

Atelier Mb Ltd

Chapel Walks

1814 Chapel Walks

Word Version

Extract

2 no. storey extension and roof terrace, refurbishment and fit out of existing listed building. Office use, and ancillary accommodation.

H11

Curtain walling

Tendering

10 Information to be provided with tender

1. Submit the following curtain walling particulars
 - 1.1. **Evidence of compliance:** All curtain walling to be CE marked to BS EN 13830:2003. Submit Declaration of Performance (DoP). CE marking and Declaration of Performance (DoP) requirements for structural sealant glazing to be submitted on the basis of a manufacturer's European Technical assessment (ETA) prepared in accordance with EOTA technical guide ETAG 002 (Parts 1, 2 and 3).
 - 1.2. Typical plan, section and elevation drawings at suitable scales.
 - 1.3. Typical detailed drawings at large scales, including
 - 1.4. Technical information and certification demonstrating compliance with specification of proposed incorporated products and finishes, including
 - 1.5. Certification, reports and calculations demonstrating compliance with specification of proposed curtain walling.
 - 1.6. Proposals for connections to and support from the building structure and building components.
 - 1.7. Proposals for amendments to primary supporting structure and for secondary supporting structure additional to that shown on preliminary design drawings.
 - 1.8. Schedule of builder's work, special provisions and special attendance by others.
 - 1.9. Examples of standard documentation from which project quality plan will be prepared.
 - 1.10. Preliminary fabrication and installation method statements and programme.
 - 1.11. Schedule of products and finishes with a design life expectancy less than that specified in clause 440, with proposals for frequencies and methods of replacement.
 - 1.12. Proposals for replacing damaged or failed products.
 - 1.13. Areas of non-compliance with the specification.

Types of curtain walling

110 Curtain walling

1. **Description:** Curtain walling to 4th and 5th floors
2. **Supporting structure:** Steel structure to Structural Engineer's design and specification
3. **Curtain walling system**
 - 3.1. **Manufacturer:** Kawneer UK Limited, Astmoor, Runcorn, Cheshire WA7 1QQ (Phone 01928 502500, Fax 01928 502501).
 - 3.1.1. **Product reference:** AA®100 Aluminium 50 mm Stick Curtain Wall System
 - 3.2. **Type:** Stick system Pressure equalised and incorporating toggle fixing to the double-glazing units and external silicone joint between the units. Drainage to be via transom into the mullion (mullion drained).
4. **Internal framing member**
 - 4.1. **Material:** Aluminium, Subject to calculation by approved Kawneer installer
 - 4.2. **Finish:** Kawneer Permacover Plus (finish to be applied and warranted for 30 years)
 - 4.2.1. **Colour/ texture:** Kawneer Permacover Plus (standard colour)
 - 4.2.2. **Minimum film thickness:** 60 micrometres
5. **External cover cap**
 - 5.1. **Material:** Silicone weather seal, Dow Corning or sillier approved

- 5.2. Finish: Not required
 - 5.2.1.Colour/ texture: black
- 6. Glazing: Insulating glass units as
 - 6.1. Inner pane: Thermally toughened glass
 - 6.2. Outer pane: Thermally toughened glass with Ritec anti dirt coating
- 7. Glazing system: Toggle clip system and structural sealant/ bonded, four side bonded
- 8. Panel/ facing type: Infill panels to base of 4th floor
 - 8.1. External material: Aluminium sheet
 - 8.2. External finish: Powder-coating
 - 8.3. Internal material: Aluminium sheet
 - 8.4. Internal finish: Powder-coating
 - 8.5. Core insulation: As provided by the manufacturer
- 9. Accessories: Perimeter flashings
- 10. Incorporated components: acoustic insulation to mullions and transoms as Clause 752
- 11. Other requirements:

150 Materials specification

- 1. Minimum BRE 'Green Guide to Specification' online rating:
- 2. Specification of glazing materials to be in accordance with guidance in CIRIA document 'Guidance on glazing at height'.

General requirements/ preparatory work

210 Design

- 1. Curtain walling and associated features: Complete the detailed design. Submit before commencement of fabrication.
- 2. Related works: Coordinate in the detailed design.

220 Specification

- 1. Compliance standards: BS EN 13830:2003 and The Centre for Window and Cladding Technology (CWCT) 'Standard for systemised building envelopes'.
- 2. Reference information: For the duration of the Contract, keep available at the design office, workshop and on site copies of:
 - 2.1. The CWCT 'Standard for systemised building envelopes'.
 - 2.2. Publications invoked by the CWCT 'Standard for systemised building envelopes'.

232 Quality plan

- 1. Requirement: Submit during detailed design.
- 2. Content: In accordance with BS EN ISO 9001 and including the following:
 - 2.1. Name of the quality manager.
 - 2.2. Quality assessment procedures.
 - 2.3. Inspection procedures to be adopted in checking the work.
 - 2.4. Stages at which check lists will be used and samples of the lists.
 - 2.5. List of work procedures on the correct use of materials or components, both off site and on site.
 - 2.6. List of product information with latest revisions.
 - 2.7. Subcontractors involved in the work.

- 2.8. Subcontractors' quality plans.
- 2.9. Storage, handling, transport and protection procedures.
- 2.10. Procedure for registering and reporting non compliances.
- 2.11. Maintenance procedures and calibration records.
- 2.12. Certification that completed work complies with specification.
- 2.13. Check list register to ensure all items have been inspected and non compliances discharged.

235 Information to be provided before commencement testing or fabrication of curtain walling

1. Submit the following curtain walling particulars
 - 1.1. Detailed drawings to fully describe fabrication and installation.
 - 1.2. Detailed calculations to prove compliance with design/ performance requirements.
 - 1.3. Project specific fabrication, handling and installation method statements.
2. Certification for incorporated components manufactured by others confirming their suitability for proposed locations in the curtain walling.
 - 2.1. Recommendations for spare parts for future repairs or replacements.
3. Recommendations for safe dismantling and recycling or disposal of products.

240 Information to be provided before commencement of structural sealant/ bonded glazing

1. Submit structural bonding sealant manufacturer's project specific approval for
 - 1.1. Compatibility and adhesion of products and finishes.
 - 1.2. Full details of structural sealant/ bonded glazing design.
 - 1.3. Structural sealant dimensions.
 - 1.4. Project specific sealant application method statement.

250 Product samples

1. General: Before commencing detailed design, submit labelled samples of:

260 Samples of fixings

1. General: During detailed design, submit labelled samples of each type of fixing anchor, including casting-in restraints and shims, together with manufacturers' recommended torque figures.

270 Fabrication samples

1. General: During detailed design, submit samples of: framing and curved glass .
 - 1.1. Obtain approval of appearance before proceeding.

280 Mock-Up

1. General: Construct during detailed design work in an approved location. Obtain approval of appearance before proceeding. Retain undisturbed until completion of curtain walling installation.
2. Extent: Approx 1m square panel
3. Purpose: for sign off by Conservation Officer

Design/ performance requirements

305 CWCT 'Standard for systemised building envelopes'

1. General: Unless specified or agreed otherwise comply with:

- 1.1. Part 2 - Loads, fixings and movement.
- 1.2. Part 3 - Air, water and wind resistance.
- 1.3. Part 4 - Operable components, additional elements and means of access.
- 1.4. Part 5 - Thermal, moisture and acoustic performance.
- 1.5. Part 6 - Fire performance
- 1.6. Part 7 - Robustness, durability, tolerances and workmanship.
2. **Project performance requirements specified in this subsection:** Read in conjunction with CWCT performance criteria.

311 Integrity

1. **Requirement:** The curtain walling must resist wind loads, dead loads and design live loads, and accommodate deflections and movements without damage.
2. **Design wind pressure:**
3. **Impact performance:**
 - 3.1. **Safety impact requirements:**
 - 3.2. **Serviceability impact requirements:**
 - 3.3. **External impact exposure:** In accordance with CWCT TN 75:
 - 3.4. **Hard and soft body impact loads - curtain walling to BS EN 14019:**
 - 3.5. **Hard and soft body impact loads - glass to BS EN 12600:**
 - 3.6. **Hard body impact tests - In accordance with CWCT 'Standard test methods for building envelopes' and TN 76 (curtain wall).**
 - 3.7. **Soft body impact tests:** In accordance with CWCT Standard test methods for building envelopes and TN 76 (curtain wall)
4. **Permanent imposed loads:** refer to structural engineer's specification
5. **Temporary imposed loads:** refer to structural engineer's specification

320 Deflection under dead loads

1. **Requirement:** Framing members parallel to the curtain walling plane must not:
 - 1.1. Reduce glass bite to less than 75% of design dimension.
 - 1.2. Reduce edge clearance to less than 3 mm between members and immediately adjacent glazing units, panel/ facing units or other fixed units.
 - 1.3. Reduce clearance to less than 2 mm between members and movable components such as doors and windows.

325 Deflection under wind load

1. **Requirement:** To CWCT 'Standard for systemised building envelopes' clause 3.5 2 and the following additional requirements:
2. **Additional stiffness to CWCT 'Standard for systemised building envelopes' clause 3.5 4.2:**

330 General movement

1. **Requirement:** Curtain walling must accommodate anticipated building movements as follows: refer to structural engineer's specification .

332 Appearance and fit

1. **Requirement:** Design curtain walling system:
 - 1.1. To ensure position and alignment of all parts and features as shown on preliminary design drawings.
 - 1.2. To accommodate deviations in the primary support structure.

2. **Primary support structure:** Before commencing installation of curtain walling system, carry out survey sufficient to verify that required accuracy of erection can be achieved.
 - 2.1. **Give notice:** If the structure will not allow the required accuracy or security of erection.
 - 2.2. **Design tolerances:** as recommended by the manufacturer
3. **Curtain wall envelope zone tolerances**
 - 3.1. **Width:** Refer to the drawings.
 - 3.1.1. **Critical reference location:** Mullions to relate to new steelwork and existing piers
4. **Maximum permitted component and installation tolerances:** as recommended by the manufacturer

335 Thermal movement – service temperature ranges

1. **Requirement:** To CWCT 'Standard for systemised building envelopes' clause 2.7.2 amended and/or with the addition of the following:

340 Air permeability

1. **Requirement:** Permissible air leakage rates of 1.5m³/hr/m² for fixed lights and 2.0 m³/hr/lin.m for opening lights must not be exceeded when the curtain walling is subjected to the peak test pressure.
2. **Permeability class to BS EN 12152:**
 - 2.1. **Peak test pressure:**

345 Air permeability exfiltration

1. **Requirement:** The maximum permissible air exfiltration rate through the curtain walling system must not exceed: 10m³/hr/m².

