

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.

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.

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.

The glazing of the windows must be carried out immediately after the installation of the frames and casements.

On completion of window installations, all glass to be cleaned internally and externally and left clean and free from blemishes.

Any glass with scratches cracks or defects to be replaced by the Service Provider at no charge.

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.

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.

All glazing to be clear glass except bathrooms and WC's which are to be obscure Cotswold style glass or pattern group 5.

Glass shall be at least the minimum thickness to meet wind load requirements of BS 6262 and BS 6375.

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.

Fans are not permitted in sealed units.

Details of all glass types are to be stated in the Service Provider's proposals for each new window when proposed drawings are forwarded.

Delivery to site of windows/sidelights etc.,

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.

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 any glazing unit, it remains a legal requirement to ensure that the marking remains visible after installation.

Protection, Transportation, Storage & Pre installation check

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.

Windows/sidelights/glazing units (if applicable) shall not be flat-packed, but stood vertically during transportation.

Windows/sidelights/glazing units in storage to be "kept apart" preferably with soft packing to reduce risk of transport/handling damage.

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.

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

Previous to the benchmark Properties being set, a sample window / sidelight shall be delivered to site by the preferred manufacturer/supplier for inspection and acceptance by the Client's Representative.

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.

The sample window (upon acceptance) will form the "benchmark window" for the remainder of the project.

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

Existing windows to be removed are most likely to be PVC-u.

The Service Provider should make every effort to have all existing windows recycled and provide waste disposal reports to the Client's Representative.

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.

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.

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.

Allow for protection of floor coverings, furniture and Customer's belongings throughout the duration of the Works.

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.

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.

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.

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

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.

Fixings must incorporate a combination square/cross recess drive to provide a non-magnetic stick fit.

Fixings for friction stay applications will be supplied with a special low profile pan head to prevent fastener head interfering with the friction stay.

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.

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.

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 – • Frame width up to 1200mm – no fixings • >1200mm to <2400mm – one central fixing • >2400mm to 3600mm – two equally spaced fixings

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 –

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	Up to 15mm maximum
2) To the sides of frame to make up expansion/contraction gap left either side as a result of manufactured size of window	

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.

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

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.

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)

Insulated Cavity Closers and Insulation to Jambs

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.

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.

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.

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.

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.

Making Good

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.

This protocol described below applies to all window replacements and shall be undertaken as the primarily 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.

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			

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.

Internal finishing trims shall be compatible with the material of the window frame and must be colour-matched.

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

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.

Sealants

Sealants must comply with BS EN 11600 and be low modulus grade

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.

Repairing damaged prefinished coatings on site

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

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

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;

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

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).

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.

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).

Compliance Standards

The installer shall be a F.E.N.S.A. member and provide certification for each installation.

REPLACEMENT WINDOWS – GENERAL

[MIDDLE TIER]

REPLACEMENT WINDOWS – GENERAL

General

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).

All Windows and sidelights to achieve an 'A' energy rating certificated by the British Fenestration Rating Council (BFRC).

Windows Openings

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 meet BS EN 1670 Class 4 corrosion resistance.

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.

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.

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.

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.

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

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:

Weather stripping and glazing gasket Material must not have a detrimental effect on the plastic profile.

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.

The weather-stripping must be capable of being renewed without disturbing the glazing system and without removing the outer frame from the structure.

The weather-stripping must be continuous around the frame.

Weather strip seals and draught excluders between all sashes to be included for all windows.

Glazing gaskets must be thermoplastic elastomer (TPE) and must be pre- inserted into the profiles.

Window Furniture

Window furniture to openable sashes to be positioned in the centre line of the frame unless indicated otherwise.

Push button handles to be fitted to all window openings. Ground floor windows and doors and those that are easily accessible must have key operated locks

Details of window furniture are to be provided by Service Provider and approved by Client's Representative.

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.

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.

Top hung casements to be easy clean hinges of sufficient size to allow easy cleaning from the inside and integral push button restrictor mechanism.

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.

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.

All components should be supplied by a manufacturer complying with BS EN ISO 9001 accredited quality system.

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.

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.

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

All windows to be fitted with a Locking Mechanism that must be BBA accredited or equivalent and have been tested to Secured by Design. The locking mechanism is to be a Shoot Bolt Locking System operated by a single handle. Profile system specific zinc die cast alloy keeps should allow for secure night vent position. Abuse tested to 45 N with keeps blocked. Gearbox is to be sealed to stop the ingress of swarf during manufacture and use. All components to be proven fully functional after 500 hours neutral salt spray test to BS 7479. All components should be supplied under the auspices of an official licence holder of the Home Office "Secured by Design" partnership and to comply with BS 7950 accreditation. This requirement can be satisfied by the use of Securistyle Vector Shoot Bolt or equivalent.

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 ± 1mm. keeps with a night latch locking facility.

All window hardware should meet BS EN 1670 Class 4 corrosion resistance.

All components should be capable of sustaining a minimum of 25,000 opening cycles and 1,000 full reversables 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.

