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**PRICE BID  
(PART - 2)**

Tender document for Air-Conditioning works towards Supply, Installation, Testing & Commissioning of 84HP (fully Inverter Type) along with associated works as replacement of existing AC System at IMAGE Campus, M R C Nagar, Chennai.

**ISSUED TO**

M/s. \_\_\_\_\_

This document contains 11 pages



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Sl.No	Description of Item	Qty	Unit	SUPPLY (Rs)		INSTALLATION (Rs)		TOTAL (Supply+Installation) (Rs)
				Rate	Amount	Rate	Amount	
1	Supply, Installation, Testing and Commissioning of modular type outdoor units equipped with highly efficient DC twin rotary / inverter scroll compressors, special acrylic precoated heat exchanger, low noise & high efficiency condenser fan, auto check function for connection error, auto address setting, <b>multi compressors in ODU with fully inverter type for better efficiency</b> , suitable to connect multiple indoor units, suction/liquid line tapping provision, interconnecting all internal refrigerant lines, single point of power input and Refrigerant shall be R-410a eco friendly. The quoted price shall be inclusive of initial gas charging, factory pressure testing, leak testing, including cartage etc. as required. The COP should be minimum 5.40 at 50% part load under normal operating conditions.							
a	Outdoor Unit ( ODU ) of 24 HP cooling capacity ( <b>fully inverter type</b> ) with suitable electrical & refrigerant line interconnections, With Minimum 2 Inverter Compressors with two fans for better efficiency initial charge of refrigerant R 410 A and ready for use with single point electrical supply & refrigerant suction / liquid line tapping, etc complete as required.							
	ODU shall be mounted on suitable Brick pedestal duly plastered and painted with emulsion paint (Asian / Nippon / Dulux) on the surface as required.	1	No					
b	Outdoor Unit ( ODU ) of 16 HP cooling capacity ( <b>fully inverter type</b> ) with suitable electrical & refrigerant line interconnections, With Minimum 2 Inverter Compressors with High efficiency fan with initial charge of refrigerant R 410 A and ready for use with single point electrical supply & refrigerant suction / liquid line tapping, etc complete as required.							



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	ODU shall be mounted on suitable Brick pedestal duly plastered and painted with emulsion paint (Aston / Nippon / Dulux) on the surface as required.	2	Nos					
c	Outdoor Unit ( ODU ) of 14 HPcooling capacity (fully inverter type) with suitable electrical & refrigerant line interconnections, With Inverter Compressors with High efficiency fan with initial charge of refrigerant R 410 A and ready for use with single point electrical supply & refrigerant suction / liquid line tapping, etc complete as required.							
	ODU shall be mounted on suitable Brick pedestal duly plastered and painted with emulsion paint (Aston / Nippon / Dulux) on the surface as required.	2	Nos					
	Approved Makes for 1 (a) (b) & (c) : Voltas / Blue Star /Carrier/ O GENERAL / DAIKIN / TOSHIBA / MITSUBISHI ELECTRIC/HITACHI							
2	Supply, Installation, Testing and Commissioning of Ceiling Mounted CSU/Standard indoor unit with DX-cooling coil, electronic expansion valve, wired remote, fan and motor. The fan shall be designed for silent operation. Fan and motor shall be statically & dynamically balanced. The quoted price shall be inclusive of along with AHU controller kit, prefilter (10 micron) etc. complete as required. CSU/Standard capacity shall be 8.0 TR, 3200 CFM @ 25mm ESP.(External Static Pr)	8	Nos					
	Approved Makes : Voltas / Luftek / Carrier / Zeco / Edgetech / VTS / HITACHI							
3	Supply and fixing of Variable refrigerant flow distribution REFNUITS in the suction & Liquid lines for various sizes of copper refrigerant piping with suitable insulation including testing, commissioning etc complete as required.	8	Nos					