350 Water penetration

1. **Watertightness class to BS EN 12154:**
 - 1.1. **Peak test pressure:**
2. **Additional requirements:**

370 Thermal properties

1. **Method of calculating the thermal transmittance (U-value) of curtain walling/ each zone of curtain walling:** Weighted U-value.
2. **Average U-value of curtain walling:** 1.4 W/m²K
3. **Curtain wall zone interfaces:** Co-ordinate to achieve required average U-value.
4. **Method for assessing thermal transmittance (U-value) of assemblies:** Method 1 - approximate method in accordance with CAB/CWCT publication 'The thermal assessment of window assemblies, curtain walling and non-traditional building envelopes'

380 Solar and light control

1. **Total solar energy transmission**
 - 1.1. **Maximum g-value - glazing only:** 0.34
2. **Visible light transmission**
 - 2.1. **Minimum light transmission - glazing only:** 68%

385 Thermal stress in glazing

1. **Glass panes/ units:** Must have adequate resistance to thermal stress generated by orientation, shading, solar control and construction.

390 Avoidance of condensation

1. Requirement: Notional psychrometric conditions under which condensation must not form on building interior surfaces of framing members or any part of infill panels/ facings are:
 - 1.1. Notional outdoor psychrometric conditions as BS 6229, Table A1.
 - 1.2. Notional indoor psychrometric conditions
 - 1.2.1. Temperature: 22°C See MarkTaylor Limited information
 - 1.2.2. Relative humidity:
 - 1.2.3. Vapour pressure:

410 Sound transmittance

1. Minimum weighted sound reduction index (R_w) to BS EN ISO 717-1
 - 1.1. Between internal and external surfaces of curtain walling: R_w 37 dB
2. Minimum weighted standardized level difference (D_{nTw}) to BS EN ISO 717-1
 - 2.1. Between adjacent floors abutting curtain walling: Min 38 dB
 - 2.2. Between adjacent rooms on same floor abutting curtain walling: Min 38 dB

420 Fire resistance of curtain walling

1. Standard: To BS EN 13501-1.
 - 1.1. Minimum periods and criteria: Upto Class EI 120
 - 1.2. Direction: 'I>O' – Inside to outside
 - 1.3. Basis of verification: To BS EN 1364-3

426 Reaction to fire of curtain walling

1. Standard: To BS EN 13501-1.
 - 1.1. Class: B-s3, d2 or better

430 Fire stopping

1. Locations: At junctions of curtain walling with compartment or separating walls and floors.
2. Materials and methods of fixing: To ensure fire resistance not less than that specified for compartment or separating walls and floors when tested from both sides. Nullifire FJ220 Intubatt 3 or similar approved.

440 Durability

1. Relevant agents or degradation mechanisms:
2. Design life of the curtain walling system: Not less than 30 years
3. Secondary components: Submit details together with required maintenance regime, replacement periods and methods of replacement.
Maintain as detailed in Kawneer AA 100 Maintenance Sheets

450 Safety

1. Finished surfaces of curtain walling: Accessible internal and external areas must not:
 - 1.1. Have irregularities capable of inflicting personal injury.
 - 1.2. Release irritant or staining substances.

460 Structural sealant/ bonded glazing requirements

1. Structural sealant/ bonded glazing units: Installable, removable and replaceable without site application of structural bonding sealant.
2. Structural sealant/ bonded glazing design: Must limit design tensile stress of sealants to 138 kPa.

Breeam performance requirements - Not Used

Testing

510 Comparison (type) testing

1. Requirement: To CWCT 'Standard for systemised building envelopes', Part 8.
2. Test results and reports: Before commencement of curtain walling fabrication and installation, submit proof of compliance with this specification.

515 Project testing (laboratory)

1. Test results and reports: Before commencement of curtain walling fabrication and installation, submit proof of compliance with this specification.

520 Project testing (site)

1. Test results and reports: Before installation of general areas of curtain walling, submit proof of compliance with this specification.

530 Testing authority

1. Requirement: Project testing must be carried out by a United Kingdom Accreditation Service (UKAS) approved independent laboratory.

555 Test sequence – standard laboratory tests

1. Requirement: To CWCT 'Standard for systemised building envelopes', Standard sequence B, clause 8.12.2, and as follows:
2. Air permeability (infiltration): To CWCT clause 8.6.
 - 2.1. Peak test pressure: As clause 340.
 - 2.2. Method of identifying areas of concentrated air leakage:
3. Air permeability (exfiltration): To CWCT clause 8.6.
 - 3.1. Peak test pressure: As clause 340.
 - 3.2. Allowable exfiltration rates: As clause 345.
 - 3.3. Method of identifying areas of concentrated air leakage:
4. Water penetration resistance - static: To CWCT clause 8.7.1.
 - 4.1. Peak test pressure: As clause 350.
5. Wind resistance - serviceability: To CWCT clause 8.8.
 - 5.1. Peak test pressure: Equal to design wind pressure specified in clause
 - 5.2. Position of displacement measuring devices:
 - 5.3. Allowable elastic and residual deformation:
6. Air permeability (infiltration): Repeat as above.
7. Air permeability (exfiltration): Repeat as above.
8. Water penetration resistance - static: Repeat as above.
9. Water penetration resistance - dynamic: To CWCT clause 8.7.2.
 - 9.1. Test method:
 - 9.2. Test pressure: As clause 350.
10. Hose test: To CWCT clause 8.16.2.
 - 10.1. Joints to be tested:
11. Wind resistance - safety: To CWCT clause 8.8.
 - 11.1. Peak test pressure: Equal to 1.5 times design wind pressure specified in clause
 - 11.2. Position of displacement measuring devices:

- 11.3. Allowable residual deformation:
- 12. Impact - safety:
 - 12.1. Location, sequence and number of impacts to be applied:
 - 12.2. Type of soft body impactor:
 - 12.3. Energy of soft body impactor (E):
 - 12.4. Required hard body impact load category:
 - 12.5. Required soft body impact classification:
- 13. Dismantle inspect and record.

635 Site hose test

- 1. **Requirement:** To CWCT 'Standard for systemised building envelopes' Section 8.16.2, 'Standard test methods for building envelopes' Section 9.
 - 1.1. **Joints to be tested:** Glazing joints, perimeter joints

660 Structural sealant/ bonded glazing tests

- 1. **Product samples:** Provide the structural bonding sealant manufacturer with framing profiles, glass, gaskets, assembly/ weathering sealants and other curtain walling products that are proposed for contact with structural bonding sealant.
- 2. **Testing:** By sealant manufacturer to determine compatibility and adhesion of structural bonding sealant under specified design loadings.
- 3. **Modification of product to enable compliance with test criteria:** Details must be recorded in the sealant manufacturer's project specific approval.

Products

710 Aluminium alloy framing sections

- 1. **Standard:** To relevant parts of BS EN 515, BS EN 573, BS EN 755 and BS EN 12020.
- 2. **Alloy, temper and thickness:** Suitable for the application and specified finish.
- 3. **Structural members:** To BS EN 1999-1-1.

712 Aluminium alloy sheet

- 1. **Standards:** To relevant parts of BS EN 485, BS EN 515 and BS EN 573.
- 2. **Alloy, temper and thickness:** Suitable for the application and specified finish.

730 Mechanical fixings

- 1. **Stainless steel:** To BS EN ISO 3506, grade A2 generally, grade A4 when used in severely corrosive environments.
- 2. **Carbon steel:** To BS 4190 and suitable for galvanizing or other protective coating.
- 3. **Aluminium brackets, rivets and shear pins:** To relevant parts of BS EN 755.

732 Adhesives

- 1. **General:** Not degradable by moisture or water vapour, or exposure to UV light.

735 Fixing anchors

- 1. **Type and use:** Reviewed and approved by fixing manufacturers. Submit confirmatory information on request.
- 2. **Dimensions:** Not less than recommended by their manufacturers.
- 3. **Adjustment capability:** Sufficient in three dimensions to accommodate building structure and curtain walling fabrication/ installation tolerances.

737 Glass generally

1. **Standards:** To BS 952 and relevant parts of:
 - 1.1. BS EN 572 for basic soda lime silicate glass.
 - 1.2. BS EN 1096 for coated glass.
 - 1.3. BS EN 1748 for borosilicate glass.
 - 1.4. BS EN 1863 for heat strengthened soda lime silicate glass.
 - 1.5. BS EN 12150 for thermally toughened soda lime silicate glass.
 - 1.6. BS EN 13024 for thermally toughened borosilicate glass.
 - 1.7. BS EN ISO 12543 for laminated glass.
2. **Selection of glass type and thickness** in accordance with recommendations of CIRIA publication 'Guidance on glazing at height'.
3. **Glass quality:** Clean and free from obvious scratches, bubbles, cracks, rippings, dimples and other defects.
4. **Glass edges:** Generally undamaged. Shells and chips not more than 2 mm deep and extending not more than 5 mm across the surface are acceptable if ground out.

739 Dimensional tolerances on glass

1. **Description:**
2. **Measurement of tolerances:** Before any thermal toughening/ heat strengthening.
3. **Pane dimensions less than 1500 mm**
 - 3.1. For 3 to 6 mm thick glass: ± 1.0 mm.
 - 3.2. For 8 to 12 mm thick glass: ± 1.5 mm.
 - 3.3. For 15 mm thick glass: ± 2.0 mm.
 - 3.4. For 19 mm and 25 mm thick glass: ± 2.5 mm.
4. **Pane dimensions more than 1500 mm**
 - 4.1. For 3 to 6 mm thick glass: ± 1.5 mm.
 - 4.2. For 8 to 12 mm thick glass: ± 2.0 mm.
 - 4.3. For 15 mm thick glass: ± 2.5 mm.
 - 4.4. For 19 mm and 25 mm thick glass: ± 3.0 mm.
5. **Pane squareness:** Not more than 4 mm difference in diagonal measurements.

741 Distortional tolerances on glass

1. **Description:**
2. **Measurement of tolerances:** After any thermal toughening/ heat strengthening.
3. **Maximum bow:** 0.2% of pane dimension.
4. **Maximum roller wave**
 - 4.1. For 3 to 5 mm thick glass: 0.5 mm.
 - 4.2. For 6 to 10 mm thick glass: 0.3 mm.
 - 4.3. For 12 mm and thicker glass: 0.15 mm.
5. **Maximum edge dip**
 - 5.1. For 3 to 5 mm thick glass: 0.8 mm.
 - 5.2. For 6 to 10 mm thick glass: 0.5 mm.
 - 5.3. For 12 mm and thicker glass: 0.25 mm.

