

ALL INDIA INSTITUTE OF MEDICAL SCIENCES (AIIMS), ANSARI NAGAR, NEW DELHI

**Tender**

**For**

**Renovation of CCU at CN Centre at AIIMS, Ansari Nagar, New Delhi**

**Volume-V**

**Bill of Quantities (B.O.Q.)**

**December' 2012**



HSCC (INDIA) LTD.  
(CONSULTANTS & ENGINEERS FOR MEGA HOSPITALS & LABORATORIES)  
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**Tender No. HSCC/ AIIMS/ CCU/2012/03**

**BILL OF QUANTITIES (B.O.Q.)**

**CIVIL**

**PROJECT NAME: Renovation and facelift of CCU in AIIMS, New Delhi.**

Bill of Quantities						
Item No	Description Of Item	Total Qty	Unit	Rate in Figures (Rs)	Rate in Words (Rs)	Amount in Figures (Rs)
1	2	3	4	5	6	7
<b>1.00</b>	<b>Concrete/ RCC Work</b>					
1.01	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:					
a)	1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size)	2.00	cum			
b)	1:5:10 (1 cement : 5 coarse sand : 10 graded stone aggregate 40 mm nominal size)	50.00	cum			
1.02	Reinforced cement concrete work in beams, suspended floors, roofs having slope up to 15° landings, balconies, shelves, chajjas, lintels, bands, plain window sills, staircases and spiral stair cases up to floor five level excluding the cost of centering, shuttering, finishing and reinforcement with 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size).	5.00	cum			
1.03	Centering and shuttering including strutting, propping etc. and removal of form for:					
a)	Shelves (Cast in situ)	30.00	sqm			
b)	lintels, beams, plinth beams. girders. bressumers and cantilevers.	30.00	sqm			

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c)	Small lintels not exceeding 1.5m clear span, moulding as in cornices, window sills, string courses, bands, copings, bed plates, anchor blocks and the like.	5.00	sqm			
1.04	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete.					
a)	Thermo-Mechanically Treated bars	500.00	Kg			
	<b>Total</b>					

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<b>2.00</b>	<b>BRICK WORK</b>					
2.01	Brick work with F.P.S. bricks of class designation 75 in superstructure above plinth level up to floor V level in all shapes and sizes in :					
a)	Cement mortar 1:6 (1 cement: 6 coarse sand)	20.00	cum			
2.02	Half brick masonry with F.P.S. bricks of class designation 75 in superstructure above plinth level up to floor V level.					
a)	Cement mortar 1:4 (1 cement :4 coarse sand)	150.00	sqm			
2.03	Extra for providing and placing in position 2 Nos. 6mm dia. M.S. bars at every third course of half brick masonry (with F.P.S. bricks).	150.00	sqm			
	<b>Total</b>					

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<b>3.00</b>	<b>DOORS, WINDOWS AND PARTITIONS</b>					
3.01	Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular <i>sections</i> / appropriate Z sections and other sections of approved make conforming to IS: 733 and IS : 1285, fixed with rawl plugs and screws or with fixing clips, or with expansion hold fasteners including necessary filling up of gaps at junctions, at top, bottom and sides with required PVC/neoprene felt etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing / panelling, C.P. brass / stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge. (Glazing and panelling to be paid for separately) :					
3.01.1	For fixed portion					
a)	Powder coated aluminium (minimum thickness of powder coating 50 micron)	200.00	kg			

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3.01.2	For shutters of doors, windows & ventilators including providing and fixing hinges/ pivots and making provision for fixing of fittings wherever required including the cost of PVC / neoprene gasket required (Fittings shall be paid for separately).					
a)	Powder coated aluminium (minimum thickness of powder coating 50 micron)	50.00	kg			
3.02	Sandwich windows					
i)	<b>uPVC window frame work</b>					

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1	2	3	4	5	6	7
	<p>Providing and Fixing factory made pristine white (series 3000) Fenesta or approved equivalent high impact modified grade uPVC casement/sliding window / door, made of extruded profiles conforming to BS 7413, BS 7412 and EN 12608 and should pass test of classification P for ignitability and class I for surface spread of flames as per Bs 476 Part 7. The profile shall be a hollow 3- chamber (across depth) profile with an outer wall of min. 1.5 mm thickness. Profiles of frames and sash will be mitered cut and fusion welded at all corners, including drilling of holes for fixing hardware and drainage of water etc., making arrangement for fixing of hardware, EPDM gasket, 2 mm thick galvanised steel profile to be inserted in required profile, frame will be fixed to the wall with 8 mm x 100 mm long fasteners, all complete as per direction of Engineer-in-charge. (Glazing, hardware hinges and fitting etc. to be paid separately.)</p>					
	<p>Rate to be quoted for uPVC frame work only. Area of window shall be measured for payment.</p>	36.00	Sqm			



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ii)	Providing and fixing automatic/ motorized sandwich glass blind in uPVC door, window and partitions etc. with EPDM/ special gasket etc complete as per architectural drawings and directions of engineer in charge. The blind may be run with automatic control system according to different parameters like outdoor temperature, indoor temperature, time control, light control and sun control.					
	With two 6 mm thick toughened solar control glass panes and 12 mm air gap (filled with Argon gas) (hermatically sealed units) of approved manufacture and aluminium slats venetian blinds of approved brand and manufacture run with approved motorized system etc all complete as per specifications and direction of engineer in charge. A sample need to be got approved before carrying out the work. Area of unit shall be measured for payment. (The cost to include 5 year warrantee against any defect).	36.00	Sqm			
c)	Extra for Remote control option for the above Sandwich Glass Blind	24.00	Each			
3.03	<b>Sandwich Partitions</b>					

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a)	Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular <i>sections</i> / appropriate Z sections and other sections of approved make conforming to IS: 733 and IS : 1285, fixed with rawl plugs and screws or with fixing clips, or with expansion hold fasteners including necessary filling up of gaps at junctions, at top, bottom and sides with required PVC/neoprene felt etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, imported Aluminium snap beading for sandwich glass panels, C.P. brass / stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge. (Glazing and panelling to be paid for separately) :					
i)	Anti-bacterial Powder coated aluminium partition (minimum thickness of powder coating 50 micron) as per specification	490.00	Kg			
b)	Providing and fixing motorized (switch operation) sandwich glass blind in uPVC /aluminium/SS door, window and partitions etc. with complete motorized system to run the blind and EPDM/ special gasket etc complete as per architectural drawings and directions of Engineer in charge.					

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i)	With two 6 mm thick toughened clear glass panes (hermatically sealed units) of approved manufacture and aluminium slats venetian blinds of approved brand and manufacture run with approved motorized system (switch operation) etc all complete as per specifications and direction of engineer in charge. A sample need to be got approved before carrying out the work. Area of unit shall be measured for payment. (The cost to include 5 year warrantee against any defect).	130.00	Sqm			
c)	Extra for Remote control option for Sandwich Glass Blind	45.00	Each			
d)	Sliding Door Frame					

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1	2	3	4	5	6	7
	Providing and fixing stainless steel (Grade 304) sliding door of approved size, design, brand and manufacture using suitable extruded sections made from 1.20 mm SS sheet making section of 100x50 mm (min.) or as approved by engineer in charge, for top rail, bottom rail and side rails, to hold sandwich glass blind (to be paid for seperately), including welding, buffing, polishing and fitting the same with necessary SS nuts bolts screws etc. The door shall run on a suitable floor sliding arrangement of approved brand and manufacture, etc all complete including all hardware handles, lock etc complete to the enrite satisfaction of engineer in charge. Area of door shall be measured for payment. (Manual sliding system shall be paid for extra)	60.00	Sqm			
e)	Extra for complete Manual door sliding system (Load capacity about 120 kg) of approved brand and manufacture	21.00	Each			
3.04	Providing and fixing ISI marked flush door shutters conforming to IS: 2202 (Part I) non-decorative type, core of block board construction with frame of 1st class hard wood and well matched commercial 3 ply veneering with vertical grains or cross bands and face veneers on both faces of shutters :					

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<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
a)	35 mm thick including ISI marked Stainless Steel butt hinges with necessary screws.	30.00	sqm			
3.05	Extra for providing lipping with 2nd class teak wood battens 25 mm minimum depth on all edges of shutters (over all area of door shutter to be measured) Over item no. 9.20 and 9.21.	30.00	Sqm			
3.06	Extra for providing vision panel not exceeding 0.1 sqm in all type of flush doors (cost of glass excluded) (overall area of door shutter to be measured) :					
a)	Rectangular or square.	20.00	Sqm			
3.07	Providing & Fixing decorative high pressure laminated sheet of plain / wood grain in gloss / matt / suede finish with high density protective surface layer and reverse side of adhesive bonding quality conforming to IS : 2046 Type S including cost of adhesive of approved quality					
a)	1.0 mm thick.	60.00	Sqm			
3.08	Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with PVC/ neoprene gasket etc. complete as per the architectural drawings and the directions of engineer-in-charge . (Cost of aluminium snap beading shall be paid in basic item) :					
a)	With float glass panes of 5.50 mm thickness	10.00	Sqm			

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1	2	3	4	5	6	7
3.09	<p>Providing and Fixing approved manufacture 12 mm thick Corian® or equivalent White Cap colour sheets wall cladding on a Frame work of Aluminum Box Sections and Marine Ply Substrate as specified below:</p> <p>Providing and fixing aluminum sections preferably box sections of 50mm x 25mm x 3mm thick aluminum on the walls so as to form a grid of 760mm x 600mm with section running all along the perimeter of the wall including screwing the sections together with Aluminum angle of 25x25x25x3mm and CP/SS self drilling counter sunk screws of approved quality. The Aluminum sections to be fixed directly to the wall with Metal anchor fasteners of approved quality with a pull out strength around 180 Kg. Insulation: Filling 8Kg Density 75mm thick DuPont Tyvek-subtex or approved equivalent, in between two panels on either side of the frame. Substrate: providing and fixing approved quality 12mm thick marine ply of approved brand and manufacture on the Aluminum frame. Marine ply should be fixed in staggered format and should go up from floor to the ceiling level and from one end to the other.</p>					

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	Providing and fixing Corian® White Cap sheets (or approved equivalent), with structural silicon of approved quality on the marine ply substrate. The Corian panel should start from floor level and go up to the ceiling level and from one end of the wall to the other to meet panel coming from the perpendicular wall. A cove joint (cove dia 100 mm approx.) to be provided at the internal corners while all external corners to be rounded. Join the two panels of Corian with a matching adhesive as described in the fabrication manual of the manufacturer. Finish the joints between two sheets as per the procedure recommended by manufacturer to give a inconspicuous seam on the wall. Make provisions for expansion joints if required .Fabrication of Corian® white cap color to be done by manufacturer authorized fabricator and/or as approved by engineer only.	400.00	Sqm			
3.10	Providing and Fixing Partitions made of approved manufacture 12 mm thick Corian® or equivalent White Cap colour sheets on either side of Frame work made of Aluminum Box Sections with Marine Ply Substrate as specified below:					

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1	<p>Framing: Providing and fixing angles of 25mm x 50mm x 3mm with 25mm side facing towards ceiling and floor on either side of the ceiling line so as to leave a 50mm gap in between the two vertical flanges of the angles. Fix an aluminum section of 50mm x 50mm x 3mm at every 750mm in between the angles and erect them vertically from floor to ceiling between the floor line and ceiling line. Fix a horizontal box sections (50x50x3 mm) of 760mm width at every 600mm from floor between two vertical aluminium sections. Screw the sections together with Aluminum angle of 25x25x25x3 mm and CP/SS self drilling counter sunk screws of good quality. The Aluminum Angle sections to be fixed to the Floor and Ceiling with Metal anchor fasteners of approved quality with a pull out strength around 180 Kg.</p> <p>Insulation: Fill 8Kg Density 75mm thick Tyvek-subtex or approved equivalent, in between two panels of ply</p> <p>Substrate: Providing and fixing 12mm thick marine plywood of approved quality on either side of the Aluminum frame. Marine ply should be fixed in staggered format and should go up from floor to the ce</p>					



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1	2	3	4	5	6	7
1	Cladding: providing and fixing Corian® White Cap sheets with structural silicon of approved quality on the marine ply substrate on either side of the frame. The Corian panel should start from floor level and go up to the ceiling level and from one end of the wall to the other to meet panel coming from the perpendicular wall. A cove joint (cove dia 100 mm approx.) to be provided at the internal corners while all external corners to be rounded. Join the two panels of Corian with a matching adhesive of approved quality as recommended in the fabrication manual of the manufacturer. Finish the joints between two sheets as per the procedure recommended by the manufacturer to give an inconspicuous seam on the wall. Make provisions for expansion joints if required. Fabrication of Corian® white cap color to be done by authorized manufacturer fabricators or as approved by engineer in charge, only .	220.00	Sqm			

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3.11	Providing and fixing Guard Rail as specified here; Fix Aluminum box section of 4" x 1.5" 3mm thick horizontally along the wall at a height of 1200mm from the floor level. Fix a Marine ply of 18mm thickness and 6" wide on the panel with self driven counter sunk screws. Paste approved make Corian® or approved equivalent Beige-Fieldstone color ( 8" wide and with lips 1.5" on top and bottom curving towards the wall )with help of Structural Silicon. Finish the joints as per the procedure recommended by the manufacturer to give an inconspicuous seam on the Guard Rail.	30.00	Sqm			
3.12	Providing and fixing signages made out of Corian or equivalent material where the desired text in desired format and size is engraved with C n C equipment on to 12mm thick approved manufacture Corian ® or approved equivalent of Glacier White Color. The engraved text is then inlayed with approved manufacture Corian® or approved equivalent Cocoa Brown / Pompeii Red color or as desired by engineer in charge and matching joint adhesive. The Signage when dry is finished to the desired level of gloss / matt. Provisions are made for hanging / displaying the signage.					

