

# **TENDER SPECIFICATION**

**BHEL: PSSR: SCT: 2181**

**FOR**

**BHEL Transit Flat, Residential Quarters  
basement and common areas renovation  
works at Ashok Nagar, Chennai.**

**VOLUME –II**

**PRICE BID**

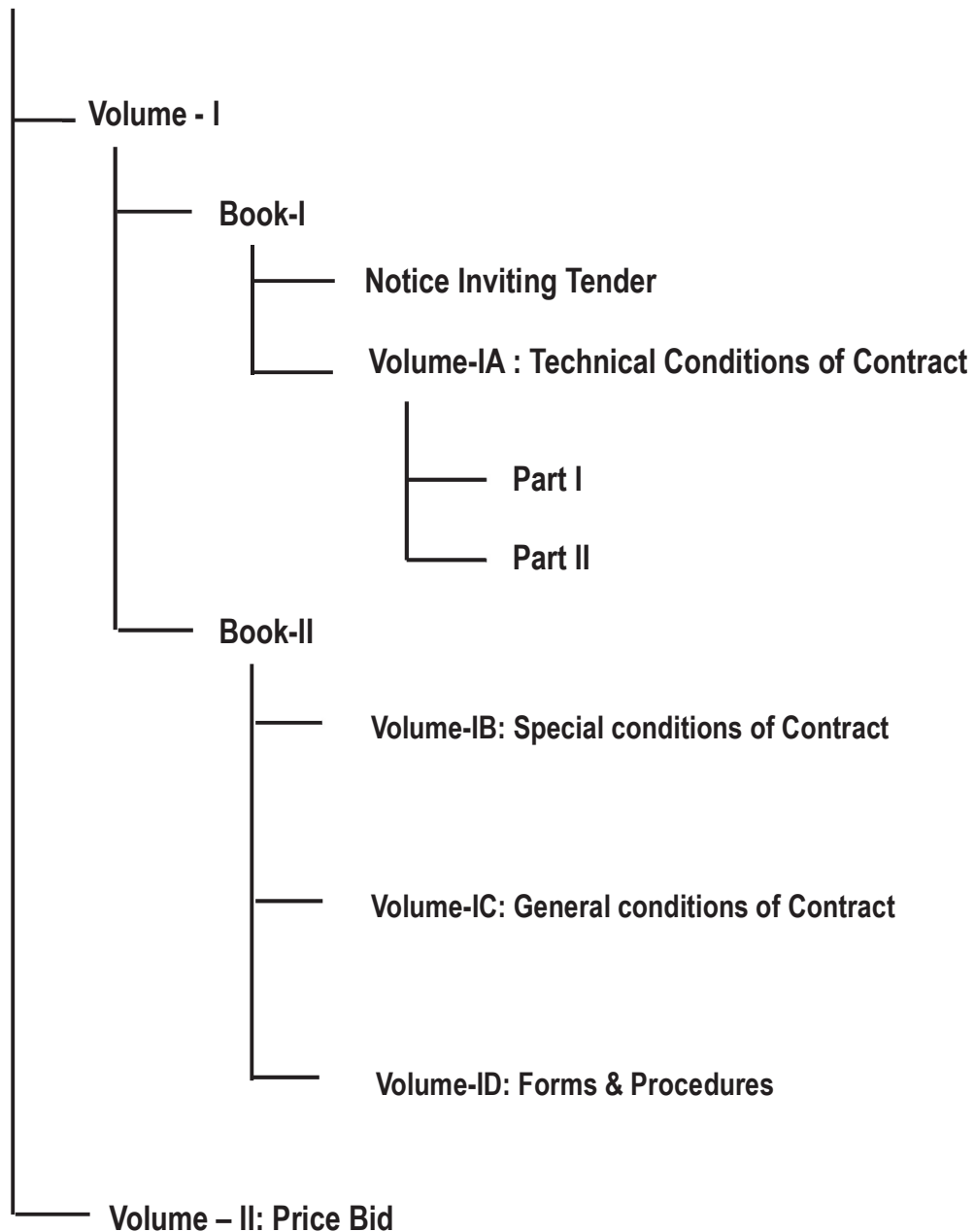


**BHARAT HEAVY ELECTRICALS LIMITED**  
(A Government of India Undertaking)

Power Sector – Southern Region  
BHEL Integrated Office Complex, TNEB Road  
Pallikaranai, Chennai - 600100

## TENDER SPECIFICATION CONSISTS OF

### Tender Specification



## NOTICE INVITING TENDER

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# NOTICE INVITING TENDER

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## **PART A**

### **Instruction to Bidders:**

1. The quantity indicated in the BOQ / Price bid (Part C) is approximate only and is liable for variation. Payment will be as per actual quantity executed as certified by BHEL Engineer.
  2. Tenderers are requested to affix their company seal and authorized signature in all pages.
  3. Bidders shall quote 'Total Amount' in the format enclosed as a separate Excel File in BHEL NIC e-Procurement portal for the subject tender and upload the same under 'Packet details - > Tender covers -> Finance '(Cover Type Description – Price Bid)'' and same shall be taken into account for evaluation and awarding and hence, shall be complete in all respect for the full scope of work defined in specification and in accordance with terms & conditions of the tender. Any other entry elsewhere in the price bid shall be treated as Null and Void. Quoting of rates in any other form/ formats will not be entertained.
  4. The above mentioned 'Total amount' is for the entire Bill of Quantity (BOQ) given in Part -C of the Price Bid. Total amount shall be excluding taxes.
  5. BHEL has pre-fixed the weightages for the amount of individual items of Bill of Quantity with respect to the 'Total Amount' in Part-C.
  6. Based on the pre-fixed weightages, the amount for the individual items of the Bill of Quantity shall be arrived at. This amount shall be rounded off to the nearest rupee.
  7. Based on the quantities of individual item and the amount arrived in SI No: 6 above, unit rate of individual items shall be derived. This unit rate shall be rounded off to four decimal places.
  8. Bidders to note that this is an item rate contract. Payment shall be made for the actual quantities of work executed at the unit rate arrived at as per SI No.7 above.
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## Part C : Bill of Quantities

### Tender Specification for BHEL Transit Flat, Residential Quarters basement and common areas renovation works at Ashok Nagar, Chennai

#### at BHEL PSSR

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
1.0	DISMANTLING OF EXISTING WORKS	--		
1.1	DISMANTLING OF EXISTING FLOORING/ TILES	--		
--	Dismantling tile work in floors and walls laid in cement mortar including stacking material within 50 metres lead. For thickness of tiles above 25 mm and up to 40 mm	Sqm	190	.0010919
1.2	DISMANTLING OF EXISTING WINDOWS DOOR & VENTILATORS	--		
--	Taking out doors, windows and clerestory window shutters (steel or wood) including stacking within 50 metres lead of area beyond 3 sq. metres	Each	62	.0005938
1.3	DISMANTLING OF EXISTING BRICK WALLS	--		
--	Demolishing brick work manually/ by mechanical means including stacking of serviceable material and disposal of unserviceable material within 50 metres lead as per direction of Engineer-in-charge. In cement mortar	Cum	20.65	.0021569
1.4	DISMANTLING OF EXISTING RCC WATER TANK	--		
--	Demolishing R.C.C. work manually/ by mechanical means including stacking of steel bars and disposal of unserviceable material within 50metres lead as per direction of Engineer - in- charge.	Cum	6	.0010802
1.5	DISMANTLING OF STEEL	--		
--	Dismantling steel work in built up section in angles tees , flats & chanel's including all gusset plates bolts bolts nuts cutting revits welding etc., including dismembering & stacking within 50m lead	Kg	500	.0001432
2.0	MASONARY WORKS	--		
2.1	AAC BLOCK WORK-200MM	--		

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
--	Providing and laying autoclaved aerated cement blocks masonry with 150mm/230mm/300 mm thick AAC blocks in super structure above plinth level up to floor V level with RCC band at sill level and lintel level with approved block laying polymer modified adhesive mortar all complete as per direction of Engineer-in-Charge.	Cum	3	.0012676
2.2	AAC BLOCK WORK-100MM	--		
--	Providing and laying autoclaved aerated cement blocks masonry with 100 mm thick AAC blocks in super structure above plinth level up to floor V level in cement mortar 1:4 (1 cement : 4 sand ). The rate includes providing and placing in position 2 Nos 6 mm dia M.S. bars at every third course of masonry work	Cum	7	.0036184
2.3	PLASTERING WORK	--		
--	Prepare surface and plaster the inner surfaces of walls, R.C.C surfaces contiguous to masonry with cement mortar 1 : 4, 12mm thick using good river sand, including patch plaster etc. The rate to include apart from the above the cost of scaffolding, curing, tools and plants etc. Complete.	Sqm	48	.0008446
3.0	WATERPROOFING WORKS	--		
3.1	TOILET WATERPROOFING	--		
--	Providing and laying water proofing treatment in sunken portion of WCs, bathroom etc., by applying cement slurry mixed with water proofing cement compound consisting of applying :	--		
--	a) First layer of slurry of cement @ 0.488 kg/sqm mixed with water proofing cement compound @ 0.253 kg/ sqm. This layer will be allowed to air cure for 4 hours.	--		
--	b)Second layer of slurry of cement @ 0.242 kg/sqm mixed with water proofing cement compound @ 0.126 kg/sqm. This layer will be allowed to air cure for 4 hours followed with water curing for 48 hours. (The rate includes preparation of surface, treatment and sealing of all joints, corners, junctions of pipes and masonry with polymer mixed Slurry)	Sqm	61	.0019084

