



FRANKHAM

**BASEPOINT BUSINESS PARK, TILBURY
THURROCK COUNCIL**

**RIBA STAGE F1 SPECIFICATION
EXTERNAL GLAZED DOORS & CURTAIN WALLING
AND GLAZED INDUSTRIAL DOORS**

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1.00 Specific Requirements

1.01 Scope of Works

The scope of works of this Specialist Sub Contract package comprises the design completion, supply, delivery, installation, testing and commissioning of the external glazed doors, curtain walling and glazed industrial doors to the North and South elevations of the exterior of the building herein described.

1.02 Tender Documents

The Specialist Sub-Contractor shall be deemed to have carefully examined all drawings and specifications referred to in these Sub-Contract Conditions, including those available for inspection at the Project Architect's offices and to have ascertained and understood the full scope and character of the works required of him.

Should the Specialist Sub-Contractor, after the consideration of all the criteria, which in his specialist knowledge are relevant to the design and construction of these Sub-Contract Works, wish to make proposals for changes in any of the details, dimensions or materials shown in the Project Architect's Tender drawings or referred to in this Specification, then such proposals should be incorporated as "alternatives" when the Specialist Sub-Contractor returns his tender documents.

For tendering purposes, those Tender drawings to be used are itemised in the Preliminaries to the Measured Bills of Quantities.

1.03 Prices

The Specialist Sub-Contractor shall include for the cost of preparation of all drawings for the Sub-Contract Works.

No claims will be accepted in respect of errors or omissions in the design, in pricing or quantities.

The Specialist Sub-Contractor shall include for all fittings and components which may be required by his specific design and which are not necessarily shown on the Project Architect's drawings.

A fully priced Schedule of Rates totalling to the Specialist Sub Contractor's Tender Figure will be required. This Schedule must include rates for all components associated with this package, its fixing and all associated ironmongery.

1.04 Specialist Sub-Contractor's Drawings

The Specialist Sub-Contractor shall produce all detailed design documentation for checking by the Project Architect at such times as are required by the Main Contract Programme.

These drawings are to be in accordance with the Project Architect's Tender drawings and Specification, for both visual appearance and functional performance.

The Specialist Sub-Contractor shall provide drawings of all layouts, and shall detail construction in the same mode as the Project Architect's Tender drawings and Specification, with additional drawings as may be necessary.

In no case shall the Specialist Sub-Contractor proceed with any installation until said drawings are checked by the Project Architect and authority given to proceed to manufacture.

1.05 Specialist Sub-Contractor's Calculations

The Specialist Sub-Contractor shall be required to produce all calculations (including structural or other necessary calculations) necessary to substantiate the appropriateness of his works and/or materials selected.

Wind loading resistance calculations especially will be required to prove stability and integrity.

If, after detailed analysis of the Project Architects's Tender drawings, the Specialist Sub-Contractor considers additional works and/or material will be required to substantiate structural stability or integrity, then any such additional work and/or material shall be deemed to have been incorporated without visual disturbance to that aesthetic determined by the Project Architect's drawings.

Any such additional work and/or material considered necessary by the Specialist Sub-Contractor is to be itemised and described in detail with his returned tender documents.

The Specialist Sub-Contractor shall include in his tender submission for any specific calculations as may be required by the appointed Approved Inspector; Principal Designer; local Building Control Office; and local Fire Service.

1.06 Materials and Workmanship

The Specialist Sub-Contractor shall use materials of merchantable quality and carry out the Sub-Contract Works to a high standard of workmanship to the full satisfaction of the Project Architect.

All workmanship and materials shall be in accordance with the requirements of the Statutory Authorities, Approved Inspector, Principal Designer, local Building Control Officers and any current British Standard, Code of Practice or Building Research Establishment recommendations

1.07 Paint Thickness Certificates

The Specialist Sub-Contractor shall include in his tender submission for test result Certificates to be produced by an independent testing authority, commissioned to monitor the dry film thickness of each and every paint layer required by this Specification.

1.08 Site Installation

The Specialist Sub-Contractor shall be responsible for taking exact site dimensions and checking that all adjoining construction has been set out in accordance with his requirements before commencing installation and he shall be responsible for the accurate setting out of his own Works.

The Specialist Sub-Contractor shall be responsible for co-ordinating his own Sub-Contract Works to ensure that installation is fully carried out in accordance with the Main Contract Programme and is fully co-ordinated with other allied trades.

