



**TITLE:**

**TECHNICAL SPECIFICATION FOR  
ROOF DECKING**

SPECIFICATION NO. PE-TS-999-600-C019

VOLUME - II B

SECTION - D | SUB-SECTION – D19

REV.NO. 00 DATE 03/10/2017

SHEET 1 OF 7

**VOLUME: II B**

**SECTION - D**

**SUB-SECTION – D19**

**ROOF DECKING**

**SPECIFICATION NO. PE-TS-999-600-C019**



**Bharat Heavy Electricals Limited**  
**Project Engineering Management**  
**PPEI Building, Power Sector,**  
**Plot No. 25, Sector 16A,**  
**Noida (U.P.)-201301**



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 <b>BHEL</b> Bharat Heavy Electricals Limited	<b>TITLE:</b>  <b>TECHNICAL SPECIFICATION FOR ROOF DECKING</b>	SPECIFICATION NO. PE-TS-999-600-C019 VOLUME - II B SECTION - D   SUB-SECTION – D19 REV.NO. 00 DATE 03/10/2017 SHEET 3 OF 7
<div style="text-align: center;"><b><u>ROOF DECKING</u></b></div> <div> <div> <b>1.00.00</b> <b>Scope</b> </div> <p>This section of the specification covers the supply, fabrication and erection of profiled light gauge Metal Decks (coated and painted) as roof decking to the main plant building and any other area as indicated in the drawings.</p> </div> <div> <div> <b>2.00.00</b> <b>Material</b> </div> <div> <b>2.01.01</b> <p>Roof of main plant TG and Deaerator bay and bunker building consists of permanently colour coated (on exposed face) galvanized MS trough metal sheet decking plate of approved colour over roof purlins for cast-in-situ roof slab as per IS: 14246 and conform to class 3. Thickness of deck plate shall be minimum 0.8mm and minimum trough depth of 44 mm and center to center of the valley shall be 130mm with minimum yield strength of 250 Mpa. Silicon modified polyester paint shall be used for permanent coating over galvanized surface with minimum rate of galvanization 150 gm/sqm. DFT of permanent colour coating shall be 20 microns. It shall serve as permanent shuttering for cast-in-situ roof slab. It should have adequate strength to support weight of green concrete and imposed load during construction. The thickness of the deck plate shall however be designed suitably according to the spacing of roof purlins.</p> </div> </div> <div> <div> <b>3.00.00</b> <b>INSTALLATION</b> </div> <p>The Contractor shall furnish all labour, equipment and materials as required for the design, fabrication, coating, erection and fixing of the decking over purlins, painting and for the complete performance of the work in accordance with the construction drawings and as described herein.</p> <p>The description, which follows, gives a general indication of the nature and extent of the work but is not necessarily exhaustive and does not purport to cover all the details/operations which will be necessary in order to carry out the work.</p> </div> <div> <div> <b>3.01.00</b> <b>Detailed Design of Roof Decking</b> </div> <p>The Contractor, in conjunction with the manufacturer, shall be responsible for the detailing of the profiled decking, fittings and fixtures and shall submit with his tender particulars of the proposed manufacturer and of the particular product proposed for use. The detailing is to be based on typical details furnished by the Engineer. The Contractor shall submit to the Engineer, two copies of the general arrangement and detailed working drawings for the proposed design, together with all calculations necessary to verify the adequacy and completeness of the design &amp; detailing of decking sheets, fixtures, flashings and trims. After approval he shall supply further eight copies.</p> </div>		



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The Engineer will verify the correct interpretation of his requirements but may not necessarily check the design and details, and the Contractor shall be entirely responsible for the accuracy of the drawings and the correctness of the design and the suitability of the details. Manufacture of roof decking sheets shall not commence until the necessary approval of the Engineer has been obtained.

### **3.02.00 Erection & Fixing**

#### **3.02.01 Sequence of Manufacture/Erection**

Cutting Schedules, delivery to site and stacking arrangements in store shall ensure that sheets are erected in a sequence which follows that for the manufacture. The decking sheets shall be erected using an arrangement of sheets and joints to conform with the requirements of this specification. Decking erection for each elevation or feature shall commence at one end only and proceed towards the other end, in order to ensure tight fitting laps.

#### **3.02.02 Position and Location of Laps**

Side and end laps of roof decking sheets shall be located and positioned in such a manner as to provide the maximum weather protection taking into account the direction of the prevailing wind.

The lines formed by horizontal laps and fixing shall where possible, be continuous and coincide with the edges of large openings in the roof.

