

**SCHEDULE OF QUANTITY FOR AIR CONDITIONING SYSTEM
AND ALLIED ELECTRICAL & CIVIL/ INTERIOR WORKS
AT NABARD REGIONAL OFFICE, BHOPAL**

Sr.No.	Description of item	Qty	Unit	Rate	Amount
A	HVAC WORKS				
1.0	SUPPLY, INSTALLATION, TESTING AND COMISSIONING OF FLOOR MOUNTED PACKAGE A.C. UNIT		NOS.		
	Aircooled type complete with the following components-				
	The average distance between indoor and outdoor units considered for Refrigerant piping & Cabling in standard Installation shall be upto 25 RMT.				
	Indoor evaporating unit comprising of cooling coils, insulated sand-witched drain tray, 20 Micron HDPE washable filters, blower, electrical junction box, hermetic / semi-hermetic scroll compressor/s, Microprocessor panel etc.				
	Outdoor condensing unit comprising of condenser coils, propeller / axial fans pressure switches / cutouts etc.				
	Necessary Refrigerant Gas and oil charge.				
	Inter-connected refrigerating piping of copper duly insulated with EXPANDED POLYETHYLENE SECTIONS				
	Complete electrical power wiring of Al. & control wiring of copper required from indoor and outdoor units. Earthing of the complete system with 8 G Copper Wire.				
	Electrical Panel will be complete with necessary starters, fuses, switches, timers, over-load relays, contactors, push button, and indicating lamps, single phasing PREVENTOR etc and ALSO WITH REMOTE CONTROL WITH CORDING.				
	The panel should have 1 No. potential free contactor to connect with central fire detection system. The panel should also have voltage scanner to ensure stabilized power input to the machine.				
	Complete clamping and saddling of cabling work and refrigerant piping, covered with P V C conduiting.				
	Mounting of Outdoor unit using on M.S. Stand as specified in item # 7using Serrated Rubber pads and nut bolts.				

Sr.No.	Description of item	Qty	Unit	Rate	Amount
a	16.50 TR	6			
b	11.00 TR	3			
c	8.25 TR	1			
2.0	G.I. Sheet Metal Duct Work As Per IS-655				
2.1	Supply/ Fabrication and Erection of G.I. Sheet Metal Rectangular Duct		MT ²		
a	0.63 MM (24G)	510			
b	0.80 MM (22G)	510			
c	1.00 MM (20G)	140			
d	1.20 MM (18G)	45			
2.2	Supply & Installation of Powder Coated Extruded Aluminium Linear Grilles Of Required Airflow Angles With Out VCD.	70	MT ²		
2.3	Supply & Installation of Al. Opposed Blade Grille Dampers.	15	MT ²		
2.4	Supply & Installation of Al. Powder Coated Diffuser With Al. Damper	0.5	MT ²		
2.5	Supply & Installation of Al. Powder Coated Diffuser WithOut Damper	0.5	MT ²		
2.6	Supply & Installation of G. I. Duct dampers	6	MT ²		
2.7	Supply & Installation of G. I. Fresh Air Dampers with Cowl Piece & Bird Screen	1.1	MT ²		
2.7.a	Supply & Installation of Fire Damper	4.5	MT ²		
2.7.b	Supply & Installation of Actuators for Fire Damper	7	NOS.		
2.7.c	Smoke Detector, Panel and Cabling for Fire damper	7	SETS		