All materials and components shall be delivered to site pre-cut, pre-finished and packaged with adequate protection to ensure that the materials are maintained in good condition throughout the duration of the Main Contract.

In particular, all materials and components must be fully & adequately protected against damage after installation has been completed.

1.09 Design and Co-Ordination

The Specialist Sub-Contractor must:

- Complete the design and detailing of the Sub-Contract Works and provide complete production information (including, as appropriate, fabrication/installation drawings, all design calculations, specifications, etc) based upon the Project Architect's Tender drawings, this Specification and any other information provided; liaising with the Principal Contractor and others, as necessary, to ensure co-ordination of his Sub-Contract Works with related building elements and services.
- Request additional information as necessary from the Principal Contractor and provide information as necessary in time to meet the Main Contract Programme.
- Submit sufficient copies of his design/production information, including 2 no paper copies to the Project Architect, who will then check the Sub-Contract design/production information for correctness.

The Project Architect will inspect the design/production information, record his comments and return these to the Specialist Sub Contractor. The Project Architect will require 15 working days for such examination of design/production information.

- Make any necessary amendments in accordance with any comments of the Project Architect without delay. Unless, and until it is confirmed that re-submission is not required, resubmit for further checking and comment, and incorporate any necessary further amendments, all as before.

If submitted design/production information differs from the requirements of the tender documents/Sub-Contract documents/Contract of Sale documents as applicable, each such difference must be the subject of a request for substitution or Variation, supported by all relevant information.

Should any amendment to design/production information required by the Project Architect be considered to involve a Variation which has not already been acknowledged as a Variation by the Project Architect, the Specialist Sub-Contractor must notify the Project Architect without delay and, in any case within 7 days, and not proceed with the ordering, fabrication, or fixing until subsequently instructed. Claims for the extra cost of such work, if made after it has been carried out will not be entertained.

- Submit sufficient copies of the final version of design/production information, including 2 no paper copies, to the Principal Contractor and Project Architect for distribution to all affected parties.

1.10 Generally

The successful Specialist Sub-Contractor will be required to meet a tight pre and post fabrication time schedule, to be set by the Principal Contractor.

Part 2: Design Requirements

Section 2.01 Description of the Works

Section 2.02 The Building Structure

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2.00 Design Requirements of the Curtain Walling & Glazed Doors and Glazed Industrial "Concertina" Doors

2.01 Description of Works

Externally, this new building is to receive colour coated aluminium framed curtain walling and glazed pedestrian doors (including all glass & glazing in the curtain walling door leafs) plus proprietary glazed industrial rise & fall "concertina" doors inserted into the North and South facades - as shown on the Architect's drawings.

Associated opening & closing ironmongery with locking capacity activated through lock suited Europrofile cylinders (key access from outside & thumb turn access from inside - Master & Sub Suited) is also required as part of this Specialist Sub Contract package.

2.02 Building Structure

The structure of the single storey block of the new building is formed from a steel frame clad externally with insulated timber rainscreen cladding fixed to dense concrete blockwork.

The design and installation of this Specialist Sub-Contract shall accommodate any movements & tolerances within the primary & secondary structures by means of fully concealed adjustable fixings.

The Specialist Sub-Contractor shall be responsible for drilling the supporting structure for his own fixings, so as to ensure that all loads in his system are appropriately accommodated.

The Specialist Sub-Contractor is also deemed to have allowed for any thermal contraction or expansion in his own system and that of the supporting structure behind and to have allowed for the maximum building tolerances permitted for the structures listed above.

2.03 Materials

The external colour coated aluminium frames of the curtain walling and glazed pedestrian doors illustrated on the Project Architect's Tender Drawings have assumed use of SENIOR SCW+ CURTAIN WALLING and SENIOR SD DOORS - all by Senior Architectural Systems Ltd, Eland Road, Denaby Main, Doncaster, DN12 4HA - T: 01709 772600.

The external glazed industrial "venetian" doors illustrated on the Project Architect's Tender Drawings have assumed use of COMPACT glazed doors & frames (by Rolflex Nederland b.v, Nijverheidsweg 23, 7081 AE Uift, Netherlands - T: 0031 (0)315 69 59 54 & Contact: Coen Tiemessen - as "re-sold" in the UK by BIS Door Systems Ltd, 13 Hodgson Court, Hodgson Way, Wickford, Essex, SS11 8XR - T: 01268 767566 & Contact: Jason Simkins.