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Sl.No	Description of Item	Qty	Unit	SUPPLY (Rs)		INSTALLATION (Rs)		TOTAL (Supply+Installation) (Rs)
				Rate	Amount	Rate	Amount	
4	Supply and Installation of hard/soft drawn copper refrigerant pipe made out of 18 G including accessories by brazing etc. (Strictly long bends need to be used for all 90° elbows to avoid pressure drop) All refrigerant pipes shall be duly insulated with Class-O nitrile tubular rubber sections to prevent condensation. The quoted price shall be inclusive of suitable size of ring type hanger supports etc. complete as required. <b>Pipe sizes mentioned below are indicative, vendor need to check with manufacturer pipe size and quote accordingly.</b>							
	<b>Approved Makes : Rajco / Mandev / Totaline / Nippon/ Mexflow</b>							
a	34.92 mm dia copper tube (thickness 1.22mm)with 19 mm thick insulation	95	Mtrs					
b	28.58 mm copper tube (thickness 1.22mm) with 19 mm thick insulation	22	Mtrs					
c	22.22 mm copper tube (thickness 1.22mm) with 19/13 mm thick insulation	32	Mtrs					
d	19.05 mm copper tube (thickness 1.14mm) with 19/13 mm thick insulation	95	Mtrs					
e	15.88 mm copper tube (thickness 1.02mm) with 19/13 mm thick insulation	22	Mtrs					
f	12.70 mm copper tube (thickness 0.91mm) with 19/13 mm thick insulation	32	Mtrs					



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Sl.No	Description of Item	Qty	Unit	SUPPLY (Rs)		INSTALLATION (Rs)		TOTAL (Supply+Installation) (Rs)
				Rate	Amount	Rate	Amount	
5	Supply and Installation of $\Phi$ 32 mm insulated rigid PVC pipe with all necessary fittings like elbows, Tees, expansion, reducers clamps etc. as required. The quoted price shall be inclusive of 6mm thick nitrile rubber tubular insulation. Condensate drain pipe shall be provided from IDU's to nearest existing floor drain. Vendor need to inspect along with IMAGE maintenance team for proper water flow in the existing drainage system and then connect proposed condensate drain pipe to existing floor drain network. Approved Makes : Supreme / Finolex / Astral	45	Mtrs					
6	Brazing and pressure testing with N <sub>2</sub> ,O <sub>2</sub> ,Vaccumizing, Testing & Commissioning as recommended by Manufacturer / (SITC) / The quoted price shall be inclusive of supply of Nitrogen pressure holding, Leak test, Vaccumizing the system etc., to complete the job (a) for 24HP (b) for 16HP (c) for 14 HP	1	No					
7	Charging of Additional refrigerant gas R-410a. For all the outdoor units viz., 24HP / 16hp / 14HP. The quoted price shall be inclusive of supply etc.,	165	kg					



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SL.No	Description of Item	Qty	Unit	SUPPLY (Rs)		INSTALLATION (Rs)		TOTAL (Supply+Installation) (Rs)
				Rate	Amount	Rate	Amount	
8	<b>Air distribution Systems:</b> Supply and Installation of site fabricated rectangular sheet metal GSS ducts made out of 22G complete with necessary flanges, rubber gaskets, GI bolts & nuts, supports by using threaded rod, slotted angle and anchor fasteners, vanes, splitters etc. complete as required as per site condition. The quoted price shall inclusive of applying sealant on all duct joints. <b>Approved Makes : JSW / Tata</b>	70	Sqm					
9	Supply and Installation of Fire Retardant synthetic proof double canvass with ZIP provision for inspection, canvass shall be connected in between indoor fan outlets and ducts etc. complete as required. <b>Approved Makes : JSW / Tata</b>	8	Nos					
10	Acoustic : Supply and Installation of 10 mm thick open cell class 1 rated nitrile rubber insulation having density of 140-180 Kg/m <sup>3</sup> stucked inside the duct surface with suitable adhesive and masking tape etc complete as required. (Adhesive shall be used with VOC level not exceeding 50 gms/Litre) <b>Approved Makes : Armacell / Kflex / Aflex</b>	50	Sqm					
11	Supply, Installation, Testing and Commissioning of Fusible link UL555S listed fire dampers made out of 16G GSS and 400 mm long, GSS sleeves suitable for 120 min fire rating complete with handle. UL555S should be stamped on fusible link required spring and required necessary accessories etc. as required to install the damper. Size of the damper shall be as per site condition. <b>Approved Makes : Air master / system air / Cosmic</b>	6	Sqm					
12	Supply, Installation, Testing and Commissioning of GI volume control damper complete with neoprene rubber gaskets, nuts, bolts, screws linkages, flanges etc, as per specifications. <b>Approved Makes : Air master / system air / Cosmic</b>	4	Sqm					



