

**RETURN BIDS TO:  
RETOURNER LES SOUMISSIONS À:**  
**Bid Receiving - PWGSC / Réception des  
soumissions - TPSGC**  
**11 Laurier St. / 11, rue Laurier**  
**Place du Portage, Phase III**  
**Core 0B2 / Noyau 0B2**  
**Gatineau, Québec K1A 0S5**  
**Bid Fax: (819) 997-9776**

**REQUEST FOR PROPOSAL  
DEMANDE DE PROPOSITION**

**Proposal To: Public Works and Government  
Services Canada**

We hereby offer to sell to Her Majesty the Queen in right of Canada, in accordance with the terms and conditions set out herein, referred to herein or attached hereto, the goods, services, and construction listed herein and on any attached sheets at the price(s) set out therefor.

**Proposition aux: Travaux Publics et Services  
Gouvernementaux Canada**

Nous offrons par la présente de vendre à Sa Majesté la Reine du chef du Canada, aux conditions énoncées ou incluses par référence dans la présente et aux annexes ci-jointes, les biens, services et construction énumérés ici sur toute feuille ci-annexée, au(x) prix indiqué(s).

**Comments - Commentaires**

<b>Title - Sujet</b> Air Cooled Water Chillers	
<b>Solicitation No. - N° de l'invitation</b> U6800-163593/B	<b>Date</b> 2015-06-22
<b>Client Reference No. - N° de référence du client</b> U6800-163593	
<b>GETS Reference No. - N° de référence de SEAG</b> PW-\$\$HP-912-67542	
<b>File No. - N° de dossier</b> hp912.U6800-163593	<b>CCC No./N° CCC - FMS No./N° VME</b>
<b>Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2015-07-03</b>	<b>Time Zone Fuseau horaire</b> Eastern Daylight Saving Time EDT
<b>F.O.B. - F.A.B.</b> <b>Plant-Usine:</b> <input type="checkbox"/> <b>Destination:</b> <input checked="" type="checkbox"/> <b>Other-Autre:</b> <input type="checkbox"/>	
<b>Address Enquiries to: - Adresser toutes questions à:</b> Pearson, Neil	<b>Buyer Id - Id de l'acheteur</b> hp912
<b>Telephone No. - N° de téléphone</b> (819) 956-3976 ( )	<b>FAX No. - N° de FAX</b> (819) 953-2953
<b>Destination - of Goods, Services, and Construction: Destination - des biens, services et construction:</b> DEPARTMENT OF INDUSTRY CANADA 3701 CARLING AVE P.O.BOX 11490 STATION H OTTAWA Ontario K2H8S2 Canada	

**Instructions: See Herein**

**Instructions: Voir aux présentes**

**Vendor/Firm Name and Address**  
**Raison sociale et adresse du  
fournisseur/de l'entrepreneur**

<b>Delivery Required - Livraison exigée</b> See Herein	<b>Delivery Offered - Livraison proposée</b>
<b>Vendor/Firm Name and Address</b> <b>Raison sociale et adresse du fournisseur/de l'entrepreneur</b>	
<b>Telephone No. - N° de téléphone</b> <b>Facsimile No. - N° de télécopieur</b>	
<b>Name and title of person authorized to sign on behalf of Vendor/Firm (type or print)</b> <b>Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)</b>	
<b>Signature</b>	<b>Date</b>



Item Article	Description	Dest. Code Dest.	Inv. Code Fact.	Qty Qté	U. of I. U. de D.	Unit Price/Prix unitaire FOB/FAM Destination Plant/Usine		Delivery Req. Livraison Req.	Del. Offered Liv. offerte
1	Air Cooled Water Chillers	U6800	U6800	1	LOT	\$	XXXXXXXXXXXX	See Herein	

Solicitation No. - N° de l'invitation

U6800-163593/B

Amd. No. - N° de la modif.

Buyer ID - Id de l'acheteur

hp912

Client Ref. No. - N° de réf. du client

U6800-163593

File No. - N° du dossier

hp912U6800-163593

CCC No./N° CCC - FMS No/ N° VME

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**This bid solicitation cancels and supersedes previous bid solicitation  
number U6800-163593/A dated 26 May 2015 with a closing of  
09 June 2015 at 2:00 p.m. 02 EST.**

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## **PART 1 - GENERAL INFORMATION**

### **1. Requirement**

- 1.1 Industry Canada requires Air Cooled Water Chillers as detailed herein, in accordance with Annex "A" – Pricing and Annex "B" – Purchase Description Air Cooled Water Chillers attached hereto.

### **2. Debriefings**

Bidders may request a debriefing on the results of the bid solicitation. Bidders should make the request to the Contracting Authority within 15 working days of receipt of notification that their bid was unsuccessful. The debriefing may be provided in writing, by telephone or in person.

### **3. Trade Agreements**

The requirement is subject to the provisions of the World Trade Organization Agreement on Government Procurement (WTO-AGP), the North American Free trade Agreement (NAFTA), and the Agreement on Internal Trade (AIT).

## **PART 2 - BIDDER INSTRUCTIONS**

### **1. Standard Instructions, Clauses and Conditions**

All instructions, clauses and conditions identified in the bid solicitation by number, date and title are set out in the Standard Acquisition Clauses and Conditions *Standard Acquisition Clauses and Conditions Manual* (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) Manual issued by Public Works and Government Services Canada.

Bidders who submit a bid agree to be bound by the instructions, clauses and conditions of the bid solicitation and accept the clauses and conditions of the resulting contract. The 2003 (2014-09-25) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

Subsection 5.4 of 2003, Standard Instructions - Goods or Services - Competitive Requirements, is amended as follows:

**Delete:** sixty (60) days

**Insert:** ninety (90) days

### **2. Submission of Bids**

Bids must be submitted only to Public Works and Government Services Canada (PWGSC) Bid Receiving Unit by the date, time and place indicated on page 1 of the bid solicitation.

### **3. Enquiries - Bid Solicitation**

All enquiries must be submitted in writing to the Contracting Authority no later than seven (7) calendar days before the bid closing date. Enquiries received after that time may not be answered.

Bidders should reference as accurately as possible the numbered item of the bid solicitation to which the enquiry relates. Care should be taken by bidders to explain each question in sufficient detail in order to enable Canada to provide an accurate answer. Technical enquiries that are of a proprietary nature must be clearly marked "proprietary" at each relevant item. Items identified as "proprietary" will be treated as such except where Canada determines that the enquiry is not of a proprietary nature. Canada may edit the questions or may request that the Bidder do so, so that the proprietary nature of the question is eliminated, and the enquiry can be answered to all bidders. Enquiries not submitted in a form that can be distributed to all bidders may not be answered by Canada.

#### **4. Applicable Laws**

Any resulting contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in Ontario.