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<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
	The Signage when dry is finished to the desired level of gloss / matt. Provisions are to be made for hanging / displaying the signage using CP brass/ stainless steel hangers at no extra cost.	1.00	Sqm			
3.13	Providing and fixing IS : 3564 marked Aluminium die cast body tubular type universal hydraulic door closer with necessary accessories and screws etc. complete.	15.00	each			
3.14	Providing and fixing aluminium sliding door bolts ISI marked anodised (anodic coating not less than grade AC 10 as per IS: 1868) transparent or dyed to required colour or shade with nuts and screws etc. complete:					
a)	250x16 mm	15.00	each			
3.15	Providing and fixing aluminium tower bolts ISI marked anodised (anodic coating not less than grade AC 10 as per IS : 1868 ) transparent or dyed to required colour or shade with necessary screws etc. complete:					
a)	250x10 mm	30.00	each			
b)	150x10 mm	30.00	each			

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3.16	Providing and fixing aluminium hanging floor door stopper ISI marked anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour and shade with necessary screws etc. complete.					
a)	Twin rubber stopper	15.00	each			
3.17	Providing and fixing stainless steel (SS 304 grade) adjustable friction windows stays of approved quality with necessary stainless steel screws etc. to the side hung windows as per direction of Engineer-in-charge complete.					
a)	255 X 19 mm	10.00	each			
3.18	Extra for Providing etching on glass panes in doors, windows shutters, partition etc in desired pattern complete as per drawing and as directed.(Area of etching shall be measured for payment)	50.00	sqm			

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3.19	Providing and fixing of Hollow metal door at all levels from ISO 9001-2000 certified Manufacturer. All hollow metal general doors with or without vision panel, Pressed Galvanised steel Single /Double leaf to required sizes of approved make which consists of frame, shutter, infill and finish as detailed below and conforming to IS 277. Door frame shall be Single rebate profile of size 100 x 57 mm made out of 1.25mm thick galvanised steel sheet (18 gauge). Frames should be Mitered and field assembled with self tabs. All doors should be factory prepared for receiving appropriate hardware and provided with necessary reinforcement for hinges, locks and door closers. Frames should be provided with back plate brackets and anchor fasteners for installation on required nos of masonry wall opening. Once frame installed should be grouted with cement slurry if recommended on the clear masonry opening.					

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	<p>Door leaf should be 46mm thick fully flush double skin door with or without vision lite. Door leaf shall be manufactured from 0.8mm (22 guage) thick galvanised steel sheet. The internal construction of the door should be rigid with steel stiffeners/ pads and reinforcement. The infill material shall be resin bonded honeycomb core. All doors should be factory prepared for receiving appropriate hardware and provided with necessary reinforcement for hinges, locks, and door closers. The edges should be interlocked with a bending radius of 1.4mm. For pair of doors astragals has to be provided on the meeting stile for both active and inactive leaf. Vision lite wherever applicable should be asper joinery details with screws on glass beeding on the inside. The glass should be 5mm clear toughned glass. Doors shall be fixed to frame with required numbers of SS Ball Bearing Butt hinges 101 X 89 X 3 mm of approved brand and manufacture.closers. The edges should be interlocked with a bending radius of 1.4mm. For pair of doors astragals has to be provided on the meeting stile for both active and inactive leaf. Vision lite wherev</p>					

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	All doors and frames shall be finished with etched primer coating, stove zinc phosphate primer and thermosetting polyurethane aliphatic grade paint of approved colour. The door leaf and frame shall have passed minimum 250 hours of salt sprey test.					
	Rate should include supply and installation of door/Shutter, Frame and hardware as mentioned above. Payment shall be made per sqm of door opening.	12.00	sqm			
	<b>Total</b>					

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<b>4.00</b>	<b>Flooring</b>					
4.01	Marble stone flooring with pre-polished marble stone of approved quality (sample of marble shall be approved by Engineer-in-charge) over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with grey cement slurry including rubbing and polishing complete with :					
a)	Factory processed, pre-polished, surface calibrated 20 mm thick natural marble stone of approved quality (Base rate Rs 300 per sft). Base rate includes the cost of material FAR site inclusive of all taxes.	600.00	sqm			
4.02	Providing and laying vitrified floor tiles in different sizes (thickness to be specified by the manufacturer) with water absorption's less than 0.08% and conforming to IS : 15622 of approved make in all colours and shades, laid on 20mm thick cement mortar 1:4 (1 cement : 4 coarse sand) including grouting the joints with white cement and matching pigments etc., complete.					
a)	Size of Tile 60x60 cm	70.00	sqm			



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4.03	Marble stone work in skirting, risers of steps and dado with pre-polished marble stone of approved quality (sample of marble shall be approved by Engineer-in-charge)(upto ceiling height) over 12 mm thick bed of cement mortar 1:3 (1 cement :3 coarse sand) and jointed with white cement slurry @ 3.3 kg/sqm including pointing in white cement mixed with pigment of matching shade complete.					
a)	Factory processed, pre-polished, surface calibrated 20 mm thick natural marble stone of approved quality (Base rate Rs 300 per sft). Base rate includes the cost of material FAR site inclusive of all taxes.	400.00	sqm			
4.04	Providing and laying vitrified tiles in different sizes (thickness to be specified by the manufacturer) with water absorption's less than 0.08% and conforming to IS : 15622 of approved make in all colours and shades, in skirting, risers of steps and dado over 12mm thick bed of cement mortar 1:3 (1 cement :3 coarse sand) including grouting the joints with white cement and matching pigments etc., complete.					
a)	Size of Tile 60x60 cm	80.00	sqm			

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4.05	Providing and fixing 18mm thick gang saw cut mirror polished pre moulded and prepolished) machine cut for work platforms, vanity counters, window sills. facias and similar locations of required size of approved shade, colour and texture laid over 20mm thick base cement mortar 1:4 (1 cement : 4 coarse sand) with joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing to edge to give high gloss finish etc. complete at all levels					
a)	Granite of any colour and shade					
i	Area of slab over 0.50 sqm.	30.00	sqm			
4.06	Extra for providing edge moulding to 18mm thick Granite stone counters, Vanities etc. including machine polishing to edge to give high gloss finish etc. complete as per design approved by Engineer-in-Charge.					
a)	Granite work.	30.00	metre			
4.07	Extra for fixing marble /granite stone over and above corresponding basic item, in facia and drops of width upto 150 mm with epoxy resin based adhesive including cleaning etc. complete.	30.00	metre			

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4.08	Extra for providing opening of required size & shape for wash basins/ kitchen sink in kitchen platform, vanity counters and similar location in marble/Granite/stone work including necessary holes for pillar taps etc. including rubbing and polishing of cut edges etc. complete.	6.00	Nos			
		#REF!				
<b>Total</b>						

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1	2	3	4	5	6	7
<b>5.00</b>	<b>Finishing</b>					
5.01	Providing and fixing Insulated double skin walkable totally flush sandwich panel false ceiling having PCGI sheet panels of suitable sizes designed according to room size made with stand alone two layers of Pre Coated GI(Pre coating on the sheet to be done with polyester of 18-20 micron along with the protective coating on outer side and epoxy coating of 7-8 micron on the inner side) sheets having thickness of 0.8 mm each and injected with Polyurethane Foam forming 50mm composite thickness having effective thermal insulation and higher compressive strength including filling of all joints and cavities with epoxy filler and sanded flush to provide a seamless finish, with antibacterial and antifungal paint with 300 micron thickness with suitable suspension material in anodised (thickness of anodising not less than 15 micron) aluminium of min. 18 gauge thickness, turn buckles, threaded rods and other hardware for easy and faster levelling of the system, factory finished and sealed cut outs of required sizes for filters, light fixtures etc. all complete as per drawing and to the sat					
a)	(PUF density : $40 \pm 2$ kg/m <sup>3</sup> , K value (Temperature Conductivity at 0oC : 0.018 KCal/m-hm/oC ).	500.00	sqm			

**PROJECT NAME: Renovation and facelift of CCU in AIIMS, New Delhi.**

**Bill of Quantities**

<b>Item No</b>	<b>Description Of Item</b>	<b>Total Qty</b>	<b>Unit</b>	<b>Rate in Figures (Rs)</b>	<b>Rate in Words (Rs)</b>	<b>Amount in Figures (Rs)</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
5.02	12 mm cement plaster of mix:					
a)	1:6 (1 cement: 6 fine sand)	250.00	sqm			
5.03	15 mm cement plaster on the rough side of single or half brick wall of mix:					
a)	1:6 (1 cement: 6 fine sand)	250.00	sqm			
5.04	6 mm cement plaster of mix:					
a)	1:3 (1 cement: 3 fine sand)	200.00	sqm			
5.05	Providing and applying plaster of paris putty of 2 mm thickness over plastered surface to prepare the surface even and smooth complete	700.00	Sqm			
5.06	Painting with synthetic enamel paint of approved brand and manufacture of required color to give an even shade:					
a)	Two or more coats on new work over an under coat of suitable shade with ordinary paint of approved brand and manufacture.	50.00	sqm			
5.07	Wall painting with plastic emulsion paint of approved brand and manufacture to give an even shade:					
a)	Two or more coats on new work	700.00	sqm			

**PROJECT NAME: Renovation and facelift of CCU in AIIMS, New Delhi.**

<b>Bill of Quantities</b>						
<b>Item No</b>	<b>Description Of Item</b>	<b>Total Qty</b>	<b>Unit</b>	<b>Rate in Figures (Rs)</b>	<b>Rate in Words (Rs)</b>	<b>Amount in Figures (Rs)</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
5.08	Applying one coat of cement primer of approved brand and manufacture on wall surface:					
a)	Cement primer.	700.00	sqm			
	<b>Total</b>					

**PROJECT NAME: Renovation and facelift of CCU in AIIMS, New Delhi.**

Bill of Quantities						
Item No	Description Of Item	Total Qty	Unit	Rate in Figures (Rs)	Rate in Words (Rs)	Amount in Figures (Rs)
1	2	3	4	5	6	7
<b>6.00</b>	<b>MISCELLANEOUS</b>					
6.01	Demolishing cement concrete manually/ by mechanical means including disposal of material within 50 metres lead as per direction of Engineer-in-charge.					
a)	1:3:6 or richer mix	10.00	cum			
b)	1:4:8 or leaner mix	50.00	cum			
6.02	Demolishing R.C.C. work manually/ by mechanical means including stacking of steel bars and disposal of unserviceable material within 50 metres lead as per direction of Engineer-in-charge.	10.00	cum			
6.03	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.					
a)	In cement mortar	20.00	cum			
6.04	Dismantling doors, windows and clerestory windows (steel or wood) shutter including chowkhats, architrave, holdfasts etc. complete and stacking within 50 metres lead :					
a)	Of area 3 sq. metres and below	10.00	each			

