

15 ROOFING

15.1 Scope

15.1.1 This Section deals with steel profiled sheeting used as external weatherproof cladding of roofs.

15.2 Roof Cladding

15.2.1 Sheet type: Spandek hiten roofing sheets manufactured by John Lysaght, No.18 Benoi Sector, Jurong, Singapore 2262 or equivalent.

15.2.2 Structural support: timber sections as per drawings.

15.2.3 Fastening: No. 12-14 x 45mm hexagonal head self drilling and tapping screw seal

15.2.4 End laps: 200mm and should be sealed with a recommend sealant for pitches below 7 degrees.

15.2.5 Side laps: as per manufacturer's recommendations.

15.3 Products

15.3.1 The profiled sheeting shall be in galvanized sheet steel with a factory per finished protective PVC film with colour to approval.

15.4 Workmanship

15.4.1 Accessories: Flashing, trims, filler pieces, spacers, tapes, sealant, etc. where not specified to be the types recommended by the sheet manufacturer.

15.4.2 Fastening: Select types and location of fastenings to meet the following requirements.

15.4.2.1 Wind suction loaded: Calculate in accordance with CP 3: Chapter5: Part2, making due allowance for any internal pressure.

- Basic wind speed: 45 m/sec.
- Topography factory S1 : 1.0
- Ground roughness, building size and height Factory (S2): as determined from CP3:Chapter5: Part 2, Table 3.
- Statistical factor (S3) : 1.0

15.4.2.2 Imposed loads other than wind and maintenance load, 1.5 KN/m² concentrated on a 300mm² which ever produces the greater stress. Maintenance point load: 0.9 KN concentrated on any 125mm².

15.4.2.3 Dead load: allow for self weight of sheeting.

15.4.2.4 Roof pitch: as indicated on drawings.

15.4.2.5 Distance between not less than 900 mm or as indicated on the drawings.

15.5 Fixing

15.5.1 **Quality of Work:** Handle and store to preserve surface using clean dry gloves. Do not slide sheets over rough surface or each other. Packs of all sheets must be kept

dry in transit and stored clear of the ground under cover to prevent water and /or condensation being trapped between adjacent surfaces. If packs become wet, sheets should be separated, wiped with a clean cloth without delay and placed so that air circulation completes the drying process.

15.5.2 **Structure:** Check that structure is in a suitable state to receive sheets before commencing fixing. Contractor must confirm acceptance to consultant

15.5.3 **Structure:** Do not fix profiled sheeting until final coats of paints have been applied to outer surfaces of supporting structure.

15.5.4 **Isolating Tape:** This has to be applied to those surfaces of the supports, which would otherwise be in contact with sheeting or accessories after fixing.

15.5.5 **Cutting and drilling:**

15.5.5.1 Cuts sheets accurately with clean, true lines and no distortion with a power saw with abrasive cutting disc.

15.5.5.2 Cut openings in sheet for out lets, vent pipes, flues etc. to the minimum size necessary. Reinforce edges of openings with structural members.

15.5.5.3 **Drill all holes.** Positioned at regular intervals in straight lines. Holes for primary fastenings to be 1.5 mm larger than the diameter of fastening unless self drilling type is used.

15.5.5.4 Remove burrs, drilling swarf, lubricant , dust and any other foreign matter before finally fixing sheets into position.

15.5.6 **Direction of Laying:** Lay sheets with exposed joints of side lap away from prevailing wind.

15.5.7 **End Laps:** to be fully supported.

15.5.8 **Sealant:**

15.5.8.1 Install to manufactures recommendation.

15.5.8.2 Position in straight, unbroken lines parallel to edges of sheets. Placed into corrugations. Do not allow to sag into position.

15.5.8.3 Ensure continuity and effectiveness of seal , especially at corners of sheets.

15.5.8.4 Do not over compress.

15.6 Fittings and Features

15.6.1 **Profile Fillers:** use where specified and wherever necessary to close off corrugation cavities from the outside and inside of the building. Position on the line of, or above, fastening and ensuring a tight fit and leaving no gaps. Where sealed laps are specified bed profile fillers in sealant on top and bottom surface, but do not obstruct channels for ventilation or condensation drainage.

15.6.2 **Flashing Trims:** All fittings for flashing / trim shall be as per manufacturers recommendation and lapped at joints as follows:

15.6.2.1 Vertical and sloping flashing / trims : end lap to be the same as for adjacent sheeting.

15.6.2.2 Horizontal flashing / trims: end laps to be 150mm and sealed.

15.6.3 Gutter: Ensure that gutters are fully supported at each joint and at intermediate position not more than 900mm apart. Fix with spigot ends up the slope and make all the joints fully watertight. Position sheeting to leave a clear width across the gutter of not less than 230 mm.

15.6.4 Insulation:

75mm thick Rock Wool insulation blanket with aluminium foil backing on both sides laid between purlins at 1000 centres, including wire mesh. Manufacturer and reference - to approval.