Operating handles to be push to release, key deadlocking, offset, white polyester

powder coated with push to fit screw covers.

Cleanability of Window

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.

REPLACEMENT PVC-u WINDOWS

[LOWER TIER]

REPLACEMENT PVC-U WINDOWS

MATERIALS AND MANUFACTURE

PVC-u Windows

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'.

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, and Secured by Design certified.

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 Windows Section Profiles and Reinforcement

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.

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.

All joints to be welded joints with a grooved finish.

Reinforcement to be installed to all casement and frame members.

For window forming glazed screens the reinforcement shall be identical to that described in the type testing results to BS 7412 and details must be made available on detailed drawings.

Where windows cannot achieve the gusting requirements of this document (in accordance with type testing to BS 7412) they shall be sub-divided with columns incorporated between the divisions. These structural columns shall meet the gusting requirements specified and be expressed in Pascals.

In addition for any windows that are load bearing or structural, taking loads from

roofs etc (i.e. bay windows), the new windows must be designed to take the same loads by means of structural members, corner posts etc that must fully and

adequately transfer the loads to the structure below the window. The contractor must serve a Building Notice in respect of any structural windows and provide temporary support. Calculations proving the adequacy of the structural members must be provided.

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.

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.

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.

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.)

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).

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.

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.

Tolerances on external dimensions (from BS EN 12608)

External dimension	Tolerance
Depth (D) ≤ 80	+/- 0.3
> 80	+/- 0.5
Overall width (W)	+/- 0.5

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

All corners and intersection joints between frames, mullions and transoms must be welded.

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.

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. To be of sizes appropriate to maintain the projection of existing sills beyond the face of external walls.

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.

Insulated infill panels will be required where indicated on the Schedule of Window/Door Types and drawings.

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 think). The colour of the panels must be approved by the Client's Representative, prior to the Service Provider ordering the panels.

Insulation panels are to comprise a phenolic foam core faced internally and externally with BSC Colorcoat Plasticol coated steel, internal colour white, external colour to be advised, both sides "Leathergrain" finish.

Overall panel thickness to suit PVC-U extrusion and to achieve a minimum "U" value of 0.45 w/m²K. Panel edges shall comprise square sealed edges achieved by folding one face of the steel across the edge and then folding over the other face to achieve two skins of steel which shall be pop riveted at n/e 450mm c/c. Thicker panels with rebated edges may be required to certain rooms.

Panels should be fixed with internal glazing beads unless otherwise indicated in which case double sided security tape (eg Rubbo tape by Ralli-Bondite Limited), shall be used when installing the panels. For integrity in case of fire it is a requirement of the Local Authority that there is a mechanical fixing of the panel to the reinforcement within the PVC-U frame extrusion of low panels.

All panels to be manufactured to meet all relevant building regulations and safety standards with regard to thermal performance, acoustic transmission and fire protection.

The finished window must be free from all sharp edges, burrs and the like that might be a hazard to the user.

Performance Requirements

All windows are to comply with BS 7412 and BS EN 12608.

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.

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

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.

All trims are to be sealed with white silicon to the window frame and sealed to decorations.

Sill boards to have rounded nosing finish and sealed to undersides with white silicon and provided with end caps.

Include for PVC-u quadrant piece around casement windows to internal recesses.

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

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.

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

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).

Manufacturer's details
REHAU Ltd Hill Court Walford Ross-on-Wye Herefordshire HR9 5QN Tel 01989 762 600 ; Fax 01989 762 601
Kommerling International Ltd 6 The Courtyard 80 High Street Staines Middlesex TW18 4DR Tel 01784 464 000 ; Fax 01784 455 764
LB Plastics Ltd Firs Works Nether Heage Derby DE56 2JJ Tel 01773 852 311 ; Fax 01773 857 080
Schuco International KG Whitehall Avenue Kingston Milton Keynes Bucks MK10 0AL Tel 01908 282 111 ; Fax 01908 282 124
VEKA Plc Farrington Road Rossendale Road Industrial Estate Burnley Lancashire BB11 5DA Tel 01282 716 611 ; Fax 01282 718 490

OUTBUILDING ROOF WORKS

General Description

The Contractor is advised that numerous types of outbuilding roofs exist throughout the Clients stock and that provision must be made for obtaining and stocking the requisite products and accessories, or compatible products, should the existing type be unobtainable this shall apply to all relevant roof types. Where compatible tiles/slates are, by necessity, used then they shall at all times comply with the relevant British Standard.

It shall be the Contractors responsibility to survey the properties, to assess exactly what is required for each installation including what the existing type of roof covering is and what covering is required to replace existing and agree the requirements with the Client Representative prior to commencement of the installation.

When the Contractor carries out the survey for any property, all roofing and accessories laid or fitted shall be of a colour to match the existing and fixed in accordance with the manufacturer's instructions and current Codes of Practice. If the Codes of Practice have been altered since the original roofing was fixed the Client Representative must be informed and the current Code of Practice conformed to.

