

ESP-001-2A Rev.00		PROJECT ENGINEERING & SYSTEMS DIVISION [Technical Specification for Porta Cabin]		Standard. / Doc. Number	
				PY55375	
				Rev. No.	01
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COPYRIGHT AND CONFIDENTIAL The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED , It must not be used directly or indirectly in any way detrimental to the interest of the company.	TECHNICAL SPECIFICATION FOR PORTA CABIN			
	PROJECT	ELECTRIFICATION WORKS FOR BIRLANAGAR - ETAWAH, BHANDAI -UDI,FARRUKHABAD-SHIKOHABAD INCLUDING MAINPURI - ETAWAH SECTIONS OF NORTH CENTRAL RAILWAY 386 RKM/440 TKM		

Revisions: Refer to record of revisions	Prepared by :	Checked by :	Approved by :	Date :
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LIST OF ANNEXURES ENCLOSED

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I	Annexure-01	Drawings

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1.0 INTENT OF SPECIFICATION:

This specification covers the design, manufacture, assembly and testing at manufacturer's works, packing and transportation of porta cabin to site, complete with all fittings, accessories and auxiliary equipment for efficient and trouble-free operation.

It is not the intent to specify completely herein all details of the equipment; nevertheless, the equipment shall be complete and operative in all respects and shall confirm to the highest standard of engineering, design and workmanship.

2.0 SITE CONDITIONS:

Sl. No.	Description	Data
1	Project	Railway electrification for Gr 239, 240, 241
2	Site Location	see scope of work
3	Elevation Above MSL	To be considered for all complete Indian peninsula
4	Maximum Ambient Temperature	60°C
5	Minimum Ambient Temperature	1°C
6	Design Ambient Temperature	As per RDSO Specifications
7	Site Environment	Humid, Highly Corrosive
8	Relative Humidity	100% (Max) & 22% (Min)
9	Seismic Zone	To be considered for all complete Indian peninsula
10	Rainfall & Raining period	70cm Annually, June to September & December to January
11	Wind Pressure	200 kg/m ²

3.0 SCOPE OF WORK

Design, Engineering, Supply, Transportation and Installation over the foundation/platform (provided by BHEL) in all respects including fittings, fixtures, accessories, electrification, sanitary, plumbing etc. at following sites (tentative site locations are near railway stations at following places)

- Bhind (M.P)
- Bah (U.P)
- Karhal (U.P)

Different categories of Bunk Houses (porta cabins) & expected requirement – total 12 nos

Type	Purpose	Nos. (for one site location)	Nos. (for 3 site locations)
Type – D	For Conference hall - 40' x 10' X 8.5'	1	3
Type – E	For Sr. Executive / Executive - 20' x 10' X 8.5'	1	3
Type – L	Security -5' x 6'	1	3
Type- M	Toilet block- 12' X 10'	1	3



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4.0 Recommended Technical Specification for Work Station (Bunk House/porta cabins) of required size for different category of cabins:

Sl.No.	Component	Description	Remarks
Main Load Bearing members			
1	Base Frame (Outer frame)	150mm especially Pressed formed profile of appropriate geometry made of MS sheet (IS 10748 or equivalent) 2.5 mm Thick.	Ref. drawings
2	Stiffeners for base frame	75 mm x 40mm Pressed formed rectangular hollow Section made of MS sheet (IS 10748) 2.5 mm Thick (Min. 3 rows in longitudinal side & 4 rows transverse side)	Ref. drawings
3	Roof top frame (Main outer frame)	150mm especially Pressed formed profile of appropriate geometry made of MS sheet (IS 10748 or equivalent) 2.5 mm Thick.	-----Do-----
4	Stiffeners (for Top frame)	50 x 25 x 2.5 mm (transverse direction min. 4 rows) & 32 x 32 x 2 mm (longitudinal direction min. 3 rows) Pressed formed hollow section made of MS sheet (IS 10748)	-----Do-----
5	Corner Posts	Pressed formed square hollow section of 3.15 mm thick M.S sheet of section 91 X 91 X 31.5 mm.	-----Do-----
6	Side/vertical intermediate Post & horizontal stiffeners	Especially Pressed formed profile of appropriate geometry made of 2.0 mm thick M.S sheet for holding wall paneling (compressed sandwich panel), all fitting & fixtures including AC and Over Head cabinets etc.	-----Do-----
7	Lifting Hooks & Base Plates	Necessary lifting hooks for loading, unloading shall be provided. All the corner post shall have min. 16 mm thick base plate of size 250 mm x 250 mm on both top and bottom.	-----Do-----
8	Painting	The All Exposed Structure shall be painted with one coat primer and two coat enamel paint	-----Do-----
Wall Paneling			
1	Wall	The interior shall be aesthetically finished to give custom built appearance with good workmanship. Wall Paneling shall be of COMPRESSED SANDWITCHED PANEL (CSP) with PUF (Polyurethane Foam) insulation of overall thickness 60 mm with 0.5 mm thick permanent colour coated galvalume sheet of approved colour (preferably light blue color) on both sides.	-----Do-----
2	Roof	Roofing shall be of 50 mm thick PUF insulation with 0.5 mm thick permanent colour coated galvalume sheet on both sides.	-----Do-----
3	False ceiling	The false ceiling shall be made out of anti-corrosive painted 19 mm square hollow section	-----Do-----



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		design to fix to the roof frame with suitable hangers. The clear height of ceiling shall be 8 ft. from the finished floor level. Cut out should be made properly wherever necessary for fixing electrical fitting. False ceiling shall be done with polymeric section of minimum thickness 6 mm. These panels are to joined together by tongue and groove using self-tapping screws. The colour of PVC Ceiling should match with wall panels.	
4	Partition	Partition frame to be made out of anticorrosive painted 25 mm hollow square section of 16 SWG thicknesses as per IS-4923 and double side paneling with polymeric section of minimum thickness 6 mm. These panels are to be joined together by tongue and groove using self-tapping screws. The color of PVC partition should match with wall panels. Doors for partition of height 6 feet (wherever required) should be polymeric fully open able air tight doors with proper accessories, and locking arrangement etc. Bunk house Cabin Type –A shall have full partition with PVC doors and vision panels.	Generally as per Ref. drawings. For Conference hall, one partition of sufficient width (3-4 ft) to be provided along with platform so that the partition area can be used as kitchen/food & tea preparation area. Suitable design may be provided by bidder for review.
5	Bottom flooring	The floor Panel shall be made with 0.5 mm thick. Pre coated Sheet as outer Skin & 18 mm thick marine plywood as a inner Skin of both side of PUF. The plywood shall be covered with 1 mm thick Vinyl sheet. Total thickness of panel shall be 50 mm.	Ref. drawings
6	Rain water gutter	Especially Pressed formed profile of appropriate geometry made of 2.0 mm thick M.S sheet for Rain water gutter with having min 65 mm dia GI rain water down comer connected with L bow.	Ref. drawings
External Doors and Windows			
1	Windows	Glazed sliding type windows of required dimension as per drawing shall be made out of PVC extruded sections with horizontal two track sliding. Windows shall be fitted with 4 mm thick Tinted Glass with proper locking arrangement. Safety aluminum Grills/ guard bars of suitable sections shall be provided in all windows. Window sill shall be decided as per the height of work station. All Windows shall be fitted with Rain-shed (canopy) made from 1.0 mm thick color coated sheet. Canopy shall be	Ref. drawings



