



Indian Institute of Technology Kanpur National Center for Flexible Electronics

Enquiry number: SCDT/FLEXE/2018-19/05

Opening Date: 24.07.2018

Closing Date: 13.08.2018

NOTICE: INVITING TENDER FOR HVAC ELECTRICAL PANELS FOR CLEAN ROOM AT NCFlexE

Sealed quotations from eligible bidders are invited by National Center for Flexible Electronics (NCFlexE), IIT Kanpur for the “**HVAC Electrical Panels work of NCFlexE clean room including design, supply, installation, commissioning, testing & validation**” with given specifications:

Note: All vendors are requested to send “**Technical bid (Including unpriced item wise BOQ) and price bid (Including item wise pricing BOQ)**” submitted together in separately sealed envelopes. The BIDS shall be based on the technical specifications as given in this document.

Scope of the work: Design, Supply, Installation, Commissioning and Testing of HVAC Electrical Panel work for AHUs of the clean room at NCFlexE, IIT Kanpur.

Heating, ventilation and air conditioning (HVAC) control panels are systems that manage the temperature and air in a given environment. It regulates the operation of a heating and/or air conditioning system and provides power to fan blower, heaters and humidifiers for the operation of integrated unit called as Air handling unit (AHU). HVAC panel has one incoming feeder with MCCB, with indications of R,Y,B phases as well as ON, OFF & Trip indications. It has outgoing feeders that provide power to different parts of the AHU as fan blower, heaters, humidifiers etc. Heaters have thyristor-based control. Fan blower is controlled through variable frequency drive (VFD).

We require 2 nos. of HVAC control panels. PI refer drawing nos. G31808 R0 & S31809 R0 for HVAC panel-1 and drawing nos. G31810 R0 & S31811 R0 for HVAC panel-2. Both the HVAC panels should be made as per the BOQ. PI find BOQ for both the panels below -

BOQ for HVAC panels:

HVAC PANEL-1 (1 No)							
I/C: 400A TP MCCB Feeder						Total Feeder Qty. :- 1 No	
Sl. No.	Each Feeder having Item Description	Rating	Make	Model	Qty.	UOM	
1	TP MCCB, Main Switch Unit, 36KA	630A	Siemens/ABB	3VT3	1	No.	
2	Microprocessor Based Trip Unit	400A	Siemens/ABB	3VT3	1	No.	
3	Spreader link	630A	Siemens/ABB	3VT3	2	Nos.	
4	Extended Rotary Handle	630A	Siemens/ABB	3VT3	1	No.	
5	Auxiliary Switch	1NO+1NC	Siemens/ABB		1	No.	
6	Auxiliary Alarm Switch	1NC	Siemens/ABB		1	No.	
7	CTs -/5A, 5VA, Class -1, Cast Resign	400/5A	Kappa/AE		3	Nos.	
8	Digital Multifunction meter, 96Sq.mm., Class-1 With RS485	0-400A	Conzerv	EM6436	1	No.	
9	Auxiliary relay 2C/O, 220V AC	Omron/Salzer			2	Nos.	