Bidders may, at their discretion, substitute the applicable laws of a Canadian province or territory of their choice without affecting the validity of their bid, by deleting the name of the Canadian province or territory specified and inserting the name of the Canadian province or territory of their choice. If no change is made, it acknowledges that the applicable laws specified are acceptable to the bidders.

#### **5. Environmental Considerations**

Canada is committed to greening its supply chain. In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to acquire products and services that have a lower impact on the environment than those traditionally acquired. Environmental performance considerations include, among other things: the reduction of greenhouse gas emissions and air contaminants; improved energy and water efficiency; reduced waste and support reuse and recycling; the use of renewable resources; reduced hazardous waste; and reduced toxic and hazardous substances. In accordance with the Policy on Green Procurement, for this solicitation:

- Suppliers are requested to provide all correspondence including (but not limited to) documents, reports and invoices in electronic format unless otherwise specified by the Contracting Authority or Project Authority, thereby reducing printed material.
- Suppliers should recycle (shred) unneeded copies of non-classified/secure documents (taking into consideration the Security Requirements).
- Product components used in performing the services should be recyclable and/or reusable, whenever possible.

#### **6. Improvement of Requirement During Solicitation Period**

Should bidders consider that the specifications or Statement of Work contained in the bid solicitation could be improved technically or technologically, bidders are invited to make suggestions, in writing, to the Contracting Authority named in the bid solicitation. Bidders must clearly outline the suggested improvement as well as the reason for the suggestion. Suggestions that do not restrict the level of competition nor favour a particular bidder will be given consideration provided they are submitted to the Contracting Authority at least seven (7) calendar days before the bid closing date. Canada will have the right to accept or reject any or all suggestions.



## **PART 3 - BID PREPARATION INSTRUCTIONS**

### **1. Bid Preparation Instructions**

Canada requests that bidders provide their bid in separately bound sections as follows:

Section I: Technical Bid ( 2 hard copies)

Section II: Financial Bid ( 1 hard copy)

Section III: Certifications (1 hard copy)

Section IV: Additional Information (1 hard copy)

Canada requests that bidders follow the format instructions described below in the preparation of their bid:

- (a) use 8.5 x 11 inch (216 mm x 279 mm) paper and
- (b) use a numbering system that corresponds to the bid solicitation.

In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to incorporate environmental considerations into the procurement process Policy on Green Procurement (<http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/politique-policy-eng.html>). To assist Canada in reaching its objectives, bidders should:

- 1) use paper containing fibre certified as originating from a sustainably-managed forest and containing minimum 30% recycled content; and
- 2) use an environmentally-preferable format including black and white printing instead of colour printing, printing double sided/duplex, using staples or clips instead of cerlox, duotangs or binders.

#### **Section I: Technical Bid**

In their technical bid, bidders should explain and demonstrate how they propose to meet the requirements and how they will carry out the Work.

- 1) Appendix “1” – Technical Evaluation Grid – Purchase Description Air Cooled Water Chillers;
- 2) Annex "B" - Purchase Description Air Cooled Water Chillers;

## **1. Equivalent Products**

- 1.1 Products that are equivalent in form, fit, function and quality to the item(s) specified in the bid solicitation will be considered where the Bidder:
  - (a) designates the brand name, model and/or part number of the substitute product;
  - (b) states that the substitute product is fully interchangeable with the item specified;
  - (c) provides complete specifications and descriptive literature for each substitute product;
  - (d) provides compliance statements that include technical specifics showing the substitute product meets all mandatory performance criteria that are specified in the bid solicitation; and
  - (e) clearly identifies those areas in the specifications and descriptive literature that support the substitute product's compliance with any mandatory performance criteria.
- 1.2 Products offered as equivalent in form, fit, function and quality will not be considered if:
  - (a) the bid fails to provide all the information requested to allow the Contracting Authority to fully evaluate the equivalency of each substitute product; or
  - (b) the substitute product fails to meet or exceed the mandatory performance criteria specified in the bid solicitation for that item.
- 1.3 Suppliers are encouraged to offer or suggest green solutions whenever possible.
- 1.4 In conducting its evaluation of the bids, Canada may, but will have no obligation to, request bidders offering a substitute product to demonstrate, at the sole cost of bidders, that the substitute product is equivalent to the item specified in the bid solicitation.

## **Section II: Financial Bid**



### **1. Pricing**

The Bidders must submit their prices in Annex “A”- Pricing and in accordance with the Basis of Payment identified in PART 6 - RESULTING CONTRACT CLAUSES.

Prices should not be indicated in any other section of the bid.

### **2.SACC Manual Clauses**

#### **2.1 Exchange Rate Fluctuation Risk Mitigation**

1. The Bidder may request Canada to assume the risks and benefits of exchange rate fluctuations. If the Bidder claims for an exchange rate adjustment, this request must be clearly indicated in the bid at time of bidding. The Bidder must submit form PWGSC-TPSGC 450 , Claim for Exchange Rate Adjustments with its bid, indicating the Foreign Currency Component (FCC) in Canadian dollars for each line item for which an exchange rate adjustment is required.
2. The FCC is defined as the portion of the price or rate that will be directly affected by exchange rate fluctuations. The FCC should include all related taxes, duties and other costs paid by the Bidder and which are to be included in the adjustment amount.
3. The total price paid by Canada on each invoice will be adjusted at the time of payment, based on the FCC and the exchange rate fluctuation provision in the contract. The exchange rate adjustment will only be applied where the exchange rate fluctuation is greater than 2% (increase or decrease).
4. At time of bidding, the Bidder must complete columns (1) to (4) on form PWGSC-TPSGC 450 , for each line item where they want to invoke the exchange rate fluctuation provision. Where bids are evaluated in Canadian dollars, the dollar values provided in column (3) should also be in Canadian dollars, so that the adjustment amount is in the same currency as the payment.
5. Alternate rates or calculations proposed by the Bidder will not be accepted for the purposes of this exchange rate fluctuation provision.

### **Section III: Certifications**

Bidders must submit the certifications required under PART 5 - CERTIFICATIONS.

### **Section IV: Additional Information**

Canada requests that bidders submit the following information:

#### **1. Delivery**

##### **1.1 Firm quantity**

The Air Cooled Water Chiller system delivery is requested by 30 September 2015, the best delivery that could be offered is:

Item 001 – Quantity one (1) Air Cooled Water Chiller system will be delivered within \_\_\_\_\_ calendar days from the effective date of the contract.

##### **1.2 Manufacturer and Model – (*Bidder to complete*)**

Manufacturer: \_\_\_\_\_ Model: \_\_\_\_\_

## **PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION**

### **1. Evaluation Procedures**

- a) Bids will be assessed in accordance with the entire requirement of the bid solicitation including the technical and financial evaluation criteria.
- b) An evaluation team composed of representatives of Canada will evaluate the bids.

#### **1.1. Technical Evaluation**

1.1.1 Bidders must submit, with their bid, the followings documents:

- 1) Appendix 1 - Technical Evaluation Grid Air Cooled Water Chillers;  
; and
- 2) Annex "B" – Purchase Description "Packaged Chillers".