742 Heat soaked thermally toughened glass

1. **Standard:** To BS EN 14179.

- 1.1. Holding period:
2. Locations of heat soaked glass:

745 Insulating glass units

1. Standard and labels for hermetically sealed units: To BS EN 1279.
2. Label: Each pane.
3. Colour of aluminium perimeter spacers:
4. Perimeter taping: Not to be used.
5. Perimeter seals
 - 5.1. Resistant to UV light degradation on exposed edges.
 - 5.2. Compatible with structural, assembly and weather sealants.

747 Glass edge condition for structural sealant/ bonded glazing

1. Bonded, unframed outer edges: Flat ground with a small arris suitable for open jointing or for weatherseal jointing.

750 Infill panels/ Facings

1. Tolerances
 - 1.1. Deviation in size (maximum): ± 1 mm.
 - 1.2. Deviation in flatness from plane per 2 m length (maximum): ± 1 mm.
2. Rigidity: Adequate to comply with design/ performance requirements.
3. Fire performance: BS EN 13501-1, Class A1

752 Acoustic Inserts

1. Description: Acoustic inserts to mullions and transoms
2. Manufacturer: Siderise Group, Forge Industrial Estate, Maesteg, UK, CF34 0AY
T: +44 (0)1656 730833
Email: sales@siderise.com
Web: www.siderise.com
3. Product Reference: Sunrise HB insert M16, cut to suit curtain walling sections

760 Gaskets

1. Material
 - 1.1. Noncellular rubber to BS 4255-1.
 - 1.2. Cellular rubber to ASTM-C509-06.
2. Continuity: Outer gaskets of single front sealed curtain walling systems and inner gaskets of drained and ventilated or pressure equalized curtain walling systems must be formed in a complete frame with sealed joints. Vulcanized rubber gaskets must have factory moulded corner joints.
3. Durability: Resistant to oxidation, ozone and UV degradation.

770 General sealants

1. Selection: In accordance with BS 6213 from:
 - 1.1. Silicone.
 - 1.2. One part polysulfide.
 - 1.3. Two part polysulfide.
 - 1.4. One or two part polyurethane.
2. Classification and requirements: To BS EN ISO 11600.

3. Reaction to contact products and finishes: Stable and compatible.

772 Curtain walling joint assembly sealants

1. **Material:** One part, low modulus silicone to BS EN ISO 11600, type F or G. Neutral curing where in contact with or close proximity to other products that may be adversely affected by acetoxy curing.
2. **Manufacturer:**
 - 2.1. Product reference:

775 Bonding sealants for structural sealant/ bonded glazing

1. **Material:** Silicone, neutral curing, designed and manufactured for bonding of structural sealant/ bonded glazing. Compatible with contact and close proximity products and finishes.
2. **Manufacturer:** Contractor's choice
 - 2.1. Product reference:

777 Weathersealing for structural sealant/ bonded glazing

1. **Material:** Silicone, one or two part, neutral curing. Designed and manufactured for weathersealing of structural sealant/ bonded glazing. Compatible with contact and close proximity products and finishes.
2. **Manufacturer:** Contractor's choice
 - 2.1. Product reference:
3. **Colour:** black

Finishes

830 Powder coating

1. **Requirement:** As section Z31.

Fabrication and installation

910 Generally

1. **Electrolytic corrosion:** Prevent. Submit proposed methods.
2. **Fixings:** Concealed unless indicated on detailed drawings. Where exposed they must match material and finish of the products fixed.
3. **Fabrication:** Machine cut and drill products in the workshop wherever possible.
4. **Identification of products:** Mark or tag to facilitate identification during assembly, handling, storage and installation. Do not mark surfaces visible in the completed installation.

912 Metalwork

1. **Requirement:** As section Z11, unless specified otherwise in this section.

915 Glazing

1. **Requirement:** As section L40, unless specified otherwise in this section.
2. **Directional patterned/ wired glass:** Generally fix parallel to surround and align adjacent panes where seen together at close quarters.

917 Fixings/ Adhesives application

1. **Requirement:** As section Z20, unless specified otherwise in this section.

920 Sealant application

1. **Requirement:** As section Z22, unless specified otherwise in this section.

925 Structural sealant/ bonded glazing

1. **Curing:** Do not transport units until structural bonding sealant has adequately cured for the period stated in the project specific approval.

930 Assembly

1. **General:** Carry out as much assembly as possible in the workshop.
2. **Joints (other than movement joints):** Rigidly secured, reinforced where necessary and fixed with hairline abutments.
3. **Displacement of components in assembled units:** Submit proposals for reassembly on site.

955 Fixing anchor installation

1. **Site drilling or cutting into structure:** Submit proposals for positions other than shown on detailed drawings.
2. **Concrete supporting structure**
 - 2.1. **Cast-in inserts:** Provide detailed locational information. Protect cavities in inserts from entry of concrete.
 - 2.2. **Edge fixing distances:** Not less than recommended by fixing anchor manufacturers.
3. **Corrective fabrication:** Minimize. Where necessary, submit proposals.

965 Preliminary curtain walling installation

1. **Requirement:** Complete an area for inspection and approval of appearance as follows: Area to be inspected by the Local Planning Authority, location to be aged.

970 Curtain walling installation

1. **Securing to fixing anchors:** Through holes formed during fabrication only.
2. **Tightening mechanical fasteners:** To manufacturer's recommended torque figures. Do not overtighten fasteners intended to permit differential movement.
3. **Protective coverings:** Remove only where necessary to facilitate installation and from surfaces that will be inaccessible on completion.

975 Welding

1. **In situ welding:** Permitted, subject to completion of and compliance with a 'hot work permit' form

978 Installing fire and smoke stops

1. **Fire and smoke stops:** To be located at all junctions between the curtain wall and compartment or separating walls and floors. To be installed strictly in accordance with manufacturers' guidelines and as recommended in CWCT Technical Note TN 98.
2. **Installer qualification:** To be a member of a UKAS accredited installer scheme.

980 Interfaces

1. **Flashings, closers, etc:** Locate and form correctly to provide weathertight junctions with the curtain walling.

982 Ironmongery

1. **Assembly and fixing:** Accurately, using fasteners with matching finish supplied by ironmongery manufacturer.

2. **Completion:** Check, adjust and lubricate as necessary to ensure correct functioning.

985 Maintenance

1. **Maintenance manual:** Incorporate details within the Building Manual in accordance with CWCT 'Standard for systemised building envelopes' clause 7.6.1.

- 1.1. **Materials certification and test reports to be included:**

Ω End of Section

H13

Structural glass assemblies

Types of structural glass assembly

115 Structural glass assembly

1. **Description:** Glazed Infill Panels to Back Pool Fold Refer to drawings T(704) and T(705)
2. **Supporting structure:** Steel members, see structural engineer's drawings
3. **System manufacturer:** Structural Glazing Ltd or similar. Submit proposals.
 - 3.1. **Product reference:** Double glazed frameless safety glass glass panels
 - 3.2. **Walls:** Point-fixed double-glazed wall assembly
 - 3.3. **Roofs:** Not required
 - 3.4. **Soffits:** Not required
4. **Assembly fixings:** Countersunk bolts with flexible washers and spring plates
 - 4.1. **Material:** Stainless steel
 - 4.2. **Finish:** Brushed
5. **Glass:** laminated inner pane, toughened outer pane, 20mm spacer, glass thicknesses as recommended by the installer
6. **Sealant jointing:** Structural silicone
 - 6.1. **Nominal joint width:** 12 mm
7. **Incorporated components:**
8. **Fittings and ironmongery:**
9. **Accessories:** PPC Aluminium cill with drip

General requirements

205 Contractor's design

1. **Description:** Of Structural Glass Assemblies
2. **Design responsibility:** Determine glass type and thickness and types, sizes and numbers of fixings. Detail assembly and fixings to suit the layout and details of supporting steelwork shown on drawings T(436) and T(437)
3. **Structural and fire requirements**
 - 3.1. **Generally:** As section B50.
 - 3.2. **Modifications:** None
4. **Functional requirements:** Not applicable
5. **Additional requirements:** None

220 Specification

1. **Compliance standard:** The Centre for Window and Cladding Technology (CWCT) 'Standard for systemised building envelopes'.
2. **Reference information:** For the duration of the Contract, keep available at the design office, workshop and on site copies of:
 - 2.1. The CWCT 'Standard for systemised building envelopes'.
 - 2.2. Publications invoked by the CWCT 'Standard for systemised building envelopes'.

225 Information to be provided before detailed design of structural glazing

1. **Submittals**

- 1.1. Detailed reports and calculations to prove compliance with design and performance requirements. Reports and calculations must be based on approved laboratory testing or computer modelling.
- 1.2. Full details of structural sealant glazing design.

230 Information to be provided during detailed design of structural glazing

1. Submittals
 - 1.1. Quality plan.
 - 1.2. Method statements.
2. Content: In accordance with CWCT TN53, BS EN ISO 9001 and including the following:
 - 2.1. Name of the quality manager.
 - 2.2. Quality assessment procedures.
 - 2.3. Inspection procedures to be adopted in checking the work.
 - 2.4. Stages at which checklists will be used and samples of the lists.
 - 2.5. List of work procedures on the correct use of materials or components, both off site and on site.
 - 2.6. List of product information with latest revisions.
 - 2.7. Subcontractors involved in the work.
 - 2.8. Subcontractors' quality plans.
 - 2.9. Storage, handling, transport and protection procedures.
 - 2.10. Procedure for registering and reporting non-compliances.
 - 2.11. Maintenance procedures and calibration records.
 - 2.12. Certification that completed work complies with specification.
 - 2.13. Checklist register to ensure all items have been inspected and non-compliances discharged.

231 Information to be provided before fabrication of structural glazing

1. Submittals
 - 1.1. Detailed drawings to fully describe fabrication and installation.
 - 1.2. Project specific fabrication, handling and installation method statements.
 - 1.3. A schedule of loads that will be transmitted from the structural glass assembly to the structure.
 - 1.4. Proposals for connections to and support from the building structure and building components.
 - 1.5. Proposals for amendments to primary supporting structure and for secondary supporting structure additional to that shown on preliminary design drawings.
 - 1.6. A detailed fabrication and installation programme in compliance with the Main Contract master programme.
 - 1.7. Recommendations for safe dismantling and recycling or disposal of products.