Sr.No.	Description of item	Qty	Unit	Rate	Amount
3.0	Supply and Installation of Insulation Work				
3.1	The inner surface of the first 5 RMT of S. A.. Duct shall be accoustically insulated with rigid boards of fiberglass of density 48 Kg./Cu.M. and covered with 28 G perforated Aluminium sheets from the inside of the duct for following thickness:				
	12 MM	280	MT ²		
3.2	The supply air duct shall be insulated with factory packed Aluminium foil fiber glass of density 24 Kg. / Cu. M. for following thickness		MT ²		
	25 MM THK	1205			
3.3	Under deck Insulation With 50 MM Thk "TF" Quality Expanded Polystyrene.	235	MT ²		
3.4	False Ceiling Insulation with 50 mm thick fiberglass slab of 16 Kg. / Cu. M. density packed in Polythene Bags	5	MT ²		
3.5	AHU Room Acoustic Insulation with Rigid boards of 25 mm thick fiberglass of density 48 Kg./Cu.covered with 28G Aluminium Foil as per specifications	250	MT ²		
4.0	SUPPLY AND INSTALLATION OF EXTRA COPPER PIPING AND ELECTRICAL CABLING beyond specified length to connect indoor and outdoor units with insulation of formed section of expanded polythylene and earthing for following capacities-		RMT		
a	16.50 TR Package Unit	10			
b	11.00 TR Package Unit	10			
c	8.25 TR Package Unit	5			
5.0	Supply and Installation of Rigid PVC Drain Piping of 6 Kg./CM ² rating with expanded polyethylene sections /		RMT		
a	25 MM Dia	50			
b	40 MM Dia	50			
c	50 MM Dia	50			
6.0	Supply/ Fabrication and Erection of M. S. Angle structure for condensing unit duly anti corrosive primer painted as per requirement at site.	4000	KG		
	TOTAL FOR HVAC WORKS				
B	ELECTRICAL WORKS				
SECTION - 1.0 SUPPLY AND INSTALLATION OF ELECTRICAL PANELS					
1.1	Supply, Unloading at site, shifting to final location, assembling, leveling, grouting, erecting, testing and commissioning of following panels as per drawings. Any sort of fabrication work required for erection of panel at site shall be done by the contractor. The Contractor shall also check for all the loose joints and continuity of the panel. Any physical or technical defects envisaged by the contractor shall be brought to consultant's knowledge				
a	215KVAR APFCR PANEL as per SLD	1.00	NOS.		
	TOTAL OF SECTION 1.0				
SECTION - 2.0 CABLE TRAY					
2.1	Supply and Erecting of perforated type Hot dip G.I. cable tray of 16G of specific dimensions. The cable tray shall be hung from ceiling/ fixed to wall with necessary ceiling suspensors, tee, nuts, nuts etc, together with tees, bends etc. The tray shall be earthed.				
a	50 x 50 mm	75.00	RMT		
b	100 x 50 mm	200.00	RMT		