**PROJECT NAME: Renovation and facelift of CCU in AIIMS, New Delhi.**

Bill of Quantities						
Item No	Description Of Item	Total Qty	Unit	Rate in Figures (Rs)	Rate in Words (Rs)	Amount in Figures (Rs)
1	2	3	4	5	6	7
6.05	Dismantling tile work in floors and roofs laid in cement mortar including stacking material within 50 metres lead.					
a)	For thickness of tiles 10 mm to 25 mm	50.00	sqm			
b)	For thickness of tiles above 25 mm and upto 40 mm	50.00	sqm			
6.06	Dismantling stone slab flooring laid in cement mortar including stacking of serviceable material and disposal of unserviceable material within 50 metres lead.	800.00	sqm			
6.07	Dismantling cement asbestos, Celotax or other hard board ceiling or partition walls including stacking of serviceable materials and disposal of unserviceable materials within 50 metres lead.	600.00	sqm			
6.08	Dismantling old plaster or skirting raking out joints and cleaning the surface for plaster including disposal of rubbish to the dumping ground within 50 metres lead.	500.00	sqm			
6.09	Dismantling aluminium/ Gypsum partitions, doors, windows, fixed glazing and false ceiling including disposal of unserviceable surplus material and stacking of serviceable material with in 50 meters lead as directed by Engineer-in-charge.	150.00	sqm			
<b>Total</b>						



**PROJECT NAME: Renovation and facelift of CCU in AIIMS, New Delhi.**

**ABSTRACT OF COST (Civil)**

<b>S.No</b>	<b>DESCRIPTION OF WORK</b>		<b>Amount</b>
1	Concrete/ RCC Work		
2	BRICK WORK		
3	DOORS & WINDOWS		
4	FLOORING		
5	FINISHING		
6	MISCELLANEOUS		
	<b>TOTAL</b>		

# **BILL OF QUANTITIES (B.O.Q.)**

**PHE**

		Design & Engineering Department					
<b>Name of Work:BOQ of Plumbing work of Renovation of CCU Ward at AIIMS Delhi</b>							
SI. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
		<b>Note: Based on tender drawings the agency has to prepare the internal &amp; external plumbing shop drawing and obtain the approval of the same before execution.</b>					
<b>1.00</b>		<b>SANITARY FIXTURES</b>					
1.01	17.1	Providing&fixing water closet squatting pan( Indian W.C.Pan)with 100 mm sand cast iron P or S strap,10 Litre low level white P.V.C flushing cistern with manually controled device(handle lever) conforming to IS:7231 with all fittings&fixture complete including cutting and making good the walls & floors wherever required.					
	17.1.1	White vitreous china orissa pattern W.C. pan of size 580 x 440 mm with integral type foot rests	Each	1			
1.02	17.3	Providing and fixing white vitreous china pedestal type water closet (European type) with seat and lid, 10 litre low level white vitreous flushing cistern and C.P. flush bend with fittings & C.I. brackets, 40mm flush bend, overflow arrangement with specials of standard make and mosquito proof coupling of approved municipal design complete including painting of fittings and brackets, cutting and making good the walls and floors wherever required:					
a)	17.3.2	W.C. pan with ISI black solid plastic seat & lid.	Each	4			

Name of Work:BOQ of Plumbing work of Renovation of CCU Ward at AIIMS Delhi							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1.03	17.4	Providing and fixing white vitreous China flat back or wall corner type lipped front urinal basin of 430x260x350 mm and 340x410x265 mm sizes respectively with automatic flushing cistern with standard flush pipe and C.P. brass spreaders with brass unions and G.I. clamps complete, including painting or fittings and brackets, cutting and making good the walls and floors wherever required.					
a)	17.4.1	One urinal basin with 5 litre white PVC automatic flushing cistern	Each	2			
1.04	17.7	Providing and fixing wash basin with C.I. brackets, 15mm C.P. brass pillar taps, 32mm C.P. brass waste of standard pattern, including painting of fittings and brackets, cutting and making good the walls wherever required:					
a)	17.7.3	White vitreous china wash basin size 550x 400 mm with a pair of 15mm C.P. brass pillar tap.	Each	6			
1.05	17. 10	Providing and fixing Stainless Steel A ISI 304 (18/8) kitchen sink as per IS 13983 with C.I. brackets and stainless steel plug 40 mm including painting of fittings and brackets, cutting and making good the walls wherever required:					
a)	17.10.1.3	510x1040 mm bowl depth 200mm. With drain board	Each	1			
1.06	17. 16	Extra for using coloured pedestal type W.C. pan (European type) with low level cistern of same colour instead of white vitreous china W.C. pan and cistern	Each	4			

Name of Work:BOQ of Plumbing work of Renovation of CCU Ward at AIIMS Delhi							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1.07	17. 32	Providing and fixing superior glass (of approved quality) and of required shape and size with plastic moulded frame of approved make and shape with 6 mm thick hard board backing.					
a)	17.32.2	Rectangular shape 453x357 mm	Each	6			
	NS	Rectangular shape of any size (as per drawing)	Sqmt	2			
1.08	17. 34	Providing and fixing toilet paper holder .					
a)	17.34.2	Vitreous china	Each	4			
1.09	NS	Providing and fixing liquid soap dispenser about 100ml capacity SS body and push button complete.	Each	4			
1.10	NS	Providing and Fixing WC jet with SS plate graded 304 - 18/8 and nylon braided pipe complete.	Each	4			
1.11	NS	Providing and fixing CP brass towel rail size of 600x20 mm of approved make complete with CP brackets fixed to wooden cleats with CP brass screws	Each	6			
1.12	NS	Providing and fixing brass coat hook of approved quality and make complete with material of fixing	Each	10			
1.13	NS	Extra for providing and fixing white vitreous china oval shape wash basin in place of normal wash basin with CI/MS brackets painted white, 15 mm CP brass pillar taps, 32 mm CP brass waste of standard pattern, including painting of fittings and brackets cutting and making good the walls wherever required					
a)		Counter top oval shape wash basin size 550x470 mm with centre tap hole, single 15 mm CP brass swan neck type pillar tap	Each	4			

Name of Work:BOQ of Plumbing work of Renovation of CCU Ward at AIIMS Delhi							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1.14	NS	Providing and fixing stainless steel grab bar 25mm dia of required length with PVC cleats, C.P. brass screws etc. complete.	RM	4			
1.15	NS	Extra for white vitreous china wall hung type water closet (European type) in place of normal pedestal type water closet & 10 ltrs. flushing cistern (DSR item 17.3) with white solid plastic seat and lid concealed flushing cystem 9 ltrs capacity( min) approximate size(400x300x100)comprising of SS actuating panel with dual flush with fittings ,specials of standard make(Viega,ACO,Kohler,Jaquar) and complete including painting , cutting and making good the walls and floors wherever required:	Each	4			
1.16		Providing and fixing bowl type water less urinal including 6 no additional cartige & spare , cutting and making good the walls complete in all respect as per drawing / sample approved by Engineer-in charge	Each	2			
<b>SUB TOTAL( SANITARY FIXTURES)</b>							

Name of Work:BOQ of Plumbing work of Renovation of CCU Ward at AIIMS Delhi							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
<b>2.00</b>		<b>SOIL, WASTE AND VENT PIPES</b>					
2.01	17. 35	Providing and fixing soil, waste and vent pipes.					
a)	17.35.1	100 mm dia.					
a i)	17.35.1.2	Centrifugally cast (spun) iron socketed pipe as per IS:3989	Metre	300			
b)	17.35.2	75 mm dia					
bi)	17.35.2.2	Centrifugally cast (spun) iron socketed pipe as per IS:3989	Metre	50			
2.02	17. 37	Providing and fixing M.S holder-bat clamps of approved design to Sand Cast iron/ cast iron (spun) pipe embedded in and including cement concrete blocks 10x10x10 cm of 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) including cost of cutting holes and making good the walls etc.					
a)	17.37.1	for 100 mm dia. pipe	Each	112			
b)	17.37.2	for 75 mm dia. pipe	Each	15			
2.03	17. 38	Providing and fixing bend of required degree with access door, insertion rubber washer 3 mm thick, bolts and nuts complete.					
a)	17.38.1	100 mm					
a ii)	17.38.1.2	Sand cast iron S&S as per IS-3989	Each	9			
	17.38.2	75 mm					
b)	17.38.2.2	Sand cast iron S&S as per IS-3989	Each	1			
2.04	17. 39	Providing and fixing plain bend of required degree.					
a)	17.39.1	100 mm					

Name of Work:BOQ of Plumbing work of Renovation of CCU Ward at AIIMS Delhi							
SI. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
a ii)	17.39.1.2	Sand cast iron S&S as per IS:3989	Each	13			
b)	17.39.2	75 mm					
b i)	17.39.2.1	Sand cast iron S&S as per IS:3989	Each	1			
2.05	17. 40	Providing and fixing heel rest sanitary bend.					
a)	17.40.1	100 mm dia					
a.ii)	17.40.1.2	sand cast iron S&S as per IS-3989	Each	7			
b)	17.40.2	75 mm					
	17.40.2.2	sand cast iron S&S as per IS-3989	Each	1			
2.06	17. 43	Providing and fixing single equal plain junction of required degree with access door, insertion rubber washer 3mm thick, bolts and nuts complete.					
a)	17.43.1	100x100x100mm					
a.ii)	17.43.1.2	sand cast iron S&S as per IS-3989	Each	7			
b)	17.43.2	75x75x75mm Centrifugally cast (spun) iron S&S					
b.ii)	17.43.2.2	sand cast iron S&S as per IS-3989	Each	1			
2.07	17. 44	Providing and fixing single equal plain junction of required degree					
a)	17.44.1	100x100x100mm					
a.ii)	17.44.1.2	sand cast iron S&S as per IS-3989	Each	1			
b)	17.44.2	75x75x75mm Centrifugally cast (spun) iron S&S					
b.ii)	17.44.2.2	sand cast iron S&S as per IS-3989	Each	1			



Name of Work:BOQ of Plumbing work of Renovation of CCU Ward at AIIMS Delhi							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
2.08	17. 55	Providing and fixing door piece, insertion rubber washer 3mm thick, bolts and nuts complete					
a)	17.55.1	100 mm					
a.ii)	17.55.1.2	sand cast iron S&S as per IS-3989	Each	2			
2.09	17. 56	Providing and fixing terminal guard.					
a)	17.56.1	100 mm	Each	7			
a.ii)	17.56.1.2	sand cast iron S&S as per IS-3989					
b)	17.56.2	75 mm					
b.ii)	17.56.2.2	sand cast iron S&S as per IS-3989	Each	1			
2.10	17. 57	Providing and fixing collar					
a)	17.57.1	100 mm					
a.ii)	17.57.1.2	Sand cast iron S&S as per IS-3989	Each	10			
b)	17.57.2	75 mm					
b.ii)	17.57.2.2	Sand cast iron S&S as per IS-3989	Each	1			
2.11	17. 58	Providing lead caulked joints to sand cast iron /centrifugally cast (spun) iron pipes and fittings of diameter:					
a)	17.58.1	100 mm	Each	150			
b)	17.58.2	75 mm	Each	10			
2.12	17. 59	Providing and fixing M.S. stays and clamps for sand cast iron / centrifugally cast (spun) iron pipes of diameter :					
a)	17.59.1	100 mm	Each	7			
b)	17.59.2	75 mm	Each	1			

Name of Work:BOQ of Plumbing work of Renovation of CCU Ward at AIIMS Delhi							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
2.13	17. 60	Providing and fixing trap of self cleansing with screwed down or hinged grating with or without vent arm complete, including cost of cutting and making good the walls and floors:					
a)	17.60.1	100 mm inlet and 100 mm outlet					
a i)	17.60.1.1	Sand cast iron S&S as per IS-3989	Each	6			
2.14	17. 61	Cutting chases in brick masonry walls for following diameter sand cast iron/centrifugally cast (spun) iron pipes and making good the same with cement concrete 1:3:6 (1 cement:3 coarse sand:6 graded stone aggregate 12.5 mm nominal size) including necessary plaster and pointing in cement mortar 1:4 (1 cement: 4 coarse sand):					
a)	17.61.1	100 mm diameter pipe	Metre	20			
b)	17.61.2	75 mm diameter pipe	Metre	5			
2.15	17. 65	Painting sand cast iron / centrifugally cast (spun) iron soil, waste vent pipes and fittings with paint of any colour such as chocolate, grey, or buff etc. over a coat of primer (of approved quality) for new work:					
a)	17.65.1	100 mm diameter pipe	Metre	280			
b)	17.65.2	75 mm diameter pipe	Metre	45			
2.16	18.7	Providing and fixing CPVC pipes complete with CPVC fittings including painting, jointing, testing the cost of cutting the chases and making good the same for waste water disposal complete as per direction of engineer incharge.					
	18.7.4	32 mm dia nominal bore (Wash basin to floor trap/floor drain)	Metre	5			
	18.7.5	40 mm dia nominal bore (Sink,Urinal to floor trap)	Metre	5			