Design/ performance requirements

311 Integrity

1. Requirement: The structural glass assembly must resist wind loads, dead loads and design live loads, and accommodate deflections and movements without damage.
2. Design wind pressure:
3. Impact resistance for structural glass walls
 - 3.1. Hard body impact loads: In accordance with CWCT TN75:
 - 3.1.1. Location and exposure category:

3.2. Soft body impact loads - glass to BS EN 12600

3.2.1. Location and classification:

4. Impact resistance for structural glass roofs
 - 4.1. Safety and fragility class: In accordance with CWCT TN66:
 - 4.1.1. Classification:
5. Permanent imposed loads: See Structural Engineer's specification
6. Temporary imposed loads: See Structural Engineer's specification

331 General movement

1. Requirement: The structural glass assembly must accommodate anticipated building movement without damage.
 - 1.1. Anticipated building movement: See Structural Engineer's specification

341 Weather resistance

1. Air leakage through sealant joints: None.
2. Water leakage through the structural glass assembly and perimeter junctions: None.

351 Air permeability

1. Air leakage
 - 1.1. Through sealant joints: None.
 - 1.2. Through opening lights and perimeter junctions (maximum): 2.0 m³/h/ linear m.
2. Test: In accordance with Centre for Window and Cladding Technology (CWCT) 'Standard for systemised building envelopes', Standard test methods - section 5.
 - 2.1. Peak positive test pressure:
 - 2.2. Test results: Submit.

355 Water penetration

1. Water leakage through the structural glass assembly: None.
2. Test: In accordance with Centre for Window and Cladding Technology (CWCT) 'Standard for systemised building envelopes', Standard test methods - section 6.
 - 2.1. Peak positive test pressure:
 - 2.2. Test results: Submit.

361 Heat conservation

1. Average thermal transmittance (U-value): 1.4 W/m²·K

371 Vapour control

1. Conditions under which condensation must not form on the internal surfaces of glass panes or units
 - 1.1. External air temperature: -5°C.
 - 1.2. Internal air temperature: +20°C.
 - 1.3. Internal relative humidity (maximum):

391 Thermal stress in glazing

1. Glass panes and units: Must have adequate resistance to thermal stress generated by orientation, shading, solar control and construction.

401 Sound transmittance

1. Weighted sound reduction index (R_w), within 100–3150 Hz frequency range to BS 5821-3 (minimum): 38 dB

421 Security

1. Threaded assembly fixings and assembly support fixings: Locked or pinned at completion of structural glazing to prevent rotation due to building movement and unauthorized adjustment.

440 Durability

1. Products used in the structural glass assembly: Not liable to attack by fungi, insects or vermin.
2. Schedule for maintenance and replacement of sealants and secondary components: Submit.

Testing - Not Used

Products

610 Glass generally

1. Standards: To BS 952 and BS EN 1863 for heat strengthened soda lime silicate glass.
2. Glass quality: Clean and free from obvious scratches, bubbles, cracks, rippling, dimples and other defects.
3. Glass edges: Flat ground, generally undamaged.
 - 3.1. Shells and chips: Permitted to maximum dimensions of 2 mm deep and 5 mm across surface. Grind out to edges.
 - 3.2. Arrises: Slightly ground, suitable for sealant jointing.

615 Dimensional tolerances on glass

1. Measurement of tolerances: Before thermal toughening and/ or heat strengthening.
2. Panes
 - 2.1. Dimensions < 1 m: ± 1 mm.
 - 2.2. Dimensions > 1 m: ± 2 mm.
 - 2.3. Squareness: Maximum 4 mm difference in diagonal measurements.
3. Holes
 - 3.1. Positional tolerance: ± 1 mm from single datum point.
 - 3.2. Diameter tolerance: ± 1 mm.

617 Distortional tolerances on glass

1. Measurement of tolerances: After thermal toughening and/ or heat strengthening:
2. Bow (maximum): 0.2% of pane dimension.
3. Roller wave for glass thickness (maximum)
 - 3.1. 3–5 mm: 0.5 mm.
 - 3.2. 6–10 mm: 0.3 mm.
 - 3.3. > 12 mm: 0.15 mm.
4. Edge dip for glass thickness (maximum)
 - 4.1. 3–5 mm: 0.8 mm.
 - 4.2. 6–10 mm: 0.5 mm.
 - 4.3. > 12 mm: 0.25 mm.

620 Thermally toughened glass

1. Standards: To BS EN 12150 or BS EN 13024.
2. Impact performance: To BS EN 12600.
3. Edgework and holes: Complete before toughening.
4. Toughening process: Horizontal to eliminate tong marks and minimize dimensional inaccuracies.
5. Nickel sulfide inclusions: Heat soak toughened glass to BS EN 14179.
 - 5.1. Holding period:

630 Laminated glass

1. Panes: Thermally toughened glass, combined with heat strengthened glass to BS EN 1863 and BS EN ISO 12543 or annealed glass, to form panes that retain integrity in event of breakage.
2. Interlayers to glass leaves: Polyvinyl butyral (pvb) or cast in place resin. Sealed at the perimeter to prevent deterioration due to water or glass joint sealant.

640 Sealed insulating glass units

1. Standard and labels for hermetically sealed units: To BS EN 1279.
2. Label: Each pane.
3. Colour of aluminium perimeter spacers: Natural
4. Perimeter seals
 - 4.1. Resistant to UV light degradation on exposed edges.
 - 4.2. Compatible with structural and weather sealants with which they come into contact.
5. Assembly fixings: Hermetically sealed through or into units.
6. Structural integrity: Fabricate units to transfer loads safely from glass panes to assembly fixings.
7. Perimeter taping: Not permitted.

650 Stainless steel assembly fixings and/ or supports

1. Castings and machined fittings: To BS EN 10088-1, grade 1.4401.
2. Plate and strip: To BS EN 10088-2, grade 1.4401.
3. Bars, rods and sections: To BS EN 10088-3, grade 1.4401.
4. Fasteners: Austenitic stainless steel, to BS EN ISO 3506-1 and 2, grade A4.

660 Aluminium alloy assembly fixings and/ or supports

1. Extrusions: To BS EN 573-3, alloy designation EN AW-6063.
2. Plate and strip: To BS EN 485, BS EN 515 and BS EN 573.

Fabrication and installation

710 Workmanship generally

1. Fabrication: Machine cut and drill glass, assembly fixings and assembly supports in the workshop.

720 Suitability of supporting structure

1. Pre-installation survey: Submit report.

730 Structural glazing

1. Setting out of glass panes and units: Orientate to ensure uniformity of appearance.
2. Assembly fixings and assembly support fixings
 - 2.1. Isolate metal surfaces to prevent direct contact with glass.

- 2.2. Isolate dissimilar metal surfaces to prevent electrolytic corrosion.
- 2.3. Tighten to manufacturer's recommended torque figures.

740 Sealant joints

- 1. **Sealant:** To BS EN ISO 11600, type G silicone, neutral curing where in contact or close proximity to other products and finishes that may be adversely affected by acetoxo curing.
 - 1.1. **Class:**
- 2. **Manufacturer:** Contractor's choice
 - 2.1. **Product reference:**
- 3. **Colour:** Black
- 4. **Application:** As section Z22

750 Structural sealant joints

- 1. **Description:**
- 2. **Structural sealant**
 - 2.1. Silicone, neutral curing, designed and manufactured for bonding of structural sealant glazing.
 - 2.2. Compatible with contact and close proximity products and finishes.
- 3. **Manufacturer:** Submit proposals
 - 3.1. **Product reference:**
- 4. **Colour:** Black
- 5. **Application:** As section Z22

Ω End of Section

H92

Rainscreen cladding

Clauses

100 Rainscreen Cladding

1. Description - Steel Mesh Rainscreen cladding for External Wall Types A and E
2. Supplier - Taylor Maxwell
6080 Knights Court,
Solihull Parkway,
Birmingham Business Park,
Birmingham,
B37 7WY
0121 296 3050

enquiries@taylor.maxwell.co.uk
3. Type - Anvil Mesh Panel, Type EM-03
 - Thickness: 3mm
 - Manufacture: Controlled Processes
 - Finish/Colour: Aluminium
 - Joint Type: L Clip
 - Joint Width: 20mm Typical Open Joint
 - Full results and manufacturer details available
 - Secondary Support System: Proprietary bracket & rail system included - with cladding panels.
 - Manufacturer: Plastestrip
4. Backing
 - Cementious board as Clause G10/200
 - Ventilation gap: 50mm
 - Breather membrane: as Clause 200
 - Insulation: Knauf RocksilK Rainscreen Slab
 - Thickness: 100mm
5. Support: Steel framed wall as Clause G10/100

105 Rainscreen Cladding For Roof Perimeter

1. Description - Steel Mesh Rainscreen cladding for External Wall Type C
2. Supplier - Taylor Maxwell
6080 Knights Court,
Solihull Parkway,
Birmingham Business Park,
Birmingham,
B37 7WY
0121 296 3050

enquiries@taylor.maxwell.co.uk
3. Type - Anvil Mesh Panel, Type EM-03
 - Thickness: 3mm
 - Manufacture: Controlled Processes
 - Finish/Colour: Aluminium
 - Joint Type: L Clip
 - Joint Width: 20mm Typical Open Joint
 - Full results and manufacturer details available
 - Secondary Support System: Proprietary bracket & rail system included - with cladding

panels.

