

- System Description: A site assembled wall system with a profiled metal lining sheet, bar and bracket spacer system, insulation and profiled metal outer sheet.

- Alterations: Any alterations required to this specification must be presented for approval and subsequent re-issue of the specification

- Fire Classification: Class 0 surface spread of flame as described in approved document B

- Combustibility: AA rated when tested to BS 476-3:2004

- U Value: 0.25 W/m²K

- Cladding Material: Tata LG

- Structure Tolerance: To be in accordance with SCI publication P346

**H31 METAL PROFILED/ FLAT SHEET CLADDING/ COVERING**

 To be read with Preliminaries/ General Conditions.

 **TYPES OF CLADDING/ COVERING SYSTEM**

H31/120 METAL CLADDING:

 SIG Design & Technology twin skin wall construction.

 - Drawing reference(s):

 - Manufacturer: SIG Design & Technology

 Long Meadow Industrial Estate,

 Cullompton, Devon. EX15 1BT

 Tel: 01884 839302

- Support structure: Purlins at 1800mm (max) centres.

- Bearing width: 40 mm (minimum).

 - Minimum pitch: 4° minimum

 - External sheets: Trapezoidal profiled metal sheet.

- Material: Tata LG

- Thickness: 0.5 mm (nominal)

- Profile: URP1000/32 reverse

- Cover Width: 1000 mm

- Length: 11.200 m (maximum)

- Colour: TBC

- Accessories: See later sections

- Primary cladding sheet fasteners:

Fastener: Colour headed carbon

 steel, self-drilling fasteners with Ø16mm sealing washers.

Fastener location: Fix through profile trough.

Fastener pattern: End lap - Fix through every trough (5 fixings).

Intermediate - Fix through alternate troughs (3 fixings).

- End laps size (minimum): 150 mm.

- Sealing laps: End laps external sheets: to be fully sealed in accordance with clause

 550.

 Side laps external sheets: to be fully sealed in accordance with clause

 550.

-- Stitching laps:

End Laps: Colour headed carbon steel, self-drilling fasteners with Ø19 mm sealing washers.

Side Laps: Fix sheets with colour headed carbon steel, self-drilling fasteners with Ø16 mm sealing washers, stitched at 450 mm centres.

- Spacers system:TechBar spacer system.
Supplier: SIG Design & Technology

 Description: 40 x 40mm support rail in 1.25mm galvanised steel with a 1.5 x 180mm brackets with and integral thermal/sealing pad - fitted typically at 1.000m centres (subject to wind/imposed loads).

- Spacer to purlin: Carbon steel, self-drilling fasteners with Ø16 mm sealing washers 2 x per bracket.

H31/130 CE MARKING:

- SIG Design & Technology profiles are CE Marked to BSEN 14782:2006 - Self-supporting metal sheet for roofing, external cladding and internal lining.

H31/170 DESIGN:

- Complete the design of the roofing /cladding / fascia / rain water goods in accordance with BS5427:Part1 / BSEN 12056 and the requirements of this specification.

- Coordinate detailed designs for all related works.

- Submit detailed design proposals to the CA before commencing and manufacturing or installation work.

H31/172 THERMAL BRIDGING:

- Complete the thermal design of the cladding system to avoid excessive thermal bridging:

H31/187 DEFLECTION OF METAL CLADDING:

- Maximum permitted roof cladding deflection under distributed loads:

 Imposed load: Span/200

 Wind load: Span/90

198 WATER PENETRATION:

- Water Penetration onto internal surfaces, or into cavities not designed to be wetted, must not occur under site exposure conditions.

210 STRUCTURE:

- Check that structure is suitable to receive cladding before commencing fixing. The subcontractor must confirm acceptance to Main Contractor and C A.

211 STRUCTURE TOLERANCES:

- Tolerances of the support structure to be as per cladding manufacturer's recommendations.

215 PAINTING STRUCTURE:

- All outer surfaces of the support structure are to be painted / treated before the commencing the installation of the cladding.