Name of Work:BOQ of Plumbing work of Renovation of CCU Ward at AIIMS Delhi							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
	18.7.6	50 mm dia nominal bore (Floor Drain to Floor Trap)	Metre	3			
2.17	NS	Providing and fixing floor drain points formed out of 65 mm dia GI elbow, including with 75mm dia Stainless Steel grating with frame, embedded in floor, all complete as directed.	Each	2			
2.18	NS	Providing and fixing C.P. brass bottle trap for wash basin including CP waste fittings complete 32 mm dia complete in all respect of approved quality.	Each	5			
2.19	NS	Providing and fixing C.P. brass bottle trap for sinks & urinal basin including CP waste fittings complete 40 mm dia complete in all respect of approved quality.	Each	3			
2.20	NS	Providing and laying cement concrete 1:2:4 (1 cement:2 coarse sand:4 graded stone aggregate 20 mm nominal size) 80 mm thick all-round the SCI/centrifugally S&S pipe diameter.					
	a)	100 mm dia	Metre	50			
	b)	75 mm dia	Metre	5			
2.21	NS	Providing and fixing dash fastner made of rust proof plated steel for holding the soil/waste supply pipes complete in all respect					
	a)	Dash fastner for pipe more than 25 mm dia to 150 mm dia pipe of size 25 mm dia and 75 mm long minimum & shall be capable of taking 6 tonnes load and also include the supporting angles 35x35 mm/steel structures as per drawing.	Each	15			

Name of Work:BOQ of Plumbing work of Renovation of CCU Ward at AIIMS Delhi							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
2.22	NS	Providing and fixing clean out/floor clean out plug consist of CI bend & GI socket heavy class with cap & key for opening male threaded cap etc. including lead caulked to CI pipescomplete in all respects as per drawing/ sample approved by Engineer -in -ChargeFCO (floor clean out plug shall be flushed with floor finish					
		150/100/75 mm dia	Each	5			
2.23	NS	Providing and fixing G.I EXTENSION PIECE for 100 mm dia floor trap formed out of main pipe( Type A) with multiple side inlets, suitable for various dia pipes, side connections, including all fixtures and fittings as per site conditions and as per standard details and water tight sealing of joints and area surrounding the grating and as directed.	Each	6			
<b>SUB TOTAL(SOIL, WASTE AND VENT PIPES)</b>							

Name of Work:BOQ of Plumbing work of Renovation of CCU Ward at AIIMS Delhi							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
<b>3.00</b>		<b>WATER SUPPLY</b>					
3.01	18.7	Providing and fixing Chlorinated Polyvenyl Chloride(CPVC)pipes having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings i/c fixing the pipe with clamps at 1.0 m spacing.This includes jointing of pipes & fittings with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer in charge.					
		<b>Internal work – Exposed on wall</b>					
a)	18.7.1	15 mm nominal outer dia pipes (SDR-11)	Metre	20			
b)	18.7.2	20 mm nominal outer dia pipes (SDR-11)	Metre	20			
c)	18.7.3	25 mm nominal outer dia pipes (SDR-11)	Metre	20			
d)	18.7.4	32 mm nominal outer dia pipes (SDR-11)	Metre	20			
e)	18.7.5	40 mm nominal outer dia pipes (SDR-11)	Metre	40			
3.02	18.8	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer in Charge.					
		Concealed work including cutting chases and making good the walls etc.					
a)	18.8.1	15 mm nominal outer dia pipes (SDR-11)	Metre	20			

Name of Work:BOQ of Plumbing work of Renovation of CCU Ward at AIIMS Delhi							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
b)	18.8.2	20 mm nominal outer dia pipes (SDR-11)	Metre	10			
c)	18. 8.3	25 mm nominal outer dia pipes (SDR-11)	Metre	5			
d)	18. 8.4	32 mm nominal outer dia pipes (SDR-11)	Metre	5			
3.03	18. 13	Making connection of G.I. distribution branch with G.I. main of following sizes by providing and fixing tee, including, cutting and threading the pipe etc. commplete including obtaining approval for connection from DJB/Municipal corporation :					
a)	18.13.2	50 to 80 mm nominal bore (SDR-11)	Each	1			
3.04	18. 17	providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end)					
a)	18.17.1	25 mm nominal bore	Each	4			
b)	18.17.2	32 mm nominal bore	Each	2			
c)	18.17.3	40 mm nominal bore	Each	2			
3.05	18. 18	Providing and fixing ball valve (brass) of approved quality, High or low pressure with plastic floats complete					
a)	18.18.2	20mm	Each	2			
3.06	18. 21	Providing and fixing unplastiscised PVC connection pipe with brass unions:					
a)	18.21.2	45 cm length					
a i)	18.21.2.1	15 mm nominal bore	Each	18			

Name of Work:BOQ of Plumbing work of Renovation of CCU Ward at AIIMS Delhi							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
3.07	18. 38	Painting CPVC/G.I. pipes and fittings with synthetic enamel white paint over a ready mixed priming coat, both of approved quality for new work					
a)	18.38.1	15 mm nominal outer dia pipes	Metre	20			
b)	18.38.2	20 mm nominal outer dia pipes	Metre	20			
c)	18.38.3	25 mm nominal outer dia pipes	Metre	20			
d)	18.38.4	32 mm nominal outer dia pipes	Metre	20			
e)	18.38.5	40 mm nominal outer dia pipes	Metre	40			
3.08	18. 48	Providing and placing on terrace (at all floor levels) polyethylene water storage tank ISI: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					
	a)	Treated water Tank and Untreated water tank	per litre	4000			
3.09	18. 49	Providing and fixing C.P brass bib cock of approved quality.					
a)	18.49.1	15 mm nominal bore	Each	4			
3.10	18. 50	Providing and fixing C.P. brass long nose bib cock of approved quality conforming to IS standards and weighing not less than 810 gms. ( Jaquar 5043 ,model of equivalent make of Marck & Aquaplus)					
a)	18.50.1	15 mm nominal bore	Each	6			

Name of Work:BOQ of Plumbing work of Renovation of CCU Ward at AIIMS Delhi							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
3.11	18. 53	Providing and fixing C.P. brass angle valve for basin mixer and geyser points of approved quality conforming to IS:8931.( Jaquar15053 ,model of equivalent make of Marck & Aquaplus)					
a)	18.53.1	15 mm nominal bore	Each	18			
3.12	18. 62	Providing and fixing PTMT ball cock of approved quality, colour and make complete with Epoxy coated aluminium rod with L.P./H.P.H.D. plastic ball.					
a)	18.62.4	40 mm nominal bore, 206 mm long weighin not less than 690 gms	Each	1			
3.13	18.76	Cutting holes upto 30x30 cm in walls including making good the same					
	18.76.1	with F.P.S bricks	Each	4			
3.14	18. 77	Cutting holes up to 15x15 cm in R.C.C. floors and roofs for passing drain pipe etc. and repairing the hole after insertion of drain pipe etc. with cement concrete 1:2:4 (1 cement:2 coarse sand: 4 graded stone aggregate 20 mm nominal size) including finishing complete so as to make it leak proof	Each	2			
3.15	NS	Providing & fixing full way lever operated forged brass ball valve of brass body with forged brass hard chrome plated steel ball tested to a pressure not less than 10 Kg / sqcm with threaded / flanged joints complete with nuts, bolts, gaskets, washers etc.					
	a)	15 mm diameter	Each	2			
	b)	20 mm diameter	Each	4			



Name of Work:BOQ of Plumbing work of Renovation of CCU Ward at AIIMS Delhi							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
3.16	NS	Providing and fixing mosquito proof coupling of approved Municipal design for scour and vent pipes for RCC overhead tanks complete in all respects					
	a)	15 mm diameter	Each	2			
	b)	20 mm diameter	Each	2			
	c)	40 mm diameter	Each	1			
3.17	NS	Providing & fixing 9 mm thick thermal insulation tubing of elastomeric flexible material on hot water supply/return pipes having hermetic blistered closed cell structure of expanded synthetic rubber over pipes/ fitting as per manufacturer's specifications etc.complete.					
a	a)	15 mm to 25 mm diameter	Each	10			
3.18	NS	Extra for providing and installing INFRA-RED controlled electrically operated (220V, AC mains) automatic flushing system of approved make instead of urinals with flushing cistern. The automatic flushing system shall comprising of :					
		Light sensing device fixed in recessed metallic box with tamper resistant stainless steel outercase Solenoid valve housed in a recessed metallic box with openable cover mounted at high level ( at desired height from finished floor level) complete with interconnecting control wiring in recessed PVC conduit between solenoid valve and sensing unit, including cutting and making good the walls & floor complete and all necessary fittings to make it operational as directed	Each	2			

Name of Work:BOQ of Plumbing work of Renovation of CCU Ward at AIIMS Delhi							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
3.19	NS	Providing & fixing solid state fully hygienic no touch hand drier of approved make rated for continuous repeat usage with solid state time delay LSF protection, with independent ambient light level & seasonal control temperatures including providing necessary C.I./M.S. brackets painted with two or three coats of enamel paint of approved shade over a coat of primer, wiring cables from drier to plug, plug tops etc. complete including cutting and making good the walls wherever required.	Each	4			
3.20	NS	Supplying, fixing, testing and commissioning of storage type water heater (Geyser) etc. with Stainless steel body , copper container , automatic thermostatic control electric element, pressure release valve, M.S. nuts and bolts etc. conforming to IS: 2082					
b)	b)	25 Litre Capacity	Each	2			
3.21	NS	Providing & fixing water storage cooler of approved make and brand with SS body having minimum flow rate of 40 ltrs. Per hour and storage capacity 40 ltrs. Complete in respects.(VOLTAS/ BLUE-STAR/ USHA SHRIRAM )	Each	1			

Name of Work:BOQ of Plumbing work of Renovation of CCU Ward at AIIMS Delhi							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
3.36	NS	Providing and fixing approved make & suitable model of R.O. plant 25 ltrs. Per hour flow rate having capacity to treat the raw water having TDS 1200 ppm and not less than 40%. The treated water should have TDS less than 100 ppm and hardness less than 50 ppm. The operating voltage to 230 volt AC +/- 10% alongwith required capacity pump and solenoid valves, dry run protection of pump, automatic tank level control, inbuilt auto flush timer for periodic flushing of membranes, hydro pneumatic tank, over voltage and over current protection with switch mode power supply system complete in all respects including installation and fittings with the following provisions: (IONIEXCHANGE/ KENT/AQUAPROCESS,Pantair )					
a)		10 micron polypropylene sediment pre filter					
b)		10 micron bacteriostatic activated carbon block on line micron filter with 5 micron rating					
c)		3 Nos. of reverse osmosis memberane with 0.0001 micron pore size energy saving poly amide type					
d)		UV lamp of minimum capacity 25 LPM and minimum lamp wattage 9W	Each	1			
<b>SUB TOTAL(Water Supply)</b>							

Name of Work:BOQ of Plumbing work of Renovation of CCU Ward at AIIMS Delhi							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
<b>4.00</b>		<b>SEWARAGE &amp; DRAINAGE</b>					
4.01	19. 1	Providing laying and jointing glazed stoneware pipes grade 'A' with stiff mixture of cement mortar in the pro-portion of 1:1 (1 cement : 1 fine sand) including testing of joints etc. complete.					
a)	19.1.1	100 mm diameter	Metre	10			
4.02	19. 2	Providing and laying cement concrete 1:5:10 (1 cement : 5 coarse sand : 10 graded stone aggregate 40 mm nominal size) all-round S.W. pipes including bed concrete as per standard design:					
a)	19.2.1	100 mm diameter S.W. pipe/RCC NP2	Metre	10			
b)	19.2.2	150 mm diameter S.W. pipe/RCC NP2	Metre	10			
4.03	19. 4	Providing and fixing square-mouth S.W. gully trap grade 'A' complete with C.I. grating, brick masonry chamber with water tight C.I. cover with frame of 300x300 mm size (inside) the weight of cover to be not less than 4.50 kg and frame to be not less than 2.70 kg as per standard design:.					
a)	19.4.2	150x100mm size P type					
a.i)	19.4.1.1	F.P.S. Bricks class designation 75	Each	4			
4.04	19. 6	Providing and laying non-pressure NP2 class (light duty) R.C.C. pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement:2 fine sand) including testing of joints etc. complete					
a)	19.6.2	150 mm dia R.C.c. pipe	Metre	10			