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		folding type with proper holding and locking arrangement and shall be used as a protective cover to the glazed window at the time of transportation.	
2	M.S Doors	M.S. frame shall be made from pressed steel using CR Steel of 1.5 mm thick. Door shutter shall be made of suitable M.S. Frame covered with 0.5 mm thick pre coated sheet both side with PUF insulation so as to match with wall panel. High Quality Mortice Lock, Aldrop, Stopper, Handle & other accessories shall be Provided.	Location of the door shall be as per suitability or as shown in the drawings.
Electrical Installation, Telephone and Data cabling :			
1	A) Main electric supply (Normal 3 Ph 4 wire supply)	Main electrical inlet shall be through Cutler, Hammer make IP-55 certified 5 Pin welding socket (63 Amp). All wiring shall be done with Finolex / Anchor Make FRLS multi-strand copper wire and cable of open type with using proper channel (PVC - C section channel) closer for wiring. The wiring of Air Conditioner (AC) should be 6 Sqmm and for lighting/Fans should be 4 Sqmm. One main incomer distribution board (3 Ph-4 wire) should be provided in each cabin with 1 No. ELCB along with 63 Amps 3 pole MCB and individual MCBs for light, fans and AC. All MCBs shall be housed in metal enclosure. UPS power supply	As per Standard dwg /Standard practice suggested by bidder
2	B) UPS power supply	UPS inlets supply shall be through Cutler, Hammer make IP-55 certified 5 Pin welding socket (63 Amp). These sockets should be mounted on outside wall of the cabin and further connected to Main distribution board inside the cabin having provision of incoming MCB 32 Amps, 2 Pole and MCB at each sitting arrangement including internal wiring from Main Board up to the switch socket for further distribution. All wiring shall be done with Finolex /Anchor Make FRLS multi-strand copper wire 2.5 mm square cable of open type with using proper channel (PVC - C section channel) closer for wiring.	As per Standard dwg /Standard practice suggested by bidder
3	C)Telephone and Network cabling	One (1) No. Junction Box with Lock and Key should be mounted outside the Cabin for connecting to external telephone lines and network data cables. The junction Box should have provision for connecting at least four telephone lines and for connecting external network cabling type CAT-6. The cable should be terminated on Krone connectors and should be wired to the Telephone, outlets inside the	As per Standard dwg /Standard practice suggested by bidder



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		cable. One (1) No. 8 port D-Link switch should be mounted inside the cabin and further internal cabling shall be done with CAT-6 cables. Cabling from D-Link switch to users nodes is within the scope of work.	
4	Electrical fittings	Tubes – 3 Nos., Doors Lights – 1 No., Ceiling mounted Fans swing type (12”) - 2 Nos., Switches, Sockets (5/15 A), Telephone outlets type RJ-11 socket and Air-conditioner points with Earth Leakage Circuit Breaker as per requirement of Electricity norms. All fittings shall be Anchor/ Havel make, Split AC (Voltas, Videocon, LG, Samsung, Godrej make)- 2T, five star rating with arrangement of condenser unit at one corner inside cabin but open able from outside with locking arrangement, Fridge (LG/Kelvinator/Godrej/Samsung make 220 Ltr)	No. of fittings are indicative here, the no. of lights, telephone outlets and AC's shall be commensurate to the area and no. of persons for which the bunk house is designed.
Furniture for work station (refer dwg for detailed requirement)			
1	(A) Tables	Layout and dimensions shall be as per drawings. Materials shall be extruded polymeric panel (PVC) as per IS 10151/1982 of 25mm thick with proper supporting legs and clamping arrangement with wall frame	No. of tables to be considered as per drawing
	(B) Chairs	Any of the following makes or equivalent makes 1) Regency Model ECH 7001 D 2) Serena Model 9002 A 3) Regency Model PCH 7003 D	No. of chairs to be considered as per drawing
2	Overhead cabinets	As per Dwg. Materials shall be extruded polymeric panel (PVC) as per IS 10151/1982 of 25mm thick with proper locking and fixing arrangement with wall frame. It should be strong enough to take load of files.	No. of overhead cabinets to be considered as per drawing
3	Refrigerator	Fridge having capacity of 220 Ltr, made of LG/Kelvinator/Godrej/Samsung make -1 No for EXECUTIVE cabin (type E)	
4	Air conditioner	Split AC (Voltas, Videocon, LG, Samsung, Godrej make)- 2T, five star rating with arrangement of condenser unit at one corner inside cabin but open able from outside with locking arrangement – minimum 2 nos for conference hall (type D) and 1 no for EXECUTIVE cabin (type E)	No. of AC's shall be commensurate to the area and no. of persons for which the bunk house is designed
Safety appliances			
1		1 No. fire portable Fire Extinguisher shall be in each cabin at appropriate location.	As per Standard dwg /Standard practice suggested by bidder
Toilet Block			
1		1 No. toilet block (12' X 10') consisting of following	Vendor to propose drawing

