



BHARAT HEAVY ELECTRICALS LIMITED
PROJECT ENGINEERING MANAGEMENT, NOIDA

Date-11-Nov-19

CORRIGENDUM- 04

PROJECT	:	1X660 MW BHUSHAWAL TPS UNIT 6
PACKAGE	:	AIRCONDITIONING SYSTEM
ENQUIRY NO	:	PE/PG/BHU/E-6312/2019 Dt. 10.10.2019
SUBJECT	:	PRE-BID REPLIES

Type of Corrigendum			
Technical Corrigendum -	☒	Commercial Corrigendum -	☐

In reference to the above mentioned tender enquiry please note the following.

1. Please find the replies of pre-bid queries (attached below).

All the other terms and conditions of the tender enquiry remain unchanged. All the bidders are requested to quote accordingly.

Yours faithfully,

For and on behalf of BHEL

Vinit Kumar Verma
Dy. Manager



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Sl. No.	Bidder's Query	BHEL reply
1.	In order to work out the capacity of the various AHUs we request to provide the Equipment Load to be considered inside the air-conditioned area.	Equipment sizing criteria for AHU and relevant drawings of corresponding areas have already been attached in tender specification. Bidder to quote accordingly.
2.	For Precision Package AC units for ESP control room, the cooling water for condenser is available from ACW line. Please advise the pressure and the temperature of water available. Similarly, for Aux building where one water Packaged unit of 7.5 TR is required, the cooling water is available from ACW line. The temperature and pressure of water may be indicated here as well.	Please note the detail as under: 1) ACW Water for Precision package AC at ESP control room shall be available with pressure at 0.8 Kg/sq.cm (g) and temp. at 36 deg. C. 2) ACW Water for Precision package AC at Aux. control room shall be available with pressure at 2.1 Kg/sq.cm (g) and temp. at 36 deg. C.
3.	We note that as per BOQ, the smoke exhaust fan for Service building and Main power house building are required. The capacity of these Exhaust Fans may be indicated.	Smoke Exhaust Fan shall be sized for minimum 30ACPH for respective AHU area. Bidder to quote accordingly.
4.	The common condenser water pumps have been proposed for AC Plant-1 and AC Plant-2 as per BOQ. We feel 2 nos. (1 working + 1 standby) independent water pumps for AC Plant-1 and 2 nos. (1 working + 1 standby) for AC Plant-2 can also be provided.	Tender condition prevails.



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Sr. No.	Clause No.	Page No.	Statement of referred Clause	Clarification Required	BHEL reply
1	BOQ Sr. No. A-2	2	Sheet metal cabinet type air handling units (double skin as per specification) consisting of chilled water cooling coil, centrifugal blower, TEFC sq cage induction motor, filters (pre filter), 3 way motorised mixing valve with thermostatic control and other accessories to meet the AC load of the main CR areas at 17.0 m. Fine Filters shall be included in discharge for individual AHUs.	Please specify AHU CFM & Total static pressure	Equipment sizing criteria for AHU and relevant drawings of corresponding areas have already been attached in tender specification. Bidder to quote accordingly.
2	BOQ Sr. No. A-3	2	Sheet metal cabinet type air handling units (double skin as per specification) consisting of chilled water cooling coil, centrifugal blower, TEFC sq cage induction motor, filters (pre filter), 3 way motorised mixing valve with thermostatic control and other accessories to meet the AC load of the main UPS room at 8.5 m. Fine Filters shall be included in discharge for individual AHUs.	Please specify AHU CFM & Total static pressure	Equipment sizing criteria for AHU and relevant drawings of corresponding areas have already been attached in tender specification. Bidder to quote accordingly.
3	BOQ Sr. No. A-4	2	Fibreglass reinforced plastic (FRP) construction cooling towers (common for AC plant 1 and AC Plant 2) complete with fan, motor, FRP basin, nozzles, make-up water & quick fill water connection, instruments, drains, piping, valves, strainers, ladder & structural support and all accessories as specified as per specification.	Please specify cooling tower design conditions & required flow rate and outlet temp	Equipment sizing criteria for Cooling Tower and relevant drawings of corresponding areas have already been attached in tender specification. Further, flow rate and outlet temperature shall be as per system requirement. Bidder to quote accordingly.
4	BOQ Sr. No. A-5	2	Centrifugal pump sets for condenser water recirculation (common for AC plant 1 and AC plant 2) complete with TEFC motor & all accessories as specified.	Please Specify pump head & flow requirement	Equipment sizing criteria for pump and relevant drawings of corresponding areas have already been attached in tender specification. Bidder to quote accordingly.
5	BOQ Sr. No. A-6	2	Centrifugal pump sets for chilled water recirculation complete with TEFC motor drive set & all accessories, as specified.	Please Specify pump head & flow requirement	Equipment sizing criteria for pump and relevant drawings of corresponding areas have already been attached in tender specification. Bidder to quote accordingly.
6	BOQ Sr. No. A-12	2	Condenser water piping with suitable rubber lining & necessary fittings, strainers, valves including piping from soft water storage tank to pan humidifiers of AHU room of CCR, UPS and condenser water piping from CT of ACP 1 to chiller of ACP 2 as specified.	Please specify length of total piping & size	sizing criteria for pipe and relevant drawings of corresponding areas have already been attached in tender specification. Bidder to quote accordingly.
7	BOQ Sr. No. A-13	2	Insulated Chilled water piping within AC plant room, AHU rooms and from AC plant room to various AHU rooms, FCU units, complete with valves suppo fittings, strainers, insulation with finish as per specification.	Please specify length of total piping & size	sizing criteria for pipe and relevant drawings of corresponding areas have already been attached in tender specification. Bidder to quote accordingly.
8	BOQ Sr. No. A-14	2	Monsoon reheating/ winter heating kit comprising strip heaters, safety controls, air-stat, contactors, frame work, thermostat & humidistat/ senso etc.	Specify capacity of heater	sizing criteria for heater and relevant drawings of corresponding areas have already been attached in tender specification. Bidder to quote accordingly
9	BOQ Sr. No. A-15	2	Pan type humidifier for each AHU room.	Specify capacity of humidifier	sizing criteria for humidifier and relevant drawings of corresponding areas have already been attached in