- Manufacturer: Plastestrip

4. Backing

- Cementitious board as Clause G10/200

5. Support: Steel framed wall as Clause G10/100

110 Rainscreen Cladding Cassette System

1. Description - Non Combustable Cassette Fix Rainscreen Cladding

2. Supplier -Valcan, Dunball House, Woodlands Court Business Park, Bristol Rd, Bridgwater, Somerset
TA6 4FJ.
Tel: 01278 428 245
Email enquiries@valcan.co.uk

3. Type - Vitradual panels

- Thickness: 3mm
- Fixing system: Cassette fix
- Panel Width: 1250 and custom width
- Panel Length: 3200 and custom to suit location
- Finish/Colour: PVDF, standard RAL colour, to be selected.
- Joint Type: Recessed
- Joint Width: 20mm
- Fixing: Vitrafix VF1 carrier system on thermal isolators, screws as recommended by the manufacturer
- Accessories: perimeter channels, cill with drip

4. Backing

- Breather membrane: as Clause 200
- Insulation: Knauf Rocksilks Rainscreen Slab
- Thickness: 100mm

5. Support: Steel framed wall as Clause G10/100

120 Rainscreen Cladding Zinc Cassette System

1. Description - Non Combustable Cassette Fix Rainscreen Cladding

2. Supplier -to contractor's choice

3. Type - Bright rolled titanium zinc panels

- Thickness: 1.5mm
- Fixing system: Cassette fix
- Panel Width: 315mm nom.
- Panel Length: to suit location
- Finish/Colour: grey, to be approved.
- Joint Type: Recessed
- Joint Width: 20mm
- Fixing: Screws as recommended by the manufacturer
- Accessories: perimeter channels, cill with drip
- Other requirements: 12mm WBP ply bonded backing

4. Backing

- Breather membrane: as Clause 200

5. Support: Steel framed wall as Clause G10/100

130 Rainscreen Cladding Cementitious Board

1. Description - Cementitious Rainscreen cladding for External Wall Type D

2. Supplier -**Wienerberger Ltd**
 Wienerberger House
 Brooks Drive
 Cheadle Royal Business Park Cheadle, Cheshire
 SK8 3SA
 T: 0845 303 2524
 Email: office@wienerberger.co.uk
3. Type - SVK fibre cement facades, Puro Plus
 - Thickness: 8mm
 - Panel size: 3070 x 1220, cut on site to suit layout.
 - Joint Width: 10mm, open horizontal and vertical joints
 - Ventilated Cavity Width: 50mm
 - Secondary Support System: Proprietary aluminium vertical subframe system as recommended by the manufacturer.
 - Backing Wall: steel framed wall as Clause G10/100
 - Fasteners: Rivet to A2 quality with wide lacquered head Ø16 mm
 - Accessories: Subframe fixings as recommended by the manufacturer.
4. Backing
 - Breather membrane: as Clause 200
 - Insulation: Knauf Rocksilk Rainscreen Slab
 - Thickness: 100mm
5. Support: Steel framed wall as clause G10/100

135 Rainscreen Cladding for Roof Perimeter

1. Description - Cementitious Rainscreen cladding for External Wall Type C
2. Supplier -**Wienerberger Ltd**
 Wienerberger House
 Brooks Drive
 Cheadle Royal Business Park Cheadle, Cheshire
 SK8 3SA
 T: 0845 303 2524
 Email: office@wienerberger.co.uk
3. Type - SVK fibre cement facades, Puro Plus
 - Thickness: 8mm
 - Panel size: 3070 x 1220, cut on site to suit layout.
 - Joint Width: 10mm, open horizontal and vertical joints
 - Ventilated Cavity Width: 50mm
 - Secondary Support System: Proprietary aluminium vertical subframe system as recommended by the manufacturer.
 - Backing Wall: steel framed wall as Clause G10/100
 - Fasteners: Rivet to A2 quality with wide lacquered head Ø16 mm
 - Accessories: Subframe fixings as recommended by the manufacturer.
4. Support: Steel framed wall as clause G10/100

200 Breather Membrane For Facades

1. Description: UV stable breathable membrane
2. Manufacturer: DuPont
3. Type: Tyvek UF Facade
4. Fixing: Tyvec double sided tape and mechanical fixings as recommended by the manufacturer.
 Vertical Laps: 100mm
 Horizontal Laps: 150mm
 Sealing: Tyvec UV Facade sealing tape

Ω End of Section

L10

Windows/ rooflights/ screens/ louvres

General

110 Evidence of performance

1. **Certification:** Provide independently certified evidence that all incorporated components comply with specified performance requirements.

115 Timber procurement

1. **Timber (including timber for wood based products):** Obtained from well managed forests and/ or plantations in accordance with:
 - 1.1. The laws governing forest management in the producer country or countries.
 - 1.2. International agreements such as the Convention on International Trade in Endangered Species of wild fauna and flora (CITES).
2. **Documentation:** Provide either:
 - 2.1. Documentary evidence (which has been or can be independently verified) regarding the provenance of all timber supplied.
 - 2.2. Evidence that suppliers have adopted and are implementing a formal environmental purchasing policy for timber and wood based products.
3. **Certification scheme:**
 - 3.1. **Other evidence:**

120 Preconstruction survey

1. **Procedure:** Before starting work on designated items take site dimensions, record on shop drawings and use to ensure accurate fabrication.
2. **Designated items:**
3. **Primary support structure:** Carry out survey sufficient to verify that required accuracy and security of erection can be achieved.
4. **Timing:** Before fabrication.

140 Control samples

1. **Procedure**
 - 1.1. Finalise component details.
 - 1.2. Fabricate one of each of the following designated items as part of the quantity required for the project.
 - 1.3. Obtain approval of appearance and quality before proceeding with manufacturer of the remaining quantity.
2. **Designated items:**

Products

205 Window materials specification

1. **Minimum BRE 'Green Guide to Specification Online' rating:** A

250 Wood windows

1. **Standard:** Non-fire rated window to BS EN 14351-1 and BS 644
2. **Manufacturer:** A firm currently registered under a third party quality assurance scheme.
3. **Exposure category to BS 6375-1/ Design wind load:** 1200 Pa

4. Operation and strength characteristics: To BS 6375-2.
5. Timber: Generally to BS EN 942.
 - 5.1. Species: Softwood as Table NA.1, Hardwood as Table NA.2
 - 5.2. Appearance class: J10 for glazing beads, drip mouldings, etc. J40 or better for all other members.
 - 5.3. Moisture content on delivery: 12-19%.
6. Preservative treatment: Organic solvent as section Z12 and WPA Commodity Specification C5; Desired service life 30 years
7. Finish as delivered: Full paint system as section M60
8. Thermal performance (U-value maximum): Manufacturer's standard
9. Acoustic performance rating: Manufacturer's standard
10. Fire resistance: Not required
11. Glazing details: As specified on the drawings
 - 11.1. Beading: External
12. Ironmongery/ Accessories: Solid brass sash Locks, sash hooks, meeting stile seals, sash seals, sash pulleys, weights and cords
13. Fixing: Built in with cramps

316 Frameless Glass Windows

1. Standard: Non-fire and/ or smoke rated windows to BS EN 14351-1 and BS 6510
 - 1.1. Material: Frameless glazed units
2. Exposure category to BS 6375-1/ Design wind load: 1200 Pa or to installer's recommendations
3. Operation and strength characteristics: To BS 6375-2.
4. Finish as delivered:
5. Thermal performance (U-value maximum): 1.4 W/m²K
6. Acoustic performance rating: Rw 37dB
7. Fire resistance: Not required
8. Glazing details: Sealed double glazed safety glass units with laminated inner and toughened outer to installer's design
 - 8.1. Beading:
9. Ironmongery/ Accessories: metal perimeter channel, polyester powder coated aluminium cill with drip
10. Fixing: To installer's recommendations

390 Proprietary windows

1. Description: Thermal Break Louvred Windows
2. Standard: Non-fire and/ or smoke rated windows to BS EN 14351-1
3. Manufacturer: Naco (Swegon Air Management Limited)
Stourbridge Road, Bridgnorth, Shropshire, WV15 5BB
Tel: 01746 761921 Fax: 01746 766450
Email: naco@swegon.com
 - 3.1. Product reference: Vengen 28
4. Finish as delivered: Polyester powder coated, standard RAL colour to be selected
5. Thermal performance (U-value maximum): Manufacturer's standard
6. Acoustic performance rating: Manufacturer's standard
7. Fire resistance: Not required
8. Glazing details: 28mm doubled glazed units. See L40/***

- 8.1. Beading: Manufacturer's standard
- 9. Ironmongery/ Accessories: Bearings, blade linkages, 24v DC D&H linear motor actuators with link to fire alarm system
- 10. Fixing: Lug fixing

460 Rooflights

- 1. Manufacturer: A. Bilco UK, 20 Park Farm Business Centre, Fornham St Genevieve, Bury St Edmunds, Suffolk, IP28 6TS.
Tel. 01284 701696. Fax. 01284 702531
Web: www.bilcouk.com
 - 1.1. Product reference: Sky Access, 1000 x 1500
- 2. Type: Rectangular
- 3. Frame: Rigid PVC with aluminium profiles
 - 3.1. Finish: As supplied by the manufacturer
 - 3.2. Colour: white
- 4. Kerb: 250 high insulated polyester
- 5. Thermal performance (U-value maximum): 1.02 W/m²K
- 6. Fire performance (minimum): AA, AB or AC designation when tested in accordance with BS 476-3
- 7. Glazing details: Double layer polycarbonate outer and safety glass inner, clear
- 8. Other requirements: 24V DC actuator, auto/manual switch
- 9. Fixing: To manufacturer's recommendations

461 Rooflights Smoke Vent

- 1. Manufacturer: A. Bilco UK, 20 Park Farm Business Centre, Fornham St Genevieve, Bury St Edmunds, Suffolk, IP28 6TS.
Tel. 01284 701696. Fax. 01284 702531
Web: www.bilcouk.com
 - 1.1. Product reference: SKY-1M, 1000 x 1500
- 2. Type: Rectangular
- 3. Frame: Rigid PVC with aluminium profiles
 - 3.1. Finish: As supplied by the manufacturer
 - 3.2. Colour: white
- 4. Kerb: 250 high insulated polyester
- 5. Thermal performance (U-value maximum): 1.02 W/m²K
- 6. Fire performance (minimum): AA, AB or AC designation when tested in accordance with BS 476-3
- 7. Glazing details: Double layer polycarbonate outer and safety glass inner, clear
- 8. Other requirements: 24V DC actuator, linked to fire alarm system for stair well A
- 9. Fixing: To manufacturer's recommendations

650 Acoustic Metal louvres

- 1. Manufacturer: Wakefield Acoustics Ltd, Flush Mills, Westgate, Heckmondwike, West Yorkshire, WF16 0EN, UK ; Tel: 01924 418959 Email: noise@wakefieldacoustics.co.uk
 - 1.1. Product reference: WA-ACL-150SB 2400 high units on mounting frame designed by the manufacturer.
- 2. Material: Aluminium with acoustic insulation
 - 2.1. Finish as delivered: Polyester powder coated to standard RAL colour
- 3. Number of louver banks: One
- 4. Louvre blade pitch and angle: Pitch 150mm

5. **Accessories/ Other requirements:** Stub posts to be provided. Anvil EM mesh to outer face as Clause ***. Louvred doors within acoustic screen to match.
6. **Fixing:** Bolted in accordance with the manufactures recommendations.