#### **1.1.2 Equivalent Products**

Bidders proposing substitutes and/or alternatives must provide with their bid all the information requested as detailed in Part 3, "equivalent products" to be considered for evaluation.

### **1.2. Financial Evaluation**

- 1.2.1 The purpose of the financial evaluation is to determine the aggregate price, based on the information submitted in Annex "A" - Pricing.

### **2. Basis of Selection**

- 2.1 A bid must comply with the requirements of the bid solicitation and meet all mandatory criteria to be declared responsive. The responsive bid with the lowest evaluated price will be recommended for award of a contract.

## **PART 5 - CERTIFICATIONS**

Bidders must provide the required certifications and associated information to be awarded a contract.

The certifications provided by bidders to Canada are subject to verification by Canada at all times. Canada will declare a bid non-responsive, or will declare a contractor in default in carrying out any of its obligations under the Contract, if any certification made by the Bidder is found to be untrue whether made knowingly or unknowingly during the bid evaluation period or during the contract period.

The Contracting Authority will have the right to ask for additional information to verify the Bidder's certifications. Failure to comply and cooperate with any request or requirement imposed by the Contracting Authority may render the bid non-responsive or constitute a default under the Contract.

### **1. Certifications Required Precedent to Contract Award**

#### **1.1 Integrity Provisions – Associated Information**

By submitting a bid, the Bidder certifies that the Bidder and its Affiliates are in compliance with the provisions as stated in Section 01 Integrity Provisions - Bid of Standard Instructions 2003. The associated information required within the Integrity Provisions will assist Canada in confirming that the certifications are true.

#### **1.2 Federal Contractors Program for Employment Equity - Bid Certification**

By submitting a bid, the Bidder certifies that the Bidder, and any of the Bidder's members if the Bidder is a Joint Venture, is not named on the Federal Contractors Program (FCP) for employment equity "FCP Limited Eligibility to Bid" list ([http://www.labour.gc.ca/eng/standards\\_equity/eq/emp/fcp/list/inelig.shtml](http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcp/list/inelig.shtml)) available from Employment and Social Development (ESDC) - Labour's website.

Canada will have the right to declare a bid non-responsive if the Bidder, or any member of the Bidder if the Bidder is a Joint Venture, appears on the "FCP Limited Eligibility to Bid" list at the time of contract award.

### **2. Additional Certifications Precedent to Contract Award**

The certifications listed below should be completed and submitted with the bid, but may be submitted afterwards. If any of these required certifications is not completed and submitted as requested, the Contracting Authority will inform the Bidder of a time frame within which to

provide the information. Failure to comply with the request of the Contracting Authority and to provide the certifications within the time frame provided will render the bid non-responsive.

## **2.1 Product Conformance**

The Bidder certifies that all equipment proposed conform, and will continue to conform throughout the duration of the contract, to all technical specifications of the purchase description(s).

This certification does not relieve the bid from meeting all mandatory technical evaluation criteria detailed in Part 4.

---

Bidder's authorized representative signature

---

Date

## **PART 6 - RESULTING CONTRACT CLAUSES**

### **1. Requirement**

The Contractor must deliver the Air Cooled Water Chiller system in accordance with Annex “A” – Pricing and Annex “B” – Purchase Description Air Cooled Water Chillers.

### **2. Standard Clauses and Conditions**

All clauses and conditions identified in the Contract by number, date and title are set out in the Standard Acquisition Clauses and Conditions Manual Standard Acquisition Clauses and Conditions Manual (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) issued by Public Works and Government Services Canada.

#### **2.1 General Conditions**

**2010A (2014-11-27) General Conditions - Goods (Medium Complexity)**, apply to and form part of the contract

##### **2.1.1 Subsection 09 of general conditions 2010A is amendment by replacing the period of twelve (12) months by :**

1. Standard Warranty (Canada): The refrigeration equipment manufacturer's warranty must be for a period of 1 year from date of equipment start up, but not more than 18 months from shipment. It must cover replacement parts having proven defective within the above period.
2. 1st Year Labor Warranty: Included
3. Extended Compressor warranty: 5 years from date of Start- up.

All other provisions of the warranty section remain in effect.

### **3. Term of Contract**

#### **3.1 Delivery of the Air Cooled Water Chillers**

##### **3.1.1 Firm Quantity**

Delivery of the Air Cooled Water Chiller system must be made as follows:

**Item 001** – Quantity one (1) Air Cooled Water Chiller system must be delivered on or before \_\_\_\_\_. (Date to be inserted by PWGSC at time of contract award.)



**Item 002** – Quantity one (1) Installation assistance and Start up service/commission and training must be carried out within 2 months after delivery of Item 001.

#### 4. Authorities

##### 4.1 Contracting Authority

The Contracting Authority for the Contract is:

Name: Neil Pearson  
Title: Supply Specialist  
Organization: Public Works and Government Services Canada - Acquisitions Branch  
LEFT Directorate, HP Division,  
7A2, Place du Portage, Phase 3, 11 Laurier Street, Gatineau Quebec,  
K1A 0S5  
Telephone: 819 956-3976  
Facsimile: 819 953-2953  
E-mail: neil.pearson@tpsgc-pwgsc.gc.ca

The Contracting Authority is responsible for the management of the Contract and any changes to the Contract must be authorized in writing by the Contracting Authority. The Contractor must not perform work in excess of or outside the scope of the Contract based on verbal or written requests or instructions from anybody other than the Contracting Authority.

##### 4.2 Procurement Authority

The Procurement Authority for the Contract is:

Name: \_\_\_\_\_ (To be inserted by PWGSC at time of contract award.)  
Title: \_\_\_\_\_  
Organization: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
Telephone: \_\_\_\_-\_\_\_\_-\_\_\_\_\_  
Facsimile: \_\_\_\_-\_\_\_\_-\_\_\_\_\_  
E-mail: \_\_\_\_\_

The Procurement Authority is the representative of the department or agency for whom the Work is being carried out under the Contract. The Procurement Authority

is responsible for the implementation of tools and processes required for the administration of the Contract. The Contractor may discuss administrative matters identified in the Contract with the Procurement Authority however the Procurement Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of Work can only be made through a contract amendment issued by the Contracting Authority.

#### 4.3 Contractor's Representative

Name and telephone number of the person responsible for:

##### General enquiries:

Name: \_\_\_\_\_ (To be completed by the bidder.)  
Title: \_\_\_\_\_  
Telephone: \_\_\_\_-\_\_\_\_-\_\_\_\_  
Facsimile: \_\_\_\_-\_\_\_\_-\_\_\_\_  
E-mail: \_\_\_\_\_

##### Delivery follow-up:

Name: \_\_\_\_\_ (To be completed by the bidder.)  
Title: \_\_\_\_\_  
Telephone: \_\_\_\_-\_\_\_\_-\_\_\_\_  
Facsimile: \_\_\_\_-\_\_\_\_-\_\_\_\_  
E-mail: \_\_\_\_\_

## 5. Payment

### 5.1 Basis of Payment

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid the firm unit price(s) specified in Annex "A" - Pricing, and as follows:

Basis of Payment (BOP) Type 1: Firm unit prices in Canadian dollars, Delivered Duty Paid at destination, Incoterms 2000, including Canadian Custom Duties and Excise Taxes included where applicable, and applicable Taxes are extra.