**Part C : Bill of Quantities****Tender Specification for BHEL Transit Flat, Residential Quarters basement and common areas renovation works at Ashok Nagar, Chennai****at BHEL PSSR**

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
3.2	TERRACE WATER TREATMENT	--		
--	The roof tiles shall be cleaned properly by wire brush & water jetting & thereby seal the cracks or joints of tiles by using Renderoc-CS (w/p ratio is 0.36). Once the crack & joints get sealed by using Rendroc then allow it to dry. Once the surface got dried off then again clean with water & allow it to dry off & thereafter apply diluted Nitoprime-AW (Nitoprime-AW is 2 part & Water is 1-Part) over the surface by using roller brush with a coverage of 8-10 Ltrs/sqm. After 2-3 hrs Nitoprime-AW got dried off & then apply Fosroc make Brush bond Roof Guard three coat & each coat having coverage of 0.5 Ltrs/sqm. Total sum of 3 coat should be minimum 1 mm DFT & brushing of each coat is 90 degree to each other.	Sqm	230	.0113616
4.0	FLOORING WORKS	--		
4.1	POLISHED GRANITE FLOORING	--		
--	Providing and laying gang saw cut 30 mm thick, mirror polished pre moulded and pre polished machine cut granite stone of required size and shape of approved shade, colour and texture in footpath, flooring in road side plazas and similar locations, laid over 20mm thick base of cement mortar 1:4 (1 cement : 4 coarse sand) including grouting the joints with white cement mixed with matching pigment, epoxy touch ups etc. complete as per direction of Engineer-in-Charge.	Sqm	265	.0538347
4.2	LAMINATED WOODEN FLOORING	--		

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
--	Providing and fixing of minimum 10mm thick Laminated wooden flooring, with surface finish of Embossed in Register for EIR and Hand sculpted for HS, classification of use 32/23 with asurface abrasion resistance of class AC5 (average 4550 cycles), impact resistance of 9N ,resistance to cigarette burn with a rating of 4 (EN 438-2:05), swelling after 24 hrs in water of 8.22%, Modulus of rupture of 53.3 Newton/mm2, Internal bond 1.78 newton/mm2, surface soundness 2.0 newton/mm2 (EN 13329:2000) with a 0.2 mm thick wear layer on top of a High Density Fiber-substrate core (density ~ 948.3 Kgs/M3) of plank size 1214 mm X 141.5 mm having locking arrangement (lock strength > 670 lbs/ft) with an underlayment made of natural colour foam , with accessories like End profile, Transition profile etc. complete. It is important to ensure the sub floor on which the laminate is being laid is smooth, flat & hard & free from moisture, grease, etc. In case of uneven sub floor the same should be leveled by self leveling compound. The moisture level present in the subfloor should be less than 8% before installation of the floor.The laminate shall have Armalock locking system. It is recommended to use a water barrier of minimum of 250 microns and 2mm polyethylene foam under the planks. The installation shall be undertaken as per the manufacturers installation instructions. The work should be carried out as per patterns / design all as shown in the relevant drawings. The rate to include the cost of all leads, lifts, wastages, tools and plants, design pattern etc complete as directed by the Architects.	Sqm	16	.0012652
4.3	VITRIFIED FLOORING- ANTI SKID	--		
--	Providing and laying matt finished vitrified tile of size 600x600mm having with water absorption less than 0.5% and conforming to IS: 15622 of approved make in all colours and shades in laid on 20mm thick base of cement mortar 1:4 (1 cement : 4 coarse sand) in all shapes & patterns including grouting the joints with white cement mixed with matching pigments etc. complete as per direction of Engineer-in-Charge.	Sqm	169	.0139069
4.4	2MM THICK LVT VINYL TILE	--		
--	Providing and laying 2mm thick LVT Vinyl floor (thickness to be specified by manufacturer), fixing with adhesive as per manufaturer specification. The LVT flooring to be fixed at the top of exising vitrified tile flooring. Size of Tile 600x600 mm.	Sqm	155	.0075702



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4.5	SCREED CONCRETE	--		
--	Providing and laying in position cement concrete of specified grade including the cost of shuttering-at all floors. The ratio of CM 1:2:4 (1 cement : 2 sand : 4 graded stone aggregate 6mm size blue metal - upto varying thickness 40mm to 75mm. All areas to be finished with same level as per Engineer-in-Charge.	Cum	25	.0099861
5.0	WALLPAINITING	--		
5.1	WALLPAPER	--		
--	Providing and fixing wall paper of approved make, shade, texture as directed. 100% washable, scratch resistance, peel proof, and fire retardant properties fixed with adhesive as per manufacturers specification. The wall paper should give a seamless finish. Basic Cost of wallpaper Rs.900 per Sqm.	Sqm	57	.003049
5.2	TEXTURED PAINTING	--		
--	Prepare the surface free from dirt and patches of plastering and apply two coat of putty of approved brand and paint two coats of base paint and spray one coat of multi-colour paint of approved colour on the surfaces of the wall. The putty apply shall be uniform and should be to levels and lines before applying the primer. The rate to include all the above and leads, lifts, scaffolding etc. complete. Basic cost of texture paint Rs.400/-Sqm. (Nova /Asian / Berger or equivalent )	Sqm	385	.0104762
5.3	CEILING PAINTING	--		
--	Painting Acrylic emulsion paint of approved colour on Wall, as per manufacturers specification and finally painting with Two or more coats of water based emulsion paint/ plastic emulsion paint to give an even shade. The First coat shall be brush applied and the final coat shall be Roller finish. The rate shall include surface preparation and scaffolding etc. complete.	Sqm	500	.0034844
5.4	WALL EMULSION PAINTING-INTERIOR	--		

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
--	Painting Acrylic emulsion paint of approved colour on Wall, as per manufacturers specification and finally painting with Two or more coats of water based emulsion paint/ plastic emulsion paint to give an even shade. The First coat shall be brush applied and the final coat shall be Roller finish. The rate shall include surface preparation and scaffolding etc. complete.	Sqm	1,179	.0105355
5.5	EXTERIOR TEXTURE PAINTING	--		
--	Finishing Walls with Textured paint exterior paint of required shade, New work (Two or more coat applied @ 1.67ltr/10Sqm over and including primer coat of exterior primer applied @ 0.90 litre/10sqm	Sqm	792	.0089786
5.6	MOULDING	--		
--	12 mm thick plain cement mortar bands in cement mortar 1:4 (1 cement : 4 fine sand); size minimum 100mm width	Rmt	70	.0007163
6.0	PARTITIONS	--		
6.1	SOLID PARTITION	--		
--	Providing and fixing rigidly in position a partition using 50 x 50mm x 1.5mm Aluminium framework running both horizontally and vertically at not more than 600mm c/c both ways. The framework alternative vertical member to touch the true ceiling height from the finished floor level and fixed rigidly to the ceiling, flooring, walls or partitions. All vertical framework members shall be of a single piece without any joint as directed by the Architects. The framework to be concealed with 12 mm thick MDF Board. The MDF Board will be camouflaged with 1.0mm thick laminate of approved colour and make and shade and make and grooves to be provided as shown in the drawing. MDF to extend 100mm above the False ceiling Level. Measurement for Billing will be taken from FFL to bottom of False Ceiling Level. The rate quoted to include grouting and fixing and making up the flooring to its original condition as well as making provisions for laying conduits, switch boxes and light fittings etc. Basic Cost of Laminate : Rs. 600 /- Sqm.	Sqm	24	.0047723

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
6.2	FULLY GLAZED PARTITION	--		
--	Supply and Fixing of Slim Glass partition of 10mm Toughened Glass using DORMA Alexa System-45 Frames to a height of maximum 3m or as per drawing. The Fixed glass to be fixed using DORMA Alexa BP45 Profiles at Top & Bottom & Alexa SP45 at sides. The profile size to be 45x25MM to be fixed on to the floor/wall/ ceiling as per the architect design. DORMA Alexa H Junction profile to be used at all Glass to Glass vertical joints, 90 Deg L Junction Profiles / T Junction profiles / 130 Deg profile necessary as per design. In case of Glass overall panel Alexa MP45 & BP45 Overpanel Profile to be used. In case of Open glass edges EP45 End Profile to be used. The Alexa profiles shall be suitable for Glass thickness of 10/12/13.52mm. The Profile shall be matt natural anodized, the Profile Manufacturer to supply all the necessary clips, seals and fixing accessories for the system. All Profiles to be with 2 mm Gauge thickness Excluding 20 Micron of Anodizing. Approved Manufacturer: Profiles/Frames: DORMA/ equivalent (Glass Make : Saint Giobain/AIS)	Sqm	12	.0050235
7.0	FALSE CEILING	--		
7.1	GYPSUM BOARD	--		