The external colour coated frames of the curtain walling & glazed pedestrian doors and opaque insulated panels & door frames to the glazed "venetian" industrial doors (including all associated components) shall be constructed using entirely corrosion resistant polyester powder coated aluminium - with coatings of at least 40 microns in a Dark Grey colour (RAL 7021) in a semi matt texture.

The external curtain walling & glazed pedestrian doors and glazed "venetian" industrial doors (including all associated components) shall be constructed to achieve a 'U' value of 1.40 W/m²/K or better and an air permeability of 5.0m³/m²/hr @50 pascals or better and a Security Door Rating to meet LPS1174 SR2.

All systems installed as part of this Specialist Sub-Contract shall have an internal surface spread of flame rating of '0' when measured in accordance with BS 476-7.

2.04 Construction and Operation

All systems installed as part of this Specialist Sub-Contract shall be capable of withstanding water penetration into all internal surfaces and into all cavities not designed to be wetted when the systems are subjected to a peak positive test pressure of 600 Pascals.

All systems installed as part of this Specialist Sub-Contract shall be capable of withstanding wind speeds to be reasonably expected for the location of the Project in the UK.

Unless specified or agreed otherwise, the Specialist Sub-Contractor shall comply with CWCT 'Standard for Systemised Building Envelopes':

Part 2 - Loads, fixings and movement.

Part 3 - Air, water and wind resistance.

Part 4 - Operable components, additional elements and means of access.

Part 5 - Thermal, moisture and acoustic performance.

Part 6 - Fire performance.

Part 7 - Robustness, durability, tolerances and workmanship.

Project performance requirements specified shall be read in conjunction with CWCT performance criteria.

The Specialist Sub-Contractor's systems shall deflect under wind loads in accordance with CWCT 'Standard for systemised building envelopes' (Clause 3.5 2) and the following additional requirements: 1200 pascals.

The Specialist Sub-Contractor's systems shall have additional stiffness to comply with CWCT 'Standard for systemised building envelopes' (Clause 3.5 4.2), as required to comply with specific design requirements and geographic location of this Project.

Deflection under dead loads of framing members parallel to the curtain walling plane shall not:

Reduce glass bite to less than 75% of the design dimension.

Reduce edge clearance to less than 3 mm between members and immediately adjacent glazing units, panel/facing units or other fixed units.

Reduce clearance to less than 2 mm between members and movable components such as doors and windows.

The Specialist Sub-Contractor's systems shall accommodate all anticipated building movements that can be reasonably foreseen .

The Specialist Sub-Contractor's systems shall be designed to ensure position & alignment of all parts & features shown on the Project Architect's drawings and accommodate deviations in the primary support structure.

Before commencing installation, the Specialist Sub-Contractor shall carry out surveys of the primary support structure sufficient to verify that required accuracy of erection can be achieved and shall give notice if the structure will not allow the required accuracy or security of erection - all as CWCT 'Standard for systemised building envelopes' Clause 2.7.2.

All systems installed as part of this Specialist Sub-Contract shall be split into bays of lengths and heights as shown on the Project Architect's Tender drawings.

All systems installed as part of this Specialist Sub-Contract shall be capable of providing adequate "boundary loading" to resist all reasonable body forces that could be applied for a building of this type - Industrial Unit.

Any joints to be welded together shall be ground perfectly flush using insert gas wire feed techniques applied by suitably qualified welders.

Any fixings of track guides shall be fully concealed; no guardrails/channels will be permitted; and all spacer rod fixing points & types of fixings shall be concealed wherever possible.

Any weld connections shall be ground perfectly smooth to the satisfaction of the Project Architect.

2.05 Paintwork

The minimum specification requirements for the paint finish to the external colour coated frames of the curtain walling & glazed pedestrian doors and opaque insulated panels & door frames to the glazed "venetian" industrial doors (including all associated components) is to be in accordance with BS EN 1396-97, with polyester powder coated aluminium coatings of at least 40 microns in a Dark Grey colour (RAL 7021) with semi matt texture.