The Contractor shall allow for the removal of any existing roof and associated material that becomes redundant during and after the new installation. Any redundant holes from shall be made good.

The standards as set out within the specification are for the minimum requirements as requested from the client for undertaking re-roofing work.

The tender price will be deemed to include for the full cost of the work, this contract price is based on an all-inclusive cost with zero variations.

General Items

The contractor is asked to note that an asbestos report will be provided, and none licensed asbestos management will be deemed as included in the contract price.

It is the Contractors responsibility to ensure the submitted information on which this specification is based is correct; often information has to be assumed due to lack of clarification until the roofing works commence on site.

The Client will require the Contractor to comply with the manufacturers fixing instructions for each product. Check that this is the current edition of the fixing instructions; if not consult client and or the appointed manufacturer and draw to the attention of the CA any relevant technical changes.

Materials

Class 1 materials will be procured by The Contractot. As such, Contractors should include for all of the following materials within their prices and should price for the installation of the supply and installation.

Details of the class 1 materials are provided below:

ROOFING

- Asphalt
- Artificial slate tile
- Concrete interlocking tiles
- Clay tiles
- Felt roofs

- Corrugated profile sheet roofing

RAINWATER GOODS

- PVC-U fascia's
- PVC-U soffits
- PVC-U bargeboard
- Timber fascia's
- Timber soffits
- Timber bargeboard
- PVC-U Rainwater Goods

Any other materials that are required to carry out the works shall be provided by the contractor and priced within their rates.

Installation

Where required fix additional structural roof supports as Structural Engineers drawing and requirement for each type of dwelling.

All new timber shall be pressure treated with an approved timber preservative in accordance with the manufacturer's instructions prior to delivery to the site.

Where eaves ventilation is required install over facia vent system with underlay support trays and insulation interrupters to ensure clear passage of air to vented ridge. Where situations deem that an over facia vent cannot be used, install proprietary tile vents to achieve the requirements of BS5534.

PLYWOOD DECKING FOR FLAT ROOFS

Plywood sheets shall be exterior quality bonding grade WBP.

WOODWOOL SLAB DECKING FOR FLAT ROOFS

Woodwool slabs shall where appropriate be reinforced with pressed steel channels all to the satisfaction of the Client Representative. Fixings for the slabs shall be galvanised steel large flat headed nails of a length to suit the application or galvanised steel clips or such other types of fixing as may be recommended by the manufacturer of the slabs.

WOOD CHIPBOARD DECKING FOR FLAT ROOFS

Chipboard shall be of an appropriate moisture resistant grade suitable for the purpose and be fixed with galvanised nails or screws being of a size and gauge to suit the application.

LEAD

Lead roof coverings, flashings, soakers, rainwater chutes, valley gutter linings, hips, ridges and the like are to be of best English milled lead. Tacks minimum 40mm wide of the same lead substance to be provided at not more than 1 metre centres to flashings. All in accordance with the Lead Sheet Association and manufacturers recommendations.

Where an appropriate alternative is available this will be installed.

SELF-ADHESIVE FLASHINGS

Self-adhesive flashings may only be used with the prior agreement of the Client Representative.

Where self-adhesive flashings are permitted they shall be fixed over existing flashings, fillets and the like in strict accordance with manufacturer's instructions, including applying recommended primer to ensure complete adhesion.

ASPHALT ROOFING

Clean natural coarse sand passing a 600mm micron BS 470 test sieve is to be used as rubbing sand.

Chippings shall be hard light coloured non-absorbent natural stone graded 6 to 10mm.

Solar reflective paint shall be used in accordance with manufacturer's recommendations.

Asphalt roofing subject to traffic shall be to BS 6925 Type R988 undercoat with BS 1447, finishing coat.

Isolating membrane for roofing subject to traffic shall be glass fibre tissue as recommended by the asphalt specialist.

HIGH PERFORMANCE FELT ROOFING

High performance felt roofing shall be from an approved manufacturer and applied strictly in accordance with the manufacturer's instructions to suit the relevant sub-surface.

HIGH PERFORMANCE 'TORCH ON' FELT ROOFING

High performance 'torch on' felt roofing shall be prepared and applied strictly in accordance with the manufacturer's instructions to suit the relevant sub-surface.

BITUMEN PRIMER

Primer for felt roofing shall be cut back bitumen with a maximum volatile solvent 60% by weight. Viscosity to be Redwood No. 2 at 21 deg. C 25 sec maximum.

BITUMEN COMPOUNDS

Bonding compound for felt roofing shall be oxidised bitumen having a penetration of 20/30 at 25 deg. C and a softening point (R & B) of 80/100 deg. C. Dressing compound for felt roofing shall be cut back bitumen. Cold compounds dressing for bonding solar reflective chipping may be permitted but only at the sole discretion of the Client Representative. The bitumen coating for lead, copper or zinc roofing shall be a black coating solution.

