

# **TENDER ENQUIRY**

## **No. 1706077**

**Supply, fixing and laying permanently colour coated Aluminium False Ceiling of approved colour with stove enamel finish for 1 X 800MW Wanakbori, Project, Gujarat Site on 'F.O.R.' Destination basis.**

**VOLUME- I D**  
**(Technical Specifications & design criteria)**



**BHARAT HEAVY ELECTRICALS LIMITED**  
**(A Govt. of India Undertaking)**  
**POWER SECTOR - WESTERN REGION**  
**345-KINGSWAY, NAGPUR-440 001**



**TITLE:**

**TECHNICAL SPECIFICATION FOR  
SUSPENDED CEILING**

SPECIFICATION NO. PE-TS-999-600-C014

VOLUME - II B

SECTION - D | SUB-SECTION - D14

REV.NO. 00 DATE 03/10/2017

SHEET 1 OF 6

**VOLUME: II B**

**SECTION - D**

**SUB-SECTION – D14**

**SUSPENDED CEILING**

**SPECIFICATION NO. PE-TS-999-600-C014**



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



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SHEET 2 OF 6

**C O N T E N T**

<b>CLAUSE NO.</b>	<b>DESCRIPTION</b>	<b>SHEET NO.</b>
1.00.00	SCOPE	3
2.00.00	INSTALLATION	3
3.00.00	SAMPLES	5
4.00.00	SHOP DRAWINGS	5
5.00.00	ACCEPTANCE CRITERIA	6
6.00.00	RATES AND MEASUREMENTS	6



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SHEET 3 OF 6

**SUSPENDED CEILING**

**1.00.00 SCOPE**

This section covers supply and installation of suspended ceiling together with the suspension system as shown on drawing or specified in schedule of item with all materials, labour and equipments. The work shall also include providing of openings in the ceiling for lighting, air-conditioning diffusers etc. as shown on drawings or as instructed by the Engineer.

**2.00.00 INSTALLATION**

**2.01.00 Suspension System**

**2.01.01 General**

Suspension system shall consist of the grid supporting the ceiling panels, intermediate runner supports for the grid if any and hangers, wall angles etc. required to suspend the grid or the runners from structural works, slabs and beams.

All members of the suspension system shall be of sufficient strength and rigidity to carry, the ceiling boards or sheets in a true and level plane without exceeding a deflection of 1/360th of their span. All joints in ceiling panels shall run straight and cross joint shall be at perfect right angles. Angle moulds where shown on drawings shall be securely fixed to walls. All drillings of structural concrete and installation of suitable anchoring device for installation including welding of the suspension system shall be included in the rate. All M.S. sections used for supports etc. shall be given one coat of synthetic enamel paint over a coat of red lead primer.

**2.01.02 Metal Grid Suspension System**

Aluminium grid ceiling system shall be "Bead lock" as manufactured by W A Beard shell and Co. Pvt. Ltd. or Ajit India Limited or approved equal. Steel grid ceiling system shall be 'Jolly Snap Grid' as manufactured by Jolly Board Limited or approved equal.

Steel tees as intermediate members and steel channels, as end pieces will be assembled in the form of grid. Size of tees and channels shall be as required.

The cross-tees shall intersect main tee runners in pattern shown on drawing and positively locked together with intersection members. All perimeter areas shall have tee runners fixed to vertical wall surfaces and end channels shall be fixed to runners leaving return air space between vertical wall and channels,



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REV.NO. 00 DATE 03/10/2017

SHEET 4 OF 6

unless otherwise shown on drawings. Angle cleats or other suitable fixing device shall be fixed to the structural beams above for fixing of hangers. Main runners shall be hung by M.S. flats, angles, rods or 12G or heavier galvanized tie wire hangers at maximum 1.2 metre centres. Extra hangers shall be provided at light fixtures that are supported from the ceiling system. The spacing of main and cross runners shall be as shown on drawings. Turnbuckles shall be provided in M.S. rods for adjustment in levels.

