H31 METAL PROFILED/FLAT SHEET CLADDING/COVERING

To be read with Preliminaries/General Conditions and Sections AA31 and AA90.
Items in this section to Contractor's Design as shown.

TYPE(S) OF CLADDING/ COVERING SYSTEM:

110 EXTERNAL 'BRONZE' CLADDING TO LIBRARY EXTENSION GLASS LINK.
Include in Contractor's Design Portion

- Drawing reference: 597-12201, 597-15201, 597-15204, 597-40260, 597-41206, 597-41260
- Type: Flat Sheet cladding, with concealed fixings.
- Substrate: Fully bonded to exterior grade plywood backing, as Architects drawings; submit proposals.
- Support Structure: as H31/169
- Design loads: As H31/195.
- Humidity Load: to BS EN ISO 13788: Class 2 and H31/172
- Manufacturer and reference: contractor's recomendation to Architect's approval
- Installer: Specialist subcontractor currently recommended by the system manufacturer.
- Size of panels: Special sizes as shown on drawings.
- Material: *Brass OT67 Alloy* (67%copper, 33% zinc) with thermal break (polyamide / polyurethane).
  - Standard: BS EN 1652.
  - Finish: Pre-patinated - *Dark*, to match window frames and 'Bronze' Fins as L10/660
  - Thickness: 1.6mm (nominal) – TBC
- Joints: 4mm open joints between panels.
  - Joint pattern: As Architects Drawings.
- Fixings: Concealed. As H31/219; submit proposals.
- Fabrication: As section Z11.
- Other Requirements:
  - Cladding to wrap around all edges of panels as Architects drawings.
  - Integrated Intercom system, recessed into panel as per Architects Drawings, finish to match 'Bronze' Cladding.

Rev C1 120 EXTERNAL FOLDED 'BRONZE' CLADDING PLATE TO LIBRARY EXTENSION GLASS LINK.
Include in Contractor's Design Portion

- **Drawing reference: 597-15204, 597-41222.**
- **Type: Flat Sheet cladding, with concealed fixings.**
- **Substrate: Fully bonded to exterior grade plywood backing, as Architects drawings; submit proposals.**
- **Support Structure: as H31/169**
- **Design loads: As H31/195.**
- **Humidity Load: to BS EN ISO 13788: Class 2 and H31/172**
- **Manufacturer and reference: contractor's recomendation to Architect's approval**
- **Installer: Specialist subcontractor currently recommended by the system manufacturer.**
- **Size of panels: Special sizes as shown on drawings.**
- **Material: *Brass OT67 Alloy* (67%copper, 33% zinc) with thermal break (polyamide / polyurethane).**
  - **Standard: BS EN 1652.**
  - **Finish: Pre-patinated - *Dark*, to match window frames and 'Bronze' Fins as L10/660**
  - **Thickness: 1.6mm (nominal) – TBC**
- **Joints: 4mm open joints between panels.**
  - **Joint pattern: As Architects Drawings.**
- **Fixings: Concealed. As H31/219; submit proposals.**
- **Fabrication: As section Z11.**
- **Other Requirements:**
  - **Cladding to wrap around all edges of panels as Architects drawings.**

STRUCTURAL SUPPORT:

169 SECONDARY STEELWORK:
Include in Contractor's Designed Portion
- Scope: Secondary steelwork, including all necessary posts, beams, ties, brackets, etc, and fixings, not shown on the Structural Engineer's drawings, required to secure and support the system to the primary structure.
- Sizes and locations: Calculate to suit loadings as H31/195 or 196.
- Material, grade and finish as Structural Engineer's specification section G10.

GENERAL REQUIREMENTS

170 DESIGN
- Cladding/ covering system: Complete detailed design and submit before commencement of fabrication.
  - Standard: To BS 5427-1.
- Related works: Coordinate in detailed design.

172 THERMAL PERFORMANCE/ BRIDGING
- Requirement: Complete thermal design of the cladding/ covering system to avoid excessive thermal bridging.
  - Standard: MCRMA Technical Paper No 14.

175 PRODUCT SAMPLES:
- General: Before commencing detailed design, submit labelled samples of the following:-
  - Fixing brackets as part of proprietary system.
  - 'Bronze'sheet material, pre-patinated to match windows.
    Obtain approval before proceeding.