10	220V AC Indication LED Type	Red	Esbee/C&S		1	No.
11	220V AC Indication LED Type	Yellow	Esbee/C&S		1	No.
12	220V AC Indication LED Type	Blue	Esbee/C&S		1	No.
13	220V AC Indication LED Type (ON)	Red	Esbee/C&S		1	No.
14	220V AC Indication LED Type (OFF)	Green	Esbee/C&S		1	No.
15	220V AC Indication LED Type (TRIP)	Amber	Esbee/C&S		1	No.
16	SP MCB, 10kA, C-Curve, O/C S/C Protection	6A	Siemens/ABB		4	Nos.
O/G 18.5KW AHU-2 VFD WITH S/D BYPASS FEEDER					Total Feeder Qty. :- 1 No	
Sl. No.	Each Feeder having Item Description	Rating	Make	Model	Qty.	UOM
1	TP MCCB, 25KA Thermal Magnetic trip unit for motor Protection	125A	Siemens/ABB	3VT1	1	No.
2	Spreader link	125A	Siemens/ABB	3VT1	2	Nos.
3	Auxiliary Switch	1NO+1NC	Siemens/ABB	3VT1	1	No.
4	Auxiliary Alarm Switch	1NC	Siemens/ABB	3VT1	1	No.
5	CTs -/5A, 5VA, Class -1, Cast Resin	100/5A	Kappa/AE		3	Nos.
6	Digital Ammeter, 96Sq.mm., Class-1	0-100A	Conzerv		1	No.
7	Ammeter Selector Switch	6A	Salzer/Kaycee		1	No.
8	TP Power Contactor AC3 Duty with 230V AC Coil	45A	Siemens/ABB		1	No.
9	TP Power Contactor AC3 Duty with 230V AC Coil	40A	Siemens/ABB		2	Nos.
10	Add On Block for Power Contactor	1NO	Siemens/ABB	3TX	5	Nos.
11	Add On Block for Power Contactor	1NC	Siemens/ABB	3TX	3	Nos.
12	Thermal Over Load Relay	30-40A	Siemens/ABB	3UA52	1	No.
13	Star Delta Timer	GIC			1	No.
14	Temperature Controller	Reputed			1	No.
15	TP MCB, 10kA, C-Curve, O/C S/C Protection	63A	Siemens/ABB		1	No.
16	POT	Reputed			1	No.
17	TP Power Contactor AC3 Duty with 230V AC Coil	45A	Siemens/ABB		1	No.
18	Auxiliary relay 2C/O, 220V AC, motor run feedback	Omron/Salzer			1	No.
19	Auxiliary relay 2C/O, 220V AC,	Omron/Salzer			4	Nos.
20	2P/2W, Auto Manual Selector switch	Salzer/Kaycee			1	No.
21	220V AC Indication LED Type (ON)	Red	Esbee/C&S		1	No.
22	220V AC Indication LED Type (OFF)	Green	Esbee/C&S		1	No.
23	220V AC Indication LED Type (Trip)	Amber	Esbee/C&S		1	No.
24	Push Button, Ø22.5mm with 1NO (Start)	Green	Esbee/C&S		1	No.
25	Push Button, Ø22.5mm with 1NC (Stop)	Red	Esbee/C&S		1	No.
26	Emergency Button, Ø22.5mm, 1NC	Esbee/C&S			1	No.
27	SP MCB, 10kA, C-Curve, O/C S/C Protection	6A	Siemens/ABB		1	No.
O/G 5.36KW HEATER - 2					Total Feeder Qty. :- 1 No	
Sl. No	Each Feeder having Item Description	Rating	Make	Model	Qty.	UOM
1	TP MCCB, 10KA Thermal Magnetic trip unit for motor Protection	25A	Siemens/ABB	3VT1	1	No.
2	Spreader link	25A	Siemens/ABB	3VT1	2	Nos.