Name of Work:BOQ of Plumbing work of Renovation of CCU Ward at AIIMS Delhi							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
b)	19.6.3	250 mm dia R.C.C. pipe	Metre	10			
4.05	19. 7	Constructing brick masonry manhole in cement mortar 1:4 (1 cement : 4 coarse sand), R.C.C. top slab with 1:2:4 mix ( 1cement : 2 coarse sand : 4graded stone aggregate 20 mm nominal size ), foundation concrete 1:4:8 ( 1cement : 4 coarse sand : 8 graded stone aggregate 40 mm nominal size ), inside plastering 12mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement, and making necessary channels in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) finished with a floating coat of neat cement complete as per standard design.					
a)	19.7.1	Inside size 90x80 cm and 45 cm deep including C.I. cover with frame (light duty) 455x610 mm internal dimensions total weight of cover and frame to be not less than 38 kg (weight of cover 23 kg and weight of frame 15 kg):					
a i)	19.7.1.1	With F.P.S. bricks with class designation 75	Each	2			
4.06	19. 8	Extra depth for manholes					
a)	19.8.1	Size 90 x 80 cm					
a i)	19.8.1.1	With F.P.S. bricks class designation 75	Metre	1			

Name of Work:BOQ of Plumbing work of Renovation of CCU Ward at AIIMS Delhi							
SI. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
4.07	19. 9	Constructing brick masonry circular type manhole 0.91m internal dia at bottom and 0.56m dia at top in cement mortar 1:4 (1 cement :4 coarse sand), in side cement plaster 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement, foundation concrete 1:3:6 mix (1 cement: 3 coarse sand: 6 graded stone aggregate 40mm nominal size), and making necessary channel in cement concrete 1:2:4 (1 cement: 2 coarse sand: 4 graded stone aggregate 20mm nominal size) finished with a floating coat of neat cement all complete as per standard design:					
a)	19.9.1	0.91 m deep with S.F.R.C. cover and frame (heavy duty, HD-20 grade designation) 560mm internal diameter conforming to I.S. 12592, total weight of cover and frame to be not less than 182kg., fixed in cement concrete 1:2:4 (1 cement: 2 coarse sand: 4 graded stone aggregate 20 mm nominal size) including centering shuttering all complete. (Excavation, foot rests and 12mm thick cement plaster at the external surface shall be paid for separately) :					
a i)	19.9.1.1	With F.P.S. bricks class designation 75	Each	2			
4.08	19. 10	Extra depth for circular type manhole 0.91m dia (at bottom) with beyond 0.91m to 1.67 m					
a)	19.10.1	With F.P.S. bricks class designation 75	Metre	1			

Name of Work:BOQ of Plumbing work of Renovation of CCU Ward at AIIMS Delhi							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
4.09	19. 16	Providing and fixing orange colour safety foot rest of minimum 6 mm thick plastic encapsulated as per IS: 10910 on 12 mm dia steel bar conforming to IS: 1786 having minimum cross section as 23 mm x 25 mm and over all minimum length 263 mm and width as 165 mm with minimum 112 mm space between protruded legs having 2 mm tread on top surface by ribbing or chequering besides necessary and adequate anchoring projections on tail length on 138 mm as per standard drawing and suitable to with stand the bend test and chemical resistance test as per specification mark to be visible even after fixing, including fixing in manholes with 30x20x15 cm cement concrete block 1:3:6 ( 1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) complete as per design.	Each	10			
4.10	19. 21	Making connection of drain or sewer line with existing manhole including breking into and making good the walls, floors with cement concrete 1:2:4 mix (1 cement:2 coarse sand:4 graded stone aggregate 20 mm nominal size) cement plastered on both sides with cemnet mortar 1:3 (1 cement:3 coarse sand) finished with a floating coat of neat cement and making necessary channels for the drain etc. complete (including obtaining approval from DJB/Municipal corporation					
a)	19.21.1	For pipes 100 to 230 mm dia	Each	1			

Name of Work:BOQ of Plumbing work of Renovation of CCU Ward at AIIMS Delhi							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
4.11	19.27	Constructing brick masonry road gully chamber 50x45x60 cm with bricks of class designation 75 in cement mortar 1:4 (1 cement:4 coarse sand) including 500x450 mm pre-cast R.C.C. horizontal grating with frame complete as per standard design:					
	19.27.1	With F.P.S. bricks	Each	2			
<b>SUB TOTAL(SEWERAGE AND DRAINAGE)</b>							



Name of Work:BOQ of Plumbing work of Renovation of CCU Ward at AIIMS Delhi							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
<b>5.00</b>		<b>EARTH WORK</b>					
5.01	2.6	Earth work in excavation by mechanical means (Hydraulic excavator)/ manual means over areas (exceeding 30 cm in depth,1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead up to 50 m and lift up to 1.5 m , disposed earth to be levelled and neatly dressed.					
a)	2.6.1	All kinds of soil	cum	5			
5.02	2.10	Excavating trenches of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, ramming of bottoms, depth up to 1.5 m including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth including consolidating each deposited layer by ramming, watering, etc. and disposing of surplus excavated soil as directed, within a lead of 50 m:					
a)	2.10.1	All kinds of soil					
a.ii)	2.10.1.2	Pipes, cables etc, exceeding 80 mm dia but not exceeding 300 mm dia	metre	20			
5.03	2.25	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift up to 1.5 m	cum	2			
<b>SUB TOTAL(EARTH WORK)</b>							

**Name of Work: BOQ of Plumbing work of Renovation of CCU Ward of AIIMS Delhi**

<b>S.No.</b>	<b>Description</b>	<b>Amount in Figures(in Rs.)</b>
A	<b>INTERNAL PLUMBING ,</b>	
1. 00	SANITARY FIXTURES	
2. 00	SOIL, WASTE AND VENT PIPES	
3. 00	WATER SUPPLY	
4. 00	SEWERAGE AND DRAINAGE	
5. 00	EARTH WORK	
	<b>TOTAL</b>	

**BILL OF QUANTITIES (B.O.Q.)**

**FIRE FIGHTING**

PROJECT NAME: Renovation of CCU Ward, AIIMS New Delhi							
Name of Works: BOQ of Fire Fighting Works							
Item No	Ref. No.	Description Of Item	Unit	Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1.00		<b>FIRE FIGHTING SYSTEM</b>					
1.01		Heavy class G.I. pipes conforming to IS with accessories like tees, elbows, flanged joints, rubber insertion, nuts, bolts or welded joints including fixing the pipe with suitable flat iron strip clamps/brackets, structural members, dash fastener , cutting hole and chases in walls, floor, R.C.C. slab etc. and making good the same, including painting pipes and fittings with a primer coat of steel primer and two coats of postal red enamel paint etc. complete as required. (All the fitting i.e. tee /elbow, Valve shall be joint the pumps will flanged joints)					
b)	NS	150 mm dia (with Flanged joints)	Metre	60.0			
c)	NS	100 mm dia (with Flanged joints)	Metre	10.0			
e)	NS	50 mm dia	Metre	10.0			
g)	NS	32 mm dia	Metre	70.0			
h)	NS	25 mm dia	Metre	270.0			
1.02	NS	Providing and fixing Single headed hydrants flanged inlet with 63 mm female instantaneous outlet of gunmetal complete with male blank caps, chains conforming to IS:5290 type A with stainless steel orifice plate (if required) to keep the pressure not more than 3.5 kg/sq.cm at any point.	Each	2.0			
1.03	NS	Providing 63mm dia 15 m long reinforced rubber lined hose pipe conforming to IS: 636-1992 Part-II with gunmetal male & female coupling wire wound with pipe as required.	Each	4.0			

PROJECT NAME: Renovation of CCU Ward, AIIMS New Delhi							
Name of Works: BOQ of Fire Fighting Works							
Item No	Ref. No.	Description Of Item	Unit	Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1.04	NS	Providing and fixing Gunmetal branch pipe with 20mm dia nozzle conforming to IS:903. suitable for installation connections to hose coupling etc. as required.	Each	2.0			
1.05	NS	Providing and fixing glazed door shutter and frame for Fire hose cabinet with hold fasts ( frame fabricated from 40 x 40 x 5mm and shutter from angle) 2100 mm high x 1200 mm wide x 600mm deep with locking arrangement, 4mm thick glass with M.S. flats including all accessories, painting with one coat of steel primer and two coats of postal red enamel paint complete as per drawing and as directed. The words " hose cabinet" to be painted on the box complete in all respects.	Each	2.0			
1.06		Providing and fixing cast iron body IS: 210 FG 220 and double flange gear simple operation type butterfly valve conforming to IS: 13095 with SS304 disc and shaft NITNLE rubber replaceable seat of the following size complete with bolts, nuts, washers and rubber insertions as per specification.					
a)	NS	150 mm dia	Each	2.0			
b)	NS	80 mm dia	Each	1.0			
1.07		Supplying and Fixing <b>First Aid Hose Reel</b> , wall mounting swinging type complete with drum & bracket of MS construction, spray painted in Post office Red, confirming to IS 884/1995 with upto date amendments, complete with the following as required.					

PROJECT NAME: Renovation of CCU Ward, AIIMS New Delhi							
Name of Works: BOQ of Fire Fighting Works							
Item No	Ref. No.	Description Of Item	Unit	Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
		36 Meter long 20 mm dia water hose Thermoplastic (Textile reinforced) Type - 2 as per IS : 12585					
		20 mm dia gun metal ball valve & nozzle.					
		Drum and brackets for fixing the equipments on wall.					
	NS	Connection from riser with stop valve (gun metal) & M.S. Pipe	Each	2.0			
1.08	NS	Supply, Installation, Testing and Commissioning of 100 mm dia Bourden type, Stainless Steel dial type <b>Pressure Gauge</b> including brass isolation valve and siphon pipe having calibration of 0 - 16 Kg / cm <sup>2</sup> .	Each	2.0			
1.09	NS	Supplying and Fixing of Fire Man's axe with heavy insulated rubber as per standard conforming to IS 926	Each	2.0			
1.10	NS	Supplying and Fixing vane type waterflow switch with contacts suitable for installation on 50 mm to 150 mm dia pipeline for a service pressure upto 20 Kg/sq.cm.	Each	2.0			
1.11	NS	Supplying, Installation, Testing & Commissioning modular construction master control annunciation panel for sprinkler with provision for requider No. of Zone (30% additional spares),eachsprinkler hydrant will have atleast 2 zone on each floor as approved by engineer.The panel shall have but not limited to the following arrangment.					
		a) Indication of Zone sprinkler					
		b) Indication of zone fault					
		c) Fire/fault hooter					

PROJECT NAME: Renovation of CCU Ward, AIIMS New Delhi							
Name of Works: BOQ of Fire Fighting Works							
Item No	Ref. No.	Description Of Item	Unit	Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
		d) Alarm cancel for fire/fault					
		e) Battery for emergency back up of 4 Hrs.					
		f) Required size wiring & accessories	Set	1.00			
1.12	NS	Providing, Fixing, Testing and Commissioning of <b>Sprinkler Installation Control Valve</b> of Cast iron body and brass / bronze working parts comprising of water motor, alarm, bronze seat clapper and clapper arm, hydraulically driven mechanical gong bell to sound continuous alarm when the Sprinkler system activates, pressure gauges, emergency releases, strainer, pressure switch, cock valve complete with drain valve and bypass, test control box, ball valves, MS pipe of required size, flanges, orifice plate, gasket etc. of size 200/150 mm dia, as required.	Each	1.0			
1.13		Providing and Fixing 15 mm dia gunmetal / brass quartzoid type <b>Sprinkler Head</b> with quartz bulb and set to operate at specified temperature.					
a)	NS	Pendent / Upright type, 68 C, Chrome plated	Each	100.0			
b)	NS	Side wall extended throw 20 mm dia 68 C, Chrome plated	Each	10.0			
1.14	NS	Supply, erection, testing & commissioning of exit glow sign board of size 200mm x 350 mm wall mounting signage consisting of photo luminescent coating on acrylic cover	Each	4.0			