LIQUID APPLIED WATERPROOF ROOF COATINGS

The roof waterproofing system is to be installed in accordance with the current recommendations of BS 6229 (Flat Roofs with Continuously Support Coverings: Code of Practice), BS 8000 (Workmanship on Building Sites Part 4: Code of Practice for Waterproofing), and suppliers application instructions.

The roofing contractor shall co-ordinate all works to ensure the integrity of the roofing system is not compromised during installation. Works conducted during adversely wet weather conditions shall be suspended unless suitable temporary protection can be provided. Should rain interrupt application, allow one full day of good drying conditions before continuing with the system installation. Any surface dampness can seriously affect adhesion of the membrane system.

All preparatory works including alterations to all detail items must be complete and satisfactory.

Provision should be made to minimise or eliminate the risk of fumes or smoke from the roofing works entering the building by air intakes, doors and windows. The contractor should agree a plan of work with the building owner prior to commencement.

It is the responsibility of the roofing contractor to ensure that the building remains watertight at all times during the works. Areas of waterproofing removed within a single day should be done so ensuring the provision of appropriate day joints.

The contractor shall ensure that the roof remains watertight at all times. Suitable night joints should be formed at the end of each working day to provide a temporary waterproofing seal particularly to the reinforcing fabric. Materials used to create the joint which do not form part of the specified system shall be removed prior to continuation of the works.

When using roofing torches, the contractor must take adequate precaution to eliminate all potential risk of fire hazard and ensure that no naked flames are left unattended at any time. Guidance on the use of torch applied roofing and equipment is available in 'Flat Roofing Alliance Information Sheet 12: Torch-On Roofing'.

It is the responsibility of the contractor to acquaint themselves with all relevant codes of practice referred to within the specification. The supplier will take no responsibility for misinterpretation or lack of knowledge for third parties.

Upon completion of the waterproofing works, the integrity of the membrane must be independently electronically tested before any ballast, insulation or other items are placed above the membrane. The electronic detector shall confirm the presence of any punctures / defects which may be repaired prior to covering and subsequently re-tested. Before any warranty is issued a clear leak test certificate must be provided

RAINWATER OUTLETS: FORM WITH WATERTIGHT JOINTS

Drainage systems: Do not allow liquid coatings to enter piped rainwater or foul systems.

Edge trims: Apply coatings over horizontal leg of trim and dress into recess.

Condition at completion: Fully sealed, smooth, weatherproof and free draining.

SKIRTINGS AND UPSTANDS – FLASHINGS

Top edges of coatings: Protect with flashings. Apply flashing into chases cut to a minimum depth of 25 mm.

Flashing should cover waterproofing system by a minimum 75 mm.

Completion of chases: When coatings are fully cured, prepare chase and apply appropriate sealant.

SKIRTINGS AND UPSTANDS – TERMINATON BAR

Top edges of coatings: Protect with termination bar. Mechanically fasten termination bar to upstand, ensuring minimum 75 mm cover over waterproofing.

Completion: Apply appropriate sealant, to top lip of termination bar to seal to upstand.

SKIRTINGS AND UPSTANDS – CUT CHASE

Top edges of coatings: Where not protected by flashings, apply into chases cut to a minimum depth of 10 mm.

Completion of chases: When coatings are fully cured, prepare chase and apply appropriate sealant.

SURFACING INSTALLING PROTECTION LAYER

Install protection layer.

Application: Loose-laid.

Roll out in an advancing manner.

Overlaps (min): 100mm.

Ensure lap are positioned to allow water to drain over, not into, the joint.

Dress membrane up all upstands to height of surfacing finish.

Protection layer is secured by the application of the system ballast. Cover as soon as practical.

LAYING STONE BALLAST

- Condition of substrate: Clean
- Gravel guards: Fit to outlets
- Laying: Spread evenly. Do not pile to excessive heights.
- Depth (minimum): 50mm
- Depth to be sufficient to resist wind uplift or floatation of insulation
- Joints: Open.

On completion: Slabs must be level and stable.

Roofing

TILING

Check the supporting roof structure to be roofed upon is in a suitable state to receive roof covering. It must be free from harmful conditions such as timber rot and must be structurally sound. The manufacturer cannot be held responsible for problems with roof performance caused by pre-existing conditions that are not discovered and corrected prior to any roofing works. It is the Contractors responsibility to ensure the submitted information on which this specification is based is correct; often information has to be assumed due to lack of clarification until the roofing works commence on site.

WORKMANSHIP

Set out to give true lines and regular appearance fitting neatly at all edges, junctions and features. Fix roof covering to make the whole roof sound and weather tight at the earliest opportunity. Repair any defects as quickly as practicable to minimise damage and nuisance.

Keep gutters and pipes free of debris and clean out at completion.