Canada will not pay the Contractor for any design changes, modifications or interpretations of the Work unless they have been approved, in writing, by the Contracting Authority before their incorporation into the Work.

## 5.2 SACC Manual Clauses

H1001C Multiple Payments

2008-05-12

## 5.3 Exchange Rate Fluctuation Adjustment

2.3.1 The foreign currency component (FCC) is defined as the portion of the price or rate that will be directly affected by exchange rate fluctuation. The FCC should include all related taxes, duties and other costs paid by the Bidder and which are to be included in the adjustment amount.

2.3.2 For each line item where a FCC is identified, Canada assumes the risks and benefits for exchange rate fluctuation, as shown in the Basis of Payment. For such items, the exchange rate fluctuation amount is determined in accordance with the provision of this clause.

5.3.3 The total price paid by Canada on each invoice will be adjusted at the time of payment, based on the FCC and the exchange rate fluctuation provisions in the contract. The exchange rate adjustment amount will be calculated in accordance with the following formula:

$$\text{Adjustment} = FCC \times Qty \times (i_1 - i_0) / i_0$$

where formula variables correspond to:

FCC

Foreign Currency Component (per unit)

$i_0$

Initial exchange rate (CAN\$ per unit of foreign currency [e.g. US\$1])

$i_1$

exchange rate for adjustments (CAN\$ per unit of foreign currency [e.g. US\$1])

Qty

quantity of units

5.3.4 The initial exchange rate is typically set as the noon rate as published by the Bank of Canada on the solicitation closing date.

5.3.5 For goods, the exchange rate for adjustment will be the noon rate as published by the Bank of Canada on the date the goods were delivered. For services, the exchange rate for adjustment will be the noon rate on the last business day of

the month for which the services were performed. For advance payments, the exchange rate for adjustment will be the noon rate on the date the payment was due. The most recent noon rate will be used for non-business days.

5.3.6 The Contractor must indicate the total exchange rate adjustment amount (either upward, downward or no change) as a separate item on each invoice or claim for payment submitted under the Contract. Where an adjustment applies, the Contractor must submit with their invoice form PWGSC-TPSGC 450, Claim for Exchange Rate Adjustments.

5.3.7 The exchange rate adjustment will only be applied where the exchange rate fluctuation is greater than 2% (increase or decrease), calculated in accordance with column 8 of form PWGSC-TPSGC 450 (i.e.  $[i_1 - i_0] / i_0$ ).

5.3.8 Canada reserves the right to audit any revision to costs and prices under this clause.

## 6. Invoicing Instructions

**6.1** The Contractor must submit invoices in accordance with the section entitled "Invoice Submission" of the general conditions. Invoices cannot be submitted until all work identified in the invoice is completed. Suppliers are requested to provide invoices in electronic format unless otherwise specified by the Contracting Authority or Project Authority, thereby reducing printed material.

Invoices must be distributed as follows:

(a) The original and one (1) copy must be forwarded to the following address for certification and payment.

**Industry Canada  
Communications Research Centre  
3701 Carling Ave  
PO Box 11490 Station H  
Ottawa, ON K2H 8S2**

(b) One (1) copy must be forwarded to the Contracting Authority identified under section 4. Authorities of the Contract.

## 7. Certifications

### 7.1 Compliance

Compliance with the certifications and related documentation provided by the Contractor in its bid is a condition of the Contract and subject to verification by Canada during the term of the Contract. If the Contractor does not comply with any certification, provide the related documentation or if it is determined that any certification made by the Contractor in its bid is untrue, whether made knowingly or unknowingly, Canada has the right, pursuant to the default provision of the Contract, to terminate the Contract for default.

## **8. Applicable Laws**

The Contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in Ontario.

## **9. Priority of Documents**

If there is a discrepancy between the wording of any documents that appear on the list, the wording of the document that first appears on the list has priority over the wording of any document that subsequently appears on the list.

- (a) the Articles of Agreement;
- (b) 2010A (2014-11-27) General Conditions - Goods (Medium Complexity);
- (c) Annex "A" - Pricing;
- (d) Annex "B" – Purchase Description Air Cooled Water Chillers
- (e) Appendix 1 – Technical Evaluation Grid - Air Cooled Water Chillers
- (f) the Contractor's bid dated \_\_\_\_\_.

## **10. SACC Manual Clauses**

A1009C	Work Site Access	2008-05-12
G1005C	Insurance	2008-05-12

## **11. Inspection and Acceptance**

The Technical Authority is the Inspection Authority. All reports, deliverable items, documents, goods and all services rendered under the Contract are subject to inspection by the Inspection Authority or representative. Should any report, document, good or service not be in accordance with the requirements of the Statement of Work and to the satisfaction of the Inspection Authority, as submitted, the Inspection Authority will have the right to reject it or require its correction at the sole expense of the Contractor before recommending payment.

## **12. Preparation for Delivery**

The equipment must be serviced, adjusted and delivered in condition for immediate use. The equipment must be cleaned before leaving the factory and being released to "Industry Canada " personnel at the final delivery location.

Any attempt by the carrier to deliver the equipment will be refused unless arrangements have been made for authorized, qualified personnel to be available to perform inspections and to accept the delivery. When the carrier is required to return due to its failure to make an appointment for delivery, Canada will not be liable to pay for additional costs.

### **13. Delivery and Handling**

The Air cooled water chiller must be delivered to the job site completely piped, wired and charged with refrigerant by the manufacturer.

### **14. Shipping Instructions**

The Contractor must ship the goods prepaid DDP - Delivered Duty Paid (as detailed in Annex 'A' - Pricing). Unless otherwise directed, delivery must be made by the most economical means. The Contractor is responsible for all delivery charges, administration, costs and risks of transport and customs clearance, including the payment of customs duties and taxes.

Item 001 - the contact person for delivery is: \_\_\_\_\_ (to be inserted by PWGSC at time of contract award).

### **15. Packaging**

The methods used for preservation and packaging must be in conformity with the contractor's normal standard for domestic shipment or, if necessary, with standards for overseas shipment as below deck cargo.

### **16. Material**

Material supplied must be new, unused by manufacturer.