Sr.No.	Description of item	Qty	Unit	Rate	Amount
c	300 x 50 mm	50.00	RMT		
2.2	Supply, fabricating and installing of M.S. supports and other items. The fabricated items shall be coated with 2 coats of redoxide and then applied with 2 coats of enamel paint. Size of M.S. steel shall be as per details given by EIC/ Consultant. Rates shall included necessary hardware required for fixing.	200.00	KG		
	TOTAL OF SECTION 2.0				
	SECTION - 3.0 SUPPLY & INSTALLATION OF DISTRIBUTION BOARDS				
3.1	Supply, installation, testing and commissioning of Fabricated type Electrical Panel with 150A 4 pole MCCB,25KA as incomer and 6 nos 40A 4-pole MCB as outgoing fitted with Ammeter, Voltmeter, Indication Lamp as per Drawing	3.00	NOS.		
3.2	40A 4-pole MCB, 10 KA with enclosure and terminal boxes complete - for AC UNITS	3.00	NOS.		
	TOTAL OF SECTION 3.0				
	SECTION - 4.0 CABLES				
4.0	Supply and Laying of cables on cable trays, structural supports and cable supports provided, include unloading, shifting upto site. The scope includes clamping of cables by ready made G.I. spacers, saddles or clamps fabricated out of M.S. strip 3 mm thick, Treasing and Clamping of cable on cable tray, supply of all clamping materials and hardwares etc., providing cable tags made out of aluminium strip and 75x20mm in size with cable number and size punched on it. Cable tags shall be tied to cables at every 10 meter interval and at both the ends. All cables shall be of XLPE category as per specs.				
4.1	150 sq mm x 3.5 C AYFY cable (2 nos. of APFCR Panel Incomer)	20.00	RMT		
4.2	95 sq mm x 3.5 C AYFY cable - VTPNDB Incomer	75.00	RMT		
4.3	6 sq mm x 4C YWYcable - AC Units	160.00	RMT		
	TOTAL OF SECTION 4.0				
	SECTION - 5.0 CABLE TERMINATION				
5.0	Supplying & fixing compression type Brass glands & making joint with necessary AL. crimping socket of long neck type connecting the same to various equipment like section pillar, switch, starter, motor etc. for the following sizes:				
5.1	2 x 150 sq mm x 3.5 C AYFY cable (APFCR Panel Incomer)	4.00	NOS.		
5.2	95 sq mm x 3.5 C AYFY cable - 4-Pole DB Incomer	6.00	NOS.		
5.3	6 sq mm x 4C YWYcable - AC Units	22.00	NOS.		
	SUB-TOTAL OF SECTION 5.0				
	SECTION -6.0 EARTHING				
6.1	Providing earthing stations for equipment earthing as shown and specified in IS:3043 together with making earth pits of min 10 feet with alternate layers of salt and charcoal, earth chamber, CI lid cover, GI water pipe with funnel etc complete as per drawing				
A	with 450 x 450 x 3 mm Cu. Plate, salt, charcoal etc.	1.00	NO.		
6.2	Earth wire/ strips :				
	Supply and laying cu. earthing strips for interconnecting the earthing stations, panels, DB's etc. in built-up trenches, on walls/ceiling, buried in ground generally as specified and shown on drawings complete with :				
A	25 x 6 mm Cu. strips.	50.00	RMT		

Sr.No.	Description of item	Qty	Unit	Rate	Amount
B	25 x 3 mm Cu. strips.	50.00	RMT		
C	8 Gauge bare cu earth wire.	200.00	RMT		
6.3	Earth Link : 40mm x 6 mm earth link.	1.00	NO.		
6.4	Providing and laying of 100 mm dia 1.6 KG pressure PVC conduit with necessary accessories complete - for Earthing strip going to Panel Room	50.00	RMT		
	TOTAL OF SECTION 6.0				
	SECTION -7.0 POINT WIRING				
	Point wiring shall be done with supply, installation, testing and commissioning of HFFR category 2.5 sq mm x 2 + 2.50 sq mm x 1 nos wires from modular switches to light outlet in concealed manner including FRLS grade ISI PVC conduit of 25 mm diameter 1.6 - 2.0 mm thickness. Mains of 2.5 Sq.mm x 3 nos. wires from D.B. to switch board shall be part of point rate. SITC of switches, sockets, regulators, blank plates, front plates, switch board, PVC Conduit and accessories like bends, couplers, MS Fan Boxes, connectors, ferruling, junction boxes, zarri making and semi finishing etc. are part of the point rate. all wire ends shall be lugged properly and ferruled at both D.B. and S.B. end. All boxes shall be 1.6mm thick M.S. boxes zinc passivated for S.B.. All wire sizes unless specified below shall be as per specifications. For prewired light channel fixtures the point qty's shall be deducted at actuals.				
7.1	One light point controlled by one single way 6 A switch.	5	NOS.		
7.2	-do- as 7.1 but looped from above.	5	NOS.		
7.3	-do- as item 7.1 but two way point to be done with 2 nos 6A two way switches	20	NOS.		
7.4	-do- as 7.3 but looped from above.	20	NOS.		
7.5	One light point controlled by MCB directly. Cost of MCB shall be a part of the distribution board cost	20	NOS.		