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
--	Providing and fixing false ceiling at all height including providing and Fixing of frame work made of special sections, power pressed from M.S. sheets and galvanized with zinc coating of 120 gms/sqm (both side inclusive) as per IS : 277 and consisting of angle cleats of size 25 mm wide x 1.6 mm thick with flanges of 27 mm and 37mm, at 1200 mm centre to centre, one flange fixed to the ceiling with dash fastener 12.5 mm dia x 50mm long with 6mm dia bolts, other flange of cleat fixed to the angle hangers of 25x10x0.50 mm of required length with nuts & bolts of required size and other end of angle hanger fixed with intermediate G.I. channels 45x15x0.9 mm running at the spacing of 1200 mm centre to centre, to which the ceiling section 0.5 mm thick bottom wedge of 80 mm with tapered flanges of 26 mm each having lips of 10.5 mm, at 450 mm centre to centre, shall be fixed in a direction perpendicular to G.I. intermediate channel with connecting clips made out of 2.64 mm dia x 230 mm long G.I. wire at every junction, including fixing perimeter channels 0.5 mm thick 27 mm high having flanges of 20 mm and 30 mm long, the perimeter of ceiling fixed to wall/partition with the help of rawl plugs at 450 mm centre, with 25mm long dry wall screws @ 230 mm interval, including fixing of gypsum board to ceiling section and perimeter channel with the help of dry wall screws of size 3.5 x 25 mm at 230 mm c/c, including jointing and finishing to a flush finish of tapered and square edges of the board with recommended jointing compound, jointing tapes, finishing with jointing compound in 3 layers covering upto 150 mm on both sides of joint and two coats of primer suitable for board, all as per manufacturer specification and also including the cost of making openings for light fittings, grills, diffusers, cutouts made with frame of perimeter channels suitably fixed, all complete as per drawings, specification and direction of the Engineer in Charge but excluding the cost of painting with:	--		
--	12.5 mm thick tapered edge gypsum plain board conforming to IS: 2095- (Part I) : 2011 (Board with BIS certification marks)	Sqm	102	.0079077
7.2	MINERAL FIBRE FALSE CEILING	--		

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
--	Providing and fixing of Armstrong Dune/ Equivalent Microlook Mineral Fibre Ceiling Tiles in true horizontal level false ceiling grid of system manufacture by M/s. Armstrong world industries, US / UK using hot dipped galvanized steel section, exposed surface chemically cleaned capping prefinished in backed polyester paint main Tee of size 15 x 38 x 0.33mm at every 1200mm c/c max and rotary stitched cross tee of size 15 x 38 x 0.33mm at every 1200 c/c max and 15 x 22 x 0.457mm wall angle alround the wall to form grid size of 600mm x 600mm and suspending the grid using 2mm GI rod and 6mm Nylon Rawl plug at every 1200mm intervals at the main tee and laying Armstrong Prima Fine Fissured Microlook Mineral Fibre Acoustic Ceiling tiles of size 600mm x 600mm x 15mm over the formed grid, manufactured by M/s. Armstrong World Industries US / UK. The false ceiling has to be carried out to the shape lines and levels as given in the drawing. The rate to include all the above. The False ceiling is to be erected in any shape in levels as shown in drawing. No extra cost is payable for difference in shape and levels. The measurement will be taken in flat / horizontal / linear alignment.	Sqm	68	.0052408
8.0	JOINERIES	--		
8.1	UPVC WINDOWS	--		
--	Providing and fixing factory made uPVC white colour casement/casement cum fixed glazed windows comprising of uPVC multi-chambered frame, sash and mullion (where ever required) extruded profiles duly reinforced with 1.60 mm thick galvanized mild steel section made from roll forming process of required length (shape & size according to uPVC profile), uPVC extruded glazing beads of appropriate dimension, EPDM	--		

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
--	gasket, stainless steel (SS 304 grade) friction hinges, zinc alloy (white powder coated) casement handles, G.I fasteners 100 x 8 mm size for fixing frame to finished wall, plastic packers, plastic caps and necessary stainless steel screws etc. Profile of frame & sash shall be mitred cut and fusion welded at all corners, mullion (if required) shall be also fusion welded including drilling of holes for fixing hardware and drainage of water etc. After fixing frame the gap between frame and adjacent finished wall shall be filled with weather proof silicon sealant over backer rod of required size and of approved quality, all complete as per approved drawing & direction of Engineer-in-Charge. (Single / double glass panes and silicon sealant shall be paid separately)	--		
--	Casement cum fixed panel window having both end single casement panel, middle fixed panels and at top completely fixed ventilator with S.S friction hinges (350 x 19 x 1.9) made of (big series) frame 67 x 60 mm , sash 67 x 80 mm & mullion 67 x 80 mm all having wall thickness of 2.3 mm and single glazing bead/double glazing bead of appropriate dimension. (Area of window above 3.00 sqm upto 5.00 sqm).	Sqm	26	.0103617
8.2	UPVC VENTILATORS	--		
--	Providing and fixing factory made uPVC white colour casement/casement cum fixed glazed windows comprising of uPVC multi-chambered frame, sash and mullion (where ever required) extruded profiles duly reinforced with 1.60 mm thick galvanized mild steel section made from roll forming process of required length (shape & size according to uPVC profile), uPVC extruded glazing beads of appropriate dimension, EPDM	--		
--	gasket, stainless steel (SS 304 grade) friction hinges, zinc alloy (white powder coated) casement handles, G.I fasteners 100 x 8 mm size for fixing frame to finished wall, plastic packers, plastic caps and necessary stainless steel screws etc. Profile of frame & sash shall be mitred cut and fusion welded at all corners, mullion (if required) shall be also fusion welded including drilling of holes for fixing hardware and drainage of water etc. After fixing frame the gap between frame and adjacent finished wall shall be filled with weather proof silicon sealant over backer rod of required size and of approved quality, all complete as per approved drawing & direction of Engineer-in-Charge. (Single / double glass panes and silicon sealant shall be paid separately)	--		

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
--	Casement window single panel with S.S. friction hinges (300 x 19 x 1.9 mm), made of (small series) frame 47 x 50 mm & sash 47 x 68 mm both having wall thickness of 1.9 mm and single glass panel glazing bead of appropriate dimension. (Area of window upto 0.75 sqm.)	Sqm	11	.0045995
8.3	PATCH FITTING DOOR	--		
--	Providing and fixing of fixed glass door with openable shutters using 12mm thick toughened glass. The fixed glass shall be fixed in position using PT patch fittings like PT 90/ PT 92 of Dorma make. The openable doors shall be fixed using top pivot PT 24, Top patch PT 20, bottom patch PT 10, corner lock US 10 with SS cover plates. The doors shall be fixed on floor spring model BTS 75V with SS cover plate. Pull handle shall be of size 600mm height x 32mm dia TGDI H 600. Necessary holes cutouts. etc to be provided as required. Cost to include drilling, cutting, necessary sealants, transportation etc in complete. The rate to be quoted will be inclusive of all the above including the cost of scaffolding, cost of floor springs and fixing cost for supply and erection of all hardware fittings such as S.S. handle two pairs, Equivalent for each door, all as directed by the Engineer in charge of the work and concreted civil works including chipping the floor, fixing the floor springs, making good the disturbed floor, all leads and lifts transport etc., complete. The glazing will be taped with 3M Scotchcal 7725SE-324 Frosted crystal film the details shown in the relevant drawings. The Frosted crystal film is to be supplied to the correct size and shape as indicated in the relevant drawing and the film is to be precut digitally with a plotter, brought to site and pasted over the glass. Any additional details required for shaping the film is to be obtained from the Architects in advance before precut the film	Sqm	5	.0036048
8.4	ROOM DOORS	--		
a	Providing and fixing frame & shutter of opeing dimension with colour pattern as per EIC., The core to be covered with both sides pvc memberine with factory made glued door. The rates are inclusive of hardware/iron mangery etc.,	Sqm	23	.0066864