### **17. Environmental Considerations**

Canada is committed to greening its supply chain. In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to acquire products and services that have a lower impact on the environment than those traditionally acquired. Environmental performance considerations include, among other things: the reduction of greenhouse gas emissions and air contaminants; improved energy and water efficiency; reduced waste and support reuse and recycling; the use of renewable resources; reduced hazardous waste;

and reduced toxic and hazardous substances. In accordance with the Policy on Green Procurement:

The Contractor is requested to provide all correspondence including (but not limited to) documents and reports in electronic format unless otherwise specified by the Contracting Authority and the Procurement Authority (I/A), thereby reducing printed material.

The Contractor should recycle (shred) unneeded copies of non-classified/secure documents (taking into consideration the Security Requirements).

Product components used in performing the services should be recyclable and/or reusable, whenever possible.

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## **ANNEX "A" – PRICING**

### **Item 001 Air Cooled Water Chiller System**

The Contractor must deliver the equipment including all deliverables in accordance with the attached Annex "B" –Purchase Description – Air Cooled Water Chillers.

The Air Cooled Water Chiller system and related items must be delivered to:

Industry Canada  
Communications Research Centre  
3701 Carling Ave  
PO Box 11490 Station H  
Ottawa, Ontario

Delivery contact: \_\_\_\_\_ (Name to be inserted by PWGSC at time of contract award.)

Date of delivery: \_\_\_\_\_ (Date to be inserted by PWGSC at time of contract award.)

Firm Lot price of \$ \_\_\_\_\_ for Air Cooled Water Chiller system including all related Items, in accordance with Basis of Payment Type 1 (as detailed at Clause 5.1 Basis of Payment).

Manufacturer and Model – (to be inserted by PWGSC at time of contract award.)

Manufacturer: \_\_\_\_\_ Model: \_\_\_\_\_

Quantity: One (1)

### **Item 002 Installation Assistance and Start up Service/ Commission and Training**

The Contractor must carry out Installation assistance and Start up service/commission and training in accordance with the attached Annex "B" - Purchase Description – Air Cooled Water Chillers

Firm unit price of \$ \_\_\_\_\_ per Installation assistance and Start up Service/Commission and training in accordance with Basis of Payment Type 1 (as detailed at Clause 5.1 Basis of Payment).

Quantity: One (1)



# COMMUNICATION RESEARCH CENTRE

BUILDING 2C – CHCP UPGRADE

**PURCHASE DESCRIPTION**

**AIR COOLED WATER CHILLERS**

ISSUED FOR FINAL  
MAY 2015

## **1 GENERAL**

### **1.1 REFERENCES**

- .1 Air-Conditioning, Heating and Refrigeration Institute (AHRI)
  - .1 AHRI-550/590-11, Performance Rating of Water Chilling Packages Using the Vapor Compression Cycle.
- .2 CSA International
  - .1 CSA B52-05, Mechanical Refrigeration Code.
- .3 Environment Canada, (EC)/Environmental Protection Services (EPS)
  - .1 EPS 1/RA/2-1996, Environmental Code of Practice for Elimination of Fluorocarbons Emissions from Refrigeration and Air Conditioning Systems.
- .4 ASTM International Inc.
  - .1 ASTM C 547-07e1, Standard Specification for Mineral Fiber Pipe Insulation.

### **1.2 MINIMUM STANDARDS**

- .1 Materials must be new and work must conform to the minimum applicable standards of the Canadian General Standards Board, the Canadian Standards Association, the National Building Code of Canada 2010 (NBC) and all applicable Provincial and Municipal codes. In the case of conflict or discrepancy the most stringent requirement must apply.

### **1.3 SHOP DRAWINGS**

- .1 Submit a PDF copy of each shop drawing.
- .2 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Supplier to illustrate details of a portion of Equipment.
- .3 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been coordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.
- .4 Adjustments made on shop drawings by CRC are not intended to change Contract Price.
- .5 Make changes in shop drawings as CRC may require.
- .6 Do not commence manufacture or order materials before shop drawings are approved.
- .7 Present shop drawings, product data and samples in imperial and metric units.
- .8 Accompany submissions with transmittal letter, in duplicate, containing:
  - .1 Date.
  - .2 Project title and number.
  - .3 Contractor's name and address.
  - .4 Identification and quantity of each shop drawing, product data and sample 1.
  - .5 Other pertinent data.

- .9 Submissions must include:
  - .1 Date and revision dates.
  - .2 Project title and number.
  - .3 Name and address of:
    - .1 Supplier.
    - .2 Manufacturer.
  - .4 Details of appropriate portions of Work as applicable:
    - .1 Fabrication.
    - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
    - .3 Setting or erection details.
    - .4 Capacities.
    - .5 Performance characteristics.
    - .6 Standards.
    - .7 Operating weight.
    - .8 Wiring diagrams.
    - .9 Single line and schematic diagrams.
    - .10 Relationship to adjacent work.
- .10 After CRC Representative review, distribute copies.
- .11 Submit one (1) copy of shop drawing for each requirement requested in specification Sections and CRC Representative may reasonably request.
- .12 Submit one (1) copy of product data sheets or brochures for requirements requested in specification Sections and as requested by CRC Representative where shop drawings will not be prepared due to standardized manufacture of product.
- .13 Delete information not applicable to project.
- .14 Supplement standard information to provide details applicable to project.
- .15 If upon review by CRC Representative, no errors or omissions are discovered or if only minor corrections are made, copies will be returned and fabrication and supply may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication may proceed.

#### **1.4 FEES, PERMITS AND CERTIFICATES**

- .1 The chiller manufacturer must pay all fees and obtain all permits necessary to manufacture, transport and supply equipment in this specification. Provide authorities with plans and information for acceptance certificates. Provide inspection certificates as evidence that work has been completed.

#### **1.5 HAZARDOUS MATERIAL**

- .1 Chiller manufacturer must comply with the requirements of the Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and the provision of Material Safety Data Sheets (MSDS) acceptable to Human Resources Development Canada, Labour Program.

## **2 PRODUCTS**

### **2.1 GENERAL**

- .1 Supply complete air-cooled scroll compressor chiller system consisting of an outdoor compressor-condenser section and a remote indoor evaporator as specified herein and as shown on the drawings.

### **2.2 UNIT DESCRIPTION**

- .1 Supply factory-assembled, air-cooled scroll compressor chiller with remote evaporator in the quantity specified. The outdoor unit must consist of hermetic tandem scroll compressor sets (total four compressors), air-cooled condenser section, microprocessor-based control system and all components necessary for controlled unit operation. A multi-circuit, direct expansion, brazed-plate insulated evaporator must be provided for remote location to be installed and piped to the outdoor unit by the installing contractor. Components must be shipped with a holding charge of nitrogen.