217 MATERIAL STORAGE:

- Store sheets and materials under cover to prevent staining on the sheets and keep the components dry.

- Store sheets on firm lever bearers spaced at 900mm maximum centres, limit the stack height to prevent distortion.

- All stored materials should be adequately secured to prevent wind and mechanical damage.

- Storing should be all in accordance with the sheet and panel manufacturer’s recommendations

219 FASTENERS GENERALLY:

- Type(s), size(s), material(s) and finish(es) as specified, or in the absence of such specification, as recommended by the cladding manufacturer.

 - Supplier: SIG Design & Technology

 Long Meadow Industrial Estate,

 Cullompton, Devon. EX15 1BT

 Tel: 01884 839302

221 FITTINGS AND ACCESSORIES GENERALLY:

- Cappings, closure pieces, flashings, trims, gutters, fillers, spacers, tapes, sealants, fixings, etc. where not specified, to be types recommended by the cladding manufacturer.

223 ISOLATION TAPE:

- Isolating tape: Type recommended by cladding/ covering manufacturer.

- Location: To contact surfaces of supports and sheets of dissimilar metals.

H31/241 STEEL LINING TO WALL CLADDING:

 SIG Design & Technology twin skin wall construction.

 - Manufacturer: SIG Design & Technology

- Non Fragility: ACR[M]001 FRAGILE - not suitable for foot traffic.

 - Support structure: Purlins at 1800mm (max) centres.

- Bearing width: 60 mm (minimum).

 - Minimum pitch: 4° minimum

 - Internal sheets: Profiled metal lining panel

- Material: Galvatite, hot dip zinc coated steel EN 10346-S220GD+Z275 substrate, with Lining Enamel coating to interior.

- Thickness: 0.4 mm (nominal)

- Profile: URP1000/20 liner

- Cover Width: 1000 mm

- Length: 6.000 m (maximum)

- Colour: BWLE

- Primary cladding sheet fasteners:

Fastener: Carbon steel, self-drilling fasteners with Ø16mm sealing washers.

Fastener location: Fix through profile trough.

Fastener pattern: 5 fixings per sheet per support location - 50mm edge distance minimum.

- End laps size (minimum): 100 mm.

- Sealing laps: End laps external sheets: to be fully sealed in accordance with clause

 550.

 Side laps external sheets: to be fully sealed in accordance with clause

 550.

- Stitching laps:

End Laps: 5 fixings per sheet per support location - 50mm edge distance minimum.

Side Laps: Fix sheets with carbon steel, self-drilling fasteners with Ø16mm sealing washers, stitched at 450 mm centres.

H31/ H31/271 THERMAL INSULATION:

**-** Insulation quilt: To BS EN 13162:2001**,** BS 3958-5:1986, non-combustible to BS 476 Part 4 1970.

- U-value: 0.25 W/m²K

- Thickness: 200mm - compressed to 180mm

- Density: 12 - 27kg/m² (nominal)

- Thermal conductivity: λ0.040W/mK (CE marked 90/90 values)

- Install and secure as the work progresses, ensuring continuity under and around the spacer system.

- Lap insulation layers to ensure continuity of insulation over ridges, hips, verges leaving no gaps.

- Keep insulation dry and do not over compress. All wet / damaged insulation must be replaced before the wall is sealed up.

- Where ever possible ensure insulation continuity from roof to wall.

- Insulation to fill wall cavity with 10% compression.

281 SPACER SYSTEM:

- 1.5mm galvanised steel brackets, 180mm bracket height, 750mm spacing at corners and High wind areas, maximum 1m spacing generally. 1.25mm galvanised steel rail, interlocking end joints, bracket stability braces at 20m max spacing on brackets of 250mm and above, brackets secured with 2No. carbon steel ∅5.5mm fasteners with a ∅16mm bonded washer.

- TechBar bracket spacing subject to design information and confirmation by the project Engineer.