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
b	Providing and fixing ISI marked flush door shutters conforming to IS : 2202 (Part I) decorative type, core of block board construction with frame of 1st class hard wood and well matched teak 3 ply veneering with vertical grains or cross bands and face veneers on both faces of shutters. 35 mm thick including ISI marked Stainless Steel butt hinges with necessary screws.	Sqm	35	.0061644
c	Providing wood work in frames of doors, windows, clerestory windows and other frames, wrought framed and fixed in position with hold fast lugs or with dash fasteners of required dia & length (hold fast lugs or dash fastener shall be paid for separately). Material - Second class teak wood	Cum	0.6	.0039895
8.5	TOILET DOORS	--		
--	Providing and fixing frame & shutter of opeing dimension with colour pattern as per EIC., The core to be covered with one side pvc memberine and another side pvc sheet with factory made glued door. Aluminium louver to be used 200x150mm at the bottom of the door shutter. The rates are inclusive of hardware/iron mangery etc.,	Sqm	29	.0058003
8.6	LUGGAGE RACK	--		
--	Providing and fixing of luggage rack of 450mm in depth and 750mm in height of varying widths as per the site requirements. Unit to be made of 25mm thick MDF for top surfaces and the verticals are made out of 18mm thick MDF	--		
--	All exposed plywood surfaces to be finished in 1.0mm thick laminate of approved colour and shade. Rear external surfaces of unit to be finished with 0.8mm thick white laminate so as the internal surfaces of the storage unit.	--		
--	All exposed plywood edges to be finished in PVC edge banding tape to be used. Unit to have necessary locking arrangements (efficient gadgets or equivalent) handles, hardwares, tower bolt, hinges etc.	Sqm	16	.0089308
8.7	SS-HAND RAILS	--		



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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
--	Providing and fixing stainless steel (Grade 304) railing made of Hollow tubes, channels, plates etc., including welding, grinding, buffing, polishing and making curvature (wherever required) and fitting the same with necessary stainless steel nuts and bolts complete, i/c fixing the railing with necessary accessories & stainless steel dash fasteners , stainless steel bolts etc., of required size, on the top of the floor or the side of waist slab with suitable arrangement as per approval of Engineer-in-charge, (for payment purpose only weight of stainless steel members shall be considered excluding fixing accessories such as nuts, bolts, fasteners etc.,	Kg	142	.0055609
9.0	MISC WORKS	--		
9.1	WORK STATIONS	--		
--	Supply and Erection of Linear Workstation Dimension : 1200mm x 600mm x750mm Model No: Feather lite-Synergy or Equivalent Linear workstation Size: 1200 x 600D x 750Ht mm System: Desking - Synergy Specification Table top : 25mm thick Pre-laminate particle board E1 norms finished with 2mm PVC edge banding. Main Screen : 1050L x 450HT - 8mm thick Colored Glass Screen supported on studs Return Screen : 525L x 450HT - 8mm thick Colored Glass Screen supported on studs. Modesty : Considered SQ Perforated Metal modesty of 450mm HT only for End Legs for open passage areas and not for wall areas. Under-structure : Supported on MS powder coated Colors leg with supporting beams. Wire Management : 250mm Ht Raceway with 65mm Dia Wire Manager Grommet Specifications Vertical Raceway with built in separator for power and data of size 250H x 70mm thick with provision to mount switches and sockets on laminate facia with Vertical Wire Entry cover for wire uptake from floor to raceway with 65mm Dia Wire Manager Grommet. PEDESTAL (2D+1F) SIZE: 400L x 450D x 600HT Specifications: Table Top: 18mm thick pre laminated particle board ,Shutters: 18mm thick pre laminated particle board Edge: All exposed area with 2mm thick PVC edge lipping Handle: Finger groove handle Lock: Regular lock, CPU trolley, ABS keyboard tray with mouse pad	No	2	.0019815

**Part C : Bill of Quantities****Tender Specification for BHEL Transit Flat, Residential Quarters basement and common areas renovation works at Ashok Nagar, Chennai  
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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
9.2	MODULAR KITCHEN	--		
--	MODULAR KITCHEN of the area is around 200 Sqft. The rates are inclusive kitchen cabinet, kitchen slab,accessories,etc.,	Ls	1	.0123263
9.3	TV LEDGE	--		
--	Providing and fixing of 18 mm thick MDF MR 303 Ledge onto wall/Partition .Top & Sides of the Ledge to be Finished with 1.0mm thick laminate top & bottom. Ledge front 100mm MDF to be extended finished with 1.0mm laminate finish	Rmt	20	.0020466
9.4	ALUMINIUM SKIRTING	--		
--	Providing & fixing 100 mm high Anodised extruded aluminum skirting of make: Bottom Line, Model: Modular skirting - Easy Fix 100. All complete inclusive of all corner filler pieces and other applicable accessories.	Rmt	216	.0090424
9.5	COLUMN PANELLING	--		

**Part C : Bill of Quantities****Tender Specification for BHEL Transit Flat, Residential Quarters basement and common areas renovation works at Ashok Nagar, Chennai****at BHEL PSSR**

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
--	Providing and fixing rigidly in position a partition using 50 x 25 x 1.5mm thick aluminium framework running both horizontally and vertically at not more than 600mm c/c both ways. The framework alternative vertical member to touch the true ceiling height from the finished floor level and fixed rigidly to the ceiling, flooring, walls or partitions. All vertical framework members shall be of a single piece without any joint and as directed by the Architects / Bank and as per the manufacturers specification. The framework to be concealed with 12mm thick MDF board and laminate fixed on either side of the framework and up to 75mm above false ceiling all as per details in the drawing. The MDF board will be camouflaged with 1.0mm thick laminate of approved colour and shade and make and grooves to be provided as shown in the drawing. Skirting of 75mm high of approved shade to match with the shade of lamination and finished with contrast shade of lamination all as per the drawing. The rate to include for making provision for concealing of conduits, concealing for switch boxes, light fittings etc. Payment will be made from Finished Floor Level to bottom of false ceiling. No extra is payable for aluminium frame, MDF and laminate projecting above false ceiling. The G.I frame work comprising 50mmx25mmx16gauge frame work at 600mm c/c in both ways on the wall(after drilling with pneumatic driller)at required locations. 18mm thick MDF board is fixed to the framework as specified above and the MDF is camouflaged with 1.0 mm thick laminate of approved shade and all as per the drawing. The rate quoted to include all the above apart from all leads lifts,transport and scaffolding etc.,completed and as per directed by the Engineer at site. The work is to be carried out in a first class workman ship manner all as per details shown in the drawing and as directed at site etc.,	Sqm	12	.0018587
9.6	PLANTER BOX	--		
--	Providing & fixing 18mm MDF plywood of approved make finished with 1.5mm thk laminate of approved shade and make covering over planter box of required size,shape with necessary support as required as shown in the drawing directed at site by Engineer-in-Charge	Sqm	2	.0004047
9.7	ROLLER BLINDS	--		

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
--	Supplying & fixing approved shade and make Effective Optimized System Roller blinds Shade consists of sanitized treated, resilient and approved sample color polyester base fabric with high tear strength, Roller Tube, Control Chain, Control Set Left Hand, Control Set Right Hand, Bracket Cover, Chain Connector, O-C Bottom Rail String for conversion Spring, Bottom End Plug, Bottom End Plug Circular, Open Bottom Rail, Tube Bearing Plug etc.	Sqm	26	.0015722
9.8	GROUTING	--		
--	Providing and fixing reinforcement in steel with chemical grout manufactured by M/s. Hilti or equivalent as per the manufacture specifications. Job including drilling the hole as per dia of bar grouting etc., all complete	--		
a)	Upto 12mm dia bar	No	35	.0042149
b)	Upto 25mm dia bar	No	30	.0065585
9.9	CORE CUTTING	--		
--	Extraction of concrete core samples from identified RC members for assessment of compressive strength. 75 - 100mm dia & 150 - 200mm (deep) cores will be extracted. Compressive will be conducted after necessary trimming, capping, etc. as per IS-516. Profometer scanning will be carried out to idenfy peripheral bars & avoid the cutng the same.	No	20	.0023955
9.1	COLUMN JACKETING	--		

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
--	<p>Strengthening structural elements with non-metallic composite fiber wrapping system comprise of uni-directional carbon fiber sheet ULTRAWRAP CF (300/400 GSM) and compatible WRAP Saturant, by dry lay-up system Surface preparation: Grinding/ moulding concrete substrate, cleaning it with wire brush removing oil, laitance if present, rounding sharp edges to min 25 mm radius etc. complete. Profiling: Applying compatible WRAP primer on prepared substrate, Filling the holes and uneven surface with thixotropic putty WRAP putty etc. complete.</p> <p>Wrapping: Wrapping the fiber sheet to structural element at desired orientation using tamping roller to avoid any air voids etc. repeat the same procedure for multiple layer with the interval of 8 hrs.Sand pasting: Applying second coat of WRAP saturant after min. 12 hrs, rectify air voids if any paste the river sand on it to make surface rough to take any further finishes Column Jacketing using Micro concreting:</p> <p>Providing and laying Free flow, shrinkage compensated, high strength MICROCONCRETE into the the shutter of 75mm thick all around the columns, and over bonding coat having , compressive strength of min. 45MPa as per ASTM-C-579 and flexural strength of min. 6MPa as per ASTM-C-348 for confining the concrete elements including surface preparation, fixing the chicken wire mesh with proper anchoring, etc complete.</p> <p>a. Clean the surface of column with wire brush and remove all paints and algae, etc.  b. Apply carbon fibre wrapping with necessary epoxy adhesive  c. Preparing the bonding surface by sprinkling sand over epoxy surface before hardening.  d. Fix chicken wire mesh over column with a cover of 40 mm  e. Micor concreting with GP-2 of 75 mm thickness all over the concrete surface  The rate is inclusive of shuttering, scaffolding, curing, etc., all complete as instructed by Engineer in-charge.</p>	Sqm	329	.1300776
9.11	SINTEX TANK - 20000 LIT CAPACITY	--		