LIQUID APPLIED WATERPROOF ROOF COATINGS

INSULATED ROOF COVERING:

- Substrate: [EXTERNAL GRADE PLY/OSB3, min 18 mm].
- Preparation: [Tape joints]
- Primer: [SA Bitumen Primer]
- Vapour Control Layer: [Torch Safe TA Sand VCL]
- Insulation: [Polyisocyanurate insulation]
- Attachment: [Insulation adhesive]
- Carrier Membrane: [Torch Safe TA Sand Underlay]
- Waterproof Covering:
- Primer: [ELASTOFLEX 2-PART PRIMER]
- Waterproof Coating: [ELASTOFLEX SF]
- Base Coat Application: [2.4 L/m2]
- Top Coat Application: [1.2 L/m2]
- Reinforcement: [ELASTOFLEX REINFORCING MAT 20]

- Lay the reinforcing fleece into the base layer and immediately apply the top layer of waterproofing coating
- Surfacing: [None]

ROOF PERFORMANCES

General: Firmly adhered, free draining and weather tight.

AVOIDANCE OF INTERSTITIAL CONDENSATION IN WARM AND INVERTED ROOFS

Risk of interstitial condensation in roof construction: Assess in accordance with BS 5250

Vapour control layer: If necessary, provide a suitable membrane so that damage and nuisance from interstitial condensation do not occur

COVER STRIPS TO JOINTS IN RIGID BOARD SUBSTRATES

- Bitumen Membrane: [To BS 747 Types 5U]
- Product: [HT 125 TAPING STRIP]
- Width: [100 mm]
- Installation

PRIMER TO VCL AREAS

SA BITUMEN PRIMER:

- Type: [low viscosity, black, quick drying bitumen priming solution].

TIMBER TRIMS:

- Quality: Planed, free from wane, pitch pockets, decay and insect attack (except ambrosia beetle damage).
- Moisture content at time of covering (maximum): 22%

VAPOUR CONTROL LAYER:

- Type: Bitumen membrane.

Torch Safe TA VCL Sand:

- Self-adhesive/thermically activated.

INSULATION ADHESIVE

RIGID URETHANE FOAM WARM ROOF INSULATION

- Polyisocyanurate (PIR) to BS 4841-3].
- ROOFBOARD INSULATION
  Density: [32kg/m3]. Facings:
  Upper: [mineralised glass tissue lower face].
  Lower: [mineralised glass tissue lower face].
  Thickness: [to suit project requirements].

- CARRIER MEMBRANE
  Product: [Torch Safe TA Underlay].

- PERIMETER TRIMS
  Type: [GRP].
  Product: [GRP EDGE TRIMS].
  Colour: [Black].
  Size: [Type B50/B100/B150]. Length: [3m].

- PERIMETER TRIMS, METAL DRIP EDGES ETC
  Type: [0.6mm galvanised steel with 0.9mm unreinforced membrane laminate].
  Product: [MONARPLAN PVC COATED METAL].
  Colour: [Light Grey]. Size: [1m x 2m].

- FLASHINGS
  SEBS modified bitumen with aluminium mesh core FORMFLASH:
  Colour: [GREY].
  Widths: [120mm / 150mm / 200mm / 250mm / 300mm/ 450mm / 950mm].
  Length: [10 m].

- PROTECTION LAYER
  POLYESTER
  PROTECTION FLEECE

- WALKWAY SYSTEM
  Levelling Coat, when required:
  Product: [Elastoflex Walkway Compound].
  Product: [Elastoflex Bulking Sand].
  Walkway System:
  Product: [Elastoflex Walkway Compound].
  Product: [Elastoflex Quartz].
  Product: [Elastoflex UV Clear].

HEAT-ACTIVATED/SELF-ADHESIVE BONDING OF REINFORCED BITUMEN MEMBRANE
Bond: Full over whole surface, with no air pockets.

Fully bonded by setting out roll and then rolling back half way. Slit backing sheet. Remove backing sheet and unroll, progressively removing the release film and applying pressure across the roll from the centre to the outside to expel air from below the membrane. To apply the other half of the membrane, repeat the process.

Membranes should be lapped by minimum 75 mm at the sides following the self-adhesive selvedge and at the ends by 100mm.

All laps must be thoroughly checked for security as work proceeds. Pressure must be applied to the overlap using a roller to ensure a complete seal

- LAYING WARM ROOF INSULATION (INSULATION ADHESIVE)
  Setting out:
  End edges: Adequately supported.
  Joints: Butted together.
  End joints: Staggered.
  Hard edge to be provided at all steps and board edges.
  Attachment: Insulation to be adhered in relevant insulation adhesive, in accordance with latest manufacturer's instruction. Adhesive centres to be sufficient to resist wind uplift pressures of the project site, in accordance with BS EN 1991-1-4 2005. Insulation adhesive is to be applied in accordance with current manufacturer's installation instructions.
  The insulation board is immediately pressed onto the heated surface, making sure tightly break-bonded joints are maintained.
  Multiple layers of insulation board:
  Subsequent layer(s) to be adhered in Insulation Adhesive, as above. Ensure insulation boards lie flat without rocking.

Completion: Boards must be in good condition, well-fitting and firmly fixed.

- STORAGE OF WARM ROOF INSULATION

  Insulation should be stored inside a building. If outside storage is unavoidable, insulation should be off the ground and covered with a waterproof sheet. Packaging alone cannot under any circumstances be relied upon to provide protection from moisture.
  Do not stack more than 2.5 metres in height. Ensure stability of stack and provide adequate aisle space for access between stacks.