300 PROFILE FILLERS GENERALLY:

- Manufacturer: SIG Design & Technology

- Reference: URP1000/32 / URP1000/20 liner profiled fillers

- Material: Closed cell, cross linked flexible polymers.

- Colour: Black / White

- Thickness: 25mm.

- Fixing: Compression fix between sheets and flashings / supports.

 Seal into place as appropriate.

Locate to close off corrugation cavities from the inside and outside of the building. Ensure a tight fit and leave no gaps. Include, where necessary, perforations sufficient to allow passive ventilation of internal cavities and condensation drainage. Perforations sized to prevent ingress of large insects and vermin.

3H31/ H31/305 FIRE RESISTANT PROFILE FILLERS:

- Types: To accurately match sheet profile.

- Fixing method: Adhesive recommended by profile filler manufacturer.

410 FIXING CLADDING GENERALLY:

- Cut sheets to give clean, true lines with no distortion and without damage to any protective coating. Remove burrs and any lubricant.

- Cut openings in sheets for outlets, vent pipes, flues, etc. to the minimum size necessary. Reinforce edges of openings with suitable steel support.

- Remove all drilling swarf, dust and any other foreign matter before placing any insulation.

- Protect sheets during fixing and up to practical completion against mechanical damage, and disfigurement. Rectify any defects as quickly as possible to minimise damage and nuisance.

480 FLASHING & TRIM DETAILS:

- Manufacturer: SIG Design & Technology - Tel: 01480 461103

- Material and finish: To match finish and colour of cladding 0.7mm minimum gauge.

- Lap joint treatment: End joints to be lapped by 150mm and sealed, unless specified

otherwise.

Where possible arrange with laps away from the prevailing wind.

Where butt joints are required, butt join and seal flashings / trims on 150mm wide butt straps made from sheet of the same material and finish.

- Method of fixing: Fix to cladding with sealed rivets or carbon steel, self-

drilling fasteners with Ø16 mm sealing washers at 500mm minimum centres.

- Design: Maximum un-stiffened leg on flashing to be 250mm.

Visible free edges to be finished with a stiffened edge or welt.

554 WATER VAPOUR AND AIR SEALING AT LAPS AND PENETRATIONS IN METAL LININGS:

- Sealant Tape: Inside joint (suitable for end laps): 4mm diameter NFRC Class A butyl

strip sealant. Over joint (suitable for side laps, butt joints and sealing on to penetrations):

- Location: Position sealant in straight, unbroken lines. Place into troughs. Do

not allow to stretch or to sag into position.

Inside joint sealant to be placed below fixing positions, parallel to and slightly back from edge of sheet.

- Workmanship: NFRC Class A - do not over-compress.

The metal lining layer must be reasonably airtight so that the air permeability does not exceed 10M³/h/M² at an applied pressure of 50pa in accordance with the Building Regulations 2000, Approved Document L2a 2013.

Under laboratory testing sealed liner sheets can achieve an air leakage as low as 0.5 M³/h/M². A reasonable practical expectation for a finished system would be 3 - 5 M³/h/M².

- Filler Blocks: Provide filler blocks to close open flutes of lining panels, bed filler

blocks top and bottom in continuous strip sealant. Filler blocks to be closed cell, cross linked flexible polymers.

- Internal flashings: Provide internal flashings to ensure continuity and effectiveness of

seal, especially at corners of sheets such as at roof / wall junctions and at all penetrations of pipes, ducts, rooflights, etc.

Internal flashings supplied by SIG Design & Technology

**Please Note:**

**The specification clauses above have been supplied by SIG Design & Technology for the purpose of Guidance, free of charge. They reflect the system requirements, Manufacturer’s Recommendations and current best practice at the time of writing. System performances are dependent on the content provided by SIG Design & Technology, Any changes are made the performances / requirements should be verified by SIG Design & Technology.**

**Alternative materials or systems may be possible and in such cases clarification should be sought with SIG Design & Technology and agreed before proceeding.**