Execution

710 Protection of components

1. **General:** Do not deliver to site components that cannot be installed immediately or placed in clean, dry floored and covered storage.
2. **Stored components:** Stack vertical or near vertical on level bearers, separated with spacers to prevent damage by and to projecting ironmongery, beads, etc.

730 Priming/ sealing

1. **Wood surfaces inaccessible after installation:** Prime or seal as specified before fixing components.

740 Corrosion protection

1. **Surfaces to be protected:**
2. **Protective coating:** Two coats of bitumen solution to BS 6949 or an approved mastic impregnated tape.
 - 2.1. **Timing of application:** Before fixing components.

750 Building in

1. **General:** Not permitted unless indicated on drawings.
 - 1.1. Brace and protect components to prevent distortion and damage during construction of adjacent structure.

760 Replacement window installation

1. **Standard:** In accordance with BS 8213-4.

765 Window installation generally

1. **Installation:** Into prepared openings.
2. **Gap between frame edge and surrounding construction**
 - 2.1. **Minimum:** 5mm
 - 2.2. **Maximum:** 10mm
3. **Distortion:** Install windows without twist or diagonal racking.

770 Damp proof courses in prepared openings

1. **Location:** Ensure correct positioning in relation to window frames. Do not displace during fixing operations.

780 Fixing of wood frames

1. **Standard:** As section Z20.
2. **Fasteners:** Stainless steel fixings
 - 2.1. **Spacing:** When not predrilled or specified otherwise, position fasteners not more than 150 mm from ends of each jamb, adjacent to each hanging point of opening lights, and at maximum 450 mm centres.

782 Fixing of aluminium frames

1. **Standard:** As section Z20.

2. **Fasteners:** As recommended by the manufacturer
 - 2.1. **Spacing:** When not predrilled or specified otherwise, position fasteners not more than 250 mm from ends of each jamb, adjacent to each hanging point of opening lights, and at maximum 600 mm centres.

790 Fire-resisting frames

1. Gap between back of frame and reveal: Completely fill with intumescent mastic or tape.

810 Sealant joints

1. Sealant
 - 1.1. **Manufacturer:** Contractor's choice
 - 1.1.1. **Product reference:** Submit proposals
 - 1.2. **Colour:** To be agreed
 - 1.3. **Application:** As section Z22 to prepared joints. Finish triangular fillets to a flat or slightly convex profile.

815 Sealant Tape

1. Sealant
 - 1.1. **Manufacturer:** tremco CPG UK Limited
Coupland Road
Hindley Green
Wigan WN2 4HT UK
+44 (0) 1942 929012
 - 1.1.1. **Product reference:** Compriband TP600
 - 1.2. **Colour:** black
 - 1.3. **Application:** As recommended by the manufacturer

820 Ironmongery

1. **Fixing:** In accordance with any third party certification conditions applicable. Assemble and fix carefully and accurately using fasteners with matching finish supplied by ironmongery manufacturer. Do not damage ironmongery and adjacent surfaces.
2. **Checking/ Adjusting/ Lubricating:** Carry out at Completion and ensure correct functioning.

Ω End of Section

L10A

Replacement Windows

Clauses

2 To be read with preliminaries/ general conditions.

General

99A General

1. EVIDENCE OF PERFORMANCE
2. **Certification:** Provide independently certified evidence that all incorporated components comply with specified performance requirements.
3. TIMBER PROCUREMENT
4. **Timber (including timber for wood based products):** Obtained from well managed forests and/ or plantations in accordance with:
 - 4.1. The laws governing forest management in the producer country or countries.
 - 4.2. International agreements such as the Convention on International Trade in Endangered
5. **Species of wild fauna and flora (CITES). Documentation:** Provide either:
 - 5.1. Documentary evidence (which has been or can be independently verified) regarding the provenance of all timber supplied.
 - 5.2. Evidence that suppliers have adopted and are implementing a formal environmental purchasing policy for timber and wood based products.
6. **Certification scheme:** UK Timber Procurement Policy Category A evidence certification scheme.
 - 6.1. **Other evidence:** UK Timber procurement policy Category B evidence: Completed supply chain information.
7. PRODUCTS
8. WOOD WINDOWS – Repair of sash
9. **Manufacturer:** Ventrolla Sash Window Restoration www.ventrolla.co.uk or similar approved.
 - 9.1. **Product reference:** Specialist Timber Sash Window Renovation and Performance Upgrade
10. Phase 1 - Window Renovation
11. Ventrolla have developed a unique Wood Repair System (VR90) that has been designed to extend the life of wooden windows and doors.
12. VR90 wood repair is a two part epoxy resin designed to impart the original strength to tenon joints and to fill cavities in sills,
13. which it achieves through bonding with the original timber.
14. **The system's core benefits are:**
15. It retains the majority of the original timber Provides long lasting repairs
16. Fast acting minimises standing time
17. Reduces Carbon Footprint of repair
18. Enables existing profile to be matched
19. In the event of excessive deterioration or if beyond economical repair, we replace the timbers, as required.
20. Application
21. All windows are inspected and surveyed prior to quotation and commencing work. At installation, sashes are removed and the condition of the timber, glass and pulleys are fully assessed.
22. Decaying wood is removed back to the sound timber
23. VR90 WS stabiliser is applied to provide anchorage

24. VR90 filler is applied to fill gaps / joints and moulded to match the window profile
25. All sash cords are replaced and the pulleys serviced
26. ensuring smooth operation
27. **NB:** In the case of larger repairs or where economics dictate, we splice in new timber, or, in the case of a rotten sill, we can replace it completely.
28. Ventrolla Renovated Window
29. Phase 2 - Performance Upgrade
30. The Ventrolla Perimeter Sealing System (VPSS) has been specifically designed to be installed on any shape or size wooden window or door.
31. The system upgrades the performance of original wooden windows and doors without affecting either their appearance or character.
32. As shown in Diagram A overleaf, the system is installed to provide a seal on all faces and becomes an integral part of the window or door.
33. **The system's core benefits are:**
34. Virtually eliminates draughts and leaks
35. Eradicates sash rattle
36. Improves Window's Energy Rating by up to 30%
37. Helps reduce noise problems
38. Ensures smooth operation of the window
39. Recognised by English Heritage, Historic England, Historic Scotland and Cadw
40. Application
41. A Perimeter Sealing System using Weatherfin two-piece parting bead, comprising of a pile carrier fitted into U-section, is installed in and around the sashes.
42. **The sealing system:**
43. **Conforms to BS 7386: 1997**
44. **Conforms to BS EN 12207 : 2000 and BS6375-1: 2009, Class 3** Is manufactured from multifilament polypropylene yarn that is silicon treated to be water repellent and UV stabilised
45. Can be supplied in any colour (additional cost may apply)
46. The sealing system is installed to the top of the box, mid rail, bottom rail, parting bead and the staff beads. See Diagram A overleaf for further details.
47. The sashes are weighed and the weights adjusted to ensure the window is correctly balanced and operates smoothly.
48. All exposed and bare wood is painted with one coat of white acrylic primer to BS5082. Final decorative painting is by others.
49. The sashes are reinstalled and staff beads fitted (if the easy release Sash Removal System is being installed removable staff beads are fitted and corked).
50. Windows are then to be checked for smooth operation.
51. Independent Testing
52. VPSS achieved the highest requirement of BS6375-1 2009, Class 3 (Tested to 600 Pa)
53. VPSS provides up to a 30% improvement in a Windows Energy Rating (WER)
54. Air change rates reduced to 0.4 air changes per hour
55. Noise reduction levels of up to 10 dB(A) range
56. Has been independently tested and proven to fall within the 6 to 10 dB noise reduction range
57. **WOOD WINDOWS TYPE A Window:** Reinstatement of shopfront frame as required.
 - 57.1. **Product reference:** Repair of existing.
58. **Species:** Price for English Oak – final species to be agreed on site to match existing.
59. **Finish as delivered:** Natural - to be re-painted with existing window.

60. Glazing details: single glazed.
 - 60.1. Beading: putty/timber tmatch existing profile.
61. Ironmongery/ Accessories: As required tmatch existing.
62. Fixing: Screwed ttimber framing as clause 780.
63. WOOD WINDOWS: TYPE B Window: New window to rear elevation.
 - 63.1. Product reference: Submit proposals. Refer to drawings for profiles.
64. Species: European Slow grown redwood.
65. Finish as delivered: Painted with microporous paint system - colour tbe confirmed. Thermal performance (U-value maximum): centre pane max 1.2Wm2K
66. Glazing details: Double glazed.
 - 66.1. Beading: timber.
67. Ironmongery/ Accessories: Locking handle.
68. Fixing: Screwed ttimber framing as clause 780.
69. WOOD WINDOWS TYPE C Window: Repairs texisting upper floor window frames.
70. Species: English Oak.
71. Finish as delivered: Natural - tbe re-painted with existing window.
72. Glazing details: single glazed tmatch existing crown/plate.
 - 72.1. Beading: putty tmatch existing.
73. Ironmongery/ Accessories: As required tmatch existing
74. Fixing: Screwed ttimber framing as clause 780.
75. EXECUTION
76. PROTECTION OF COMPONENTS
77. General: Dnot deliver tsite components that cannot be installed immediately or placed in clean, dry floored and covered storage.
78. Stored components: Stack vertical or near vertical on level bearers, separated with spacers tprevent damage by and tprojecting ironmongery, beads, etc.
79. PRIMING/ SEALING
80. Wood surfaces inaccessible after installation: Prime or seal as specified before fixing components.
81. REPLACEMENT WINDOW INSTALLATION Standard: TBS 8213-4.
82. DAMP PROOF COURSES IN PREPARED OPENINGS
83. Location: Ensure correct positioning in relation twindow frames. Dnot displace during fixing operations.
84. FIXING OF WOOD FRAMES
85. Standard: As section Z20.
86. Fasteners: Stainless steel wood screws .
 - 86.1. Spacing: When not predrilled or specified otherwise, position fasteners not more than
87. 150 mm from ends of each jamb, adjacent teach hanging point of opening lights, and at maximum 450 mm centres.
88. SEALANT
89. Manufacturer: Adshead Ratcliffe & CLtd.
 - 89.1. Web: www.arbo.co.uk.
 - 89.2. Email: arbo@arbo.co.uk.
 - 89.3. Product reference: Arbokol 1000
90. Colour: Black.
91. Accessories: Joint backing: Closed cell foam polyethylene rod.