- FIXING PERIMETER TRIMS

  Trim:
  Setting out: 3 mm (minimum) clear from wall or fascia.
  Fasteners: 50 mm stainless steel countersunk wood screws to BS 1210. Fixing: 30 mm from ends and at 300 mm (maximum) centres.
  Jointing sleeves: Fix one side only.
  Corner pieces: Purpose made.
  Contact surfaces: Prime.
  Joints: Cover with aluminium tape.
  Cover strip: Fully bond to trim and waterproof membrane.

- ROOF WATERPROOF COATING SYSTEM

- ADHESION TESTS

  Requirement: Carry out a trial coating to determine system suitability. Nature of test: 'Peel' test to be carried out before any membrane application.
  Test results: Submit and arrange for inspection.

- APPLYING ELASTOFLEX 2-PART PRIMER

  Coverage per coat (minimum): 0.3 L/m². Surface coverage: Thin, even and full.
  Allow primer to dry off thoroughly before overcoating. Maximum time before over-coating: [8 days].
  If left longer, substrate should be re-primed. To avoid recoating, the wet primer can be over-scattered with Elastoflex natural kiln dried quartz sand.

- MOVEMENT JOINTS IN SUBSTRATE

  Debonding tape: Apply over movement joints.
  Reinforcing Flashing: Apply over debonding tape, in accordance with manufacturer's instructions.
  Bedding: Preliminary coating application. Joints: Lap in length.
  Bond: Continuous over whole surface, with no air pockets. Condition at completion: Smooth.

- PRELIMINARY LOCAL REINFORCEMENT

  Reinforcing strip: Apply to junctions at upstands, penetrations and outlets, in accordance with manufacturer's instructions.
  Bedding: Preliminary coating application. Joints: Lap in length.
  Bond: Continuous over whole surface, with no air pockets. Condition at completion: Neat.
  and features
  Coatings
  Apply 2/3 of the coating to the primed substrate, as a base layer using a squeegee and peCLAn roller.

- APPLICATION OF ROOF COATINGS

  The waterproofing system is applied to structural details first i.e. upstands, outlets, perimeters etc. before the main field area is waterproofed.
  Thickness: Apply evenly to the substrate. Lap onto previously installed details
  Continuity: Maintain full thickness of coatings around angles, junctions
  Immediately embed the reinforcing mat into the base coat and roll the surface with a peCLAn roller, eliminating potential air bubbles and encouraging saturation of the fleece until the fleece changes colour due to saturation
  Overlaps in the fleece should be a minimum 50 mm.
  Immediately apply remaining 1/3 of the coating above the reinforcing fleece, as a top layer using a squeegee and peCLAn roller. Roll out evenly until complete saturation is achieved
  Ensure coating is applied above and below the overlap achieving full encapsulation.
  Correct coverage is achieved when the knapp of the fleece remains visible.

ALL ALTERNATIVE LEAD SUBSTITUTES TO BE INSTALLED TO THE MAUNFACTURERS INSTRUCTIONS/RECOMMENDATIONS AND ALIGNED WITH THE MANUFACTURERS SPECIFICATION.

Rainwater Goods and Roofline Works

Ensure that top of uPVC fascia board is fixed at the correct height to ensure all tiles are laid in an even and level plane.

Fix an additional fixing batten to the top of the rafter behind and level with the top of the uPVC fascia board.

Fix continuous tilting fillet to support underlay at eaves to prevent water retaining troughs ensuring all tiles lay in the same plane.

Fix all tiles in the eaves course with eaves clips (928700), using appropriate size nails.

Fix Reform Eaves Filler Units (9216) using appropriate size galvanised clout nails.

Fix all tiles in the eaves course with tails projecting 50 mm.

All soffit, eaves, fascia and bargeboard to be tested to BS476 Part7:1997 Class 1 surface spread of fire, or equivalent at time of fitting. Profile must also have a minimum 15 year product guarantee which covers against discolouration, warping and cracking. Where applicable all soffits and fascia's will be fixed with 50mm polytop pins include all joints, corners and trims as required. All works to comply with relevant British Standards and installed as per the manufacturer's recommendations.

- The soffit board to be PVC "Vented" plain board; minimum of 9mm thick, as appropriate to the window fitted and to include 10mm expansion joints where required.
- The eaves to be PVC "Vented" multipurpose board; minimum of 9mm thick.

The fascia board to white UPVC "standard grooved Fascia Board; 20mm thick.

The barge board to be white PVC standard grooved board; 20mm thick.

- All jointing strips, box ends and detailing must be cut neatly and securely fixed.
- White Polytop nails must be used as fixings. Corner trims etc. to be glued or fixed as per manufacturers recommendations.