3	Auxiliary Switch	1NO+1NC	Siemens/ABB	3VT1	1	No.
4	Auxiliary Alarm Switch	1NC	Siemens/ABB	3VT1	1	No.
5	TP Power Contactor AC3 Duty with 230V AC Coil	25A	Siemens/ABB		1	No.
6	Thyristor based switching contactor	25A	Siemens/ABB		1	No.
7	Add On Block for Power Contactor	1NO	Siemens/ABB		3	Nos.
8	Temperature Controller	Reputed			1	No.
9	220V AC Indication LED Type (ON)	Red	Esbee/C&S		1	No.
10	220V AC Indication LED Type (OFF)	Green	Esbee/C&S		1	No.
11	Push Button, Ø22.5mm with 1NO (Start)	Green	Esbee/C&S		1	No.
12	Push Button, Ø22.5mm with 1NC (Stop)	Red	Esbee/C&S		1	No.
13	Auto Manual Selector switch	Salzer/Kaycee			1	No.
14	SP MCB, 10kA, C-Curve, O/C S/C Protection	6A	Siemens/ABB		1	No.
O/G 13KW HUMIDIFIER-2				Total Feeder Qty. :- 1 No		
Sl. No	Each Feeder having Item Description	Rating	Make	Model	Qty.	UOM
1	FP MCB, 10kA, C-Curve, O/C S/C Protection	63A	Siemens/ABB		1	No.
O/G 22KW AHU-3 VFD WITH S/D BYPASS FEEDER				Total Feeder Qty. :- 1 No		
Sl. No	Each Feeder having Item Description	Rating	Make	Model	Qty.	UOM
1	TP MCCB, 25KA Thermal Magnetic trip unit for motor Protection	160A	Siemens/ABB	3VT1	1	No.
2	Spreader link	160A	Siemens/ABB	3VT1	2	Nos.
3	Auxiliary Switch	1NO+1NC	Siemens/ABB	3VT1	1	No.
4	Auxiliary Alarm Switch	1NC	Siemens/ABB	3VT1	1	No.
5	CTs -/5A, 5VA, Class -1, Cast Resign	150/5A	Kappa/AE		3	Nos.
6	Digital Ammeter, 96Sq.mm., Class-1	0-150A	Conzerv		1	No.
7	Ammeter Selector Switch	6A	Salzer/Kaycee		1	No.
8	TP Power Contactor AC3 Duty with 230V AC Coil	80A	Siemens/ABB		1	No.
9	TP Power Contactor AC3 Duty with 230V AC Coil	45A	Siemens/ABB		2	Nos.
10	Add On Block for Power Contactor	1NO	Siemens/ABB	3TX	5	Nos.
11	Add On Block for Power Contactor	1NC	Siemens/ABB	3TX	3	Nos.
12	Thermal Over Load Relay	37-50A	Siemens/ABB	3UA52	1	No.
13	Star Delta Timer	GIC			1	No.
14	TP MCCB, 10KA Thermal Magnetic trip unit for motor Protection	80A	Siemens/ABB	3VT1	1	No.
15	Spreader link	80A	Siemens/ABB	3VT1	2	Nos.
16	POT	Reputed			1	No.
17	TP Power Contactor AC3 Duty with 230V AC Coil	45A	Siemens/ABB		1	No.
18	Auxiliary relay 2C/O, 220V AC, motor run feedback	Omron/Salzer			1	No.
19	Auxiliary relay 2C/O, 220V AC,	Omron/Salzer			4	Nos.
20	2P/2W, Auto Manual Selector switch	Salzer/Kaycee			1	No.
21	220V AC Indication LED Type (ON)	Red	Esbee/C&S		1	No.
22	220V AC Indication LED Type (OFF)	Green	Esbee/C&S		1	No.

23	220V AC Indication LED Type (Trip)	Amber	Esbee/C&S		1	No.
24	Push Button, Ø22.5mm with 1NO (Start)	Green	Esbee/C&S		1	No.
25	Push Button, Ø22.5mm with 1NC (Stop)	Red	Esbee/C&S		1	No.
26	Emergency Button, Ø22.5mm , 1NC	Esbee/C&S			1	No.
27	SP MCB, 10kA, C-Curve, O/C S/C Protection	6A	Siemens/ABB		1	No.

O/G 14KW HEATER - 3
Total Feeder Qty. :- 1 No

Sl. No	Each Feeder having Item Description	Rating	Make	Model	Qty.	UOM
1	TP MCCB, 10KA Thermal Magnetic trip unit for motor Protection	63A	Siemens/ABB	3VT1	1	No.
2	Spreader link	63A	Siemens/ABB	3VT1	2	Nos.
3	Auxiliary Switch	1NO+1NC	Siemens/ABB	3VT1	1	No.
4	Auxiliary Alarm Switch	1NC	Siemens/ABB	3VT1	1	No.
5	TP Power Contactor AC3 Duty, 220V AC Coil, 1NC	32A	Siemens/ABB		1	No.
6	Thyristor based switching contactor	32A	Siemens/ABB		1	No.
7	Add On Block for Power Contactor	1NO	Siemens/ABB		3	Nos.
8	Temperature Controller	Reputed			1	No.
9	220V AC Indication LED Type (ON)	Red	Esbee/C&S		1	No.
10	220V AC Indication LED Type (OFF)	Green	Esbee/C&S		1	No.
11	Push Button, Ø22.5mm with 1NO (Start)	Green	Esbee/C&S		1	No.
12	Push Button, Ø22.5mm with 1NC (Stop)	Red	Esbee/C&S		1	No.
13	Auto Manual Selector switch	Salzer/Kaycee			1	No.
14	SP MCB, 10kA, C-Curve, O/C S/C Protection	6A	Siemens/ABB		1	No.