2.06 Ironmongery

On all Pedestrian Doors - ALLGOOD SS97422 (or equal & approved) - Pair of 19mm diameter safety lever handles on through fix roses operating narrow stile Vertical Euro profile cylinder mortise latch & dead lock (as recommended by the door manufacturer to suit door frame widths) with ALLGOOD XX7819NAM (or equal & approved) Euro profile key & thumb turn cylinder to suit door thickness to all active leaves (and first opening leaves of double doors). Overhead Concealed Door Closers & Bottom Centres as recommended by the door manufacturer to be concealed within frame head transoms. All lock cases to be Master and Sub Suited.

Note: The Specialist Sub-Contractor shall also allow for a number of wire ways for security contacts to be pulled through his system frames in such a manner as to totally conceal all such wire ways - refer to Project Electrical Engineer's Drawings for locations.

2.07 Samples

As part of the Tender submission, the Specialist Sub-Contractor shall submit samples to the Project Architect of fully finished sections of the proposed Specialist Sub-Contract systems.

The production of these samples is an important part of the tendering procedure and selection criteria.

The purpose of the sample is to demonstrate the standard of workmanship on offer to the Employer and to illustrate the range of components proposed by the Specialist Sub-Contractor.

As such, the samples should be to the highest standard and will be held as quality products against which later manufacture & site installation will be judged.

The samples submitted must consist of fully assembled 1 metre x 1 metre (on elevation) sections of the proposed Specialist Sub-Contract systems of curtain walling, glazed pedestrian doors and glazed "concertina" industrial doors (including all colour coated components).

2.08 Glazing

In all Curtain Walling and Glazed Pedestrian Doors to be installed as part of this Specialist Sub-Contract, the following glazing requirements shall be met:

Generally

The external curtain walling & glazed pedestrian doors (including all associated components) shall be constructed to achieve a 'U' value of 1.40 W/m²/K or better and an air permeability of 5.0m³/m²/hr @50 pascals or better and a Security Door Rating to meet LPS1174 SR2.

Curtain Wall Glazing: Transparent

Inner & outer panes: various thicknesses from 24mm - 40mm thick double glazed units (to suit glazing spans) comprising:

- Optically clear laminated glass outer pane
- Argon filled sealed cavity
- Optically clear toughened glass inner pane.

Door Glazing: Transparent

Inner & outer panes: 24mm thick double glazed units comprising:

- Optically clear laminated glass outer pane
- Argon filled sealed cavity
- Optically clear toughened glass inner pane.

Glass generally shall be to BS 952 and relevant parts of:

- BS EN 572 for basic soda lime silicate glass.
- BS EN 1096 for coated glass.
- BS EN 1748 for borosilicate glass.
- BS EN 1863 for heat strengthened soda lime silicate glass.
- BS EN 12150 for thermally toughened soda lime silicate glass.
- BS EN 13024 for thermally toughened borosilicate glass.
- BS EN ISO 12543 for laminated glass.

Glass quality shall be clean and free from obvious scratches, bubbles, cracks, rippings, dimples and other defects.

Glass edges shall be undamaged and only shells & chips not more than 2 mm deep and extending not more than 5 mm across the surface will be acceptable if ground out.

Measurement of dimensional tolerances on glass before any thermal toughening/ heat strengthening shall be:

- Pane dimensions less than 1500 mm:
 - For 3 to 6 mm thick glass: ± 1.0 mm.
 - For 8 to 12 mm thick glass: ± 1.5 mm.
 - For 15 mm thick glass: ± 2.0 mm.
 - For 19 mm and 25 mm thick glass: ± 2.5 mm.
- Pane dimensions more than 1500 mm:
 - For 3 to 6 mm thick glass: ± 1.5 mm.
 - For 8 to 12 mm thick glass: ± 2.0 mm.
 - For 15 mm thick glass: ± 2.5 mm.
 - For 19 mm and 25 mm thick glass: ± 3.0 mm.
- Pane squareness: Not more than 4 mm difference in diagonal measurements.

Measurement of dimensional tolerances on glass after any thermal toughening/ heat strengthening shall be:

Maximum bow: 0.2% of pane dimension.

Maximum roller wave:

For 3 to 5 mm thick glass: 0.5 mm.

For 6 to 10 mm thick glass: 0.3 mm.

For 12 mm and thicker glass: 0.15 mm.

Maximum edge dip:

For 3 to 5 mm thick glass: 0.8 mm.

For 6 to 10 mm thick glass: 0.5 mm.

