

## CONSTRUCTION OF MCH BLOCK AT TALUK HOSPITAL, KODUNGALLUR

### PART III - HVAC SYSTEM

Item No	Description of items	Unit	Qty	Rate Rs (In Figures & words)	Amount Rs
<b>PART A</b>	<b>MACHINERY</b>				
1	Supply, installation, testing and commissioning (SITC) of 8.5 TR capacity aircooled Outdoor condensing unit with scroll compressor as per specifications complete with suitable capacity drive motor, air cooled condenser with all accessories, hermetically sealed scroll compressor, electronic microprocessor pendant controller with digital display, first charge R 22 refrigerant gas, vibration isolator pads and safety devices like thermal protector, pressure relief valve, over load relays single phase preventor, high-low pressure cut out, suitable for three phase 440V supply.	Each	1		
2	Supply, installation, testing and commissioning of suitable hard drawn copper refrigerant piping for 8.5TR machine with 13 mm nitrile rubber insulation interconnecting the condensing unit to evaporating unit for packaged units as per site condition	Rm	16		

3	SITC of DX type double skinned air handling units, ceiling suspended/floor mounting type 8.5 TR, 1500 lps capacity complete with suitable DIDW blower (asper approved make), blower section, static pressure of 80mm of water column, built in pre filter(EU4), fine filter(EU7) 95% efficiency down to 5 microns and controls connected to condensing units, insulated SS drain pan, 6 row cooling coil, electric motor, direct driven package with TEFC motor class 'B' insulation, suitable for 3 phase, 415 V, 50Hz supply, suitable AHU panel & cabling, AHU temp & speed control panel, ARI certified, with 0.8mm double skinned 40mm thick PUF panel, belt guards, suitable supports for suspending from slab, vibration isolator, etc. conforming to specifications. The air handling units shall have 1 inlet refrigerant coils and 1 outlet refrigerant coils suitable for 1 numbers of 8.5 TR capacity ODU and shall conform to specifications.	Each	1		
4	Supply, installation, testing and commissioning (SITC) of 5.5 TR capacity aircooled ductable unit with outdoor condensing unit with scroll compressor as per specifications complete with suitable capacity drive motor, air cooled condenser with all accessories, hermetically sealed scroll compressor, indoor evaporative unit with suitable static fan, copper cooling coils, its connctions, insulated drain pan and pipe connections, electronic microprocessor pendant controller with digital display, first charge R 22 refrigerant gas, vibration isolator pads and saftey devices like thermal protector, pressure relief valve, over load relays single phase preventor, high-low pressure cut out, suitable for three phase 440V supply.	Each	2		
5	Supply, installation, testing and commissioning of suitable hard drawn copper refrigerant piping for 5.5TR machine with 13 mm nitrile rubber insulation interconnecting the condensing unit to evaporating unit for packaged units as per site condition	Rm	52		

6	Supply, installation, testing and commissioning of Air Cooled High Wall mounted Split Air Conditioner of following capacity consisting of high wall mounted type room unit (fan coil) with cordless remote control and one number outdoor condensing unit comprising of energy efficient suitable rotary compressor for operation on single phase, 230 V, 50Hz supply, fixing the outdoor unit on a raised platform as per manufacturers recommendation and fixing of room (fan coil) unit on wall, standard 4 m distance refrigerant copper piping with 13mm nitrile rubber insulation, providing and making interconnection between room & condenser as per site conditions, comprising of 1" dia drain PVC pipe with insulation 4m, canvas connections, full electrical cabling from power plug near indoor unit and to outdoor unit, ODU MS stand, first charge refrigerant gas, suitable stabilizer etc complete as required.				
a	1.5 TR 5 star rated as per BEE	Each	6		
b	1.0 TR 5 star rated as per BEE	Each	2		
7	Supply, Laying and Fixing of suitable rated Aluminium conductor cable conforming to IS 7098 (Part 1) amended upto date with brass compression glands on surface/ cable tray/ wall / build in trench etc as required from the Indoor to outdoor units of all units for power & control wiring.	Rm	22		
8	Supply, installation, testing and commissioning PVC drain pipe of 25mm dia ISI marked, connecting the drain lines from the indoor units to floor sump, with 9mm nitrile rubber insulation as per specification	Rm	20		

