



Date: June 4, 2024

Title: Back-up Primary Chiller and Absorption Chiller System Removal for the High Commission of Canada to India, in New Delhi

Solicitation Number: 23-228242

The following Questions & Answers is in link with the solicitation document mentioned above.

Questions & Answers # 1

Q1. "Can we receive an extension to the bid submission date of 24th May 2024 by a period of 15 to 20 days?"

A1. Please see Addendum #1.

Q2. "Please refer B-DELHI-119 Statement of Work (SOW) in 7th & 8th line of the mentioned SOW it is mentioned that the intention is for like-for-like replacement of the current chiller, cooling tower, pumps & associated controls. We seek clarification if we can quote with any other optional makes or the quote should be only with existing make."

A2. The mechanical specification details the performances required for the chiller, pump, cooling tower and associated equipment. There is also a list of manufacturers included that could provide a similar equipment of the quality required. For equivalency, see the paragraphs 1.4 and 1.5 of section 20 00 10 "MECHANICAL AND ELECTRICAL GENERAL SPECIFICATION".

Q3. "The existing chiller to be replaced is understood to be of more than 15 years old. The present chiller to be offered would be of the updated model/ generation & applicable BMS features. Hence the queries is the existing BMS system would be ok for this compatibility."

A3. For this project, it is considered that the existing controllers will be re-used to avoid an early migration of the entire chiller plant. The migration of the chiller plant will be done as part of a future project. The inputs and outputs of the new chiller, pumps and cooling tower will basically re-use the available inputs and outputs of the existing DX9100 controllers.

Q4. "Is the new Cooling tower to be with CTI certification?"

A4. Yes, the cooling tower must be provided with a CTI certification.

Q5. "Please confirm up to what extent the piping's to be replaced for each equipment like chiller, cooling tower, pumps? Are these to be completely replaced?"

A5. The pipes to be replaced are identified on the drawing and referenced to the legend. Double lines show the connection between the existing piping and new piping. The Lines with a single dot represent the demolition and the bold continuous lines represent the new piping. In summary, all the primary piping of the chiller that is replaced must also be replaced up to the secondary distribution piping. All the piping on the cooling tower side must be replaced between the chiller and the new cooling tower."

Q6. "Accordingly for Valves, strainers etc. as above (See Question 5)."



- A6. All isolation valves, strainers, balancing valves, thermometers, manometers, flexible couplings, check valves shown on the hydraulic diagram (on the bold continuous lines) are to be provided new as part of the contract (see sheet number 3/M03).
- Q7. “Can we reused the existing foundations along with channel frames support of replacement chiller / pump / cooling tower if in good & usable conditions.”
- A7. No, new concrete pads must be poured for the new chiller and the pumps that will match perfectly the new equipment. For the cooling tower, new concrete base fixed to the roof and new galvanized structural i-beams must be provided.
- Q8. “Whether the existing control wirings to be reused if in good & usable conditions to the extent possible?”
- A8. All controls related to the new equipment must be replaced by new control equipment, including the variable speed drive, the starters, the sensors and all associated cabling. However, all the new control equipment must be connected to the existing controllers to allow for the continuity of operation of the central chiller plant.
- Q9. “Whether the existing power cables to be reused if in good & usable conditions to the extent possible?”
- A9. No existing cable to be reused, all new cables are required.
- Q10. “Please confirm the scope for the civil work pertaining to the cut-out of slabs for chiller removal.”
- A10. There is no Civil related work in this project. But the concrete pads for the chiller, pumps and cooling tower are all the responsibility of the General/Mechanical contractor. The concrete mix, exact pad shape and associated rebar’s will have to be submitted for review of the engineer.
- Q11. “Please confirm the list of approved makes for each required major equipment like chiller, cooling towers, pumps etc.”
- A11. This information is available in the specification.
- Q12. “Electrical scope for pumps & cooling tower feeder : Existing panels to be reused ? modified ?”
- A12. See drawings for details, all equipment are well identified. See identification on drawing E01 below:



IDENTIFICATION
NOMENCLATURE

| | |
|-----------------|---|
| AE | TO DISCONNECT AND REMOVE C/W CONDUIT AND WIRING/ À DÉBRANCHER ET À ENLEVER C/A CONDUIT ET FILAGE |
| AC | TO KEEP/ À CONSERVER |
| EC | EXISTING KEPT/ EXISTANT CONSERVÉ |
| AM | TO BE MODIFIED/ À MODIFIER |
| EM | EXISTING MODIFIED/ EXISTANT MODIFIÉ |
| N | NEW/ NOUVEAU |
| N.T.S. / P.A.E. | NOT TO SCALE/ PAS À L'ÉCHELLE |
| WP | WEATHERPROOF/ ÉQUIPEMENT À L'ÉPREUVE DES INTEMPÉRIES |
| SF | UNFUSED/ SANS FUSIBLE |

Q13. "Please confirm whether any additional points required for the BMS for each equipments as compared to earlier if yes please confirm the scope of control wirings."

A13. See control drawing M-03 for details, existing points are identified in the controls legend and tagged on that drawing. To simplify the integration, the VFD for the primary pump could be used as a ON/OFF output until a future BAS migration is done. The existing cooling tower is already served by a VDF, hence a new VFD should not cause any integration problem.

Q14. "Is the entire civil work as applicable in bidder's scope?"