Fix new plastic 125mm rainwater deep flow guttering and rainwater pipes in black PVC. Include for all

bends, connections, flushing out and testing. All guttering and rain water pipe systems must be suitable for the property type and should comply with BSEN607:1996, BSEN1462:1997, BS4576-1:1989 and EN12200-1:2000 and should have a minimum 10-year guarantee.

- The downpipe must be round or square and should be a minimum of 68mm in diameter.
- All brackets, connectors, joints, outlets, etc. required to carry out the full renewal must be from the same range as the specified guttering and downpipe and installed as per the manufacturers recommendations.

Remove all existing eaves and soffit.

Remove first 3 courses of tiles/slates and cut away defective felt. Remove laths and store for re-use.

Fix eave tray as per manufacturers' recommendations on to the roof trusses.

Fix bird protection as per manufacturer's instructions.

Fix over facia eaves ventilation system where required.

Repair all defective spar ends, soffit timbers and gable ladders to enable secure fixings of soffit, eaves, fascia and barge as required.

Fix new breathable membrane fixed to the roof, ensuring water will fall away from thereof and into the guttering; making sure the new felt is a minimum of 300mm under existing roof felt.

All fittings of new fascia, soffit, eaves, barge, detailing, box ends and rainwater goods must be in accordance with manufacturers' instructions. NB – Straight line runs must be formed in single lengths wherever possible.

- Provision must be made for all corner, jointing and box end detailing to new works and any adjoining properties.
- Provision must be made when fitting new fascias, soffit, eaves and bargeboard for all cutting, drilling and making good around pipes, cables and ventilation ducting.
- Prior to fitting new boarding, whilst roof is stripped fit "over fascia protection" (dressed under the sarking felt).
- Fix half round deep flow gutters (125mm) and downpipes (minimum 68mm diameter), all PVC including ALL fittings e.g. brackets spaced no more than 1m apart, joints, connectors, outlets associated with the installation of guttering and rainwater pipes. No joints to be placed above door entrances.
- Refix existing laths and re-tile or slate making sure to replace any damaged tiles or slates.

Re-point verges and make good to all disturbed surfaces.

Provision must be made to ensure all rainwater connections to adjoining or existing rainwater systems on adjoining properties (company or privately owned) are made in a satisfactory water tight manner using relevant connectors as required.

Provision must be made for making good/connection of downpipes entering into paths, gullies or pipes at hopper or ground level.

Regulations

CDM Regulations

The works are notifiable under the Construction (Design and Management) Regulations 2015.

Building Control

The works are notifiable under building control and therefore the Client requires that any installer

is NFRC Competent Person. The Client will consider approval by going directly to a Building Control body such as LABC but all works will need the insurance backed works guarantee.

Cleaning

Cleaning of all work areas shall be carried out by the Contractor at the end of each working day.

On completion of the installation the property and external area shall be left clean and tidy to the satisfaction of the Client/Customer.

Builders Work

The Service Provider shall include for all new builder's work required for the installation. Including but not limited to:

- Asbestos management, including safe removal.
- Cutting holes and making good, including plaster.
- Taking up floors and their reinstatement including the provision of any new floor boards etc.
- Cutting and fitting new air bricks for ventilation purposes, passive vents will also be fitted where necessary.
- Repairing holes etc. where the existing installation is removed (including old waste hole).
- Making good wall coverings, ceramic tiles etc.
- Blocking up existing air brick vents both internally and externally where appropriate.
- Fire removal, fireplace and hearth including bricking up, skimming, venting and making good, plaster finish ready to decorate affected area only and replacement skirting board where applicable. This may include for the boarding of recesses to allow for improved kitchen layout.
- Holes, recesses and chases shall be in locations which will least affect the strength, stability and sound resistance of the construction, and shall be of the smallest practicable size.
- Holes must not exceed 300 mm square.
- Do not cut chases in walls of hollow or cellular blocks without approval.
- Vertical chases must be not deeper than one third of the single leaf thickness.
- Do not cut until mortar is fully set. Cut carefully and neatly, avoiding cracking or other damage to surrounding structure. Do not cut chases with mechanical or hand impact tools.
- Notches and holes in timber structure shall be avoided wherever possible and shall be the minimum sizes needed to accommodate services, adhere to drilling and notching zones.
- Do not position near knots or other defects in the same cross section that would significantly affect strength of timber.
- Notches and holes in the same joist shall be at least 100 mm apart horizontally.
- Notches in joists shall be at the top, located between 0.07 and 0.25 of span from support, not deeper than 0.125 x depth of joist and shall be formed by sawing down to a drilled hole.
- Holes in joists shall be on the neutral axis, with diameter not more than 0.25 x depth of joist, spaced at centres not less than 3 x diameter of largest hole and located between 0.25 and 0.4 of span from support.
- Notches in roof rafters, struts and columns will not be permitted.
- Holes in struts and columns shall be on the neutral axis, with diameters not exceeding 0.25 x minimum width of member, located between 0.25 and 0.4 of length from end and spaced at centres not less than 3 x diameter of largest hole.
- Pipework sleeves shall be un-plasticised PVC pipe.
- Sleeves to extend through full thickness of wall/floor and be positioned to give a minimum clearance around service of 20 mm or diameter of service, whichever is the least.
- Sleeves, whether built in or installed in preformed holes, shall be bedded solid.
- Seal annular space between service and sleeve with Intumescent mastic.
- Seal around pipes where they pass through walls with plaster or proprietary mastic. Completely fill the space, leaving no gaps and finish neatly.
- Wall Fixtures; where necessary a purpose made frame or plate shall be provided to ensure a sound fixture for appliances or fittings on stud walls or other insubstantial walls.
- Removing floorboards; where floorboards are lifted this shall be carried out using a floorboard