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Sl.No	Description of Item	Qty	Unit	SUPPLY (Rs)		INSTALLATION (Rs)		TOTAL (Supply+Installation) (Rs)
				Rate	Amount	Rate	Amount	
13	Cleaning of existing AC ducts and grills for 2 Nos. x 24 TR and 1 No. x 18 TR using calibrated robotic cleaning method, vendor need to submit calibrated certificated before proceeding to work. The quoted price shall inclusive to submit recorded video or photo snap with date and time before cleaning and after cleaned ducts.	1	Lot					
14	Closing of excess openings after installation of ducts & dampers on AHU room walls to making good with rough plastering on AHU room side wall.	10	Sqm					
	<b>ELECTRICAL WORKS</b>							
15	Supply and Installation of 2Cx1.5 Sqmm. FRLS PVC insulated flexible unarmoured copper conductor cable of 650 Volts grade for Control/Communication in existing conduit pipe/surface etc complete as required (Between Indoor & Outdoor Units and for remote control units)	225	Mtrs					
16	<b>Approved Makes : Polycab / Finolex / Poly cab</b> <b>COPPER POWER CABLE</b>							
	Supply and laying of following sizes of FRLS PVC insulated following copper conductor cable of 1100 Volts grade for power connections in existing surface /pipe, etc complete as required from PANEL BOARD to ODU Isolator and ODU Isolator to ODU.							
a	3core X 4 sq. mm power cable for IDUs	30	Mtrs					
b	4core X 16 sq. mm power cable for ODUs	130	Mtrs					
17	<b>ALUMINIUM POWER CABLE &amp; TERMINATION</b>							



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Sl.No	Description of Item	Qty	Unit	SUPPLY (Rs)		INSTALLATION (Rs)		TOTAL (Supply+Installation) (Rs)
				Rate	Amount	Rate	Amount	
a	Supply and laying of 3.5core x 185sq.mm XLPE insulated and PVC sheathed armored aluminium conductor power cable of 1.1 KV grade conforming to IS 7098 (Part 1) 1988 with upto date ammonument as required Cost include all Clamps, screws, junctions, clippings, Cutting, plastering and concealed or open in manner slab/wall and etc.	50	RM					
b	Supplying and making end termination with brass compression gland and aluminium lugs for 3.5 core x 185 Sq.mm XLPE insulated and PVC sheathed ,aluminium conductor cable of 1.1 KV grade as required.	2	NOS					
	<b>Approved Makes : Poly cab/Finolex /RR kabel</b>							
18	Supply and Installation of suitable TPN MCB with weather proof casing near VRF outdoor units. <b>Approved Makes: L&amp;T, Schneider, Legrand, hager / ABB/Siemens</b>	5	Nos					
19	Supply and Installation of suitable starters for Ceiling Mounted CSU indoor unit.	8	Nos					
20	Supply, installation, testing and commissioning of weather proof outdoor cubicle type panel board made out of 2mm thick CRCA sheet totally enclosed dust and vermin proof and suitable for fixing the switch gears, accessories including 3 phase 415 volts 4 wire, 50 Hz AC supply with 4 strips aluminium busbars of suitable capacity with the following incoming and outgoing switch gears complete with terminating arrangements with lugs including connections, interconnections duly powder coated, MV danger notice plate, earthing and commissioning etc as required.	1	No					