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**at BHEL PSSR**

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
--	Supplying & Fixing of Readymade Syntex tank of 20,000 lit capacity.The Rates are inclusive of Earthwork, Refilling the same soil, fixing, Accessories, Loading , UnLoading, Lift & Lead Etc.,	Lit	20,000	.0344206
9.12	SHORTCRETING	--		
--	Shotcreting R.C.C. columns, beams, walls and slabs etc. in layers with approved design mix concrete having the specified minimum characteristic compressive strength [with ordinary portland cement, coarse sand and graded stone aggregate of 10 mm maximum size in proportion as per design criteria] including the cost of centering and shuttering at edges and corners etc. as directed by Engineer- in-Charge 25mm dia weep holes to be provided wherever required.  Note: Rates shall include the providing necessary ground wires etc. The levelling gauges, if used, shall be paid for separately. Payment under this item shall be made only after proper wet curing has been done and surface has been satisfactorily evaluated by sounding/tapping with a blunt metal instrument.	--		
--	50 mm thick in Grade M25 with cement content not less than 330 kg per cum sqm	Sqm	202	.0117885
9.13	CORE CUTTING IN RR MASONARY	--		
--	Core cutting upto 75mm dia & 400mm (deep) cores will be extracted. Compressive will be conducted after necessary trimming, capping, etc as per IS-516. Profometer scanning will be carried out to idenfify peripheral bars & avoid the curing the same.	Nos	100	.0047677
9.14	M25 CONCRETE	--		

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
--	Providing and laying in position ready mixed grade concrete for reinforced cement concrete work, using cement content as per approved design mix, manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work, including pumping of R.M.C. from transit mixer to site of laying , excluding the cost of centering, shuttering finishing and reinforcement, including cost of admixtures in recommended proportions as per IS : 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer-in-charge. Note:-Cement content considered in this item is @ 340 kg/cum	--		
a)	Column Concrete	Cum	12	.0059991
b)	Wall Concrete	Cum	12	.0059991
9.15	STEEL REINFORCEMENT	--		
--	Providing Fabricating and erecting structural steel member using MS channel, box sections Angle materials of Tata make or equivalent as shown in the drawing including painting with one coat of primer and two coats of epoxy paint of approved colours etc., complete, the item will be paid for the quantity erected and no wastages etc., will be accounted. In stringers, treads, landings etc. of stair cases, including use of chequered plate wherever required, all complete.The shop drawing of fabrication should be prepared by the fabricator/contractor and approved by the engineer-in-charge before starting the work	Kg	3,600	.019685
9.16	FORMWORK	--		
--	Providing Centering and shuttering including strutting, propping etc. and removal of form all as per norms.	--		
a)	For Column	Sqm	95	.0046301
b)	For Wall	Sqm	120	.0051258

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
9.17	PRECAST SLAB	--		
--	Providing and fixing factory made precast RCC perforated drain covers, having concrete of strength not less than M-25, of size 1000 x 450x50 mm, reinforced with 8 mm dia four nos longitudinal & 9 nos cross sectional T.M.T. hoop bars, including providing 50 mm dia perforations @ 100 to 125 mm c/c, including providing edge binding with M.S. flats of size 50 mm x 1.6 mm complete, all as per direction of Engineer-in-charge.	Each	100	.0070978
9.18	EARTHWORK EXCAVATION	--		
--	Earth work in excavation by mechanical means (Hydraulic excavator) /manual means over areas (exceeding 30cm in depth. 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lift upto 1.5m, disposed earth to be levelled and neatly dressed The rate includes disposal of excess unused earth away from site, dewatering, pumping water, strutting, shoring etc	Cum	45	.0009019
9.19	BACK FILLING	--		
--	Refilling in basement and surrounding of the site with excess earth available after refilling the foundation and well watered consolidation the same in layers not exceeding 200mm depth, filling the remaining low level areas and in basement in layer of 200mm depth including watering and consolidating as directed by the Engineer in charge of the work.	Cum	31.5	.000313
9.2	SAND FILLING	--		
--	Supplying and filling of spreading of river sand of approved quality in layers of 150mm thick including cost of sand, transportation for all leads, loading, unloading, spreading in layers at all depths, watering compacting to 90% max dry density as directed.	Cum	4.5	.0004845
9.21	PCC 1:3:6	--		



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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
--	Providing and laying Plain cement Concrete 1 : 3 : 6 (one part of cement, three part of sand and six parts of good approved 20mm HBG jelly) , well mixed and placed in position and consolidated by rammer. Note:-Cement content considered in this item is @ 330 kg/cum	Cum	4.5	.0012867
9.22	230MM THICK FLY ASH BRICK	--		
--	FLY ASH BRICKWORK - Providing and laying Fly ash bricks with First quality stock Fly Ash bricks of designation 75 in cement mortar 1:6 (1 cement : 6 sand) in superstructure at all heights (230 mm thickness). The rate to be quoted will include cost of scaffolding, racking the joints to make key for plastering, instantaneous curing for a period of not less than 7 days and the rate to include all tools and plants, materials all required for first quality work etc. complete.	Cum	5	.0023056
9.23	PAVER BLOCK	--		
a)	Providing and laying 60mm thick factory made cement concrete interlocking paver block of M -30 grade made by block making machine with strong vibratory compaction, of approved size, design & shape, laid in required colour and pattern over and including 50mm thick compacted bed of sand, filling the joints with fine sand etc. all complete as per the direction of Engineer-in-charge.	Sqm	75	.003696
b)	Taking out existing CC interlocking paver blocks from footpath/ central verge, including removal of rubbish etc., disposal of unserviceable material to the dumping ground, for which payment shall be made separately and stacking of serviceable material within 50 metre lead as per direction of Engineer-in-Charge.	Sqm	769	.0051368
c)	Laying old cement concrete interlocking paver blocks of any design/ shape laid in required line, level, curvature, colour and pattern over and including 50 mm thick compacted bed of coarse sand, filling the joints with fine sand etc. all complete as per the direction of Engineer-in-charge. (Old CC paver blocks shall be supplied by the department free of cost).	Sqm	769	.0157105
9.24	10 HP MOTOR	--		

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
--	Supply , Erection Commissioning of 10HP Motor with necessary accessories	Nos	1	.0023987
9.25	PASSENGERS LIFT	--		
--	Supply, Erection and Commissioning of Passenger Lift 1. Lift Capacity: 8pax with 68kg/ person, min. speed 0.66m/sec 2. No of Floors: Basement + 4 Floors + Lift Room 3. Lift Type: Automatic 4. Lift Car: Stainless Steel 5. Approved Make: Johnson / KONE / equivalent	Nos	1	.087408
9.26	ENAMEL PAINTING	--		
--	Preparing the surface and applying 2 coats of Synthetic Enamel paint of approved colour and shade for all doors, windows and ventilators and including grills over one coat of steel / wood primer including cost of materials, Labour etc. complete as directed by the Architects.	Sqm	516	.005919
9.27	G.I GRATING FOR BASEMENT	--		
--	Providing and fixing M.S. grills of required pattern in frames of windows etc. with M.S. flats, square or round bars etc. including priming coat with approved steel primer all complete. Fixed to openings /wooden frames with rawl plugs screws etc	Kg	100	.0011108
9.28	FLOORING FOR BASEMENT CARPARKING	--		
--	52 mm thick cement concrete flooring with concrete hardener topping, under layer 40 mm thick cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) and top layer 12 mm thick cement hardener consisting of mix 1:2 (1 cement hardener mix : 2 graded stone aggregate 6 mm nominal size) by volume, hardening compound mixed @ 2 litre per 50 kg of cement or as per manufacturers specifications. This includes cost of cement slurry, but excluding the cost of nosing of steps etc. complete.	Sqm	1,307	.0648378