92. IRONMONGERY

93. **Fixing:** In accordance with any third party certification conditions applicable. Assemble and fix carefully and accurately using fasteners with matching finish supplied by ironmongery manufacturer. Do not damage ironmongery and adjacent surfaces.
94. **Checking/ Adjusting/ Lubricating:** Carry out at Completion and ensure correct functioning.

Products - Not Used

Execution - Not Used

Ω End of Section

L30

Stairs/ ladders/ walkways/ handrails/ balustrades

Preliminary information/ requirements

130 Site dimensions

1. Procedure: Before starting work on designated items take site dimensions, record on shop drawings and use to ensure accurate fabrication.
 - 1.1. Designated items: All new stairs and balustrading

Components

230 Internal wood stairs

1. Description: Stairs D and E
2. Components
 - 2.1. Treads: Timber to interior designer's specification
 - 2.2. Risers: Timber to interior designer's specification
 - 2.3. Strings: Timber
 - 2.4. Handrails: To interior designer's specification
3. Timber: Generally to BS EN 942.
 - 3.1. Appearance class: J10
 - 3.2. Moisture content at time of installation: 9-13%
4. Adhesive: PVAC to BS EN 204, class D4
5. Workmanship: To section Z10.
6. Other requirements: Contrast nosing to interior designer's specification

270 Stairs

1. Description: Stair A
2. Component material, grade, finish as delivered
 - 2.1. Treads: Timber to interior designer's specification
 - 2.2. Risers: Timber to interior designer's specification
 - 2.3. Strings: Steel plate to structural engineer's specification
 - 2.4. Guarding: As Clause 550
 - 2.5. Handrails: As Clause 550
3. Workmanship
 - 3.1. Joinery:
 - 3.2. Metalwork:
4. Other requirements: Contrast nosing to interior designer's specification

272 Stairs Type B

1. Description: Stair B
2. Component material, grade, finish as delivered
 - 2.1. Treads: 4.5mm thick DDA compliant Durbar treads
 - 2.2. Risers: Durbar Treads
 - 2.3. Strings: Steel plate to structural engineer's specification
 - 2.4. Guarding: As Clause 552

- 2.5. Handrails: As Clause 552
- 3. Workmanship
 - 3.1. Joinery:
 - 3.2. Metalwork:
- 4. Other requirements: Contrast nosing to interior designer's specification
- 5. Landings: 4.5mm thick DDA compliant Durbar treads

550 Purpose-made balustrades

- 1. Description: Balustrades to Stair A
- 2. Component material, grade and finish as delivered
 - 2.1. Guarding: Perforated metal to interior designer's specification
 - 2.2. Handrails: Steel to interior designer's specification
- 3. Workmanship
 - 3.1. Metalwork: To section Z11
- 4. Other requirements: Finish to interior designer's specification
- 5. Fixing: To structural engineer's specification

552 Purpose-made balustrades Fire Escape Stair

- 1. Description: Balustrades to Stair B
- 2. Component material, grade and finish as delivered
 - 2.1. Guarding: To interior designer's specification
 - 2.2. Handrails: Steel to interior designer's specification
- 3. Workmanship
 - 3.1. Metalwork: To section Z11
- 4. Other requirements: Finish to interior designer's specification
- 5. Fixing: To structural engineer's specification

560 Proprietary balustrades

- 1. Description: Glass Balustrades to Roof
- 2. Manufacturer: Q-railing UK
Unit 1, Tunstall Arrow
James Brindley way
Stoke-on-Trent
Staffs ST65GF
T: 01782 740410
E: ukconsultant@q-railing.com
www.q-railing.com
 - 2.1. Product reference: Q-railing, Easy Glass® Prime
- 3. Component material and finish as delivered
 - 3.1. Guarding: 21.52 toughened/laminated Sentry glass interlayer
 - 3.2. Handrails: Not required
- 4. Backing: Steel structure finished with roof finish as Clause J42/100
- 5. Fixing: Base Channel:
Easy Glass Prime Top Mount channel
16.6960.000.18 (2500mm Length) – Brushed Aluminium
16.6960.500.18 (5000mm Length) – Brushed Aluminium
 - 5.1. Accessories: Rubber sets, inlay and Q disc
 - 5.2. Fasteners: Anchor bolts

Installation

610 Moisture content

1. **Temperature and humidity:** Monitor and control internal conditions to achieve specified moisture content in wood components at time of installation.

620 Priming/ Sealing/ Painting

1. **Surfaces inaccessible after assembly/installation:** Before fixing components, apply full protective/decorative treatment/coating system.

630 Corrosion protection of dissimilar materials

1. **Components/ substrates/ fasteners of dissimilar materials:** Isolate using washers/ sleeves or other suitable means to separate materials to avoid corrosion and/ or staining.

640 Installation generally

1. **Fasteners and methods of fixing:** To section Z20.
2. **Structural members:** Do not modify, cut, notch or make holes in structural members, except as indicated on drawings.
3. **Temporary support:** Do not use stairs, walkways or balustrades as temporary support or strutting for other work.
4. **Applied finishes:** Substrates to be even, dry, sound and free from contaminants. Make good substrate surfaces and prepare/ prime as finish manufacturer's recommendation before application.

Completion

920 Documentation

1. **Contents**
 - 1.1. Copies of structural design calculations/ test reports.
 - 1.2. General product information.
 - 1.3. Installation information.
 - 1.4. Inspection and maintenance reports.
2. **Number of copies:**
3. **Submission:**

Ω End of Section

L40

General glazing

General requirements

111 Preglazing

1. Preglazing of components: Permitted.
2. Prevention of displacement: Submit details of precautions to be taken to protect glazing and compound/ seals during delivery and installation.
3. Defective/ displaced glazing/ compound/ seals: Reglaze components in situ.

130 Removal of glass/ plastics for reuse

1. Existing glass/ plastics and glazing compound, beads, etc: Remove carefully, avoiding damage to frame, to leave clean, smooth rebates free from obstructions and debris.
2. Deterioration of frame/ surround: Submit report on defects revealed by removal of glazing.
 - 2.1. Affected areas: Do not reglaze until instructed.
3. Reusable materials: Clean glass/ plastics, beads and other components that are to be reused.

140 Material samples

1. Representative samples of designated materials: Submit before cutting panes.
 - 1.1. Sample size (minimum):
 - 1.2. Designated materials:

150 Workmanship and positioning generally

1. Glazing generally: In accordance with BS 6262 series.
2. Integrity: Glazing must be wind and watertight under all conditions with full allowance made for deflections and other movements.
3. Dimensional tolerances: Panes/ sheets to be within ± 2 mm of specified dimensions.
4. Materials
 - 4.1. Compatibility: Glass/ plastics, surround materials, sealers, primers and paints/ clear finishes to be used together to be compatible. Avoid contact between glazing panes/ units and alkaline materials such as cement and lime.
 - 4.2. Protection: Keep materials dry until fixed. Protect insulating glass units and plastics glazing sheets from the sun and other heat sources.

151 Preparation

1. Surrounds, rebates, grooves and beads: Cleaned and prepared by others.

152 Preparation

1. Surrounds, rebates, grooves and beads: Clean and prepare before installing glazing; ensure compliance with any certified installation requirements.

155 Glass generally

1. Standards: To BS 952 and relevant parts of:
 - 1.1. BS EN 572 for basic soda lime silicate glass.
 - 1.2. BS EN 1096 for coated glass.
 - 1.3. BS EN 1748-1 for borosilicate glass.
 - 1.4. BS EN 1748-2 for ceramic glass.

- 1.5. BS EN 1863 for heat strengthened soda lime silicate glass.
- 1.6. BS EN 12150 for thermally toughened soda lime silicate safety glass.
- 1.7. BS EN 12337 for chemically strengthened soda lime silicate glass.
- 1.8. BS EN 13024 for thermally toughened borosilicate safety glass.
- 1.9. BS EN ISO 12543 for laminated glass and laminated safety glass.
2. **Panes/ sheets:** Clean and free from obvious scratches, bubbles, cracks, rippling, dimples and other defects.
 - 2.1. **Edges:** Generally undamaged. Shells and chips not more than 2 mm deep and extending not more than 5 mm across the surface are acceptable if ground out.

160 Linear patterned/ wired glass

1. **Alignment:** Vertical/ Horizontal as appropriate, and pattern matched across adjacent panes in close proximity.

165 Heat soaking of thermally toughened glass

1. **Standard:** To BS EN 14179-1 and -2.
 - 1.1. **Holding period (minimum):**
2. **Certified evidence of treatment:** Submit.
3. **Designated locations:**

180 Bead fixing with pins

1. **Pin spacing:** Regular at maximum 150 mm centres, and within 50 mm of each corner.
2. **Exposed pin heads:** Punched just below wood surface.

181 Bead fixing with screws

1. **Screw spacing:** Regular at maximum 225 mm centres, and within 75 mm of each corner.

190 Glass to glass jointing

1. **Sealant:** Silicone.
 - 1.1. **Standard:** To BS EN 15651-2 and BS EN ISO 11600
 - 1.1.1. **Evidence of compliance:** Submit.
 - 1.1.2. **Class:**
 - 1.2. **Colour:**
2. **Reaction to fire classification:**
3. **Joints**
 - 3.1. **Width:** Consistent and suitable to receive sealant.
 - 3.2. **Gap between panes:** Completely filled, leaving no voids or bubbles.
 - 3.3. **Surplus sealant:** Removed to leave a clean, neatly finished weathertight joint.

195 Glass to glass jointing

1. **Sealant:** Low modulus silicone
2. **Standard:** To BS EN 15651-2.
 - 2.1. **Evidence of compliance:** Submit.
3. **Manufacturer:** Contractor's choice
 - 3.1. **Product reference:** Submit proposals
4. **Reaction to fire classifications:**
5. **Colour:** black

6. Joints:
7. Width: Consistent and suitable to receive sealant.
8. Gap between panes: Completely filled, leaving no voids or bubbles.
 - 8.1. Surplus sealant: Removed to leave a clean, neatly finished weathertight joint.