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Sl.No	Description of Item	Qty	Unit	SUPPLY (Rs)		INSTALLATION (Rs)		TOTAL (Supply+Installation) (Rs)
				Rate	Amount	Rate	Amount	
	<p><b>Incoming:</b>                      (a) 250A, 36KA, TM 4pole MCCB with Rotary handle-1No Ics = Icu                      (b) Multifunction meter with RYB LED indication lamps - 1set                      (c) Aluminium Bus bar of 300A capacity  <b>Outgoing:</b>                      (a) 40A, 25 KA, TM 4pole MCCB with Rotary handle-6 Nos Ics = Icu                      (b) 25A, 25 KA, TM 4Pole MCCB with Rotary handle-4 Nos Ics = Icu</p> <p><b>Approved Makes: Panel Local fabrication/test certificate to be produced; MCCB/MCB: L&amp;T, Schneider, Legrand, hager / ABB/Siemens</b></p>							
<b>21</b>	<b>EARTHING</b>							
<b>a</b>	Earthing with GI earth plate 600mm x 600mm x 6mm thick including accessories, and providing masonry enclosure with cover plate (CI) having locking arrangement and 40MM DIA B Class watering pipe of 3Mts long etc. with charcoal or coke and salt as required and to connect to connect 25 X 6 MM GI Flat.	2	Set					
<b>b</b>	Supply and Laying of No.8SWG copper wire from Earth pit to switch Board. Cost include all bends, clamps, screws, junctions, clippings, wire conduits and concealed or open in manner slab/wall/partitions and etc. Complete as per instructions of the Architect.	150	RM					
<b>c</b>	Supply and Laying of 25x 6 mm for switch Board. Cost include all bends, clamps, screws, junctions, clippings, wire conduits and concealed or open in manner slab/wall/partitions and etc. Complete as per instructions of the Architect.	150	RM					
<b>22</b>	<b>Dismantle of existing Air-conditioning equipments from IMAGE auditorium block, college block and service area to ground floor/store room are mentioned below including transportation etc., and to make the site clean after removal of existing AC facility:-</b>							



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Sl.No	Description of Item	Qty	Unit	SUPPLY (Rs)		INSTALLATION (Rs)		TOTAL (Supply+Installation) (Rs)
				Rate	Amount	Rate	Amount	
	a) Compressor and Evaporator and accessories.	4	Nos.					
	b) Air cooled condenser and accessories.	4	Nos.					
	c) Chilled water pumps and accessories.	3	Nos.					
	d) Floor mounted AHU's and accessories.	11	Nos.					
	e) Insulated M.S pipes, Valves, supports and accessories.	1	Lot					
	f) Ducts, dampers and accessories inside the AHU Rooms.	1	Lot					
<b>23</b>	<b>Anti-corrosive paint for Copper pipes and outdoor units</b>	<b>298</b>	<b>Mts</b>					
	Anti-corrosive paint for Copper pipes							
	Anti-corrosive paint for Outdoor units - 24HP	1	No					
	Anti-corrosive paint for Outdoor units - 16HP	1	No					
	Anti-corrosive paint for Outdoor units - 14HP	1	No					



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Sl.No	Description of Item	Qty	Unit	SUPPLY (Rs)		INSTALLATION (Rs)		TOTAL (Supply+Installation) (Rs)
				Rate	Amount	Rate	Amount	
24	Civil works on account of dismantling of AC units ( but not limited to the items in Sl.No. 24 ) viz., plastering of broken area, removal of debris from the site / disposing of the same outside the IMAGE campus complying to the local laws etc., and rectification civil & carpentry works / painting / transportation etc.,	1	Job					
<b>A</b>	<b>TOTAL VALUE OF AC WORKS (EXCLUDING BUYBACK)</b>							
25	Buyback of existing Air-conditioning equipments (approx) from IMAGE campus as scrap are mentioned below (Including GST). Bidders shall visit site and take the details of the same							
	a) Compressor and Evaporator and accessories.	4	Nos.					
	b) Air cooled condenser and accessories.	4	Nos.					
	c) Chilled water pumps and accessories.	3	Nos.					
	d) Floor mounted AHU's and accessories.	11	Nos.					
	e) Insulated M.S pipes, Valves, supports and accessories.	1	Lot					
	f) Ducts, dampers and accessories inside the AHU Rooms.	1	Lot					
<b>B</b>	<b>Buy back items total</b>							



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<b>C</b>	<b>TOTAL COST OF THE AC WORKS EXCLUDING GST</b> (Including Buyback) (C) = A-B**								
<b>D</b>	<b>GST .....</b> %								
<b>E</b>	<b>GST.....</b> %								
<b>F</b>	<b>GRAND TOTAL WITH BUYBACK AND INCLUSIVE OF GST (F) =</b> (C + D +E)								

\*\*WILL BE CONSIDERED FOR ARRIVING L1

**Total Amount in words**

(Rupees..... Only)

**Date:**

**Authorized Signature with Seal**