Sr.No.	Description of item	Qty	Unit	Rate	Amount
7.6	-do- as 7.5 but looped from above.	50	NOS.		
7.7	2 x 2.5 sq mm + 1 x 1.5 sq mm FRLS copper flexible wires in and including 25 mm dia rigid PVC conduit of LHSFT grade with wall thickness of 2.0 mm	200.00	RMT		
7.8	Removing & Refixing of Existing Luminaries/ Ceiling Fans including the cost of necessary flexible conduits, suspension rods as per site requirement made out of 20mm Outer Dia M.S. Conduit, necessary cabling etc. to the extent necessary for the purpose of executing the HVAC works.	40.00	NOS.		
7.9	Removal & Depositing the Existing Luminaries/ Ceiling Fans to the extent necessary for the purpose of executing the HVAC works.	40.00	NOS.		
	TOTAL OF SECTION 7.0				
	SECTION -8.00 LIGHT FIXTURES:				
	Supply, Installation, testing & commissioning of standard light fittings and lighting accessories including lamp. The scope shall include, providing of all hardware such as nuts, anchor fastners, bolts, screws, cleats, clamps, PVC insulated wires / cables from junction box to light fixtures, ball and socket arrangement with J.B., suspension conduit pipe for drop for flouroscent fitting. The cost for supports(wire rope etc.) shall be included in the cost. Contractor shall use Aluminium blanking foils for fixtures whereby spilage of lights shall be visible through A.C. Duct. All fixtures shall be with high lumen output lamps of Phillips/ G.E./ Wipro/ Crompton Greaves/ Bajaj Electric. All Fixtures shall be of either Phillips/ Wipro/ Havells/ Crompton Greaves/ Bajaj Electric make. The cat nos for one of the brands i.e. Havells is specified as under :				
8.1	Recess mounting Mirror Optic Luminaire with P5 paralite louver for 2X18W FP-L. Ordering Code - LHCC25218311 for Havells make	150.00	NOS.		
	TOTAL OF SECTION 8.0				
	TOTAL FOR ELECTRICAL WORKS				

Sr.No.	Description of item	Qty	Unit	Rate	Amount
C	CIVIL/ INTERIOR WORKS				
1.00	Providing and fixing Gypsum False Ceiling	653.71	MT ²		
	<p>General: The filler, paper tapes, finishes and primers suitable for Gypsum plaster boards, shall be as per recommended practices of India Gypsum or equivalent. Framework grid and suspenders shall be fixed to avoid fouling with services such as ducting, sprinklers, electricals fixtures, etc. T.W. framing may be allowed in certain areas for the Gypsum Board ceiling with the approval of the Architects. Metal frame False Ceiling of 12.5mm thk. Gypsum Board including vertical drop panels.</p> <p>Providing and Fixing 12.5mm Thk. Gypsum board on metallic grid, conforming to IS: 2095: :1982. The metallic grid shall consists of the following components. GI Perimeter channels of size 27mm and 0.5mm thk. having one flange of 20mm and another flange of 30mm. GI Intermediate channel of size 45mm 0.5mm thk. With two flange of 15mm each at 1200mm centre to centre. GI Hanger of size 25mm X 25mm, 0.5mm thk. at 1200 mm centre to centre distance. GI Cleat and Steel Expansion Fasteners. Ceiling section of 0.5mm thickness having curled wedge of 51.5 mm and two flanges of 26mm each with lips of 10.5mm at 450mm center to center. Connecting clips & 12.5 mm dry wall screws at 230 mm center to center. Edge Read.</p>				
	The metallic grid shall be installed as follows. The perimeter channel along the perimeter of the ceiling, with screw fixed to brick wall / partition with the help of raw plugs and screws. The intermediate channels shall be suspended from the ceiling with steel GI hanger fixed to the slab soffit with GI cleat and steel expasation fastereners. The intermediate channels shall be at 1200 mm centre to centre distance. The ceiling section placed in a direction perpendicular to the intermediate channel at 450 mm C/C distance shall be fixed to the intermediate channel with the help of connecting clips and 12.5 mm dry wall screws at 230 mm centre to centre distance. Finally, the 12.5 mm thk.				
	Gypsum boards shall be fixed to the metal frames and the tapered/square edges of the boards shall be finished to a flush joint with requisites filler, paper tapes, finisher and primer suitable for Gypsum plaster boards, (as per recommendations of manufacturers, Indian Gypsum or equivalent). For light fittings, grills, diffusers, speakers, smoke detectors, sprinklers etc cut outs have to be made with provision of the frame along perimeter of the cut outs/ opening with channels/ ply to support the ceiling adequately.				