O/G 14KW HUMIDIFIER-3
Total Feeder Qty. :- 1 No

Sl. No	Each Feeder having Item Description	Rating	Make	Model	Qty.	UOM
1	FP MCB, 10kA, C-Curve, O/C S/C Protection	63A	Siemens/ABB		1	No.

O/G 11KW AHU-4 VFD WITH S/D BYPASS FEEDER
Total Feeder Qty. :- 1 No

Sl. No	Each Feeder having Item Description	Rating	Make	Model	Qty.	UOM
1	TP MCCB, 10KA Thermal Magnetic trip unit for motor Protection	100A	Siemens/ABB	3VT1	1	No.
2	Spreader link	100A	Siemens/ABB	3VT1	2	Nos.
3	Auxiliary Switch	1NO+1NC	Siemens/ABB	3VT1	1	No.
4	Auxiliary Alarm Switch	1NC	Siemens/ABB	3VT1	1	No.
5	CTs -/5A, 5VA, Class -1, Cast Resign	100/5A	Kappa/AE		3	Nos.
6	Digital Ammeter, 96Sq.mm., Class-1	0-100A	Conzerv		1	No.
7	Ammeter Selector Switch	6A	Salzer/Kaycee		1	No.
8	TP Power Contactor AC3 Duty with 230V AC Coil	32A	Siemens/ABB		1	No.
9	TP Power Contactor AC3 Duty with 230V AC Coil	25A	Siemens/ABB		2	Nos.
10	Add On Block for Power Contactor	1NO	Siemens/ABB	3TX	5	Nos.
11	Add On Block for Power Contactor	1NC	Siemens/ABB	3TX	3	Nos.

12	Thermal Over Load Relay	16-24A	Siemens/ABB	3UA52	1	No.
13	Star Delta Timer	GIC			1	No.
14	Temperature Controller	Reputed			1	No.
15	TP MCCB, 10KA Thermal Magnetic trip unit for motor Protection	63A	Siemens/ABB	3VT1	1	No.
16	Spreader link	63A	Siemens/ABB	3VT1	2	Nos.
17	POT	Reputed			1	No.
18	TP Power Contactor AC3 Duty with 230V AC Coil	32A	Siemens/ABB		1	No.
19	Auxiliary relay 2C/O, 220V AC, motor run feedback	Omron/Salzer			1	No.
20	Auxiliary relay 2C/O, 220V AC,	Omron/Salzer			4	Nos.
21	2P/2W, Auto Manual Selector switch	Salzer/Kaycee			1	No.
22	220V AC Indication LED Type (ON)	Red	Esbee/C&S		1	No.
23	220V AC Indication LED Type (OFF)	Green	Esbee/C&S		1	No.
24	220V AC Indication LED Type (Trip)	Amber	Esbee/C&S		1	No.
25	Push Button, Ø22.5mm with 1NO (Start)	Green	Esbee/C&S		1	No.
26	Push Button, Ø22.5mm with 1NC (Stop)	Red	Esbee/C&S		1	No.
27	Emergency Button, Ø22.5mm , 1NC	Esbee/C&S			1	No.
28	SP MCB, 10kA, C-Curve, O/C S/C Protection	6A	Siemens/ABB		1	No.
O/G 4.27KW HEATER - 4				Total Feeder Qty. :- 1 No		
Sl. No	Each Feeder having Item Description	Rating	Make	Model	Qty.	UOM
1	TP MCCB, 10KA Thermal Magnetic trip unit for motor Protection	25A	Siemens/ABB	3VT1	1	No.
2	Spreader link	25A	Siemens/ABB	3VT1	2	Nos.
3	Auxiliary Switch	1NO+1NC	Siemens/ABB	3VT1	1	No.
4	Auxiliary Alarm Switch	1NC	Siemens/ABB	3VT1	1	No.
5	TP Power Contactor AC3 Duty with 230V AC Coil	25A	Siemens/ABB		1	No.
6	Thyristor based switching contactor	25A	Siemens/ABB		1	No.
7	Add On Block for Power Contactor	1NO	Siemens/ABB		3	Nos.
8	Temperature Controller	Reputed			1	No.
9	220V AC Indication LED Type (ON)	Red	Esbee/C&S		1	No.
10	220V AC Indication LED Type (OFF)	Green	Esbee/C&S		1	No.
11	Push Button, Ø22.5mm with 1NO (Start)	Green	Esbee/C&S		1	No.
12	Push Button, Ø22.5mm with 1NC (Stop)	Red	Esbee/C&S		1	No.
13	Auto Manual Selector switch	Salzer/Kaycee			1	No.
14	SP MCB, 10kA, C-Curve, O/C S/C Protection	6A	Siemens/ABB		1	No.
O/G 10KW HUMIDIFIER-4				Total Feeder Qty. :- 1 No		
Sl. No	Each Feeder having Item Description	Rating	Make	Model	Qty.	UOM
1	FP MCB, 10kA, C-Curve, O/C S/C Protection	63A	Siemens/ABB		1	No.
O/G 18.5KW AHU-5 VFD WITH S/D BYPASS FEEDER				Total Feeder Qty. :- 1 No		
Sl. No	Each Feeder having Item Description	Rating	Make	Model	Qty.	UOM