**2.02.00 Ceiling Panels**

**2.02.01 Material**

Ceiling panels shall be best quality material in thickness and properties called for in the "Schedule of items". The Contractor shall submit test certificates to the Engineer for approval before bulk supply. The ceiling panels may be of following type:

- a) Plaster of Paris board (decorative)
- b) Expanded polystyrene insulation board with plastic fascia.
- c) Fibre Insulation board.
- d) Bonded wooden particle board (Plain and decorative)
- e) Glass fibre reinforced polystyrene sheets.
- f) Flat asbestos sheets (with plastic fascia).

**2.02.02 Installation of Ceiling Panels**

Installation of Ceiling panels shall be strictly as per manufacturer's instruction.

For concealed grid system, tiles shall be fixed to the supporting grid in manner shown on drawing or as specified by the manufacturer. Where V joints in tiles are called for in drawings, these shall be in true lines. Where flush surface is required, the joints shall be filled with approved filler material and finished to give a neat uniform surface. Special care shall be taken to neatly finish the ceiling at junctions with walls, light fixtures, diffusers etc.

**2.02.03 Aluminium Lineal Ceiling System**

Aluminium lineal ceiling system shall be "Luxalon 84C" or approved equal and the installation shall be strictly as per manufacturer's instruction/specification subject to approval of the Engineer.



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SECTION - D | SUB-SECTION - D14

REV.NO. 00 DATE 03/10/2017

SHEET 5 OF 6

Aluminium lineal ceiling shall comprise of plain panels, 84 mm wide and 12.5 mm deep with a 23.9 mm recessed flange, roll formed out of 0.5 mm thick aluminium alloy panels stove enamelled on both sides, fixed on roll-formed carriers made of enamelled 0.95 mm thick aluminium, 32 mm wide and 39 mm deep with prongs to hold panels in the module of 100mm, at maximum spacing 1.2 M centre to centre. The carriers shall be suspended from roof by 4 mm dia. galvanised steel wire hangers with special height adjustment clips made out of spring steel at maximum spacing of 1.2 M c/c. Hangers shall be fixed to roof by 'J' hooks and nylon inserts. 25 mm thick resin bonded mineral wool (spintex 300 or equivalent) insulation bound in polythene shall be laid on top of panels. Lineal ceiling shall be fixed in pattern as per detailed drawings.

**3.00.00 SAMPLES**

Samples of Ceiling panels and metal suspension system components as noted below shall be submitted for Engineer's approval:

Panels : 3 samples approximately 300 mm square/long each

Suspension System : 3 samples of short length: each of main and secondary system

**4.00.00 SHOP DRAWINGS**

Shop drawings shall be submitted for approval as required and approval shall be obtained prior to delivery of suspended ceiling components. Shop drawings shall be co-ordinated with all related work and shall show the following information:

- a) A reflected ceiling plan of areas indicated to receive the ceiling showing electrical and mechanical features.
- b) Typical Intermediate framing for support where required.
- c) Hanger fastening details.
- d) Panels - unit support at ceiling penetrations.
- e) Details of splicing method for main and cross runners.
- f) A table indicating load bearing capacity of main and cross runner
- g) A note stating that the suspension system member furnished will not deflect more than 1/360 of the span under the indicated loading.



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SECTION - D | SUB-SECTION - D14

REV.NO. 00 DATE 03/10/2017

SHEET 6 OF 6

**5.00.00 ACCEPTANCE CRITERIA**

Finished ceiling shall be at the correct plane and present a pleasing and uniform appearance, free from, sags, warps, disfigured, or damaged board. Cut-outs for light fixtures, diffusers etc. shall be of exact dimensions and in exact locations.

**6.00.00 RATES AND MEASUREMENT**

**6.01.00 Rates**

Rates shall be for the complete item called for in the "Schedule of Items". No extra payment will be made for alignment and adjustment of lighting fixtures, air-conditioning diffusers, access panels etc. The rate shall include all cutting and wastage from standard size sheets, runners/carries etc.

**6.02.00 Measurement**

Actual area of work shall be measured in Sqm correct to second place of decimal. However, no deduction will be made for opening upto 0.25 Sqm. each in area.