Sr.No.	Description of item	Qty	Unit	Rate	Amount
2.00	Dismantling of existing Al-Glazed Partition (glass, jallis and horizontal aluminum members), including careful removing and stacking of glass. Vertical support members and portion of partition not affecting the total scope of work shall left undisturbed and protected from damage. The item is inclusive of all fittings, fixtures and hardware; tools and tackles; centering & shuttering, etc. required to complete the work to the satisfaction of the Engineer in-charge.	63.81	MT ²		
3.00	Providing & fixing additional Al-member of size and finish equal & equivalent to that of the existing partition system & fixing it to the desired location (centre of member shall be at the level of bottom of finished false ceiling). Only approved SS screws, aluminum angles, support blocks etc. shall be used for fixing of members. The item is inclusive of all fittings, fixtures and hardware; tools and tackles; centering & shuttering, etc. required to complete the work to the satisfaction of the Engineer in-charge.	47.44	RMT		
4.00	Re-moduling of existing glass to fit to renewed division including cutting of glass to required sizes, polishing of edges etc. complete. Glass shall be fixed using proper rubber beadings and gaskets to suit to existing system. The item is inclusive of all fittings, fixtures and hardware; tools and tackles; centering & shuttering, etc. required to complete the work to the satisfaction of the Engineer in-charge.	63.81	RMT		
5.00	Providing & fixing Gyp-Board panelling in portion above false ceiling inclusive of making and finishing of openings for AC grills, diffusers & ducting. The gypboard shall be fixed to aluminum frame sections of partition using ss screws. 1mm rubber gasketing shall be provided between the gypboard and al-member to avoid rattling sound due to vibrations. 100mm rock-wool (with single side pre-stick aluminum foil) compressed to 50mm shall be provided and fixed with in the partition system before fixing of gyp-board. The item is inclusive of all fittings, fixtures and hardware; tools and tackles; centering & shuttering, etc. required to complete the work to the satisfaction of the Engineer in-charge.	42.46	MT ²		
6.00	Providing & fixing aluminum glazed & composite partition inclusive of Aluminum member, gyp-board and glass of size & thickness and finish equal & equivalent to that of the existing partition system. Inclusive of fixing it to the desired location as may be directed by the Engineer-in-charge. Only approved SS screws, aluminum angles, support blocks etc. shall be used for fixing of members. The partition is divided into 3 sections: 2250mm of glazed partition, 450mm of glazed partition & 1050mm of gyp board partition. The item is inclusive of all fittings, fixtures and hardware; tools and tackles; centering & shuttering, etc. required to complete the work to the satisfaction of the Engineer in-charge.	19.39	MT ²		
7.00	Providing & fixing aluminum glazed door (in the above system vide item no.6) of size 1000mmx2250mm with glass of size & thickness and finish equal & equivalent to that of the existing door system. Inclusive of fixing it to the desired location as may be directed by the Engineer-in-charge. Only approved SS screws, aluminum angles, support blocks etc. shall be used for fixing of members. The item is inclusive of all fittings, fixtures and hardware; tools and tackles; centering & shuttering, etc. required to complete the work to the satisfaction of the Engineer in-charge.	2.00	NOS.		
8.00	Providing and constructing 150mm thick brick walls at all locations and at all heights in cement mortar 1:4, including RCC patli 150 mm thick with nominal reinforcement after every 1600 mm height in foundation/ superstructure including striking joints, raking out joints, watering and scaffolding etc. complete. Bricks shall be first class Burnt Brick Masonry including striking joints, raking out joints, watering curing etc. complete. The item includes making and braking of openings for passage of services and AC ducts by providing adequate lintels and support structure to cater to such openings. All brick work shall be in line level and plumb. The item is inclusive of all fittings, fixtures and hardware; tools and tackles; centering & shuttering, etc. required to complete the work to the satisfaction of the Engineer in-charge.	49.35	MT ²		