#### **3.02.03 Alignment of Sheets and Fixings**


All roof decking sheets shall be fixed plumb and level with all fixings evenly spaced and accurately lined. All dirt and grease shall be removed from the surfaces of the sheets as the work proceeds.


#### **3.02.04 Site Cutting**

Approval must be obtained before the roof decking sheets are cut at site. Generally cutting of sheets to length will not be permitted, only special cutting and trimming for small openings shall allowed. Where possible, site cut edges shall be concealed at laps.

#### **3.02.05 Damaged Sheets**

Distorted, blemished or water stained sheets and any other fittings shall not be used.

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<b>3.02.06</b>	<b>Laps</b>	<p>End laps and side laps to roof decking sheets shall be sufficiently large to ensure that the decking complies with the weather tightness and other requirements of this specification. The length of each decking sheet shall be adjusted so that the end laps shall bear on the purlins. In no case end laps shall not be less than 150 mm and side laps shall not be less than 53 mm.</p>
<b>3.02.07</b>	<b>End Lap Fixings</b>	<p>End lap fixings shall be located at least 25 mm from the end of each sheet.</p>
<b>3.02.08</b>	<b>Side Lap Fixings</b>	<p>The spacing of side lap fixings shall ensure compliance with this specification regarding tightness. The spacing of these fixing screws shall not exceed 500mm. The fixing shall be located in the bottom flat of the corrugation.</p>
<b>3.02.09</b>	<b>Holes</b>	<p>Holes in MS decking sheets shall be punched. In case holes are drilled holes, it is to be ensured that the holes do not go oversize due to the small thickness of the sheeting. All drilling swarf shall be removed from the surfaces of decking, supporting steel work, purlins etc.</p>
<b>3.02.10</b>	<b>Location and Spacing of Fixings</b>	<p>Fixings shall be accurately located in position in the centre of the corrugations to ensure that the heads of bolts, nuts and washers bear squarely down on the surface of the sheeting and are not located at the edge or on the joints in supporting purlins.</p>
<b>3.02.11</b>	<b>Fixings</b>	<p>The tenderer shall submit with his tender details of the proposed method for securing the roofing sheets to the metal purlins. The roof decking sheets are to be fixed to the roof purlins with hex washer head white zinc plated heat treated carbon steel self-drilling / self-tapping screws of minimum thread diameter of 5.6mm. These self-drilling screws shall be drilled through the roofing sheets and purlins supporting the roofing sheets. These purlins shall be suitably spaced as per the requirement of roofing sheets and the roofing sheets shall not sag more than span/250 for the loads likely to be imposed during concreting and in future. The self-drilling screws are to be spaced at a maximum distance of 390mm centre to centre along the length of the purlins and top chord of truss. The screws are to be located preferably in the valley only and shall be installed in accordance with the manufacturer's</p>

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	<p>recommendations using tools approved by the manufacturer which do not damage the coating of the decking sheets.</p> <p><b>3.03.00 Protection during Construction</b></p> <p>Precautions shall be taken during the erection of the roof decking to ensure that partially erected decking are protected during inclement weather and damage at all times.</p> <p><b>3.04.00 Damage</b></p> <p>Any damage to coating &amp; primer during transportation is to redone with the similar type of coating as per the manufacturer's specification at no extra cost to the Owner.</p> <p><b>4.00.00 Acceptance Criteria</b></p> <p>The installation shall present a neat appearance and shall be checked for water tightness. The following shall be checked:</p> <ul style="list-style-type: none"> <li>a) Side and end laps</li> <li>b) Absence of damage in the sheeting.</li> <li>c) Conformity of fixings with the approved design.</li> </ul> <p><b>5.00.00 IS Codes</b></p> <p>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.</p> <p>IS: 513- Specification for cold rolled carbon steel sheets.</p> <p>IS: 3618 - Specification for phosphate treatment of iron and steel for protection against corrosion.</p> <p>IS: 4431 - Specification for carbon &amp; carbon manganese free cutting steel.</p> <p>IS: 1573 - Electroplated Coatings of zinc on iron and steel.</p>	



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**6.00.0 RATES AND MEASUREMENTS**

**6.01.00 Rates**

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

**6.02.00 Method of Measurement**

Roofing shall be measured for net area of the work done. Profiled sheeting (coated & painted) shall be measured in plan area of sheets and not girthed. No deduction shall be made for openings measuring up to 0.1 sq.m. in area. No extra shall be paid for extra labour in cutting and for wastage etc. in making opening and cutting to size.

No payments shall be made for laps.