1	TP MCCB, 25KA Thermal Magnetic trip unit for motor Protection	160A	Siemens/ABB	3VT1	1	No.
2	Spreader link	160A	Siemens/ABB	3VT1	2	Nos.
3	Auxiliary Switch	1NO+1NC	Siemens/ABB	3VT1	1	No.
4	Auxiliary Alarm Switch	1NC	Siemens/ABB	3VT1	1	No.
5	CTs -/5A, 5VA, Class -1, Cast Resign	150/5A	Kappa/AE		3	Nos.
6	Digital Ammeter, 96Sq.mm., Class-1	0-150A	Conzerv		1	No.
7	Ammeter Selector Switch	6A	Salzer/Kaycee		1	No.
8	TP Power Contactor AC3 Duty with 230V AC Coil	45A	Siemens/ABB		1	No.
9	TP Power Contactor AC3 Duty with 230V AC Coil	40A	Siemens/ABB		2	Nos.
10	Add On Block for Power Contactor	1NO	Siemens/ABB	3TX	5	Nos.
11	Add On Block for Power Contactor	1NC	Siemens/ABB	3TX	3	Nos.
12	Thermal Over Load Relay	30-40A	Siemens/ABB	3UA52	1	No.
13	Star Delta Timer	GIC			1	No.
14	Temperature Controller	Reputed			1	No.
15	TP MCB, 10kA, C-Curve, O/C S/C Protection	63A	Siemens/ABB		1	No.
16	POT	Reputed			1	No.
17	TP Power Contactor AC3 Duty with 230V AC Coil	45A	Siemens/ABB		1	No.
18	Auxiliary relay 2C/O, 220V AC, motor run feedback	Omron/Salzer			1	No.
19	Auxiliary relay 2C/O, 220V AC,	Omron/Salzer			4	Nos.
20	2P/2W, Auto Manual Selector switch	Salzer/Kaycee			1	No.
21	220V AC Indication LED Type (ON)	Red	Esbee/C&S		1	No.
22	220V AC Indication LED Type (OFF)	Green	Esbee/C&S		1	No.
23	220V AC Indication LED Type (Trip)	Amber	Esbee/C&S		1	No.
24	Push Button, Ø22.5mm with 1NO (Start)	Green	Esbee/C&S		1	No.
25	Push Button, Ø22.5mm with 1NC (Stop)	Red	Esbee/C&S		1	No.
26	Emergency Button, Ø22.5mm , 1NC	Esbee/C&S			1	No.
27	SP MCB, 10kA, C-Curve, O/C S/C Protection	6A	Siemens/ABB		1	No.