### **2.3 DESIGN REQUIREMENTS**

- .1 General: Provide a complete scroll compressor chiller consisting of an outdoor compressor-condenser section and a remote indoor evaporator as specified herein.
- .2 Performance:
  - .1 Certified ratings based on AHRI Standard 550/590: no less than 352 kW (100 ton) when cooling 16L/S (254 GPM) of water from 12.7°C (55°F) to 7.2°C (45°F).
  - .2 Power input, including compressor motor, fans, and controls: 124.6 kW.
  - .3 Refrigerant: R410a.
  - .4 Minimum EER 9.56.
  - .5 Minimum IPLV (EER): 12.5.
  - .6 Maximum shipping weight 5,052 lbs
  - .7 Maximum total operating weight 5,228 lbs
  - .8 Maximum dimensions (LxWxH): 140in (3556 mm) x 90in (2286 mm) x 100in (2,500mm).
  - .9 Condenser design ambient: 35°C (95°F).
  - .10 The chiller must be capable of stable operation to a minimum of 25 percent of full load without hot gas bypass. Performance must be in accordance with ARI Standard 550/590, and meet efficiency standards of ASHRAE Standard 90.1 (2010).
  - .11 Acoustics: Sound pressure levels for the unit must not exceed the following specified levels. All manufacturers must provide the necessary sound treatment (parts and labor) to meet these levels if required. Sound data must be provided with the quotation. Test must be in accordance with AHRI Standard 370.

Sound Pressure (at 30 feet)								
63 Hz dB	125 Hz dB	250 Hz dB	500 Hz dB	1 kHz dB	2 kHz dB	4 kHz dB	8 kHz dB	Overall dBA
66	68	65	65	62	56	56	55	67
Sound Power								
63 Hz dB	125 Hz dB	250 Hz dB	500 Hz dB	1 kHz dB	2 kHz dB	4 kHz dB	8 kHz dB	Overall dBA
93	95	92	92	89	83	83	82	94
Octave band is non 'A' weighted and overall readings are 'A' weighted. Sound data rated in accordance with AHRI Standard-370.								

## 2.4 CHILLER COMPONENTS

- .1 Compressor:
  - .1 The compressors must be sealed hermetic, scroll type with crankcase oil heater and suction strainer. Compressor must have a forced-feed lubrication system with a reversible oil pump and oil charge. The compressor motor must be refrigerant gas cooled, high torque, hermetic induction type, two-pole, with inherent thermal protection on all three phases and must be mounted on vibration isolator pads.
- .2 Evaporator:
  - .1 The remote evaporator must be a compact, high efficiency, dual circuit, brazed plate-to-plate type heat exchanger consisting of parallel stainless steel plates.
    - .1 The evaporator must be insulated with 3/4" (19 mm) thick closed-cell polyurethane insulation.
    - .2 The water-side working pressure must be a minimum of 653 psig (4502 kPa). Vent and drain connections must be provided in the inlet and outlet chilled water piping by the installing contractor. Evaporators must be designed and constructed according to, and listed by, Underwriters Laboratories (UL).
    - .3 Performance:
      1. Entering water temperature: 54.4 °F
      2. Leaving water temperature: 45.0 °F
      3. Minimum Fluid flow: 254 GPM
      4. Minimum Pressure drop: 15 Ft.
      5. Fouling factor: 0.00010
- .3 Condenser:
  - .1 The condenser coils must consist of 3/8 inch (10mm) seamless copper tubes mechanically bonded into plate type fins. The fins must have full drawn collars to completely cover the tubes. A sub-cooling coil must be an integral part of the main condenser coil.
    - .1 Condenser fans must be propeller type arranged for vertical air discharge and individually driven by direct drive fan motors. Each fan must be in its own compartment to eliminate cross flow of condenser air during fan cycling and must be equipped with a heavy-gauge vinyl coated fan guard.
    - .2 Fan motors must be weather protected, three-phase, direct-drive, 1140 rpm, Totally Enclosed Air Over-Motors (TEAO) type with permanently lubricated ball bearings and inherent overload protection. External coils must have wire mesh protective guards.
  - .2 Condenser coils must be rippled aluminum fins.

- .4 Refrigerant Circuit:
  - .1 Each of the two refrigerant circuits must include a replaceable-core refrigerant filter-drier, sight glass with moisture indicator, liquid line solenoid valve (no exceptions), thermal expansion valve, and insulated suction line.
- .5 Construction:
  - .1 Unit casing and all structural members and rails must be fabricated of steel and painted to meet ASTM B117, 500-hour salt spray test.
  - .2 Upper condenser coil section of unit must have protective, 12 GA, PVC-coated, wire grille guards.
- .6 Control System:
  - .1 A centrally located weatherproof control panel must contain the field power connection points, control interlock terminals, and control system. Power and starting components must include factory circuit breaker of fan motors and control circuit, individual contactors for each fan motor, solid-state compressor three-phase motor overload protection, inherent fan motor overload protection and two power blocks (one per circuit) for connection to remote, contractor supplied disconnect switches. Hinged access doors must be lockable. Barrier panels or separate enclosures are required to protect against accidental contact with line voltage when accessing the control system.
  - .2 Must include optional single-point connection to a non-fused disconnect switch with through-the-door handle and compressor circuit breakers.
- .7 Unit Controller:
  - .1 An advanced DDC microprocessor unit controller with display provides the operating and protection functions. The controller must take pre-emptive limiting action in case of high discharge pressure or low evaporator pressure. The controller must contain the following features as a minimum:
  - .2 Equipment Protection
    - .1 The unit must be protected in two ways: (1) by alarms that shut the unit down and require manual reset to restore unit operation and (2) by limit alarms that reduce unit operation in response to some out-of-limit condition. Shut down alarms must activate an alarm signal.
  - .3 Shutdown Alarms:
    - .1 No evaporator water flow
    - .2 Sensor failures
    - .3 Low evaporator pressure
    - .4 Evaporator freeze protection
    - .5 High condenser pressure
    - .6 Outside ambient temperature (auto-restart)
    - .7 Motor protection system
    - .8 Phase voltage protection
  - .4 Limit Alarms:
    - .1 Condenser pressure stage down, unloads unit at high discharge pressures.
    - .2 Low ambient lockout, shuts off unit at low ambient temperatures.
    - .3 Low evaporator pressure hold, holds stage #1 until pressure rises.
    - .4 Low evaporator pressure unload, shuts off one compressor.
  - .5 Unit Enable Selection:
    - .1 Enables unit operation from either local keypad, digital input, or BAS
  - .6 Analog Inputs:
    - .1 Reset of leaving water temperature, 4-20 mA

- .2 Current Limit
- .7 Digital Inputs:
  - .1 Unit off switch
  - .2 Remote start/stop
  - .3 Flow switch
  - .4 Motor protection
- .8 Digital Outputs:
  - .1 Shutdown alarm; field wired, activates on an alarm condition, off when alarm is cleared
- .9 Condenser fan control - The unit controller must provide control of condenser fans based on compressor discharge pressure.
- .10 Building Automation System (BAS) Interface:
  - .1 Factory mounted DDC controller(s) must support operation on a BACnet network.
  - .2 The information communicated between the BAS and the factory mounted unit controllers must include the reading and writing of data to allow unit monitoring, control and alarm notification as specified in the unit sequence of operation and the unit points list.
  - .3 All communication from the chiller unit controller must be via standard BACnet objects. Proprietary BACnet objects must not be allowed. BACnet communications must conform to the BACnet protocol (ANSI/ASHRAE 135-2001). A BACnet Protocol Implementation Conformance Statement (PICS) must be provided along with the unit submittal.