<b>PART B</b>	<b>AIR DISTRIBUTION</b>				
9	Supply, installation balancing and commissioning of factory fabricated Aluminium sheet metal ducts rectangular/round ducting complete with neoprene rubber gaskets, elbows, splitter, dampers, vanes, hangers, supports etc as per approved drawings & specification of following sheet thickness				
a	Thickness 0.80 mm sheet	Sqm	115		
b	Thickness 1.0 mm sheet	Sqm	25		
c	Thickness 1.2 mm sheet	Sqm	5		
10	SITC of External thermal insulation on supply air ducts using min 12mm thick nitrile rubber class "O" closed cell type with antimicrobial protection and with aluminum foil as per specifications	Sqm	98		
11	Supply, installation, testing and commissioning of Acoustic duct lining using 10mm nitrile rubber insulation open cell type inside the ducts, antimicrobial protection at the outlets of all indoor units upto 4m distance from fan outlet as per spec provided.	Sqm	25		
12	SITC of underdeck insulation using min 19mm thick nitrile rubber class "O" closed cell type with suitable adhesive GI wire netting at 0.6m spacing using screws as per specifications	Sqm	121		

13	Supply, fabrication, installation, testing of flexible connections made out of fire resistant flexible double canvas sleeve.	Each	2		
14	Supply, installation, testing and commissioning of Powder coated extruded aluminium Continuous grilles 16mm frame, 0-15deg deflection for supply / return air 150/100mm wide as per spec	Sqm	3		
15	SITC of Fresh air GI louvers of size 350x350 mm with wire mesh and birds screen for IDUs/AHUs as per specifications.	Each	2		
16	Supply and fixing of Terminal HEPA Filters having filtering efficiency of 99.7% down to 0.3 microns with aluminum frame works, suitable for fixing in the Supply air plenum boxes of following size and capacity 350 lps				
	450 x 450 x305	Each	4		
17	SITC of Plenum box made of 18G Aluminium sheet with frame work for fixing HEPA filters at terminals and provision of access door for removing the HEPA Filters for cleaning and replcaement .The size shall be to suit				
	450 x 450 x305 mm	Each	4		

18	Supply installation testing and balancing of Laminar flow Diffuser perforated, front face openable hinged type and with key operated damper from front made of 18G Aluminium sheet completely powder coated for supply and return air grilles in accordance with the approved shop drawings size 450 x 450 mm	Sqm	1		
19	Supply, installation, testing and commissioning of Inline Centrifugal duct fan with dynamically balanced impeller of 500cfm capacity, min 10 mm static , complete with GI box, with single phase direct driven motor with class B, IP44 protection with an internal automatic safety thermal overload protection, dynamically balanced impeller of following capacity, with an operating sound level of less than 55dB at 3 m distance.	Each	2		
<b>PART C AIR DISTRIBUTION</b>					
20	Supply, installation balancing and commissioning of site fabricated GSS sheet metal ducts rectangular/round ducting complete with neoprene rubber gaskets, elbows, splitter, dampers, vanes, hangers, supports etc as per approved drawings & specification of following sheet thickness				
a	Thickness 0.63 mm sheet	Sqm	60		
b	Thickness 0.80 mm sheet	Sqm	5		

21	Supplying, Fixing,testing and commissioning of fire dampers in supply air duct/main branch and return air path as and where required of required sizes i/c control wiring,the damper shall be motorized and spring return so as to close the damper in the event of power failure automatically and open the same in case of power being restored. The spring return action shall be inbuilt mechanism and not externally mounted. The damper shall also be closed in the event of fire signal complete as required and as per specifications.				
a	Damper	Sqm	2		
b	Actuator	Each	4		
22	Supply, Installation, Testing and Commissioning of GI Volume Control Dampers complete with neoprene rubber gaskets,nuts,bolts,screw linkages,flanges etc. as per specifications.	Sqm	2		
23	Supply,fixing, testing & commissioning supply air diffusers of powder coated aluminium with volume control dampers with anti smudge ring & removal core.	Sqm	1		
24	Supply,fixing, testing & commissioning Return air diffusers of powder coated aluminium with volume control dampers with anti smudge ring & removal core.	Sqm	1		
	<b>PART III - TOTAL</b>				