O/G 19.52KW HEATER - 5

Total Feeder Qty. :- 1 No

Sl. No	Each Feeder having Item Description	Rating	Make	Model	Qty.	UOM
1	TP MCCB, 10KA Thermal Magnetic trip unit for motor Protection	40A	Siemens/ABB	3VT1	1	No.
2	Spreader link	40A	Siemens/ABB	3VT1	2	Nos.
3	Auxiliary Switch	1NO+1NC	Siemens/ABB	3VT1	1	No.
4	Auxiliary Alarm Switch	1NC	Siemens/ABB	3VT1	1	No.
5	TP Power Contactor AC3 Duty, 220V AC Coil, 1NC	40A	Siemens/ABB		1	No.
6	Thyristor based switching contactor	40A	Siemens/ABB		1	No.
7	Add On Block for Power Contactor	1NO	Siemens/ABB		3	Nos.
8	Temperature Controller	Reputed			1	No.
9	220V AC Indication LED Type (ON)	Red	Esbee/C&S		1	No.
10	220V AC Indication LED Type (OFF)	Green	Esbee/C&S		1	No.

11	Push Button, Ø22.5mm with 1NO (Start)	Green	Esbee/C&S		1	No.
12	Push Button, Ø22.5mm with 1NC (Stop)	Red	Esbee/C&S		1	No.
13	Auto Manual Selector switch	Salzer/Kaycee			1	No.
14	SP MCB, 10kA, C-Curve, O/C S/C Protection	6A	Siemens/ABB		1	No.
O/G 10KW HUMIDIFIER-2				Total Feeder Qty. :- 1 No		
Sl. No	Each Feeder having Item Description	Rating	Make	Model	Qty.	UOM
1	FP MCB, 10kA, C-Curve, O/C S/C Protection	63A	Siemens/ABB		1	No.
HVAC PANEL-2 (1 No)						
I/C: 100A TP MCCB Feeder				Total Feeder Qty. :- 1 No		
Sl. No	Each Feeder having Item Description	Rating	Make	Model	Qty.	UOM
1	TP MCCB, 25KA Thermal Magnetic trip unit for motor Protection	100A	Siemens/ABB	3VT1	1	No.
2	Spreader link	100A	Siemens/ABB	3VT1	2	Nos.
3	Auxiliary Switch	1NO+1NC	Siemens/ABB	3VT1	1	No.
4	Auxiliary Alarm Switch	1NC	Siemens/ABB	3VT1	1	No.
5	Extended Rotary Handle	100A	Siemens/ABB	3VT1	1	No.
6	CTs -/5A, 5VA, Class -1, Cast Resign	100/5A	Kappa/AE		3	Nos.
7	Digital Multifunction meter, 96Sq.mm., Class-1 With RS485	0-100A	Conzerv	EM6436	1	No.
8	Auxiliary relay 2C/O, 220V AC	Omron/Salzer			2	Nos.
9	220V AC Indication LED Type	Red	Esbee/C&S		1	No.
10	220V AC Indication LED Type	Yellow	Esbee/C&S		1	No.
11	220V AC Indication LED Type	Blue	Esbee/C&S		1	No.
12	220V AC Indication LED Type (ON)	Red	Esbee/C&S		1	No.
13	220V AC Indication LED Type (OFF)	Green	Esbee/C&S		1	No.
14	220V AC Indication LED Type (TRIP)	Amber	Esbee/C&S		1	No.
15	SP MCB, 10kA, C-Curve, O/C S/C Protection	6A	Siemens/ABB		4	Nos.
O/G 11KW AHU-1 VFD WITH S/D BYPASS FEEDER				Total Feeder Qty. :- 1 No		
Sl. No	Each Feeder having Item Description	Rating	Make	Model	Qty.	UOM
1	TP MCCB, 25KA Thermal Magnetic trip unit for motor Protection	100A	Siemens/ABB	3VT1	1	No.
2	Spreader link	100A	Siemens/ABB	3VT1	2	Nos.
3	Auxiliary Switch	1NO+1NC	Siemens/ABB	3VT1	1	No.
4	Auxiliary Alarm Switch	1NC	Siemens/ABB	3VT1	1	No.
5	CTs -/5A, 5VA, Class -1, Cast Resign	100/5A	Kappa/AE		3	Nos.
6	Digital Ammeter, 96Sq.mm., Class-1	0-100A	Conzerv		1	No.
7	Ammeter Selector Switch	6A	Salzer/Kaycee		1	No.
8	TP Power Contactor AC3 Duty with 230V AC Coil	32A	Siemens/ABB		1	No.
9	TP Power Contactor AC3 Duty with 230V AC Coil	25A	Siemens/ABB		2	Nos.
10	Add On Block for Power Contactor	1NO	Siemens/ABB	3TX	5	Nos.
11	Add On Block for Power Contactor	1NC	Siemens/ABB	3TX	3	Nos.
12	Thermal Over Load Relay	16-25A	Siemens/ABB	3UA52	1	No.