## **2.5 WARRANTY**

- .1 Standard Warranty (Canada): The refrigeration equipment manufacturer's warranty must be for a period of one (1) year from date of equipment start up, but not more than 18 months from shipment. It must cover replacement parts having proven defective within the above period.
- .2 1st Year Labor Warranty: included.
- .3 Extended Compressor Warranty: 5 years from date of start-up.

## **2.6 OPTIONS AND ACCESSORIES**

- .1 The following options are to be included:
  - .1 Hot Gas Bypass: allows unit operation to 10 percent of full load. Includes factory-mounted hot gas bypass valve, solenoid valve, and manual shutoff valve for each circuit must be ready for field piping according to manufacturer instructions.
  - .2 Ground Fault Protection: Factory installed circuit breaker to protect equipment from damage from line-to-ground fault currents less than those required for conductor protection.
  - .3 Phase loss with under/over voltage protection and with LED indication of the fault type to guard against compressor motor burnout.
  - .4 Water Flow Switch (Factory Installed): A factory-mounted and wired thermal dispersion flow switch to avoid evaporator freeze-up under low or no flow conditions.
  - .5 BAS interface module to provide interface with the BACnet/IP protocol.
  - .6 Rubber and shear vibration isolation for field installation.

## **2.7 TRAINING/ STARTUP/ COMMISSIONING**

- .1 The trained manufacturer representatives to provide;
  - .1 Assistance during installation to ensure the Mechanical contractor is following all manufacturer recommend procedures.
  - .2 Review of installation during construction and at critical points during installation
  - .3 Reviews and signoff of installation stating the installation complies with manufacturer requirements and recommendations before equipment startup.
  - .4 Guidance and assistance during startup to ensure manufacturer recommended procedures are followed and equipment starts/operates as specified.
  - .5 Assistance during commissioning to ensure equipment operates as intended in contract drawings and sequences.
  - .6 Any trouble shooting assistance necessary during startup/commissioning.
  - .7 Completed startup forms showing working parameters of equipment at startup and commissioning. Templates must be provided in advance for Engineer's review and must be modified as required by Engineer. Completed forms must be provided for insertion into O&M manuals.
- .2 The manufacturer representative must also;
  - .1 Provide training in accordance with client requirements. Full day building operator training session.
  - .2 Must provide all necessary training materials.
  - .3 Must provide any videos, literature or aids required for training.
  - .5 Must provide written confirmation of all operators who have been trained.



## APPENDIX 1 – Technical Evaluation Grid

Building 2C Heating and Cooling System  
Communications Research Centre

Technical Evaluation Grid  
**AIR COOLED CHILLER**  
Page 1 of 6

### 1 General

#### 1.2 MINIMUM STANDARDS

- The winning bidder must guarantee the materials must be new and work must conform to the minimum applicable standards of the Canadian General Standards Board, the Canadian Standards Association, the National Building Code of Canada 2010 (NBC) and all applicable Provincial and Municipal codes. In the case of conflict or discrepancy the most stringent requirement must apply. Yes\_\_\_No\_\_\_

#### 1.3 SHOP DRAWINGS

- Provide shop drawings as specified as per Section 1.3 on page 1 of 7 in the Building 2C CHCP Upgrade document. Yes\_\_\_No\_\_\_

#### 1.4 FEES, PERMITS and CERTIFICATES

- The winning bidder must pay all fees and obtain all permits necessary to manufacture, transport and supply equipment in this specification. Provide authorities with plans and information for acceptance certificates. Provide inspection certificates as evidence that work has been completed. Yes\_\_\_No\_\_\_

#### 1.5 HAZARDOUS MATERIAL

- The winning bidder must comply with the requirements of the Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and the provision of Material Safety Data Sheets (MSDS) acceptable to Human Resources Development Canada, Labour Program. Yes\_\_\_No\_\_\_

### 2 Products

#### 2.2 UNIT DESCRIPTION

- Chiller must consist of an air-cooled scroll compressor chiller with a remote evaporator. The outdoor unit must consist of hermetic tandem scroll compressor sets (total four compressors), air-cooled condenser section, microprocessor-based control system and all components necessary for controlled unit operation. Yes\_\_\_No\_\_\_

## APPENDIX 1 – Technical Evaluation Grid

- A multi-circuit, direct expansion, brazed-plate insulated evaporator must be provided for remote location to be installed and piped to the outdoor unit by the installing contractor. Components must be shipped with a holding charge of nitrogen. Yes\_\_\_No\_\_\_

### 2.3 DESIGN REQUIREMENTS

- Provide a complete scroll compressor chiller as specified as per Section 2.3 and 2.4 on page 3 of 7 in the Building 2C CHCP Upgrade document. Yes\_\_\_No\_\_\_
- The chiller must be capable of stable operation to a minimum percentage of full load (without hot gas bypass) of 25%. Yes\_\_\_No\_\_\_
- Sound data must be provided with submittals, and must not exceed the specified levels indicated on page 3 of the Building 2C CHCP Upgrade document in section 2.3 under .11 "Acoustics" Yes\_\_\_No\_\_\_

### 2.4 CHILLER COMPONENTS

#### 2.4.1 Compressor

- The compressors must be sealed hermetic, scroll type with crankcase oil heater and suction strainer. Yes\_\_\_No\_\_\_
- The compressor motor must be refrigerant gas cooled, high torque, hermetic induction type, two-pole, with inherent thermal protection on all three phases and must be mounted on vibration isolator pads. Yes\_\_\_No\_\_\_
- The compressors must have a forced-feed lubrication system with a reversible oil pump and oil charge. Yes\_\_\_No\_\_\_

#### 2.4.2 Evaporator

- The remote evaporator must be a compact, high efficiency, dual circuit, brazed plate-to-plate type heat exchanger consisting of parallel stainless steel plates. Yes\_\_\_No\_\_\_