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
10.0	SANITARY FIXTURES AND CP FITTINGS	--		
10.1.1	Supplying, Fixing and commissioning of White colour, make and model glazed vitreous China wall mounted Water Closet constallation with concealed P-trap with flush tank ,CP flanges, solid plastic seat and lid with heavy duty CP hinges and rubber buffers and flap etc. The work shall include cutting making of walls and floors etc including necessary consumables like brass screws, CP extension nipple of approved make, dia and length, wooden plugs, white cement, sealants etc. Only drilling machines shall be used for making the holes in the walls for fixing, no wall jumper and hammer will be allowed. (Kohler or equivalent)	Nos.	2	.0018605
10.1.2	Supplying, Fixing and commissioning of White colour, make and model glazed vitreous China Floor mounted Water Closet constallation with concealed P-trap with flush tank, CP flanges, solid plastic seat and lid with heavy duty CP hinges and rubber buffers and flap etc. The work shall include cutting making of walls and floors etc including necessary consumables like brass screws, CP extension nipple of approved make, dia and length, wooden plugs, white cement, sealants etc. Only drilling machines shall be used for making the holes in the walls for fixing, no wall jumper and hammer will be allowed. (Model No. Kohler 17629 IN -SM-0 or equivalent)	Nos.	14	.0056329
10.2.1	Supplying fittings/fixtures and fixing of CP health faucet consisting of: a) CP angle stop cock with wall flange. b) PVC flexible tube of 1.0m length. c) Hand operated spray unit (instant type) d) CP Crutch (Model No. Kohler 98100 IN -CP or equivalent)	Nos.	16	.0014884
10.2.2	Supplying fittings/fixtures and fixing of CP health faucet consisting of: a) CP angle stop cock with wall flange. b) PVC flexible tube of 1.0m length. c) Hand operated spray unit (instant type) d) CP Crutch (Model No. Kohler 97258 IN -BV or equivalent)	Nos.	3	.0008093

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
10.3	Supplying, Fixing and commissioning of White colour, make and model vitreous china Wash basin with semi pedestal GI rag bolts, 15 mm dia CP pillar cock 32mm dia CP waste coupling with plug and chain and including PVC connecting pipe, 32mm dia CP brass bottle trap, one no of 15mm dia CP angle stop cock with wall flange. The works shall include cutting in wall and making good the walls & floors. Notes: Only drilling machines shall be used for making the holes in the walls for fixing, no wall jumper and hammer will be allowed. (Model No. Kohler 24563 IN-0 or equivalent)	Nos.	16	.0063259
10.4	Supplying and fixing of 15mm dia CP short body bib cock with CP wall flange. Short Body Bib Cock Kohler 72275IN-4ND-CP	Nos.	12	.0065864
10.4a	Providing and fixing brass bib cock of approved quality, 20 mm nominal bore.	Nos	4	.0000705
10.5	Supplying and fixing of 15mm dia J type CP sink cock with swinging spout (wall mounted model) for kitchen sink with CP wall flange etc.	Nos.	4	.0000493
10.6	Supplying and fixing of Angle Stop Cock	Nos.	13	.0003386
10.7	Supplying ,fixing of White colour, make and model and size vitreous china concealed soap dish including cutting and setting in walls with white cement joints making good of walls.	Nos.	20	.0001228
10.8	Supply and fixing of Bottle trap for the Basin area Make: KOHLER 7314IN-CP for the Guest room	Nos.	14	.0015173
10.9	Supply and fixing of Bottle trap for the Basin area Make: KOHLER 7314IN-BV for the Suite room	Nos.	2	.0003535
10.1	Supply and fixing of JULY ANGLE VLV G1/2 F13mm 2 pc per box for the Basin area Make: KOHLER 16086IN-4-BV for the Suite room	Nos.	2	.0005581
10.11	Supply and fixing of JULY ANGLE VLV G1/2 F13mm per box for the Basin area Make: KOHLER 16086IN-4-CPfor the Guest room	Nos.	16	.0012912
10.12	Supply and fixing of Toilet Tissue holder Make: KOHLER 25346IN-BV for the suite room	Nos.	2	.0004697

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<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
10.13	Supply and fixing of Toilet Tissue holder Make: KOHLER 5632IN-CP for the Guest room	Nos.	16	.0009675
10.14	Supply and fixing of Towel ring Make: KOHLER 5631IN-CP for the Guest room	Nos.	16	.0012838
10.15	Supply and fixing of Towel ring Make: KOHLER 25347IN-CP for the Suite room	Nos.	2	.0003619
10.16	Supply & fixing of SHOWERING AREA for SUITE ROOM as mentioned below:	--		
10.16.1	10 inch Contemporary square katalyst air Make: Kohler 18361T-CL-BV	Nos.	2	.0031973
10.16.2	Auto sense TH REC B& S universal trim Make: Kohler 24431IN-9FP-BV	Nos.	2	.0013489
10.16.3	Auto sense Termostat valve Make: Kohler 20740IN-A-NA	Nos.	2	.0012558
10.16.4	Bath spout W/diverter , flat face 160mm Make: Kohler 1038IN-BV	Nos.	2	.000493
10.16.5	Rain duet 3.0 Handshower Make: Kohler 2471IN-BV	Nos.	2	.0010233
10.16.6	Shower hose 1.5m Make: Kohler 12067IN-BV	Nos.	2	.0002326
10.16.7	handshower slide bar trim Make: Kohler 8524T-BV	Nos.	2	.0021378
10.16.8	Accent 610 mm single towel bar	Nos.	2	.0004465

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
10.16.9	Accent single robe hook Make: Kohler 25349IN-BV	Nos.	2	.0001302
10.16.10	Floor drain Make: Kohler 7275IN-BV	Nos.	2	.0002326
10.16.11	Linear floor drain wind 600 Make: Kohler 97741T-NA	Nos.	2	.0013024
10.16.12	July inline stop valve trim Make: Kohler 16097IN-BV	Nos.	2	.0001395
10.16.13	inline stop valve g3/4 G 19mm Make: Kohler 16089IN-NA	Nos.	2	.0001954
10.16.14	mastershower elbow shower arm	Nos.	2	.0005581
10.17	Supply & fixing of SHOWERING AREA for Guest room as mentioned below:	--		
10.17.1	Rainduet round 203mm rainhead Make: 73198IN-CP	Nos.	9	.0035583
10.17.2	July Thermostatic 3 way shower column Make: 9974IN-C9-CP	Nos.	9	.0213501
10.17.3	Awaken B110 Multi mode handshower MAKE: 72421IN-CP	Nos.	9	.0027583
10.17.4	TOWEL BAR MAKE: 5630IN-CP	Nos.	9	.0008331

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
10.17.5	Floor drain Make: Kohler 7275IN-CP	Nos.	9	.0007535
10.17.6	Linear floor drain wind 600 Make: Kohler 97741T-NA	Nos.	9	.0060722
10.17.7	July inline stop valve trim Make: Kohler 16097IN-CP	Nos.	9	.0005044
10.17.8	inline stop valve g3/4 G 19mm Make: Kohler 16089IN-NA	Nos.	9	.0008791
10.17.9	Supplying & fixing of bath shower glass cabinet of approved make. The rates are inclusive of fixing, accessories etc,	Sqm	48	.019536
11.0	CPVC PIPES AND FITTINGS (INTERNAL AND EXTERNAL WATERSUPPLY):	--		
11.1	Providing & fixing of CPVC pipes confirming to ASTM standard including all CPVC fittings like tees, elbows, bends, unions, coupling, reducer tees, collars etc. The work shall include cutting jointing with solvent cement pressure testing the joints / pipeline for 10 kg/sq.cm hydraulic pressure, for 4 hours hours etc., making holes, including chasing in solid block masonry walls with groove cutting machine to required width and depth, making bores in walls, foundations and RCC slabs, making good the walls and bores in CC or CM1:3 as applicable, clearing the debris, grouting of concealed pipes, MS hooks for fixing pipes and making good the walls and floors. Also with necessary clamps and support for ceiling hung system in side area, etc.	--		
--	INTERNAL (CONCEALED IN WALL): COLD WATERSUPPLY	--		
a)	20 mm dia (SDR-11)	Rmt	20	.0003397
a)	25 mm dia (SDR-11)	Rmt	20	.0004072

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
c)	32 mm dia	Rmt	10	.000263
d)	40 mm dia	Rmt	10	.0003564
e)	50 mm dia	Rmt	10	.0004736
11.2	Providing and placing on terrace (at all floor levels) polyethylene water storage tank, IS : 12701 marked, with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.	Lit	10,000	.0055771
--	ELECTRICAL WORKS	--		
12.0	Wiring of light, fan, 6A sockets and exhaust fan points	--		
--	Supply and Wiring for light points with 2 runs of 1.5 Sqmm FRLS, single core, multistrand copper wire (For phase and neutral) with one run of 1.5 Sqmm PVC insulated, single core, stranded, copper wire for earthing (green colour) in 20mm dia FRLS PVC conduit, 2mm thick (ISI marked) with concealed in wall by chase cutting, All necessary accessories including supplying and fixing 6A single pole modular switch housed in manufacturers zinc passivated MS box with cover plate.	--		
12.1	1 light controlled by 1 switch	No	106	.0056701
12.2	2 lights controlled by 1 switch	No	34	.0022931
12.3	3 lights controlled by one switch	No	5	.0004302
12.3A	2 Way lights controlled by 2 switch	No	34	.0023722
12.4	Same item 12.1, but for 6A switched sockets including supply and fixing of switched sockets in independent locations (Raw power)	No	50	.0026746
12.5	Same as item no12.4, but socket and switch mounted in light control switch box	No	60	.001535



### Part C : Bill of Quantities

#### Tender Specification for BHEL Transit Flat, Residential Quarters basement and common areas renovation works at Ashok Nagar, Chennai

