Client:	**BIO - INCUBATOR ,DEPT OF BIO TECH , IIT ,Madras.**
Project:	**PROPOSED INTERIORS FOR BIO - INCUBATOR @ IITMRP & IIT ,Madras.**
Location:	**3rd FLOOR @ IITMRP .**
B.O.Q	**B.O.Q FOR COLD ROOM WORKS**
Architects:	**VARSHA & PRADEEP ARCHITECTS**

	NOTES:
1	**The temperature settings shall be 2-8 deg C and RH 55-60%**
2	**Rate to include supply and laying of insultation below the floor including coordination with civil and interior contractor for the flooring**
3	**Cement flooring and epoxy coating on flooring shall be done by other contractor.**

S.NO	Description	Qty	Unit	Unit Rate	Total Amount
1	**MODULAR WALK IN COLD COLD ROOM - SIZE - as detailed below**: The cold storage facility shall have a walk-in storage room and to be cooled with single cooling unit. The facility shall have microprocessor based control system located at one place. The cold storage should be of robust design, easy in operation and trouble free service. The cold storage facility should be able to work continuously at the ambient temperature and humidity at preset temperature. The cold storage should be fitted with suitable door for easy entry/exit of store personnel. The door should be provided with lock. Entire cold room facility shall be as per specification. Room Size (External) - 2.8(D) x 1.8 (W) x 3.0 (H) m.	1	SET		
	The various components that shall be included in the costs are as follows				
a	**PRE-FABRICATED MODULAR COLD ROOM PANELS** : Pre-fabricated panels with 0.6 MM interior and exterior 0.5 MM thick pre-painted GI sheets precisely formed with steel dies and rollform equipment, confirming to I.S.12346. The panels “foamed-in-place” with CFC free RPUF with a 97% closed cell structure should not have internal wood, metal or high-density urethane structural members. All joints should be airtight and vapor proof, with all panel edges having a tongue and groove edge of the same density as the rest of the panels. Panels to lock together with cam lock mechanism and joints finished using good quality silicon sealant . No timber should be incorporated with the construction. Flexible vinyl gasket,resistant to damage from oil, grease, water, detergents and sunlight which is also “foamed-in-place”, should be provided around the interior and exterior perimeter of each male edge complete as per specification				
i	Wall Panel- Cold room				
ii	Ceiling Panel (Self Suppoting) for cold room				
iii	Floor insulation for cold room				
b	Cold room door complete as per specification				
c	**LIGHTING :** Internal sealed fluorescent lighting mounted flush with ceiling, programmable through the control Panel.				

d	**AIR COOLED CONDENSING UNITS :** Supply of suitable capacity condensing unit. The unit shall comprise of semi hermetic Scroll or recipl Compressor, Air cooled condenser & Condenser fan. Compressors shall be cut-off automatically under part load conditions. The units shall have microprocessor controls. The units shall be factory assembled and only the Refrigerant piping carried out at site. The operating refrigerant should be R-404A and complete as per specification.				
e	**EVAPORATOR INDOOR UNIT :** Supply of suitable capacity Wall mounted Indoor Evaporator Unit . The indoor units shall be ceiling suspended type. The Indoor unit shall comprise of Fan, Cooling coil, Filter and Expansion device. A Ceiling mounted forced air- cooling unit constructed with SS sheet panels and should be assembled to form a rigid structure. Cooler surface should be assembled to form copper tubes and Aluminum fins mechanically bound in place; complete with condensate drip tray at the base with drain line connection complete as per specification.				
f	**REFRIGERANT PIPING FOR DUCTABLE SPLIT UNITS :** Supply, Installation and Testing of soft drawn Copper Refrigerant piping and fitting using brazed joints, complete with 19 mm thick tubular elastomeric nitrile rubber EPDM insulation and finished with glass cloth (microban) . The refrigerant piping shall be adequately sized to take care of the length of piping. Complete piping workmanship to be carried out as per recommended practice. The piping to be vacuum tested and leak tested. Scope includes all refrigerant pipes shall be properly supported and anchored to the building structure using steel hangers, anchors, brackets and supports etc which shall be fixed to the building structure by means of inserts or expansion shields of adequate size and number. Quantity indicates per running meter of both suction and liquid line.				
g	**REFRIGERANT GAS :** Supply and Charging of R-404A refrigerant gas				
h	**DRAIN PIPING :** Supply, Installation and Testing of Hard PVC drain piping insulated out of nitrile rubber material of approved make as per specification complete with supports, consumables, fittings, pipe sleeves, U trap, leak arresting of following sizes.				
i	**CONTROLLER AND DISPLAY SYSTEM :** The unit is fitted with a micro-processor based digital electronic temperature controller cum indicator for easy readability along with audio-visual alarm system. The controller should have the facility to set temperature and humidity value and also the safety limits for temperature and humidity. The temperature control to be within +/- 10C at the sensing point. An audible alarm should be provided in the event of actual values exceeding the set limits, connected to the main building and security guard room. In the event of failure of the main mechanical refrigeration system or dehumidification device, the switch over to standby system should be automatic with indication of failure of main system.In the event of power failure,module should have delayed start in a sequesnce so that power lines are not loaded.				
j	**FABRICATED STEEL WORK :** Supply, Fabrication , Cutting, Welding , Erection at site and cold compound zinc coating of M. S. Angle supportwork for outdoor unit location.				
k	Electrical work comprising of necessary SFU/ starter for the indoor and outdoor units along with suitably sized cable and earthing from SFU to starter and up to motor. (Note: Only incomig cable along with earthing will be provided by electrical contractor at the SFU wherever you require at one place)				
A	**SUB-TOTAL**				
B	**VAT / CST**				
C	**SERVICE TAX**				
	TOTAL (A+B+C)				
	GRAND TOTAL				