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		- 2 nos western commode (ceramic) of Hindware/Parryware or equivalent make - 1 wash basin of Hindware/Parry make (Ceramic) inside the toilet block - 2 nos urinals (ceramic) - 1 wash basin outside the toilet block - All fittings, plumbing, lighting to be provided	and take approval before supply.
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Note:

- All quantities indicated above are for each site location. The Total requirement to be multiplied by 3. For example, total no. of type-D bunk houses required is $1 \times 3 = 3$ nos at various locations as specified.
- The specifications provided herein are only indicative and, manufacturer shall be overall responsible for detail Design, Engineering, drawings, finishing, internal furnishing, electrification & fixtures and proper functioning of the Bunk houses.
- Manufacturers are free to quote for their better specification & design if they have under their manufacturing range which will work in frequent transportations.

5.0 INSPECTION, TESTING AND ACCEPTANCE

5.1 Shop Inspection:

- After award of contract bidder shall submit **Quality Plan for approval.**
- The vendor shall give at least 2 weeks advance notice to the purchaser, regarding the date of testing to enable him or his representative to witness the tests.
- Inspection agency shall be BHEL / BHEL Third Party Inspection agency

Periodical inspection of process at least at three stages – 1st during welding process of main frame for inspection of materials & welding quality & 2nd at internal & external paneling & insulation and 3rd at Furnishing, electrical works & finish paint. Minor modifications, if any, required to be carried out which will be specified during the stage of inspection/manufacturing process. Rates quoted should consider this aspect also.

5.2 Marking:

Each Unit shall be marked externally with:

Name & address of Manufacturer

Type, Serial No.

Max. Permissible distributed floor loads

Max. External size

Max. Weight of unit for lifting

Position of lifting & anchoring points

Suitability of stacking

BHEL Logo: The Main Door should carry a logo of BHEL made of stainless embossed.

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6.0 WARRANTY

- 6.1 1 year for workmanship & defective materials
- 6.2 3 years for painting as per European scale of rusting RE3 (10% of total surface). However normal wear & tear and damage by external impact etc. are not covered.

6.3 After sales service:

During the first installation(for each cabin) at site, manufacturers shall depute their technician to check placement of cabins over the pedestal, all fittings, fixtures and electrical installation ,AC etc. and to ensure successful operation of Bunk House at site. Minor wear and tear occurred during transit which involves denting and painting shall be done by Manufacture free of cost.

Warranty/Guarantee for electrical installation/ Equipment like Air conditioner (AC), Fans, Lighting shall either be extended in the name of BHEL from original supplier of Equipment or to be taken care by the supplier of the Bunk House as a part of Warranty.

7.0 PACKING AND DISPATCH

- 7.1 The detailed packing list shall be furnished for BHEL's review and acceptance before seeking dispatch clearance. Vendor shall dispatch the materials generally with all components mounted. If, for reason of preventing transit damage or for any other reasons, the components/ items have to be packed separately and dispatched then such loose items have also to be listed in the packing list. The list shall have references duly tracing them to the respective packing box/ crate. If such loose items are not declared then it shall be deemed that there are no such loose items.

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