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					tender specification. Bidder to quote accordingly
10	BOQ Sr. No. A-16	3	Fresh air fan (axial flow type), complete with motor, inlet cone, air filters (pre and fine), dampers mounting frame, MS rain protection cowl, bird screen along with support structure and all other accessories etc. as per specification.	Please specify capacity of fan	sizing criteria for Fresh air fan and relevant drawings of corresponding areas have already been attached in tender specification. Bidder to quote accordingly
11	BOQ Sr. No. A-17	3	Smoke exhaust fan complete with casing, TEFC sq. cage induction motor & mounting frame, damper, MS rain protection cowl, bird screen along with support structure and all other accessories	Please specify capacity of fan	Smoke Exhaust Fan shall be sized for minimum 30ACPH for respective AHU area. Bidder to quote accordingly.
12	BOQ Sr. No. B-2	3	Sheet metal cabinet type air handling units (double skin as per specification) consisting of chilled water cooling coil, centrifugal blower, TEFC sq cage induction motor, filters (pre filter), 3 way motorised mixing valve with thermostatic control and other accessories to meet the AC load of the service building. Fine Filters shall be included in discharge for individual	Please specify AHU CFM & Total static pressure	Equipment sizing criteria for AHU and relevant drawings of corresponding areas have already been attached in tender specification. Bidder to quote accordingly.
13	BOQ Sr. No. B-3	3	Centrifugal pump sets for chilled water recirculation complete with TEFC motor drive set & all accessories, as specified.	Specify pump head & flow requirement	Equipment sizing criteria for pump and relevant drawings of corresponding areas have already been attached in tender specification. Bidder to quote accordingly.
14	BOQ Sr. No. B-5	3	Insulated Chilled water piping within AC plant room, AHU rooms and from AC plant room to various AHU rooms, FCU units, complete with valves support fittings, strainers, insulation with finish as per specification.	Please specify length of total piping & size	sizing criteria for pipe and relevant drawings of corresponding areas have already been attached in tender specification. Bidder to quote accordingly.
15	BOQ Sr. No. B-6	3	Monsoon reheating/ winter heating kit comprising strip heaters, safety controls, air-stat, contactors, frame work, thermostat & humidistat/ senso etc.	Specify capacity of heater	sizing criteria for heater and relevant drawings of corresponding areas have already been attached in tender specification. Bidder to quote accordingly
16	BOQ Sr. No. B-7	3	Pan type humidifier for each AHU room.	Specify capacity of humidifier	sizing criteria for humidifier and relevant drawings of corresponding areas have already been attached in tender specification. Bidder to quote accordingly
17	BOQ Sr. No. B-8	3	Fresh air fan (axial flow type), complete with motor, inlet cone, air filters (pre and fine), dampers mounting frame, MS rain protection cowl, bird screen along with support structure and all other accessories etc. as per specification.	Please specify capacity of fan	sizing criteria for Fresh air fan and relevant drawings of corresponding areas have already been attached in tender specification. Bidder to quote accordingly
18	BOQ Sr. No. B-9	3	Smoke exhaust fan complete with casing, TEFC sq. cage induction motor & mounting frame, damper, MS rain protection cowl, bird screen along with support structure and all other accessories	Please specify capacity of fan	Smoke Exhaust Fan shall be sized for minimum 30ACPH for respective AHU area. Bidder to quote accordingly.
19	BOQ Sr. No. C-1	3	Water cooled Precision type Package air conditioning units of minimum 25 TR (Net) capacity complete with scroll compressors (suitable for R-410/407c refrigerant) and water cooled shell and tube condensers, interconnecting refrigerant piping (duly insulated) between condensers and PAC units, evaporator fans with highly efficient EC motors and their controls, filters as per specification, cooling coils with expansion valve, electrode type humidifiers with controls, electric strip heaters, casing as per specification, insulated SS drain pan, insulated drain piping, and built-in microprocessor based control panel as per specification. The cost shall include	Specify package unit tonnage as maximum tonnage available is 22 TR	Bidder has to quote as per tender requirement.