#### at BHEL PSSR

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
12.6	Exhaust fan point with 6A switch & socket	No	8	.0004465
12.7	Call bell point with call button, rest button, buzzer and display	No	8	.0005023
12.8	Ceiling fan point with step type electronic regulator and anchor fan hook	No	10	.000814
12.9	2way Ceiling fan point with step type electronic regulator and anchor fan hook	No	8	.0007442
12.9A	Supply and laying of 2 R 2.5+1R 1.5 Sqmm FRLS stranded copper wire (one for earth, green colour) in 20mm dia FRLS PVC conduit, 2mm thick (ISI marked) concealed in wall by chase cutting for circuit mains from LDBs to switch boxes	Rmt	700	.0061864
12.9B	Supply and laying of 2 R 2.5+1R 1.5 Sqmm FRLS stranded copper wire (one for earth, green colour) in 20mm dia FRLS PVC conduit, 2mm thick (ISI marked) concealed in wall by chase cutting for circuit mains from ELDBs to switch boxes	Rmt	400	.0035351
13.0	Wiring of light, fan, 6A sockets and exhaust fan points	--		
--	Supply and Wiring for light points with 2 runs of 1.5 Sqmm FRLS, single core, multistrand copper wire (For phase and neutral) with one run of 1.5 Sqmm PVC insulated, single core, stranded, copper wire for earthing (green colour) in existing PVC conduit, with concealed in wall by chase cutting necessary. All necessary accessories including supplying and fixing 6A single pole modular switch housed in manufacturers zinc passivated MS box with cover plate.	--		
13.1	1 light controlled by 1 switch	No	106	.0046839
13.2	2 lights controlled by 1 switch	No	49	.0026211
13.3	3 lights controlled by one switch	No	5	.0003488
13.3A	2 Way lights controlled by 2 switch	No	34	.002214
13.4	Same item 13.1, but for 6A switched sockets including supply and fixing of switched sockets in independent locations (Raw power)	No	55	.0024303

### Part C : Bill of Quantities

#### Tender Specification for BHEL Transit Flat, Residential Quarters basement and common areas renovation works at Ashok Nagar, Chennai at BHEL PSSR

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
13.5	Same as item no13.4, but socket and switch mounted in light control switch box	No	1	.0000221
13.6	Exhaust fan point with 6A switch & socket	No	8	.0003535
13.7	Call bell point with call button, rest button, buzzer and display	No	8	.0004372
13.8	Ceiling fan point with step type electronic regulator and anchor fan hook	No	10	.000721
13.9	2way Ceiling fan point with step type electronic regulator and anchor fan hook	No	8	.0004465
13.9A	Supply and laying of 2 R 2.5+1R 1.5 Sqmm FRLS stranded copper wire (one for earth, green colour) in existing PVC conduit ,concealed in wall by chase cutting for circuit mains from LDBs to switch boxes	Rmt	900	.0062794
13.9B	Supply and laying of 2 R 2.5+1R 1.5 Sqmm FRLS stranded copper wire (one for earth, green colour) in existing pvc conduit, concealed in wall by chase cutting for circuit mains from ELDBs to switch boxes	Rmt	600	.0041863
14.0	Telephone/ TV cables	--		
14.1	Supply and installation of 25 mm dia FRLS PVC conduit 2 mm thick, ISI marked medium grade to be laid on wall, and partitions from main Hub to all work stations and from main tel junction to all work stations as marked in the drawing.	Rmt	750	.0031397
14.2	Supply and installation of 20 mm dia FRLS PVC conduit 2 mm thick , ISI marked medium grade to be laid on wall, and partitions from main Hub to all work stations and from main tel junction to all work stations as marked in the drawing.	Rmt	350	.001221
14.3	Supply and installation of 2-pair telephone tinned copper cable 0.5mm dia copper conductor PVC insulated through the above mentioned conduit and terminations at both ends	Rmt	1,100	.0025582
14.4	Supply and installation of RJ-11 telephone socket mounted in manufacturers zinc passivated MS box	No	20	.0004651

### Part C : Bill of Quantities

#### Tender Specification for BHEL Transit Flat, Residential Quarters basement and common areas renovation works at Ashok Nagar, Chennai at BHEL PSSR7

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
14.5	Supply and installation of 20-pair tel krone block housed in engineering plastic box with hinged and lockable transparent cover	No	1	.0002791
14.6	Supply and installation of Rg-6 TV socket mounted in manufacturers zinc passivated MS box	No	16	.0003572
14.7	Supply and installation of RG-6 TV cable through the above mentioned conduit and terminations at both ends	Rmt	650	.0022675
15.0	Light fittings and fans	--		
15.1	Supply , Installation including assembling, testing and commissioning of bulkhead light fitting	No	20	.0010931
15.2	Supply,Installation testing and commissioning of 10W LED Wall mounted lighter	No	30	.0016745
15.3	Supply , Installation including assembling, testing and commissioning of 20 W LED box type fixture to be fixed directly on wall/ceiling	No	48	.0024336
15.4	Supply , Installation including assembling, testing and commissioning of 11W LED surface Ceiling mounted fixture	No	55	.0034537
15.5	Supply, Installation including assembling, testing and commissioning of 36W LED surface / recess mounted fixture	No	29	.0017536
15.6	Supply , Installation including assembling, testing and commissioning of 9W LED wall mounted fixture or mirror	No	19	.0009721
15.7	Supply , Installation including assembling, testing and commissioning of 100W LED Ceiling mounted chandelier fixture	No	3	.0004884
15.8	Supply , Installation including assembling, testing and commissioning of 18W LED post top lantern fixture with 5.5 mtr long 40 mm M.S pipe powder coated with mcb control wp gear box. All civil works are included	No	20	.0200012
16.0	Supply and installation of exhaust fans & Ceiling fans	--		
16.1	Supply and installation of 300mm dia low duty exhaust fan with auto gravity louvre	No	16	.0022327

**Part C : Bill of Quantities**

**Tender Specification for BHEL Transit Flat, Residential Quarters basement and common areas renovation works at Ashok Nagar, Chennai**

**at BHEL PSSR**

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
16.2	Supply and installation of 1200mm sweep ceiling fan	No	35	.004884
16.3	Installation of Existing 1200mm sweep ceiling fan	No	10	.0001628
17.0	Distribution Boards	--		
17.1	LDB	--		
--	Supply and installation of double door IP:43 4-way TPN MCB 7 segment type DB with following. The same shall be concealed to the wall 1 no incomer feeder fitted with 40 A 4-pole MCB 3 nos incomer feeder fitted with 40 A 2-pole RCBO with 30ma sensitivity 12 nos of 6/10 A (4 nos per phase) SP MCBs as outgoing feeders	No	3	.0032862
17.2	ELDB	--		
--	Supply and installation of double door IP:43 12-way SPN MCB type DB with following. The same shall be concealed to the wall 1 no incomer feeder fitted with 25 A 2-pole RCBO with 100ma sensitivity 8 nos of 10 A SP MCBs as outgoing feeders	No	1	.0004428
17.3	PDB	--		
--	Supply and installation of double door IP:43 6-way TPN MCB 7 segment type DB with following. The same shall be concealed to the wall 1 no incomer feeder fitted with 63 A 4-pole MCB 3 nos incomer feeder fitted with 63 A 2-pole RCBO with 100ma sensitivity 18 nos of 16/20 A (6 nos per phase) SP MCBs as outgoing feeders	No	3	.0041165
17.4	Supply and installation of 63A MCB with M.S enclosure.The same shall be concealed to the wall for 10 hp motor	No	1	.0001395
17.5	DB	--		

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**Tender Specification for BHEL Transit Flat, Residential Quarters basement and common areas renovation works at Ashok Nagar, Chennai**

**at BHEL PSSR**

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
--	Supply and installation of double door IP:43 6-way TPN MCB 7 segment type DB with following. The same shall be concealed to the wall 1 no incomer feeder fitted with 63 A 4-pole MCB 3 nos incomer feeder fitted with 63 A 2-pole RCBO with 100ma sensitivity 18 nos of 6/16/20 A (6 nos per phase) SP MCBs as outgoing feeders	Nos	1	.0013489
17.6	CDB	--		
--	Supply and installation of double door IP:43 4-way TPN MCB 7 segment type DB with following. The same shall be concealed to the wall 1 no incomer feeder fitted with 40 A 4-pole MCB 3 nos incomer feeder fitted with 40 A 2-pole RCBO with 30ma sensitivity 12 nos of 6/10 A (4 nos per phase) SP MCBs as outgoing feeders	Nos	1	.0010931
17.7	LIFT DB	--		
--	Supply and installation of double door IP:43 4-way TPN VDB with following. The same shall be concealed to the wall 1 no incomer feeder fitted with 63 A 4-pole MCB 40A TP MCB-2 8 nos of 6/16/20 A SP MCBs as outgoing feeders	Nos	1	.0013722
17.8	COMMON SERVICE DB	--		
--	Supply and installation of double door IP:43 4-way TPN VDB with following. The same shall be concealed to the wall 1 no incomer feeder fitted with 100 A 4-pole MCCB 25 Ka 63A TP MCB-1 40A TP MCB - 2 4 nos of 16/20 A SP MCBs as outgoing feeders	Nos	1	.0016512
18.0	Supply and installation MCB housed in powder coated MS boxes to be fixed on wall for controlling A/C units and motor starter	--		
18.1	20 A DP MCB with M.S enclosure for A/C control	No	21	.0010744