13	Star Delta Timer	GIC			1	No.
14	Temperature Controller	Reputed			1	No.
15	TP MCB, 10kA, C-Curve, O/C S/C Protection	63A	Siemens/ABB		1	No.
16	POT	Reputed			1	No.
17	TP Power Contactor AC3 Duty with 230V AC Coil	32A	Siemens/ABB		2	Nos.
18	Auxiliary relay 2C/O, 220V AC, motor run feedback	Omron/Salzer			1	No.
19	Auxiliary relay 2C/O, 220V AC,	Omron/Salzer			4	Nos.
20	2P/2W, Auto Manual Selector switch	Salzer/Kaycee			1	No.
21	220V AC Indication LED Type (ON)	Red	Esbee/C&S		1	No.
22	220V AC Indication LED Type (OFF)	Green	Esbee/C&S		1	No.
23	220V AC Indication LED Type (Trip)	Amber	Esbee/C&S		1	No.
24	Push Button, Ø22.5mm with 1NO (Start)	Green	Esbee/C&S		1	No.
25	Push Button, Ø22.5mm with 1NC (Stop)	Red	Esbee/C&S		1	No.
26	Emergency Button, Ø22.5mm , 1NC	Esbee/C&S			1	No.
27	SP MCB, 10kA, C-Curve, O/C S/C Protection	6A	Siemens/ABB		1	No.
O/G 5.5KW HEATER - 1				Total Feeder Qty. :- 1 No		
Sl. No	Each Feeder having Item Description	Rating	Make	Model	Qty.	UOM
1	TP MCCB, 10KA Thermal Magnetic trip unit for motor Protection	25A	Siemens/ABB	3VT1	1	No.
2	Spreader link	25A	Siemens/ABB	3VT1	2	Nos.
3	Auxiliary Switch	1NO+1NC	Siemens/ABB	3VT1	1	No.
4	Auxiliary Alarm Switch	1NC	Siemens/ABB	3VT1	1	No.
5	TP Power Contactor AC3 Duty with 230V AC Coil	25A	Siemens/ABB		1	No.
6	Thyristor based switching contactor	25A	Siemens/ABB		1	No.
7	Add On Block for Power Contactor	1NO	Siemens/ABB		3	Nos.
8	Temperature Controller	Reputed			1	No.
9	220V AC Indication LED Type (ON)	Red	Esbee/C&S		1	No.
10	220V AC Indication LED Type (OFF)	Green	Esbee/C&S		1	No.
11	Push Button, Ø22.5mm with 1NO (Start)	Green	Esbee/C&S		1	No.
12	Push Button, Ø22.5mm with 1NC (Stop)	Red	Esbee/C&S		1	No.
13	Auto Manual Selector switch	Salzer/Kaycee			1	No.
14	SP MCB, 10kA, C-Curve, O/C S/C Protection	6A	Siemens/ABB		1	No.
O/G 3KW HUMIDIFIER-1				Total Feeder Qty. :- 1 No		
Sl. No	Each Feeder having Item Description	Rating	Make	Model	Qty.	UOM
1	FP MCB, 10kA, C-Curve, O/C S/C Protection	25A	Siemens/ABB		1	No.
O/G 15KW DEHUMIDIFIER-1				Total Feeder Qty. :- 1 No		
Sl. No	Each Feeder having Item Description	Rating	Make	Model	Qty.	UOM
1	FP MCB, 10kA, C-Curve, O/C S/C Protection	40A	Siemens/ABB		1	No.