Types of glazing

210 Putty fronted double glazing for sash windows Type A

1. Description: 11mm Insulating panes with gas fill and soft low e coating
2. Pane material: 3 mm clear float glass
3. Surround: Softwood
 - 3.1. Sealer: Sealant primer
4. Type of putty: Linseed oil
5. Thermal performance (U-value maximum): 1.9 W/m²K
6. Glass installation
 - 6.1. Glass: Located centrally in surround using setting and location blocks, and secured with glazing sprigs/ cleats/ clips at 300 mm centres.
 - 6.2. Finished thickness of back bedding after inserting glazing (minimum): 1.5 mm.
 - 6.3. Front putty: Finished to a smooth, neat triangular profile stopping 2 mm short of sight line. Surface lightly brushed to seal putty to glass and left smooth with no brush marks.
7. Sealing putty: Seal as soon as sufficiently hard but not within 7 days of glazing. Within 28 days apply either:
 - 7.1. The full final finish, suitably protected until completion and cleaned down and made good as necessary, or
 - 7.2. Two coats of applied locally to the compound, to be followed nearer completion with the full specified finish.
8. Opening lights: Keep in closed position until putty has set sufficiently to prevent displacement of glazing when opened.

211 Putty fronted double glazing for 1st Floor Sash Windows Type B

1. Description: 14.4mm Safety Glass doubled glazed units with gas fill and soft low e coating to inner pane
2. Pane material: 3 mm clear float glass inner, 6.4 mm laminated safety glass
3. Surround: Softwood
 - 3.1. Sealer: Sealant primer
4. Type of putty: Linseed oil
5. Thermal performance (U-value maximum): 1.9 W/m²K
6. Glass installation
 - 6.1. Glass: Located centrally in surround using setting and location blocks, and secured with glazing sprigs/ cleats/ clips at 300 mm centres.
 - 6.2. Finished thickness of back bedding after inserting glazing (minimum): 1.5 mm.
 - 6.3. Front putty: Finished to a smooth, neat triangular profile stopping 2 mm short of sight line. Surface lightly brushed to seal putty to glass and left smooth with no brush marks.
7. Sealing putty: Seal as soon as sufficiently hard but not within 7 days of glazing. Within 28 days apply either:
 - 7.1. The full final finish, suitably protected until completion and cleaned down and made good as necessary, or
 - 7.2. Two coats of applied locally to the compound, to be followed nearer completion with the full specified finish.

8. **Opening lights:** Keep in closed position until putty has set sufficiently to prevent displacement of glazing when opened.

212 Putty fronted double glazing for 1st Floor Sash Windows Type C

1. **Description:** 14.4mm Safety Glass doubled glazed units with gas fill and soft low e coating to inner pane
2. **Pane material:** 3 mm clear toughened glass inner, 6.4 mm laminated safety glass
3. **Surround:** Softwood
 - 3.1. **Sealer:** Sealant primer
4. **Type of putty:** Linseed oil
5. **Thermal performance (U-value maximum):** 1.9 W/m²K
6. **Glass installation**
 - 6.1. **Glass:** Located centrally in surround using setting and location blocks, and secured with glazing sprigs/ cleats/ clips at 300 mm centres.
 - 6.2. **Finished thickness of back bedding after inserting glazing (minimum):** 1.5 mm.
 - 6.3. **Front putty:** Finished to a smooth, neat triangular profile stopping 2 mm short of sight line. Surface lightly brushed to seal putty to glass and left smooth with no brush marks.
7. **Sealing putty:** Seal as soon as sufficiently hard but not within 7 days of glazing. Within 28 days apply either:
 - 7.1. The full final finish, suitably protected until completion and cleaned down and made good as necessary, or
 - 7.2. Two coats of applied locally to the compound, to be followed nearer completion with the full specified finish.
8. **Opening lights:** Keep in closed position until putty has set sufficiently to prevent displacement of glazing when opened.

213 Putty fronted double glazing for 1st Floor Sash Windows Type D

1. **Description:** 14.4mm Safety Glass doubled glazed units with gas fill and soft low e coating to inner pane
2. **Pane material:** 3 mm clear toughened glass inner, 3mm clear float glass outer
3. **Surround:** Softwood
 - 3.1. **Sealer:** Sealant primer
4. **Type of putty:** Linseed oil
5. **Thermal performance (U-value maximum):** 1.9 W/m²K
6. **Glass installation**
 - 6.1. **Glass:** Located centrally in surround using setting and location blocks, and secured with glazing sprigs/ cleats/ clips at 300 mm centres.
 - 6.2. **Finished thickness of back bedding after inserting glazing (minimum):** 1.5 mm.
 - 6.3. **Front putty:** Finished to a smooth, neat triangular profile stopping 2 mm short of sight line. Surface lightly brushed to seal putty to glass and left smooth with no brush marks.
7. **Sealing putty:** Seal as soon as sufficiently hard but not within 7 days of glazing. Within 28 days apply either:
 - 7.1. The full final finish, suitably protected until completion and cleaned down and made good as necessary, or
 - 7.2. Two coats of applied locally to the compound, to be followed nearer completion with the full specified finish.
8. **Opening lights:** Keep in closed position until putty has set sufficiently to prevent displacement of glazing when opened.

370 Bead fixed insulating glass units

1. Description: 28mm double glazed units
2. IGU: As clause 655.
 - 2.1. Perimeter taping: Do not use.
3. Surround/ bead: Aluminium
 - 3.1. Preparation:
 - 3.2. Bead location: As supplied by the manufacturer
 - 3.3. Bead fixing: Proprietary clip fixing
4. Glazing system: Preformed gasket sections supplied by window manufacturer
5. Thermal performance (U-value maximum): Manufacturer's standard
6. Glazing installation
 - 6.1. Insulating unit: Located centrally in surround using setting and location blocks.
 - 6.2. Gaskets and beads: Installed as recommended by frame manufacturer.
 - 6.2.1. Gasket fit at corners: Tight, without gaps.
 - 6.3. Drainage and ventilation holes: Unobstructed.

505 Fire resistant tape/ Strip glazing

1. Description: Glazing for Vision Panels and Fanlights
2. Fire resistance
 - 2.1. Standard: To BS EN 13501-2
 - 2.2. Rating: 60 Minutes
3. Pane material: Pilkington Pyrodur, 10mm thick
4. Frame/ Surround material: Hardwood frame
5. Beads
 - 5.1. Material: Hardwood with 10° chamfer
 - 5.2. Location: Inside
 - 5.3. Fixing:
6. Glazing system
 - 6.1. Tape/ Strip: Intumescent strip
 - 6.2. Pointing sealant: Silicone mastic
7. Installation: By a firm currently registered under a UKAS certified accreditation scheme for the installation of fire resistant glazing, in accordance with glazing manufacturer's recommendations.
8. Certification: Submit test certification for system, including any framing, installation and maintenance requirements or restrictions.

510 Fire resistant channel glazing

1. Description:
2. Fire resistance
 - 2.1. Standard:
 - 2.2. Rating:
3. Pane material:
 - 3.1. Orientation:
4. Frame/ Surround material:
5. Fire resistant channel:
 - 5.1. Dimensions:

- 5.2. Intumescent aperture lining/ filler:
- 6. Cover strips:
- 7. Thermal performance (U-value maximum):
- 8. Installation: By a firm currently registered under a UKAS certified accreditation scheme for the installation of fire resistant glazing, in accordance with glazing manufacturer's recommendations.
- 9. Certification: Submit test certification for system, including any framing, installation and maintenance requirements or restrictions.

515 Fire resistant channel glazing

- 1. Description:
- 2. Fire resistance
 - 2.1. Standard:
 - 2.2. Rating:
- 3. Pane material:
 - 3.1. Orientation:
- 4. Frame/ Surround material:
- 5. Beads
 - 5.1. Material:
 - 5.2. Fixing:
- 6. Fire resistant channel:
 - 6.1. Aperture lining: Intumescent sheet/ strip recommended for the purpose by channel manufacturer.
- 7. Thermal performance (U-value maximum):
- 8. Installation: By a firm currently registered under a UKAS certified accreditation scheme for the installation of fire resistant glazing, in accordance with glazing manufacturer's recommendations.
- 9. Certification: Submit test certification for system, including any framing, installation and maintenance requirements or restrictions.

520 Fire rating

- 1. Assessment of capability: Submit proposed construction details of designated items to a UKAS/ EA accredited laboratory or other approved authority for assessment of capability of achieving specified fire ratings.
 - 1.1. Test standard:
- 2. Assessment/ test results and reports: Submit immediately they are available, and before installing glazing.
- 3. Designated items:

530 Internal tape glazing

- 1. Description:
- 2. Pane material:
- 3. Surround/ bead:
 - 3.1. Bead fixing:
- 4. Tape/ Section:
- 5. Glazing installation: Beads bedded dry to rebate and glazing tape/ section and fixed securely. Tape trimmed flush with sight line on both sides.

550 Glass mirrors

- 1. Description: Mirrors for toilets

2. **Standard:** To BS EN 1036.
 - 2.1. **BS EN 1036-2 characteristics:** None relevant
3. **Mirror material:** Float glass, silvered to give maximum reflection, free from tarnishing, discoloration, scratches and other defects visible in the designed viewing conditions.
 - 3.1. **Thickness:** 4 mm
 - 3.2. **Backing:** Anticorrosive paint
 - 3.3. **Edge treatment:** Ground edge
4. **Background:** Plasterboard partitions
5. **Fixing method:** Dome top wood screws with polyethylene sleeves and washers at 600 mm centres
6. **Installation:** Fixed accurately and securely without overtightening fasteners, to provide a flat surface giving a distortion free reflection.

630 Manifestation

1. **Description:** To Entrance Doors
2. **Design:** To be confirmed
 - 2.1. **Art work:** Supplied by designer
 - 2.2. **Media:** Electronic
3. **Technique:** Applied film

655 Insulated glass units (IGUs)

1. **Description:** Double glazed units for Louvred Windows
2. **Manufacturer:** Contractor's choice
 - 2.1. **Product reference:** Contractor's choice
3. **Standard:** BS EN 1279.
4. **Thermal performance (centre pane):** Manufacturer's standard
5. **Construction**
 - 5.1. **Inner pane:** 4 mm clear toughened glass
 - 5.2. **Cavity:** 20 mm argon
 - 5.3. **Intermediate pane:** Not applicable
 - 5.4. **Cavity:** Not applicable
 - 5.5. **Outer pane:** 4 mm clear toughened glass
 - 5.6. **Spacer:** 20 mm anodized aluminium, colour: silver
6. **Unit thickness:** 28mm
7. **Other requirements:**