PROJECT NAME: Renovation of CCU Ward, AIIMS New Delhi							
Name of Works: BOQ of Fire Fighting Works							
Item No	Ref. No.	Description Of Item	Unit	Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1.15		Providing and fixing fire extinguisher of carbon dioxide type consisting of brand new high pressure steel cylinder bearing IS: 7285 mark and having the approval of controller of explosives Nagpur, wheel type valve bearing IS:3224 mark internal discharge tube, 1 meter long high pressure discharge hose, non conducting horn, suspension bracket, fully charged bearing IS: making fixed to wall as directed.					
a)	NS	4.5kg capacity cylinder	Each	2.0			
1.16		Providing and fixing 9 liters capacity fire extinguisher water type gas pressure conforming to IS marking, fixed to wall.					
	NS		Each	2.0			
1.17		Providing and fixing ABC type fire extinguishers complete in all respects.					
a)	NS	Capacity 5.0 Kg.	Each	2.0			
		<b>Sub Total</b>					



**PROJECT NAME: Renovation of CCU Ward, AIIMS New Delhi**

**ABSTRACT OF COST : FIRE FIGHTING**

<b>S.No</b>	<b>DESCRIPTION OF WORK</b>	<b>Amount in Figures(in Rs.)</b>
<b>1</b>	<b>FIRE FIGHTING</b>	
	<b>Sub Total(Fire Fighting work)</b>	
	<b>Grand Total (Rs.)</b>	

**BILL OF QUANTITIES (B.O.Q.)**

**ELECTRICAL**

**BILL OF QUANTITIES FOR THE ELECTRICAL WORKS OF RENOVATION OF CCU AT A.I.I.M.S , NEW DELHI.**

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in Words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
1.00	<b>SUB HEAD 1 : MV PANEL</b>					
	Supply, installation, testing and commissioning of following: M.V. cubicle type totally enclosed, wall mounted type, powder coated, dust, damp and vermin proof, indoor type Distribution Board/Panel complete with busbars, M.V. danger notice plate, interconnections with suitable capacity aluminium leads/solid aluminium strips/rods, connection of incoming and outgoing cables with thimbles, and having following incoming and outgoing switchgears complete as required.					
	a) <b>INCOMER:</b>					
	1 nos. 400 Amp 415 volts, 50 KA (Ics), four pole microprocessor based MCCB with variable current settings and having microprocessor based O/L, S/C & E/F protection release.					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	R,Y&B phase indicating lamp (LED type) with 2A control SP MCB.					
	1 No. 0 to 500 V digital voltmeter .					
	1 No. 0 to 400 Amp digital ammeter with 400/5-5 A C.T.'s.					
	1 Set of phase indicating lamp with HRC fuses					
	1 Set of Digital energy meter with CT & PT					
	b) <b>BUSBARS:</b>					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in Words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
	500 Amp TPN Aluminium busbars					
	c) <b>OUTGOING:</b>					
	a. <b>1 Nos. MCCB as per following details / specifications:</b>					
	250 Amp 415 volts, 50 KA (lcs), TPN microprocessor based MCCB with variable settings and having microprocessor based O/L, S/C & E/F protection release. Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	"ON" and "Trip" LED indicating lamp and 2A control SP MCBs.					
	b. 3 no. 32 Amps , 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker (MCB).					
	c. 3 no. 63 Amps , 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker (MCB).					
	<b>MV Panel as mentioned above</b>	1	Set			
	<b>TOTAL SUB HEAD 1 : MV PANELS</b>					
	<b>SUB HEAD- 2: MCB DISTRIBUTION BOARDS.</b>					
2.00	<b>MCB DISTRIBUTION BOARD</b>					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in Words (in Rs.)	Amount (in Rs.)
1		2	3	4	5	6	7
2.01		Supplying & fixing following way, three pole and neutral, prewired, sheet steel, MCB distribution board, 415 volts, on recess/surface complete with loose wire box, terminal blocks, tinned copper busbar, neutral link, earth bar, din bar, detachable gland plate, interconnections, phosphatized and powder coated including earthing etc. Before procurement of DB the contractor has to take approval of DB schedule/ drawing of each DB from the Electrical Engineer, HSCC, as per technical specifications and as required. (but without MCB & RCCB),					
	i	6 way (8+12), Double door	2	Each			
	ii	8 way (8+36), Double door	2	Each			
2.02		Supplying & fixing 6 Amps to 32 Amps rating, 240 volts, 'B' series, miniature circuit breaker suitable for lighting & other loads of following poles in the existing MCB DB complete with connections, testing & commissioning etc. as per technical specifications & as required.					
	i	Single pole	63	Each			
	ii	Triple pole & neutral (FP)	2	Each			
2.03		Supplying & fixing following rating, four pole, 415 volts, Miniature Circuit Breaker (MCB), in the existing MCB DB complete with connections, testing & commissioning etc. as per technical specifications and as required.					
	i	63 Amps	2	Each			

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in Words (in Rs.)	Amount (in Rs.)
1		2	3	4	5	6	7
2.04		Supplying & fixing following rating, four pole, 415 volts, Residual Current Circuit Breaker (RCCB) having a sensitivity current upto 300 mA in the existing MCB DB complete with connections, testing & commissioning etc. as per technical specifications and as required.					
	i	32 Amps	2	Each			
	ii	63 Amps	2	Each			
		<b>TOTAL SUBHEAD: 2- MCB DISTRIBUTION BOARD.</b>					
<b>3.00</b>		<b>SUB HEAD: 3 - WIRING</b>					
3.01		<b>WIRING</b>					
	i	Wiring for light point/fanpoint/ exhaust fan point/call bell point with 1.5 sq.mm. PVC insulated, fire retardant low smoke (FRLS) copper conductor cable, single core/ multi strand, in MS conduit (Including supplying & recess laying of MS conduit and accessories) including the following and complete as required.					
	ii	Supplying and Fixing Modular type switches (modular Bell push in case of call bell points) in suitable size modular metal boxes, base plate & modular cover plates, space for fixing electronic fan regulator in case of fan point wiring & space for fixing 5A socket on the board etc.					
	iii	Supplying and fixing Hexagonal fan Boxes with 3 mm thick hylem sheet covers in case of Fan Points					
	iv	Supplying & Fixing Ceiling Rose in case of Exhaust Fan Points etc.					
		<b>Note :</b>					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in Words (in Rs.)	Amount (in Rs.)
1		2	3	4	5	6	7
		i) Unless otherwise specified all the conduiting work to be done in recess					
		<b>Point wiring as mentioned above</b>	103	Point			
3.02	i	Wiring for twin control light points with 1.5 sq.mm. PVC insulated, FRLS copper conductor cable in ISI marked MS conduit (including supplying and recess laying of MS conduit & accessories) including the following and complete as required.					
	ii	Supplying and Fixing Modular type two numbers 2 Way switches in suitable size modular metal boxes, base plate & modular cover plates etc.					
		<b>Note :</b>					
		i) Unless otherwise specified all the conduiting work to be done in recess					
		<b>Wiring for twin control light points as mentioned above</b>	16	Point			
3.03		Wiring for 5A light plugs with 1.5 sq.mm. PVC insulated, FRLS copper conductor cable including one number 1.5 sq.mm. PVC insulated, copper conductor cable for earthing in surface/recessed MS conduit (including supply and recess laying of MS conduit & accessories) as per technical specifications and as required.	10	Point			
3.04		Wiring for 16 amp power plug with 2X4 sqmm PVC insulated, FRLS copper conductor, single core cable in surface/recessed MS conduit (including supply and recess laying of MS conduit with all accessories) along with 4.0 sqmm PVC insulated, copper conductor, single core cable for loop earthing etc per technical specifications & as required.					
		Directly from MCB-Distribution Board to the Socket Outlets	19	Point			

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in Words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
3.05	Wiring for computer points (Three sockets & one switch) with 2.5 sq.mm. PVC insulated, FRLS copper conductor cable including one number 1.5 sq.mm. PVC insulated, copper conductor cable for earthing in surface/recessed MS conduit (including supply and recess laying of MS conduit & accessories) as per technical specifications and as required.	8	Point			
3.06	Wiring for <b>Bed Head Unit</b> with 2X6 sq.mm. PVC insulated, FRLS copper conductor, single core/multistrand cable in recessed MS conduit (including supply and recess laying of MS conduit with all accessories) along with 6 sqmm PVC insulated, copper conductor, single core/multistrand cable for loop earthing, including box as per technical specifications & as required.	20	Point			
3.07	Wiring for submain/ circuit wiring with following sizes of PVC insulated, FRLS copper conductor single core cable in surface/recessed MS conduit( including and recess laying of MS conduit & accessories) as required.					
	i 2X2.5 Sqmm with 1 No. 2.5 sqmm PVC insulated, copper conductor for earthing for circuit wiring.	223	Metre			
	iii 4X6 Sqmm with 2 nos 6 sq mm PVC insulated, copper conductor for earthing	34	Metre			
	v 4X16 Sqmm with 2 nos 16 sq mm PVC insulated, copper conductor for earthing.	34	Metre			



S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in Words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
3.08	Supplying and fixing suitable Module metal box on surface or in recess including providing and fixing 3 pin 5/6 amps. modular socket outlet with shutters and 5/6 amps. modular type switch, base plate, modular cover plate, connections etc. and all civil works 'complete as required.	10	Each			
3.09	Supplying and fixing suitable module modular metal box on surface or in recess including providing and fixing 6 pin 15/16 A modular socket outlet with shutters and 15/16 A modular switch, base plate, modular cover plate, connections, etc. and all civil works complete as required.	19	Each			
3.10'	Supplying and fixing suitable Module metal box on surface or in recess including providing and fixing three nos 6 pin 5/6 amps. modular socket outlet with shutters and one no. 10 amps. modular type switch, base plate, modular cover plate, connections etc. and all civil works 'complete as required. ( For computer Points)	8	Each			
3.11	Supply, Installation, Testing & Commisioning 63 Amps, TPN MCCB in a sheet steel enclosure,extended rotary operating mechanism complete with all accessories as required.	2	Each			
	<b>TOTAL SUBHEAD: 3- WIRING</b>					
	<b>SUB HEAD: 4 - LIGHT FIXTURE AND FANS</b>					
<b>4.00</b>	<b>LIGHT FIXTURES AND FANS</b>					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in Words (in Rs.)	Amount (in Rs.)
1		2	3	4	5	6	7
4.01		Supply of following light fixture with high efficiency electronic ballast, starter, capacitor, tubes/lamps, reflector, diffuser, MS body/housing holder etc. complete with all fixing accessories as required.					
	i	1X28 watt box type flourescent light fixture with reflector (Philips TMS 122M1XTL528W EBT or approved equivalent)	10	Each			
	ii	1X36watt recess mounted flourescent light fixture (Philips TBS050 1XTLD36 W EBE MI or approved equivalent) 136RMO1	20	Each			
	iii	3X36 watt recess mounted mirror optic flourscent light fixture (Philips FBS 300 M 3XPLL36W EBP P5 or approved equivalent).RMSQ1	31	Each			
4.02		Supply of following compact flourescent light fixture with electronic ballast, starter, capacitor, lamps, reflector, diffuser, MS body/housing holder etc. complete with all fixing accessories as required.					
	i	1x9 watt Bulk Head light fixture (Philips FXC 101 1xPL-S/2P 11W AC or approved equivalent)	3	Each			
	ii	2 x 18 watt CFL recessed Down Light fixture of super low depth & low glare Type-1 (PHILIPS FBH 145 M 2XPLC/4P 18W EBW 240V LH or approved equivalent) DL1	45	Each			
	iii	2X10 watt Mirror top (Decon 05UB or approved equivalent) Wtoilet	6	Each			