Sr.No.	Description of item	Qty	Unit	Rate	Amount
9.00	Providing & applying cement plaster 12mm thick in single coat in cement mortar 1:4, in line, level and plumb, to receive pop finish in all location including providing and fixing GI chicken mesh (24 gauge) at junction of RC members and masonry wall, scaffolding, curing, GI corner gaurds, joinery gaurds, racking / chisseling of concrete surface to maintain line and level, etc. complete. 6mm deep groove shall be provided at skirting level. The item is inclusive of all fittings, fixtures and hardware; tools and tackles; centering & shuttering, etc. required to complete the work to the satisfaction of the Engineer in-charge.	98.70	MT ²		

Sr.No.	Description of item	Qty	Unit	Rate	Amount
10.00	Providing and applying two coats of approved brand of Oil bond Distemper paint including 1 coat of putty and primer in absolute line level & plumb required for application of paint; cleaning of surface before painting and removing of any dirt or foreign material on the surface of application so as to make it ready to receive the application to its true intent as specified by the manufacturer and to the satisfaction of the project manager. The application shall be on false ceiling vide item 1, plastered surface vide item 9 above and on gyp-board exposed surface vide item 5 above. Color shall be as may be selected by the Engineer-in-charge. The item is inclusive of all fittings, fixtures and hardware; tools and tackles; centering & shuttering, etc. required to complete the work to the satisfaction of the Engineer in-charge.	801.56	MT ²		
11.00	Breaking & making of existing masonry walls to create openings as mentioned below incl finishing of opening by 12mm plaster (vide item 9 above) and painting of surface (vide item 10 above). The openings mentioned below are finished sizes after plaster. The item is inclusive of all fittings, fixtures and hardware; tools and tackles; centering & shuttering, etc. required to complete the work to the satisfaction of the Engineer in-charge.				
a	750x450mm	6.00	NOS.		
b	450x150mm	6.00	NOS.		
12.00	Providing and fixing openable window panels.	2.03	MT ²		
13.00	Providing & fixing 35mm flush door finished with 1mm laminate both sides (inside white and outside to the choice of client to match with the existing interior scheme) including CP teak wood frame pre-fitted with holdfasts and bitumen coated on the masonry interface side, for AHU room incl of all necessary fittings & hardware. Masonry opening size 1200x2250mm. The item is inclusive of all fittings, fixtures and hardware; tools and tackles; centering & shuttering, etc. required to complete the work to the satisfaction of the Engineer in-charge.	3.00	NOS.		
14.00	Dismantling of existing modular false ceiling & refixing of the same including grills etc. complete. The dismantled ceiling tiles shall be stacked properly and secured of any loss and/or damage. The contractor shall be liable for replacement of any such loss/damage of ceiling tile at his own cost. The item is inclusive of all fittings, fixtures and hardware; tools and tackles; centering & shuttering, etc. required to complete the work to the satisfaction of the Engineer in-charge.	72.68	MT ²		

Sr.No.	Description of item	Qty	Unit	Rate	Amount
15.00	Providing & fixing trap door of opening size 1300x1600mm, in gypsum false ceiling at location as may be indicated in the drawing and confirmed by the engineer in-charge. The trap door shall be provided with CP teak wood frame work suspended independantly from the ceiling using fixity through anchor fastners. The shutter shall be made of 25mm thick marine ply with 1 mm thick laminate on the bottom side, and shall be fitted with Allen lock&key arrangement. The item is inclusive of all fittings, fixtures and hardware; tools and tackles; centering & shuttering, etc. required to complete the work to the satisfaction of the Engineer in-charge.	1.00	NOS.		
	TOTAL FOR CIVIL/ INTERIOR WORKS				
	GRAND TOTAL (i.e. HVAC+ ELECTRICAL + CIVIL/ INTERIOR WORKS)				