**Part C : Bill of Quantities**

**Tender Specification for BHEL Transit Flat, Residential Quarters basement and common areas renovation works at Ashok Nagar, Chennai**

**at BHEL PSSR**

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
18.2	20 A 3 pin socket with M.S enclosure	No	21	.0010744
18.3	25 A DP MCB with M.S enclosure for INVERTER and motor controls	No	4	.0002232
18.4	DOL Starter with M.S enclosure for 2 nos 1.5 HP and 1 nos 5 HP pumps	No	3	.0004954
18.5	Star and Delta starter with M.S enclosure for 10 HP pumps	No	1	.0004884
19.0	Switch Boards	--		
19.1	Meter board	--		
--	Supply, erection, testing and commissioing of cubicle type switch board wall mounted, fabricted with 16 Swg CRCA sheets with the following	--		
--	The panel will have 3 compartments with bolted doors. The bottom compartment will have 3 nos 200 A porcelain cut out fuses, and 125A neutral link, the middle chamber will be left free for mounting EB meter. The middle chamber will have a view window made of 3mm thick acrylic sheet. The top compartment will be fixed with 1 no test terminal block. 200A tpn mccb 25kA (EB meter board)	Set	1	.0027397
19.3	MSB	--		
--	Supply, erection, testing and commissioing of cubicle type switch board wall mounted, fabricted with 16 Swg CRCA sheets with the following	--		
--	Bus bar chamber consisting of 25x10 mm electrolytic quality copper busbars supported on SMC for phases and 25x3mm for neutral. The busbars shall have colour coded PVC sleeving.The fault level shall be 25 Ka for 1 second.	--		
--	Metering cubicle consisting of 1 no microprocessor controlled meter for reading all the electrical parameters like voltage, current, Kw, etc (Socomec EM-VIFP), LED type RYB indication lamps, 3 nos of resin cast CTs of ratio 125/5A class-1, 15 Va	--		
--	1 no incomer feeder fitted with 1 no 125 A TP+N MCCB, 25 ka	--		

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### Tender Specification for BHEL Transit Flat, Residential Quarters basement and common areas renovation works at Ashok Nagar, Chennai

#### at BHEL PSSR

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
--	4 nos 63A T+PN MCCB and 3nos 40A T+PN MCCB, 25 ka as outgoing feeders	--		
--	Panel will have a ring main earth bus with copper strip of size 25x3mm. All the switch frames and cubicles shall be connected to this earth which will be finally interconnected to external earth grid. The panel shall be powder coated to siemens grey shade. All internal wiring shall be carried out with adequate size copper wires. A detachable gland plate shall be fixed on the top of the cable alley for cable terminations. All MCCBs shall be fitted with front operating handle with door interlock	No	1	.0068631
20.0	Power wiring	--		
20.1	Supply and installation of 6/16A modular type switched socket housed in manufacturers zinc passivated MS box to be concealed on the wall	No	3	.0001325
20.2	Supply and installation of 16A modular type switch & socket housed in manufacturers zinc passivated MS box to be concealed on the wall IN independent ocation for geysors	No	16	.0008186
20.3	Supply, installation, testing and commissioining of 2R 2.5+ 1R 1.5 Sqmm FRLS multistranded copper wire in 20mm dia FRLS PVC conduit 2 mm thick (ISI marked) from PDB to 16A switched socket power circuits	Rmt	600	.0055817
20.4	Supply, installation, testing and commissioining of 2R 4+ 1R 2.5 Sqmm FRLS multistranded copper wire in 20mm dia FRLS PVC conduit 2 mm thick (ISI marked) from PDB to Indoor A/C units (Note: 4 Sqmm cu socket has to be crimped in all terniation)	Rmt	600	.0076749
20.5	Supply, installation, testing and commissioining of 2R 2.5+ 1R 1.5 Sqmm FRLS multistranded copper wire in existing PVC conduit with concealed in wall by chase cutting, from PDB to 16A switched socket power circuits	Rmt	600	.0044653
20.6	Supply, installation, testing and commissioining of 2R 4+ 1R 2.5 Sqmm FRLS multistranded copper wire in existing conduit with concealed in wall by chase cutting, from PDB to Indoor A/C units (Note: 4 Sqmm cu socket has to be crimped in all terniation)	Rmt	600	.0064189
21.0	UG cable and sub main	--		

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#### Tender Specification for BHEL Transit Flat, Residential Quarters basement and common areas renovation works at Ashok Nagar, Chennai at BHEL PSSR

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
21.1	Laying of 3.5x120 Sqmm AL AR xlpe cable to be clamped on wall with GI clamps/ laid in excavated trenches etc for tneb cable	Rmt	150	.0013257
21.2	Supply and laying of 3x2.5 Sqmm copper ar cable to be clamped on wall with GI clamps/ laid in excavated trenches etc for motor and external post top lantern light	Rmt	400	.0062329
21.3	Supply and laying of 4x10 Sqmm copper ar cable to be clamped on wall with GI clamps/ laid in excavated trenches etc for 10 hp motor	Rmt	50	.0022094
21.4	Supply and laying of 3x6 Sqmm copper ar cable to be clamped on wall with GI clamps/ laid in excavated trenches etc for 10 hp motor	Rmt	20	.0007907
21.5	Terminations of following cable with SIBG glands and copper crimping sockets and earthing of glands with copper clip and connecting the same to earth grid with 14 Swg copper wire	--		
a)	3.5 x 120 Sqmm	No	10	.0005581
a)	3 x 2.5 Sqmm	No	50	.000814
c)	4 x 10 Sqmm	No	2	.0000465
d)	3 x 6 Sqmm	No	4	.0000837
22.0	Sub main	--		
22.1	Supply and laying of 4R 6+2R 2.5 SQMM FRLS CU wire in 2no 25 mm pvc conduit , 2 mm thick (ISI marked) with concealed in wall by chase cutting, All necessary accessories are included	Rmt	75	.0031397
22.2	Supply and laying of 4R 10+2R 4 SQMM FRLS CU WIRE in 2no 25 mm pvc conduit (ISI marked) , 2 mm thick (ISI marked) with concealed in wall by chase cutting, All necessary accessories are included	Rmt	75	.0040119
23.0	Earthing	--		



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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
23.1	Supply, installation, testing and commissioing of cast iron pipe electrode 100mm dia 3 Mt long, 12mm thick as per IS-3043 complete with all accessories like watering funnel, clamps etc.The same to be installed in a pit 3 Mt deep and filled with alternate layers of charcoal, salt mixed with river sand. A brick work masonry shall be constructed of size 300x300x150mm and cement plasted at both inside and outside walls. A 3mm thick cast iron plate with frame work shall be placed over the chamber (2 nos for general earthing)	No	3	.0016047
23.2	Supply and installation of 25x3 mm copper strip to interconnect the earth pits with SSB and other equipments	Rmt	75	.003663
24.0	CCTV Cables & Camera	--		
24.1	Supply and installation of 25 mm dia PVC conduit, ISI marked medium grade to be laid on wall, with concealed and chase cutting, All necessary accessories are included	Rmt	375	.0013082
24.2	Supply and installation of 20 mm dia PVC conduit, ISI marked medium grade to be laid on wall,with concealed and chase cutting, All necessary accessories are included	Rmt	175	.0004477
24.3	Supply and installation of 64 channel NVR TURBO(Hikvision & Secureye)	No	1	.0026281
24.4	Supply and installation of 2 MP Camera ODU 20 Mtr range Bult IP (Hikvision & Secureye)	No	8	.0013024
24.5	Supply and installation of 2 MP Camera IDU 20 Mtr range Bult IP (Hikvision & Secureye)	No	18	.0029304
24.6	Supply and installation of 8 port full gigapit poe switch (Hikvision & Secureye)gg	No	5	.0010465
24.7	Supply and installation of 6 TB Hard disk (segate/wd)	No	2	.0014419
24.8	Supply and installation of cat-6 CCTV cable (d-link)	Rmt	1,800	.0082051
24.9	Supply and installation of 4U Rack(Hikvision & Secureye)	No	5	.0011163
24.1	Supply and installation of BNC Enclosure (pvc box) & INC (Hikvision & Secureye)	No	40	.0005581

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<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
24.11	Supply and installation of 32 inch TV (Panasonic)	No	1	.001907
24.12	Commissioning charges	Ls	1	.0016512
25.0	Existing wiring	--		
25.1	Removing of Existing wiring, switches, switch boxes, light fittings, fans, exhaust fan, dbs & main switch in three floors (6900 sq feet area) and to be handed over to the client	Ls	1	.001628
<b>TOTAL Weightage</b>				0.9999941