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in Words (in Rs.)	Amount (in Rs.)
1		2	3	4	5	6	7
	iv	2X11 watt Mirror optics compact flourescent light fixture (PHILIPS FCS 518 2XPLS/2P11W I 240V) 211CFLRECT	20	Each			
4.03		Supply of following ceiling fans (Crompton Greaves High Breeze or approved equivalent) complete with double ball bearing, motor, blades, downrod, canopies, capacitor, modular type electronic fan regulator, suitable for operation on 230 volts, 50 Hz., 1 phase, AC supply complete as required					
	i	1200 mm sweep	4	Each			
	ii	900 mm sweep	1	Each			
4.04		Supply of 900 RPM, 225 mm heavy duty exhaust fan suitable for single phase 230 volts, 50 Hz., AC supply complete with motor, louvers/shutters etc. complete as required.	5	Each			
4.05		Supply of 300 mm sweep, crompton greaves model cromair or approved equivalent wall mounted fan complete with double ball bearing, motor, blades, capacitor etc suitable for single phase 230 volts, 50 Hz., AC supply, complete as required.	4	Each			
4.06		Installation, testing and commissioning of prewired, flourescent fittings of all types, complete with all accessories and tube etc. directly on ceiling/wall, including connections with 1.5 sq.mm. PVC insulated, FRLS copper conductor, single core/ multi strand cable etc. as required.	61	Each			

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in Words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
4.07	Installation, testing and commissioning of prewired, compact fluorescent lamp fixture (CFL fixtures) of all types, complete with all accessories and lamp etc. directly on ceiling/wall, including connections with 1.5 sq.mm. PVC insulated, FRLS copper conductor, single core/ multi strand cable etc. as required.	74	Each			
4.08	Installation, testing and commissioning of ceiling fan and modular type electronic fan regulator (Electronic regulator to be fixed in switch board) including wiring the down rod and connection with 1.5 sqmm PVC insulated, copper conductor single core cable as required.	5	Each			
4.09	Installation, testing and commissioning of exhaust fan up to 300 mm sweep in the opening, including making the hole to suit the size of the above fan including, fixing of louvers/shutters with frame making good the damages etc. as required.	5	Each			
4.10	Installation, testing and commissioning of wall mounted fan up to 300 mm sweep including supply and fixing wall bracket arrangement complete as required.	4	Each			
	<b>TOTAL SUBHEAD 4: LIGHT FIXTURE &amp; FANS</b>					
	<b>SUB HEAD 5: TELEPHONE SYSTEM</b>					
5.00	<b>TELEPHONE SYSTEM</b>					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in Words (in Rs.)	Amount (in Rs.)
1		2	3	4	5	6	7
5.01		Supply & laying two pair 0.5 Sq. mm solid, annealed bare copper conductor insulated with high density polythlene. The insulated cores twisted to form pairs, helically wrapped with polyester tape, over all insulation of FR PVC, unarmoured telephone cable in ISI marked MS conduit including providing & fixing of two module modular metal box on surface or on recess with following pair cord outlet, connections etc. complete as required. This also includes conduiting, wiring from floor Tag blocks to individual telephone outlets.					
	i	1 pair cord outlet (Jack Type)	25	Each			
	ii	2 pair cord outlet (Jack Type)	3	Each			
5.02		Supplying, Installation, testing and commissioning of following sizes of telephone distribution board in M.S. hinged type lockable box duly painted complete with Krone type tag block etc. including terminations of cable as required.					
	i	40 Pair	1	Each			
5.03		Supplying and drawing of following pairs .5 mm dia annealed bare copper conductor Polythene insulated, core twisted into pairs armoured telephone cable on surface/tray with saddels etc. complete as required.					
	i	20 Pair	50	Metre			
		<b>TOTAL SUBHEAD 5: TELEPHONE SYSTEM</b>					
		<b>SUB HEAD 6 : FIRE DETECTION AND ALARM</b>					
6.00		<b>FIRE DETECTION AND ALARM SYSTEM</b>					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in Words (in Rs.)	Amount (in Rs.)
1		2	3	4	5	6	7
6.01		Supply and drawing of following sizes of PVC insulated FRLS copper conductor single core cable in surface/recessed ISI marked MS conduit (including Supplying and fixing of ISI marked MS Conduit) complete as required.					
	i	2X1.5 sqmm	504	Metre			
6.02		Supply, installation, testing and commissioning of the following manual type fire detection and alarm system including accessories etc., as per technical specification & complete with connections etc. as required.					
	i	Optical type Smoke Detector	40	Each			
	ii	Heat Detector	2	Each			
	iii	Manual Break call point.	2	Each			
	iv	Fire Alarm Hooter cum speaker of suitable range to cover the complete floor, in enclosure.	2	Each			
	v	Response indicator	10	Each			
6.03		Supply testing and commissioning of isolator module as per specifications.	3	Set			
6.04		Supply, Installation, testing and commissioning of addressable control modules.	2	Each			
6.05		Supply, Installation, testing and commissioning of addressable monitor modules.	1	Each			

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in Words (in Rs.)	Amount (in Rs.)
1		2	3	4	5	6	7
6.06		Supply, Installation, testing and commissioning of 1 loop microprocessor based addressable type networkable Fire Detection & Alarm Panel complete with inbuilt power supply, battery charger with SMF batteries for minimum 24 hours back-up. The panel shall be able to connect up to 99 panels on a network and each panel shall have a communication module and HI 485 network card. The panel should have rectifier, loop card, min 80 character LCD unit to indicate fire/ fault signals with address including external/ internal printer to print the details complete as per technical specifications and requirement of Local Fire Authority and as required.	1	Each			
		<b>TOTAL SUB HEAD 6 : FIRE DETECTION AND ALARM</b>					
		<b>SUB HEAD 7:CONDUITING FOR COMPUTER SYSTEM</b>					
7.00		<b>CONDUITING FOR COMPUTER SYSTEM .</b>					
7.01		Supply and fixing of following sizes of rigid PVC conduit alongwith the accessories in recess including painting in case of surface conduit, or cutting the wall and making good the same in case of recessed conduit as required					
	i	20 mm dia	120	Metre			
	ii	25 mm dia	96	Metre			
7.02		Supplying and fixing two module modular plate (suitable for RJ-45 computer socket) with GI box complete as required.	8	Each			

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in Words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
	<b>TOTAL SUB HEAD 7 : CONDUITING FOR COMPUTER SYSTEM.</b>					
	<b>SUB HEAD 8 : NURSE CALL BELL SYSTEM.</b>					
<b>8.00</b>	<b>NURSES CALL BELL SYSTEM</b>					
8.01	Supplying, fixing testing and commissioning of nurses station terminal monitor with in built LED display & alarm, suitable for following way complete with back up, batteries, battery charger etc. as per technical specifications and as required.					
	i) 10 Way	3	Each			
8.02	Supplying, fixing testing and commissioning of call push button (with cord), call reset, call indication station for each bed complete as required.	20	Each			
8.03	Supply and fixing of following sizes of steel conduit alongwith the accessories in surface/recess including painting in case of surface conduit, or cutting the wall and making good the same in case of conduit as recessed required					
	i) 25 mm dia	300	Metre			
8.04	Supply & laying of CAT 5 cable copper conductor in the existing MS conduite.	450	Metre			
8.05	Supplying, fixing testing and commissioning of LED's Indicators outside each ward	20	Each			
	<b>TOTAL SUB HEAD 8: NURSE CALL BELL SYSTEM.</b>					



S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in Words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
	<b>SUB HEAD 9: LT CABLES</b>					
<b>9.00</b>	<b>LT CABLES</b>					
9.01	Supply of following sizes of 1.1 kV grade multicore aluminium conductor PVC sheathed armoured AYFY cable as per IS 1554.					
	i 3.5 Core 25 Sqmm.	10	Metre			
	ii 3.5 Core 70 Sqmm.	200	Metre			
	iii 3.5 Core 400 Sqmm.	150	Metre			
9.02	Laying of one number PVC insulated and PVC sheathed power cable 1.1kV grade direct in ground including excavation, sand cushioning, protective covering and refilling the trench etc. as required					
	i Size not exceeding 25 sq.mm	10	Metre			
	ii Size exceeding 25 sq.mm but not exceeding 120 sq.mm	150	Metre			
	Size not exceeding 400 Sq. mm	120	Metre			
9.03	Laying of one number PVC insulated and PVC sheathed power cable 1.1kV grade direct in the existing RCC/Hume/Stoneware/Metal pipe as required					
	i Size not exceeding 25 sq.mm	10	Metre			
	ii Size exceeding 25 sq.mm but not exceeding 120 sq.mm	5	Metre			
9.04	Laying of one number PVC insulated and PVC sheathed power cable 1.1kV grade on surface or on existing cable tray complete as required.					
	i Size not exceeding 25 sq.mm	10	Metre			
	ii Size exceeding 25 sq.mm but not exceeding 120 sq.mm	15	Metre			
	Size not exceeding 400 Sq. mm	10	Metre			

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in Words (in Rs.)	Amount (in Rs.)
1		2	3	4	5	6	7
9.05		Supplying and making end termination with suitable size Copper lugs including double compression glands of following sizes of 1.1. kv grade multicore aluminium conductor PVC insulated and PVC sheathed					
	i	3.5 Core 25 Sqmm.	2	Each			
	ii	3.5 Core 70 Sqmm.	4	Each			
	iii	3.5 Core 400 Sqmm.	2	Each			
9.06		Fabricating and installing following size of perforated M.S. cable trays including horizontal and vertical bends, reducers, tees, cross members and other accessories as required and duly suspended from the ceiling with M.S. suspenders and including painting etc. as required :-					
	ii	300 mm. width x 62.5 mm. depth x 2.0 mm. thickness	25	Metre			
	iii	450 mm. width x 62.6 mm. depth x 2.0 mm. thickness	20	Metre			
		<b>TOTAL SUB HEAD 9: LT CABLES</b>					
		<b>SUB HEAD 10: EARTHING, SAFETY EQUIPMENTS AND MISC. ITEMS</b>					
10.00		<b>EARTHING, SAFETY EQUIPMENTS AND MISC. ITEMS</b>					
10.01		Earthing with GI plate 600mmX600mmX6mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe etc. (but without charcoal or coke and salt) complete as required	2	Set			
10.02		Extra for using charcoal and salt for GI or copper plate earth electrode as required.	2	Set			

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in Words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
10.03	Supplying and laying 25mmX5mm GI strip at 0.5m below ground level as strip earth electrode, including soldering etc. as required.	15	Metre			
10.04	Providing and fixing 25mmX5mm GI strip on surface/on existing cable trench/RCC pipe/GI pipe or in recess for earth electrode as required.	50	Metre			
10.05	Providing and fixing M.V. danger notice plate of 200mmX150mm made of mild steel, atleast 2mm thick and vitreous enamelled white on both sides and with inscription in signal red colour on front side as required.	1	Each			
10.06	Supply and fixing shock treatment chart in English, Hindi and local language mounted on 5mm thick Plywood and 3mm thick plain glass front complete as required.	1	Set			
10.07	Supplying and fixing CO2 type 4.5 Kg capacity fire extinguishers as approved by ISI complete as required.	2	Set			
	<b>TOTAL SUB HEAD 10: EARTHING, SAFETY EQUIPMENT AND MISC. ITEMS</b>					
11.00	Dismantling and handing over in store exiting electrical panel light fixtures, fans, switches, sockets, fans etc. ( not required)	1	Set			
	<b>GRAND TOTAL FOR ALL ELECTRICAL WORKS</b>					

**SUMMARY OF COST ESTIMATE - ELECTRICAL WORKS**

<b>S.No.</b>	<b>Description</b>	<b>Amount In Figure (In Rs.)</b>	<b>Amount in Words (Rs.)</b>
1	Sub Head 1: MV Panels		
2	Sub Head 2: MCB Distribution Board		
3	Sub Head 3: Wiring		
4	Sub Head 4: Light Fixtures & Fans		
5	Sub Head 5: Telephone Systems		
6	Sub Head 6: Fire Detection & Alarm		
7	Sub Head 7: Conduiting For Computer System		
8	Sub Head 8: Nurse Call Bell System		
9	Sub Head 9: LT Cables		
10	Sub Head 10: Earthing, Safety Equipments & Misc. Items		
11	Dismantling		
	<b>GRAND TOTAL FOR ALL ELECTRICAL WORKS</b>		

# **BILL OF QUANTITIES (B.O.Q.)**

## **HVAC**

**B.O.Q. FOR CCU RENOVATION AT AIIMS, NEW DELHI ( HVAC WORKS)**

ITEM NO 1	DESCRIPTION OF ITEM 2	Qty. 3	UNIT 4	RATE IN FIGURES ( ) 5	RATE IN WORDS ( ) 6	AMOUNT ( ) 7
The prices are to be quoted in the below mentioned form and shall include the supply, installation, testing & commissioning at site of all the equipments, ancillary materials as specified and all such items what so ever which may be required to fulfill the intent and purpose as laid down in the specifications and or the drawings.						
The tenderer shall quote rates in figures and in words under column 5&6 and extend amount to column 7						
<b>1.0</b>	<b>Inline Fans</b>					
	Supply, installation, testing and commissioning of Inline Fans as shown in drawings and as per equipment schedule . Each fan shall be complete with centrifugal blowers, totally enclosed fan cooled motor. Fan motor shall be suitable for single phase, 220 +/- 6% V, 50 Hz AC supply. Item shall be complete with starter & cabling.					
1.1	Air Quantity :1350 CFM Static Pressure :35 mm wg	1	Nos.			
1.2	Air Quantity :200 CFM Static Pressure :15 mm wg	1	Nos.			
1.3	Air Quantity :150 CFM Static Pressure :15 mm wg	1	Nos.			
1.4	Air Quantity :100 CFM Static Pressure :15 mm wg	1	Nos.			

