



TITLE:

**TECHNICAL SPECIFICATION FOR
SHEET WORK IN ROOF AND
SIDING**

SPECIFICATION NO. PE-TS-385-600-C001

VOLUME - II B

SECTION - D | SUB-SECTION – D13

REV.NO. 00

SHEET 1 OF 6

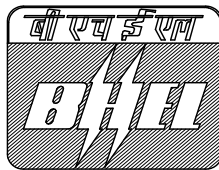
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Bharat Heavy Electricals Limited

Project Engineering Management

Power Sector, PPEI Building

Noida – 201 301



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SHEET WORK IN ROOF AND SIDING

1.00.00 SCOPE

This section covers supply, cutting & fabrication and erection of corrugated/plain asbestos, corrugated galvanized iron, aluminum, permanently colour coated troughed zinc-aluminium alloy coated M.S. sheet or other sheet for covering to roof and sides at various elevations as specified.

2.00.00 INSTALLATION

2.01.00 Storage of Materials

All materials shall be stored by the Contractor in proper way to prevent all damage.

2.02.00 Workmanship

The workmanship shall be according to best construction practice to give a watertight finish to the satisfaction of the Engineer. Fixing of gutters and down pipes shall be according to IS: 2527.

2.02.01 Asbestos Sheeting

Asbestos sheets of profiles as specified shall be fixed with minimum 150 mm end lap and side laps as per manufacturer's specification. Hook bolts or J-bolts shall be 8 mm dia. at 305 mm centres. Six (6) mm dia. galvanized iron seam bolt and nut with G.I. flat washers and bitumen washers shall be used for stitching ridge cappings, corner pieces, ventilators, north light curves etc.

2.02.02 C.G.I. Sheeting and Aluminium Sheeting

Side laps shall be 2 corrugations for roof and one corrugation for side sheeting. End laps shall be minimum 150 mm for roof and 100 mm for side sheeting. In ridges and hips where plain sheets are used, the end laps shall be minimum 100 mm. Holes in C.G.I. sheets shall preferably be made on the ground. The sheets should be placed on purlins/trestles and holes punched in the ridge of the corrugation from the outside inward for obtaining proper seating of limpet washers. Sheets shall be secured to sheet framing by 8 mm dia. galvanised iron hooks or J-bolts and maximum spacing of the bolts shall be 305 mm. The length of the hook or J-bolts shall be to suit the sections of the bearers. Sheets shall also be bolted at the ends at every third corrugation with 6 mm dia. galvanized iron seam bolts and G.I. flat washers and bituminous washers.



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2.02.03 Fibre Glass Reinforced Plastic Sheeting

This shall be of thickness and profile as specified. Colour and light transmittance shall be as mentioned. Where used in conjunction with C.G.I. or asbestos sheeting, the end and side laps and fixing device shall be same as used for general sheeting. Where used in lieu of glass, the fixing shall be by means of timber or metal glazing beads. In all cases, the installation shall be completely watertight and able to withstand the designed wind-pressure.

**2.02.04 PERMANENT COLOUR COATED SANDWICHED INSULATED METAL
CLADDING SYSTEM**

- i. Troughed zinc-aluminium alloy coated (both sides) having minimum base metal thickness of 0.5 mm for high tensile steel sheet having minimum yield strength of 550 Mpa, coated with Zinc Aluminium alloy(45 % Zn : 55% Al) at the rate of 150 Gms/Sq. M (Minimum) or Minimum bare metal thickness of 0.6 mm for galvanised Mild Steel sheets (as per IS:513) of grade 275(Minimum) (as per IS:277).

The exposed face shall be permanently colour coated with silicon modified polyester paint(SMP) of DFT 20 microns (minimum) over primer. Inner face of external sheet shall be provided with SMP coating of minimum 7 microns. The weight of coating shall not be less than 275 gm/sqm, Alternately, Sheets can also be finished with Super Polyester quality Paint having total Coating thickness of 35 Microns, comprising of 20 Microns Coating on external face and 5 Microns on inner face over 5 Microns Primer Coat on both faces.

- i. The permanent colour coated sheet shall meet the general requirements of IS:14246 and shall conform to class 3 for the durability.
- ii. Plain permanently colour coated Inner sheet shall be fixed directly to side runners and Z spacers made out of at least 2 mm thick galvanized steel sheet of grade 375 as per IS:277. Inner sheet shall be fixed at the rate not more than 1.50M centre to centre to hold the insulation and external sheeting. The fasteners shall be of high quality corrosion resistant grade of self tapping / self drilling type provided with suitable cap.
- iii. The insulation shall be of bonded mineral wool of minimum thickness 50mm conforming to IS:8183, having a density of 32 Kg/cu.m. for glass wool & 48 Kg/cu.m. for rock wool.

**2.02.05 PERMANENT COLOUR COATED (NON-INSULATED) METAL
CLADDING SYSTEM**

- i. Troughed zinc-aluminium alloy coated not less than 275 gm/sq.m M.S. sheets having 0.6 mm minimum thickness (or High tensile steel sheet having minimum yield strength of 550 Mpa of 0.5mm minimum thickness) shall be



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used for the cladding system. The outer side (exposed face) shall be permanently colour coated with Silicon Modified paint(SMP) of minimum DFT 20 microns over primer and the inner side (internal face) shall be coated with same paint of minimum DFT 7 microns over primer. Alternately, Sheets can also be finished with Super Polyester quality Paint having total Coating thickness of 35 Microns, comprising of 20 Microns Coating on external face and 5 Microns on inner face over 5 Microns Primer Coat on both faces. These shall be fixed directly to runners. The sheets shall meet the general requirement of IS:14246 and shall conform to class 3 for the durability.

ii. **FLASHING, CAPS, TRIM CLOSURES ETC.**

All flashings, trim closures caps etc. required for the metal cladding system shall be made out of plain sheets having same material and coating specification as mentioned above for the outer face of the sandwiched metal cladding.

3.00.00 ACCEPTANCE CRITERIA

The installations shall present a neat appearance and shall be checked for water tightness. The following shall be checked:

- a) Side and end laps
- b) Absence of cracks, holes or damages in sheet
- c) Spacing of bolts
- d) Provision of double washers (G.I. and asbestos or bituminous washers)
- e) Proper installation of flashing.

4.00.00 I.S. CODE

All work shall be carried out as per this specification and shall conform to the latest revision and/or replacements of the following or any other Indian Standard (IS) Codes, unless specified otherwise. In case any particular aspect of work is not specifically covered by Indian Standard Codes, any other standard practice, as may be specified by the Engineer, shall be followed.

IS: 3007 : Code of practice for laying of asbestos cement sheets.

IS: 2527 : Code of practice for fixing rainwater gutters and down pipes for roof drainage.

IS: 1626 : Specification for asbestos cement building pipes, gutters and fittings.



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IS: 277 : Specification for galvanized steel sheets (plain and corrugated).

5.00.00 RATES AND MEASUREMENT

5.01.00 Rates

Rates shall be unit rate for complete item described in “Schedule of Items” and shall include all wastage.

5.02.00 Measurement

Sheeting work in roof & sides shall be measured in Sq.M. for net area of the work done. Profiled sheeting shall be measured flat and not girthed. Opening less than 0.40 Sqm shall not be deducted. No extra shall be paid for extra labour in cutting and for wastage etc. No payment shall be made for laps in sheeting works.