176 FASTENER SAMPLES
- General: During detailed design, submit labelled samples of each type of fastener.

DESIGN/PERFORMANCE REQUIREMENTS

185 PERFORMANCE COMPLIANCE
- Verification: Before commencing fabrication, submit evidence based on laboratory testing or computer modelling.
  - Verifying authority: UKAS approved.

187 DEFLECTION OF METAL CLADDING/ COVERING
- Wall and soffit cladding: Maximum permitted deflection under distributed loads as a multiple of span and due to:
  - Dead and wind loads: L/120 (TBC)

192 SOUND TRANSMITTANCE OF CLADDING/ COVERING SYSTEM
- Minimum weighted sound reduction index (Rw) within 100 to 3150 Hz frequency range to BS 5821-3: 40 RwdB.
  - Location: Through external walls and roof.

195 INTEGRITY OF CLADDING/ COVERING - (PARAMETERS PROVIDED):
- Requirement: Determine profiles, sizes and thicknesses of sheets, the sizes, number and spacing of fixings, configuration and location of spacer systems and incorporation of other accessories and fittings to ensure cladding/ covering system will resist factored dead, imposed and design live loads, and accommodate deflections and thermal movements without damage, in accordance with BS 5427-1.
- Location:
- Wind loads: Calculate to BS 6399-2, Standard Method and BS 5427-1 appropriate to location, exposure, height, building shape and size, taking account of existing and known future adjacent structures.
  - Basic wind speed (Vb):
  - Altitude factor (Sa):):
  - Direction factor (Sd): 1.

- Seasonal factor (Ss): 1.
- Probability factor (Sp): 1.
- Terrain and building factor (Sb):
- External and internal size effect factors (Ca): 1.
- External pressure coefficients (Cpe): As determined from BS 6399-2, clauses 2.4 and 2.5.
- Internal pressure coefficients (Cpi): As determined from BS 6399-2, clause 2.6.
- Dominant opening: None.

- Imposed roof load (no access): As determined from BS 6399-3 and BS 5427-1.
- Hard body impact loads: To BS 8200:
  - Location and category: Ground floor cladding up to1.5 m (H31/117) Cat B.
    Upper floor cladding at 1.5 m to 6.0 m above ground Cat E.
    Upper floor cladding over 6.0 m above ground Cat F.
- Snow load (for roof edge conditions): Determine from BS 6399-3.
- Permanent imposed loads: None .
- Temporary imposed loads (for roof edge conditions):: Maintenance point load. (1 man + load = 100kg).

198 WATER PENETRATION
- Requirement: Under site exposure conditions, moisture must not penetrate onto internal surfaces, or into cavities not designed to be wetted.

200 AVOIDANCE OF INTERSTITIAL CONDENSATION
- Requirement: Determine interstitial condensation risk of cladding/ covering system using the method described in BS 5250 Appendix D. If necessary, provide a vapour control layer to ensure that damage and nuisance from interstitial condensation does not occur.
- Outdoor psychrometric conditions (notional): To BS 6229, table 6 as follows:

	Winter	Summer
- Temperature	-5oC	18oC
- Relative humidity	90%	65%
- Vapour pressure	0.36 kPa	1.34 kPa

- Indoor psychrometric conditions (notional): As follows:
  - Temperature: 20°C (H31/130) (TBC).
  - Relative humidity: 40% (TBC)
  - Vapour pressure: 0.935kPa (TBC).
- Calculated amount of winter interstitial condensate: Not to exceed 0.35kg/m2 (H31/120) and 0.5kg/m2 (H31/130)..
- Calculated annual net condensate retention: Not greater than 5% of winter condensate.
- Vapour control layer provision: As clauses H31/120 & 130.

202 AVOIDANCE OF SURFACE CONDENSATION
- Requirement: Determine surface condensation risk of cladding/ covering system using the method described in BS EN ISO 13788. If necessary, revise thermal insulation to provide satisfactory temperature factor (fmin). Ensure that damage and nuisance from surface condensation does not occur.

FIXING CLADDING

210 STRUCTURE:
- Check that structure is in a suitable state to receive cladding before commencing fixing. Subcontractor must confirm acceptance to Main Contractor and CA.