ITEM NO 1	DESCRIPTION OF ITEM 2	Qty.	UNIT 4	RATE IN FIGURES (₹) 5	RATE IN WORDS (₹) 6	AMOUNT (₹) 7
2.0	<b>Tube Axial Fans (Fire rated)</b>					
	Supply, installation,testing and commisioning of tube axial flow fans as shown in drawings, Each fan shall be direct driven.. Fan motor shall be suitable for 3 Phase, 415+/- 10% V, 50Hz AC supply . Fan shall be complete with gravity louvers.Fan shall be 250 deg C, 2hrs fire rated.					
	<b>Duty: Corridor Ventilation</b>					
2.1	Air Quantity : 3000 CFM, 25 mm st. pr.	2	Nos.			
3.0	<b>UVGI SYSTEM</b>					
	Supply, Installation , testing , commissioning and handing over of the imported Ultra Violet Germicidal Irradiatons ( UVGI) System for maintaining indoor Air Quality.The System must be UL listed for fire safety. The components of the system must be in strict conformity with the specifications.and shall be including freight from Delhi Airport to site ,Insurance,Lifting,Shiftingetc.as required . The prices to include all inter connected wiring between the UVGI Lamps.					
3.1	For ICU	1	SET			
4.0	<b>CHILLED WATER PIPING</b>					
	Supply, laying/fixing, testing and commissioning of M.S. heavy class ERW piping confirming to IS : 3589/IS:1239 with necessary clamps, supports, anti vibration mountings, hangers and fittings such as bends, tees, reducers etc. duly insulated and painted as per specifications :					
4.1	80 mm dia	120	RM			

ITEM NO 1	DESCRIPTION OF ITEM 2	Qty.	UNIT 4	RATE IN FIGURES (₹) 5	RATE IN WORDS (₹) 6	AMOUNT (₹) 7
4.2	65 mm dia	20	RM			
4.3	50 mm dia	120	RM			
4.4	40 mm dia	20	RM			
4.5	32 mm dia	30	RM			
4.6	25 mm dia	20	RM			
<b>5.0</b>	<b>VALVES &amp; STRAINERS</b>					
	Supply, fixing and testing of following valves, strainers, in the chilled water piping complete with companion flanges, nut bolts, gaskets, supports etc. duly insulated and painted as per specifications:					
5.1	<b>Butterfly valves :</b>					
5.1.1	80 mm dia	10	Nos			
5.1.2	50 mm dia	10	Nos			
5.1.3	32 mm dia	2	Nos			
5.1.4	25 mm dia	2	Nos			
5.2	<b>Balancing valves :</b>					
5.2.1	80 mm dia	3	Nos			
5.2.2	50 mm dia	3	Nos			
5.2.3	32 mm dia	1	Nos			
5.2.4	25 mm dia	1	Nos			
5.3	<b>Y- strainers with drain valve</b>					



ITEM NO 1	DESCRIPTION OF ITEM 2	Qty.	UNIT 4	RATE IN FIGURES (₹) 5	RATE IN WORDS (₹) 6	AMOUNT (₹) 7
5.3.1	80 mm dia	3	Nos			
5.3.2	50 mm dia	3	Nos			
5.3.3	32 mm dia	1	Nos			
5.3.4	25 mm dia	1	Nos			
5.4	<b>Non return valve</b>					
5.4.1	80 mm dia	2	Nos			
5.4.2	50 mm dia	2	Nos			
5.5	Supply, installation, testing and commissioning cooling thermostats for various Air Handling Units					
5.5.1	Proportional thermostats for Air Handling Units	2	No.			
<b>6.0</b>	<b>DRAIN PIPING</b>					
	Supply, laying/fixing, testing and commissioning of G.I. medium class ERW piping conforming to IS:1239 with necessary clamps, supports, anti vibration mountings, hangers and fittings such as bends, tees, reducers etc. duly insulated and painted as per specifications for condensate drain from air handling units and chillers etc.					
6.1	40 mm dia	50	RM			
6.2	32 mm dia	50	RM			
<b>7.0</b>	<b>DUCTING</b>					

ITEM NO 1	DESCRIPTION OF ITEM 2	Qty.	UNIT 4	RATE IN FIGURES (₹) 5	RATE IN WORDS (₹) 6	AMOUNT (₹) 7
7.1	<b>GSS DUCTING</b>					
	Supply, installation, testing and balancing of G.S.S ducting of following thickness including necessary supports, hangers, nut bolts, gaskets, splitter dampers, vanes canvass connections etc. complete as per specifications & drawings:					
7.1.1	1.25 mm (18 G ) GSS	40	Sqm			
7.1.2	1.0 mm (20 G ) GSS	80	Sqm			
7.1.3	0.80 mm (22 G) GSS	150	Sqm			
7.1.4	0.63 mm (24 G) GSS	250	Sqm			

ITEM NO 1	DESCRIPTION OF ITEM 2	Qty.	UNIT 4	RATE IN FIGURES (₹) 5	RATE IN WORDS (₹) 6	AMOUNT (₹) 7
7.2	<b>ALUMINIUM DUCTING</b>					
	Supply, fabrication, installation and testing of aluminium ducts in accordance with the approved shop floor drawing and specifications. Material should confirm to IS 737 latest edition.					
7.2.1	22 gauge	75	Sqm.			
7.2.2	20 gauge	60	Sqm.			
7.2.3	18 gauge	12	Sqm			
8.0	<b>FIRE DAMPERS</b>					
8.1	Supply, installation, testing and commissioning of motorized combined smoke & fire dampers made out of GI sheet of at least 90 minutes fire rating complete with GI damper of required size, smoke sensor, etc as per specifications and shop drawings.	4	Sqm			
8.2	Actuator & control panel	2	nos.			
9.0	<b>CEILING DIFFUSERS</b>					
9.1	Supply, Installation, testing and balancing of square/circular supply air diffusers of powder coated extruded aluminium construction with attached volume control dampers as per specs.& drawings and duly approved by architects.	4	Sqm			
9.2	Supply, installation, testing and balancing of square/circular return air diffusers of powder coated extruded aluminium construction without volume control dampers and duly approved by architects.	4	Sqm			
10.0	<b>PERFORATED CEILING DIFFUSERS</b>					

ITEM NO 1	DESCRIPTION OF ITEM 2	Qty.	UNIT 4	RATE IN FIGURES (₹) 5	RATE IN WORDS (₹) 6	AMOUNT (₹) 7
10.1	Supply, installation,testing and commissioning of extruded aluminium constructed supply air perforated ceiling diffuser with volume control damper as per specification and approved drawings.(quantity of the diffusers shall be measured as per diffuser face area.)	15	Sqm.			
10.2	Supply, installation,testing and commissioning of extruded aluminium constructed supply air perforated ceiling diffuser without volume control damper as per specification and approved drawings.(quantity of the diffusers shall be measured as per diffuser face area.)	15	Sqm.			
11.0	<b>VOLUME CONTROL DAMPERS</b>					
	Supply, installation and testing of volume control dampers of GI sheet, box type to be provided in ducts complete with suitable links, levers and quadrants for manual control of air volume and air balancing as per specifications and drawings.	8	Sqm			
12.0	<b>GRILLES</b>					
	Supply, installation, testing and balancing of supply/return air grilles with/without volume control dampers of powder coated extruded aluminium construction suitable for installation in walls, false ceiling boxing etc as per specifications & drawings and duly approved by architects..					
12.1	Supply air grilles in single louvers with volume control dampers.	2	Sqm			
12.2	Return air grilles in single louvers without volume control dampers.	10	Sqm			
13.0	<b>DUCTING INSULATION</b>					

ITEM NO 1	DESCRIPTION OF ITEM 2	Qty.	UNIT 4	RATE IN FIGURES (₹) 5	RATE IN WORDS (₹) 6	AMOUNT (₹) 7
13.1	Supply and fixing of 15 mm thick foil faced FR Closed Cell Chemically Crossed Linked Poly Ethylene Foam (Fire Retardant type) insulation for supply air ducting as per the specifications and approved shop drawings.	350	Sqm.			
<b>14.0</b>	<b>CABLING</b>					
	Supplying, laying, effecting proper connections, testing & commissioning of following size of 1.1 kv PVC insulated aluminium conducting armoured cables as per IS 1554 Part- 1 laid underground/cable tray/on surface of wall/hume pipe etc. & termination with brass compression glands as required.					
14.1	3.5C x 50 sq.mm cable	100	Metre			
14.2	3.5C x 25 sq.mm cable	90	Metre			
14.3	4 C X10 sq. mm. Cable	50	Metre			
14.4	4 C X 6 sq. mm. Cable	60	Metre			
14.5	3 C X 6 sq. mm. Cable	40	Metre			
14.6	3 C X 4 sq. mm. Cable	70	Metre			
14.7	4 C X 4 sq. mm. Cable	30	Metre			
<b>15.0</b>	<b>CABLE TRAYS</b>					
	Supply & installation of following sizes of perforated MS cable trays including horizontal & vertical bends, reducers, tees, cross members and other accessories as required and duly supported from the ceiling/wall/floor with MS suspenders/supports and including painting etc. as required					

ITEM NO 1	DESCRIPTION OF ITEM 2	Qty.	UNIT 4	RATE IN FIGURES (₹) 5	RATE IN WORDS (₹) 6	AMOUNT (₹) 7
15.1	100 mm widthx50 mm deep x1.6 mmthickness	50	Metre			
<b>16.0</b>	<b>EARTHING</b>					
16.1	Earth pits with GI earth plate of size 600mmx600mmx6mm thick including all accessories , down watering GI pipes 40mm dia and providing masonry enclosure with cover plate having interlocking arrangement and watering pipe etc. with charcoal of or coke and salt) complete as required	1	Set			
16.2	Providing & fixing GI earth strip 40mm x 6mm on surface or in recess for earth connections etc. as required	50	Metre			
16.3	Providing and fixing GI earth strip on walls/ trenches complete as per specifications and as required.					
16.3.1	38mmx 6mm	20	Metre			
16.3.2	25mm x 3mm	10	Metre			
16.4	Providing and fixing earth wire of complete as per specifications as required.					
16.4.1	6 SWG wire	25	Metre			
16.4.2	8 SWG wire	25	Metre			
<b>17.0</b>	<b>CONTROL CABLING</b>					

ITEM NO 1	DESCRIPTION OF ITEM 2	Qty.	UNIT 4	RATE IN FIGURES (₹) 5	RATE IN WORDS (₹) 6	AMOUNT (₹) 7
	Supply, laying, effecting proper connections, testing & commissioning of 1.5 sq.mm. PVC insulated copper multicore cables from AHU's and AC equipments to central control console					
17.1	19 core cable	25	Metre			
17.2	14 core cable	20	Metre			
17.3	10 core cable	80	Metre			
17.4	6 core cable	40	Metre			
17.5	4 core cable	40	Metre			
	<b>Total for HVAC Works</b>					

## **SUMMARY SHEET - BOQ**

**Renovation of CCU at CN Centre at AIIMS, Ansari Nagar, New Delhi**

<b>Sl. No.</b>	<b>Works</b>	<b>Total Amount Quoted (in RS.)</b>
1.	Civil	
2.	PHE	
3.	Fire Fighting	
4.	Electrical	
5.	HVAC	
<b>Total (in Rs. figure)</b>		
<b>Total (in Rs. words)</b>		



END OF  
VOLUME-V