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			cooling water recirculation piping with valves and accessoried from the terminal point.		
20	BOQ Sr. No. C-2	3	Fresh air fan (axial flow type), complete with motor, inlet cone, air filters (pre and fine), dampers mounting frame, MS rain protection cowl, bird screen along with support structure and all other accessories etc. as per specification.	Please specify capacity of fan	sizing criteria for Fresh air fan and relevant drawings of corresponding areas have already been attached in tender specification. Bidder to quote accordingly
21	BOQ Sr. No. C-3	4	Smoke exhaust fan complete with casing, TEFC sq. cage induction motor & mounting frame, damper, MS rain protection cowl, bird screen along with support structure and all other accessories	Please specify capacity of fan	Smoke Exhaust Fan shall be sized for minimum 30ACPH for respective AHU area. Bidder to quote accordingly.
22	BOQ Sr. No. C-4	4	online Non chemical water treatment equipment with all accessories as required to meet the system requirement.	Please specify capacity of plant	online Non chemical water treatment equipment shall be selected to meet the water flow requirement of system.
23	BOQ Sr. No. D-10	4	Fan Coil units	Is it a chilled water FCU or DX FCU's	FCU is chilled water type.
24	BOQ Sr. No. E-2	4	Fresh air fan (axial flow type), complete with motor, inlet cone, air filters (pre and fine), dampers mounting frame, MS rain protection cowl, bird screen along with support structure and all other accessories etc. as per specification.	Please specify capacity of fan	sizing criteria for Fresh air fan and relevant drawings of corresponding areas have already been attached in tender specification. Bidder to quote accordingly
25	BOQ Sr. No. E-3	5	online Non chemical water treatment equipment with all accessories as required to meet the system requirement.	Please specify capacity of plant	online Non chemical water treatment equipment shall be selected to meet the water flow requirement of system.
26	BOQ Sr. No. E-4	5	Smoke exhaust fan complete with casing, TEFC sq. cage induction motor & mounting frame, damper, MS rain protection cowl, bird screen along with support structure and all other accessories	Please specify capacity of plant	Smoke Exhaust Fan shall be sized for minimum 30ACPH for respective AHU area. Bidder to quote accordingly.
27	BOQ Sr. No. E-5-b	5	2.0 TR capacity (non-ductable type, 240 V, 1 phase) with isolation switch, i.e MCB of suitable rating as specified, voltage stabilizer, cabling, all supporting structure and refrigerent piping as per actual site condition, drain piping upto nearest drain etc. (Split AC shall be of best rating as per latest BEE based on ISEER)	Please specify star rating for split AC	As already mentioned in BOQ, Split AC shall be of best star rating as per latest BEE based on ISEER
28	BOQ Sr. No. E-5-c	5	1.5 TR capacity (non-ductable type, 240 V, 1 phase) with isolation switch, i.e MCB of suitable rating as specified, voltage stabilizer, cabling, all supporting structure and refrigerent piping to suite actual site condition, drain piping upto nearest drain etc. (Split AC shall be of best rating as per latest BEE based on ISEER)	Please specify star rating for split AC	As already mentioned in BOQ, Split AC shall be of best star rating as per latest BEE based on ISEER
29	BOQ Sr. No. E-6-f	5	Cable tray, conduites, junction boxes, local control panel and Field instruments like pressure gauge, temperature gauge, pressure switch, pressure sensor, pressure transmitters, differential pressure switch differential pressure transmitters flow switch, flow transmitter, flow mete temperature sensors, etc, including necessary control panel form hook up with main DDCMIS as per specifications	Specify cable tray quantity and size	relevant drawings of corresponding areas have already been attached in tender specification. Bidder to quote accordingly. Further bidder to refer the Electrical scope sheet (page no. 241-243, section I, sub section C3 – Technical specification – Electrical portion)