215 PAINTING STRUCTURE:
- Sequence: Paint outer surface of supporting structure with J30/130 before fixing cladding/ covering.

217 PROTECTION:
- Store metal sheets and panels under cover to keep dry and prevent rust staining. Store on firm level bearers spaced at 900 mm maximum centres. Limit height of stacks to avoid distortion.
- Store plastics sheets/rooflights weather side up, under cover and on firm level bearers. Stack no higher than 1 m. Prevent mechanical damage and solar overheating.
- Adequately secure stored sheets/panels to prevent wind and mechanical damage.

219 FASTENINGS GENERALLY: Type(s), size(s), material(s) and finish(es) as specified, or in the absence of such specification, as recommended for the purpose by the cladding manufacturer.

221 FITTINGS AND ACCESSORIES GENERALLY:
Cappings, closure pieces, flashings, trims, sills, gutters, fillers, spacers, tapes, sealants, fixings, etc., where not specified, to be types recommended by cladding manufacturer.

223 PREVENTION OF ELECTROLYTIC ACTION
- Isolating tape: Type recommended by cladding/ covering manufacturer.
  - Location: To contact surfaces of supports and sheets of dissimilar metals.

310 PURPOSE MADE COLD-FORMED METAL ACCESSORIES:
Drawing reference(s): As shown.
Nominal thickness/gauge: 1.0-1.2mm depending on girth of flashing.
External finish/colour: To match cladding.
Fixing: Fix as per cladding manufacturer's recommendations.

460 ACCOMMODATION OF THERMAL MOVEMENT
- Sheet type/ location: Cladding generally .
- Method: As recommende by relevant manufacturer(s).

470 STRUCTURAL MOVEMENT JOINTS
- Type: Cover flashing fixed on one side over gap between sheets.
- Location: Coincident with structural movement joint.
- Width of gap: To match structural movement joint requirements.
- Requirement: Weathertight.

541 ABUTMENTS: Ensure a weathertight junction with flashings, (specified/detailed in this section or another section), which must be correctly located and neatly dressed down.

554 WATER VAPOUR SEALING AT LAPS AND PENETRATIONS IN METAL LININGS:
- Sealant tape: As recommended by lining manufacturer to approval.
- Positon tape in straight, unbroken lines below fixing positions, parallel to and slightly back from edge of sheet. Place into corrugations or troughs. Do not allow to stretch or sag into position.
- Ensure continuity and effectiveness of seal, especially at corners of sheets and at all penetrations of pipes, ducts, rooflights, etc. Do not overcompress.

703 ADHESIVES must not be degradable by moisture or water vapour.

FINISHES

706 PROTECTIVE COATING OF MILD STEEL FRAMING SECTIONS/ REINFORCEMENT:
- Treatment: One of the following to all surfaces:
- Hot dip galvanized to BS EN ISO 1461.
- An appropriate equivalent coating to BS 5493, BS EN ISO 12944 or BS EN ISO 14713.

707 PROTECTIVE COATING OF MILD STEEL MECHANICAL FIXINGS:
- Treatment: One of the following to all surfaces:
- Hot dip galvanized to BS EN ISO 1461.
- Sherardized to BS 4921, class 1 coating thickness and passivated.
- Zinc plated to BS EN 12329, coating designation Fe//Zn//C for an iridescent (yellow passivate) chromate conversion coating or Fe//Zn//D for an opaque (olive green) chromate conversion coating.

FABRICATION AND INSTALLATION

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

710 PROTECTION OF COMPONENTS: Do not deliver to site components which cannot be put immediately into suitable clean, dry, floored and covered storage. Stack near vertical on level bearers, separated with spacers to prevent damage by and to projecting ironmongery, beads, etc.

711 MOISTURE CONTENT OF TIMBER COMPONENTS: During delivery, storage, fixing and thereafter to Practical Completion maintain conditions of temperature and humidity to suit specified moisture content(s) of components. When instructed by CA, test components with an approved electrical moisture meter used in accordance with manufacturer's recommendations.

712 METALWORK
- Requirement: As section Z11, unless specified otherwise in this section.

722 WELDING
- In situ welding: Not permitted.