Technical:

1. Electrical switchgear items as per BOQ.
2. The Panels should be of mild steel structural sections of pressed and shaped mild steel of thickness not less than 2.0 mm. Frame shall be enclosed by sheet steel of thickness not less than 1.6 mm. Stiffeners shall be provided wherever necessary & cut-outs shall be true in shape and devoid of sharp edges.
3. PI refer attached drawings for the dimensions of the HVAC panels and must not exceed due to space constraint.
4. Bus Bars shall be air insulated and made of high conductivity, high strength aluminium alloy complying with the requirement of Electrolytic Grade E91E (63401WP) of IS 5082.
Bus Bars shall be rated for 35°C temperature rise over an ambient of 50°C.

Painting:

Entire sheet metal work will undergo pre-treatment covering degreasing, water rinsing, de-rusting / phosphating using nine tanks process.

b) After pre-treatment as described above, the sheet metal is sprayed with POWDER of desired shade. The Epoxy-Powder sprayed structure will then be baked in Diesel Fired Oven at 140-150 ° C for 10-15 minutes.

Internal wiring:

Wiring inside the switchgear shall be carried out with 1100 / 650 Volt grade, PVC insulated, stranded conductor wire of adequate sizes. Minimum size of conductor for power circuits will be 2.5 Sq.mm copper. Control circuits will be wired with copper conductor of at least 2.5 Sq.mm for CT circuits and 1.5 Sq.mm for other circuits.

Earthing:

- a) Panels shall be provided with earth Bus Bar running along the entire length of the board.
- b) Earth Bus Bars shall be supported at suitable intervals.

Labels

- a) All labels shall comprise of black letters on white background.
- b) Labels shall be properly fixed using screws of appropriate size.

Terms and conditions

1. The supplier must have the past experience of making similar kind of panel since last 10 yrs and experience in supplying to Govt. organizations. PI submit supporting documents for the same.
2. Evaluation will be done on the basis of technical specifications given in tender document.
3. Financial bid will be open for those only who qualify all the technical specification as per our tender notice.
4. Quotation must be valid for 90 days
5. Please send the name and contact details of the person to whom company had supplied/ or give services for similar systems & requirement. Committee may ask for the feedback.
6. Payments terms: 70% against delivery at IIT Kanpur, 20% against installation and 10% against successful running of equipment for 3 months & approval.
7. The supplier must have supplied systems to institutions of national and/or international repute. 7. Warranty/Guarantee should be clearly mentioned. The Warranty must start from the date of installation at IITK.
8. Installation, demonstration, and training-sessions at IIT Kanpur will have to be provided by the manufacturer or the vendor for the quoted system free of cost.
9. Quotation should carry proper certifications like proprietary certificate/ authorization certificate from manufacturer, etc.
10. Price must include all taxes and other charges.
11. Institute is exempted for partial custom duty (CD applicable to IIT Kanpur is 5.15%).
12. The delivery period should be specifically stated. Earlier delivery may be preferred.

13. At any time prior to the deadline for submission of bid, the Institute may, for any reason, at its own initiative, modify the bid document by amendments. Such amendments shall be uploaded on the website through corrigendum and shall form an integral part of bid document. The relevant clauses of the bid document shall be treated as amended accordingly. It shall be the sole responsibility of the prospective bidders to check the website from time to time for any amendment in the tender document. In case of failure to get the amendments, if any, the Institute shall not be responsible for it.
14. The Penalty @1% per week or part thereof subject to max 10% of the delivery price will be deducted from the balance payment, if supply is not completed within aforesaid delivery period.
15. The indenter reserves the right to withhold placement of final order. The right to reject all or any of the quotations and to split up the requirements or relax any or all of the above conditions without assigning any reason is reserved.
16. Bidder have to submit Drawing & SLD along with the technical bid for the work as per the tender inquiry and attachments.
17. Concessional rate of GST (@ 5%) will be applicable with reference to Notification No. 45/2017 Central Tax (Rate) dated 14/11/2017. We will provide relevant certificate for this purpose. On import items for research purpose presently the GST applicable is 0% (Zero). DSIR certificate along with CDEC has to be submitted for availing concession. Vendor should use these GST rates in their quotation.

Kindly send the quotation in sealed envelope latest by 3:00PM Dated 13.08.2018 to the following address;

**To,
Prof. Siddhartha Panda
Room No. 305,
Samtel Center for Display Technologies (SCDT)
Indian Institute of Technology Kanpur,
Kanpur-208016, Uttar Pradesh, India**