A14. There is no Civil related work in this project. But the concrete pads for the chiller, pumps and cooling tower are all the responsibility of the General/Mechanical contractor. The concrete mix, exact pad shape and associated rebar's will have to be submitted for review of the engineer.

Q15. Line to line replacement of chiller, request you to give us the following details:

Chillers

- 1.Chilled Water leaving temperature
2. Chilled water Leaving Temperature
3. Fouling factor of chiller
4. Condenser Water entering Temperature:
5. Condenser Water leaving Temperature
6. Fouling factor of condenser
7. Chilled water flow rate:



8. Condenser water flow rate
9. Any networking integration card required with chiller
10. Is the chiller, with VFD or without VFD
11. Model of chiller if any
12. Is VFD required with chiller THID should be +/-5%
13. Do you have an existing plant manger
14. Is the integration with the plant manager in our scope of work
15. Does your plant manager need replacement"

A15. See the paragraph named "Screw compressor chiller characteristics" in section 23 64 00 "WATER COOLING UNIT".

Q16. We have also high highlighted following chiller models for subject project:

1. York Premium Efficiency Water Cooled Magnetic Bearing Chiller with HFO refrigerant- Model No- YZ
2. York Premium Eff Water Cooled Screw Chiller with VFD- Model No- YVWH260
3. York High Eff Water Cooled Screw Chiller with VFD- Model No- YVWE270"

A16. For chiller, see section 23 64 00 "WATER COOLING UNIT" where most of the answers are listed. Variable speed compressor. Minimum efficiency listed in the spec. Refrigerant R-513a.

The technical details are as following :

| YORK | | | Magnetic Bearing Chiller with HFO and VFD | Premium Eff Screw Chiller with VFD | High Eff Screw Chiller with VFD |
|-------|---------------------|-------|---|------------------------------------|---------------------------------|
| S. No | Parameter | Units | | | |
| 1 | Capacity | TR | 250 | 250 | 250 |
| 2 | Type of Compressor | | Centrifugal | Screw | Screw |
| 3 | Starter | | VFD | VFD | VFD |
| | Refrigerant | | R-1233zd (e) | R-134a | R-134a |
| 4 | CHW In Temperature | Deg C | 12.55 | 12.55 | 12.55 |
| 5 | CHW Out Temperature | Deg C | 7 | 7 | 7 |
| 6 | Fouling Factor | FPS | 0.00025 | 0.00025 | 0.00025 |
| 7 | Pass | | Odd | Odd | Odd |
| 8 | CDW In Temp | Deg C | 32 | 32 | 32 |
| 9 | CDW Out Temp | Deg C | 36 | 36 | 36 |
| 10 | Fouling Factor | FPS | 0.00075 | 0.00075 | 0.00075 |



| | | | | | |
|----|------------------------|-------|------|------|------|
| 11 | Pass | | Even | Even | Even |
| 12 | COP at AHRI Conditions | | 6.6+ | 6.2+ | 5.6+ |
| 13 | IPLV | Kw/TR | 0.33 | 0.31 | 0.33 |
| 14 | Dimensions | | | | |
| 15 | L | m | 4.8 | 5 | 4.4 |
| 16 | W | m | 2.1 | 2 | 1.8 |
| 17 | H | m | 2.4 | 2.35 | 2.1 |
| 18 | Operating Wt | Kgs | 8500 | 7500 | 6200 |

For cooling tower, See section 23 65 10 "CONDENSERS, COOLERS AND COOLING TOWERS" where most of the answers are listed.

Cooling Towers

1. Colling Tower size
2. Construction of cooling tower
3. Heat refection capacity
4. Approach of cooling tower
5. Wet bulb Temperature of Delhi can be taken as Per ISHARE hand book
6. Water flow rete through Cooling Tower
7. Type of Fills
8. Model of cooling tower: Is cooling tower with VFD single cell / double cell /three cells
9. Forced draught/induced draught
10. Supply of Cooling Tower will be also considered in our scope of work with same make as per existing at site.
11. Make of fills
12. Entering water temperature To Cooling tower
13. Leaving water temperature from cooling tower
14. Make of Cooling Tower
15. Condenser water Pumps

For pumps, See section 23 21 23 "HYDRONIC PUMPS" where the answers are listed in the text and in the schedule.

Pumps

1. Make of pumps
2. Mode Of pumps
3. Flow rate
4. Head of Pumps
5. Impeller material
6. Minimum efficiency of Pumps
7. Pumps with VFD/without VFD
8. THID <+_5%required/not required
9. Supply of Pumps will be also considered in our scope of work



For VAM removal project, the pipes, pumps, controls and accessories to be removed are shown on the mechanical diagram M-02 and on the layout drawings (REFER TO THE ABSORPTION CHILLER REMOVAL PACKAGE). There is also detailed instructions of the scope of work in the paragraph named "Specific conditions – heating - Chilled water" of section 23 05 00 "COMMON WORK RESULTS FOR HVAC". The cooling tower is maintained as shown on the drawing. There is a specific note stating that the existing cooling tower is to be maintained with associated components.

VAM

1. Does the cooling tower and the flowing accessories of the VAM need to be dismantled
 1. Pumps :
 2. cooling tower
 3. Pipe

For piping See sections 23 21 13, 23 05 05, 23 05 17 of the mechanical specification.

Piping

Please confirm us make & Pipe Sizes