For 12 mm and thicker glass: 0.25 mm.

All insulating glass units shall be manufactured with hermetically sealed units to BS EN 1279.

All toughened glass units shall be manufactured to BS EN 14179 and use heat soaked glass.

All glass used shall be clear, unwired and free from apparent discolouration or imperfections.

All glazing shall have a:

'U' Value of 1.40W/m²K or better

'G' Value of 0.57, in accordance with BS EN140 (transparent glazing only)

TSC (Shading Co-efficient) of 0.734 (transparent glazing only)

Visual/Light Transmittance of 70% (transparent glazing only)

All glass panes/units shall have adequate resistance to thermal stress generated by orientation, shading, solar control and construction.

Where glazing to resist "boundary loading" forces is considered by the Specialist Sub-Contractor to be required, glass shall be selected & installed to resist all reasonable body forces that could be applied for a building of this type - Industrial Unit.

3.09 Air & Thermal & Security Resistance Requirements

Any systems proposed as part of this Specialist Sub-Contract shall have permissible air leakage rates of no greater than 1.5m³/hr/m², which shall not be exceeded when the external systems are subjected to a peak test pressure of 600 pascals.

Any systems proposed as part of this Specialist Sub-Contract shall have a maximum permissible air exfiltration rate through the systems of not more than 5m³/m²/hr.

The thermal resistance across any system proposed as part of this CDPS Sub-Contract shall have a 'U' value of 1.40 W/m²K or better.

For the avoidance of condensation, notional psychrometric conditions under which condensation must not form on building interior surfaces of framing members or any part of infill panels/facings shall be:

External: Summer: +18 °C maximum at 65 % RH.
Winter: -5°C minimum at 90 % RH.

Internal: Summer: +20 °C at 40 % RH.
Winter: +20 °C at 40 % RH.

Any system proposed as part of this Specialist Sub-Contract shall resist vapour passing from inside to outside, to ensure that deleterious condensation cannot form.

Any system proposed as part of this Specialist Sub-Contract shall have a minimum Security Rating Level of 2, when tested in accordance with Loss Prevention Council Standard LPS 1175.

The Specialist Sub-Contractor shall also provide evidence that the proposed System complies with the requirements of the current Building Regulations in all respects.

Thermal Assessment will be accepted for this purpose but must justify suitability to the appointed Approved Inspector and local Building Control Office.

2.10 Acoustic Requirements

All external 'glazing' referred to above shall have an acoustic laboratory test rating to BS EN ISO 717-1 in the weighted Sound Reduction Index Range of R_w 31 - R_w 35, with the minimum weighted sound reduction index (R_w) between internal & external surfaces of the systems within this Specialist Sub Contract to achieve R_w 38 dB or better.

2.11 Corrosion and Moisture Resistance

Any system proposed as part of this Specialist Sub-Contract shall be constructed of materials which shall be entirely resistant to corrosion and rot resulting from the presence of moisture or air.

Any system proposed as part of this Specialist Sub-Contract shall also be designed to withstand foreseeable weather conditions based upon meteorological data available over the last fifty years.

2.12 Maintenance

Any system proposed as part of this Specialist Sub-Contract shall be constructed so that it supports normal maintenance traffic.

As part of his Tender Submission, the Specialist Sub-Contractor shall state what requirements for maintenance can be expected over the life of the proposed systems.

2.13 Fixings & Fastenings and Finishes

The fixings proposed shall be adequate for all conditions outlined in this Specification. They shall be regularly spaced and totally concealed from view wherever possible.

All flashings and drip sections shall be kept to an absolute minimum and colour coated in accordance with this Specification.

2.14 Sealants

Where sealants against adjacent constructions are required, these shall use Adsheed Ratcliffe 'Arbosil 1096' in Dark Grey colour (to match the aluminium framing colour) and be installed using runs of sealant with profiles as small as practicable.

2.15 Life Expectancy

Any system proposed as part of this Specialist Sub-Contract shall have a minimum life expectancy of 25 years before replacement - subject to normal replacement periods for insulated glass panels.

If any construction described in this Specification or on the Project Architect's Tender drawings conflicts with this requirement, these shall be itemised and returned with the Specialist Sub-Contractor's Tender Submission.

A clear statement shall also be provided which identifies the anticipated life expectancy of each component of the proposed System.