saw, cutting both sides down the length to free the tongue and groove and then at the ends on the centre line of joists to avoid the need for noggins or cleats. Boards shall be re-fixed using countersunk No 10 50mm woodscrews.

- Drilling of joists shall be carried out in accordance with current British Standards.
- Existing unsound flooring or damage to flooring shall be reported to the Client immediately it is discovered
- Visible pipe runs shall be painted with undercoat and white gloss.
- Scaffolding/Hoarding etc. The Service Provider's rates are deemed to include for:
    - All necessary trestles, boards, scaffolding and the like for the proper execution of the Works, including the installation of high-level flues.
    - Scaffolding erected in accordance with the requirements of the Safe Working policy, and complies with current British Standards
    - All necessary temporary barriers, hoardings and the like for the safe and proper execution of the Works, for protecting the public and the occupants of adjoining premises and for meeting the requirements of any local or other authority.
- The Contractor shall carry out a full risk assessment and provide method statements prior to erecting scaffolding which shall be approved by the Client. Rates are deemed to include for netting, brick guards, etc. as necessary. The Contractor shall be responsible for the placing and rigging of the equipment, which shall be carried out to avoid any damage occurring to the building, and subject to the approval of the Client.
- The internal lifts shall not be used for the conveyance of equipment and materials. On no account are any components to be thrown or dropped from buildings. Where the operations require that the Contractor or Sub-contractor provides a hoist for the movement of materials, such operations shall comply with the requirements of the current Health and Safety regulations.
- The Contractor shall allow the free use of any standing scaffolding or platforms to all authorised employees of the Client and employees of any other Contractor employed by the Client for the purpose of carrying out inspections and associated Works.
- Ladders shall be used in accordance with current safe working practices and must be removed from the Works or rendered inaccessible at the end of each day's work, and all other plant and scaffolding Works, both complete and incomplete, left in a safe and secure manner. At all times the Contractor shall ensure that the dwellings and buildings remain in a stable and safe state.

On Completion

On completion of the works and any snagging the Contractor shall get the Customers' signature agreeing that all works have been completed to their satisfaction.

No payment will be authorised until the receipt by the Client (for each property within seven days of completion of each installation) of the following certifications:

- Building notification
- Manufacturer's Final Inspection
- Manufacturer's Guarantees
- Any insurance documents
- CDM Health & Safety file if appropriate
- LGSR where appropriate
- Building Regulations Compliance Certificate (BRCC) via NFRC CPS
- EPC where appropriate within seven days of completion of each installation

Specification to re-roof asbestos roofed outbuildings

- Strip off existing asbestos sheeting and remove from site.
- Inspect timber purlins/wall plates and replace/repair if advised to do so by supervising officer.

- Introduce and fix new treated timber. 100 x 50mm rafters at 600mm centres.
- Existing wall plates to be secured to brickwork by three new roof straps bolted to brickwork.
- Fix new fascia and rainwater goods to end of rafters as specified by supervising officer.
- Introduce Metrotile breathable roofing felt over new rafters. Felt to be laid form gable to gable and lapped per instructions.
- Supply and fix new 50 x 50mm treated timber battens to new timber rafters, (sawn rafter ends to meet above rafters).
- Battens to be fixed at 368mm centres measured from front face of batten to front face of batten above. Battens should be fixed from eaves to ridge with a 40mm overhang into gutter. I.e. the first measurement should be 328mm from eaves.
- Introduce new rainwater goods (specified by supervising officer) all discharging into water outlets.
- Fix new Metrotile .9 Metrobond roofing system, Barges and Delta ridge incomplete accordance with manufacturer instructions.
- Each tile should be fixed using 4 self-drill self-tap fixing screws supplied by manufacturer. Screws located into the highest point of the nose into the tiling batten.
    - At the eaves tile, screws should be fixed through the tiles
    - into the batten at the highest point of the tile, but never in the watercourse.
    - All eaves' screws should be touched up using paint and grit provided.
    - Any short fall in tiles at the ridge should be made up by using a Metrotile cover flashing if required.
    - Delta ridge should be bent to form mono ridge to suit new roof pitch.
    - This is done by flattening one side of the ridge out and bending to form mono ridge
- Barge boards are handed left and right and fit 3 courses of tiles. Barges should be nailed into the timber barge boards or plugged and screwed into brickwork. Each barge should be nailed using 4 nails per barge and fixed vertically into tiling battens also.