## APPENDIX 1 – Technical Evaluation Grid

Building 2C Heating and Cooling System Communications Research Centre		Technical Evaluation Grid <b>AIR COOLED CHILLER</b> Page 3 of 6
<b>2.4.3</b>	<ul style="list-style-type: none"> <li>The water-side working pressure must be a minimum of 4502 kPa (653 psig).</li> </ul>	Yes____No____
	<b>Condenser</b>	
	<ul style="list-style-type: none"> <li>The condenser coils must consist of 10mm seamless copper tubes mechanically bonded into plate type fins.</li> </ul>	Yes____No____
	<ul style="list-style-type: none"> <li>The fins must have full drawn collars to completely cover the tubes.</li> </ul>	Yes____No____
	<ul style="list-style-type: none"> <li>A subcooling coil must be an integral part of the main condenser coil.</li> </ul>	Yes____No____
	<ul style="list-style-type: none"> <li>Condenser fans must be propeller type arranged for vertical air discharge and individually driven by direct drive fan motors.</li> </ul>	Yes____No____
	<ul style="list-style-type: none"> <li>Each fan must be in its own compartment to eliminate cross flow of condenser air during fan cycling and must be equipped with a heavy-gauge vinyl coated fan guard.</li> </ul>	Yes____No____
	<ul style="list-style-type: none"> <li>Fan motors must be weather protected, three-phase, direct-drive, 1140 rpm, Totally Enclosed Air Over-Motors (TEAO) type with permanently lubricated ball bearings and inherent overload protection.</li> </ul>	Yes____No____
<b>2.4.4</b>	<ul style="list-style-type: none"> <li>External coils surfaces must have wire mesh protective guards.</li> </ul>	Yes____No____
	<ul style="list-style-type: none"> <li>Condenser coils must be rippled aluminum fins.</li> </ul>	Yes____No____
<b>2.4.5</b>	<b>Refrigerant Circuit</b>	
	<ul style="list-style-type: none"> <li>Each of the two refrigerant circuits must include a replaceable -core refrigerant filter-drier, sight glass with moisture indicator, liquid line solenoid valve, thermal expansion valve, and insulated suction line.</li> </ul>	Yes____No____
<b>2.4.6</b>	<b>Construction</b>	
	<ul style="list-style-type: none"> <li>Unit casing and all structural members and rails must be fabricated of steel and painted to meet ASTM B117, 500-hour salt spray test.</li> </ul>	Yes____No____
<b>2.4.6</b>	<ul style="list-style-type: none"> <li>Upper condenser coil section of unit must have protective 12 GA, PVC-coated, wire grille guards.</li> </ul>	Yes____No____
	<b>Control System</b>	
	<ul style="list-style-type: none"> <li>A centrally located weatherproof control panel must contain the field power connection points, control interlock terminals, and control system.</li> </ul>	Yes____No____

## APPENDIX 1 – Technical Evaluation Grid

Building 2C Heating and Cooling System  
Communications Research Centre

Technical Evaluation Grid  
**AIR COOLED CHILLER**  
Page 4 of 6

	<ul style="list-style-type: none"> <li>Power and starting components must include factory circuit breaker of fan motors and control circuit,</li> </ul>	Yes____No____
	<ul style="list-style-type: none"> <li>Must have individual contactors for each fan motor,</li> </ul>	Yes____No____
	<ul style="list-style-type: none"> <li>Must have solid-state compressor three-phase motor overload protection,</li> </ul>	Yes____No____
	<ul style="list-style-type: none"> <li>Must have inherent fan motor overload.</li> </ul>	Yes____No____
	<ul style="list-style-type: none"> <li>Must have hinged access doors which must be lockable.</li> </ul>	Yes____No____
	<ul style="list-style-type: none"> <li>Must include single-point connection to a factory-supplied non-fused disconnect switch.</li> </ul>	Yes____No____
<b>2.4.7</b>	<b>Unit Controller</b>	
	<ul style="list-style-type: none"> <li>The controller must take pre-emptive limiting action in case of high discharge pressure or low evaporator pressure.</li> </ul>	Yes____No____
	<ul style="list-style-type: none"> <li>The controller must contain Equipment Protection.</li> </ul>	Yes____No____
	<ul style="list-style-type: none"> <li>The unit must be protected by both alarms that shut the unit down and require manual reset to restore unit operation, and by limit alarms that reduce unit operation in response to some out-of-limit condition.</li> </ul>	Yes____No____
<b>2.4.7.3</b>	<b>Shut down alarms</b>	
	<ul style="list-style-type: none"> <li>No evaporator water flow.</li> </ul>	Yes____No____
	<ul style="list-style-type: none"> <li>Sensor failures.</li> </ul>	Yes____No____
	<ul style="list-style-type: none"> <li>Low evaporator pressure.</li> </ul>	Yes____No____
	<ul style="list-style-type: none"> <li>Evaporator freeze protection.</li> </ul>	Yes____No____
	<ul style="list-style-type: none"> <li>High condenser pressure.</li> </ul>	Yes____No____
	<ul style="list-style-type: none"> <li>Outside ambient temperature (auto-restart).</li> </ul>	Yes____No____
	<ul style="list-style-type: none"> <li>Motor protection system.</li> </ul>	Yes____No____
	<ul style="list-style-type: none"> <li>Phase voltage protection.</li> </ul>	Yes____No____
<b>2.4.7.4</b>	<b>Limit Alarms</b>	
	<ul style="list-style-type: none"> <li>Condenser pressure.</li> </ul>	Yes____No____

## APPENDIX 1 – Technical Evaluation Grid

Building 2C Heating and Cooling System Communications Research Centre		Technical Evaluation Grid <b>AIR COOLED CHILLER</b> Page 5 of 6
	<ul style="list-style-type: none"> <li>Low ambient lockout.</li> </ul>	Yes____No____
	<ul style="list-style-type: none"> <li>Low evaporator pressure.</li> </ul>	Yes____No____
<b>2.4.7.5</b>	<b>Unit Enable Selection</b>	
	<ul style="list-style-type: none"> <li>Enables unit operation from either local keypad, digital input, or BAS.</li> </ul>	Yes____No____
<b>2.4.7.6</b>	<b>Analog Inputs</b>	
	<ul style="list-style-type: none"> <li>Reset of leaving water temperature, 4-20 mA</li> </ul>	Yes____No____
	<ul style="list-style-type: none"> <li>Current Limit</li> </ul>	Yes____No____
<b>2.4.7.7</b>	<b>Digital Inputs</b>	
	<ul style="list-style-type: none"> <li>Unit off switch</li> </ul>	Yes____No____
	<ul style="list-style-type: none"> <li>Remote start/stop</li> </ul>	Yes____No____
	<ul style="list-style-type: none"> <li>Flow switch</li> </ul>	Yes____No____
	<ul style="list-style-type: none"> <li>Motor protection</li> </ul>	Yes____No____
<b>2.4.7.8</b>	<b>Digital Outputs</b>	
	<ul style="list-style-type: none"> <li>Shutdown alarm</li> </ul>	Yes____No____
<b>2.4.7.9</b>	<b>Condenser fan control</b>	
	<ul style="list-style-type: none"> <li>The unit controller must provide control of condenser fans based on compressor discharge pressure.</li> </ul>	Yes____No____
<b>2.4.7.10</b>	<b>Building Automation System (BAS) Interface</b>	
	<ul style="list-style-type: none"> <li>Factory mounted DDC controller must support operation on a BACnet network</li> </ul>	Yes____No____
	<ul style="list-style-type: none"> <li>The information communicated must include the reading and writing of data to allow unit monitoring,</li> </ul>	Yes____No____
	<ul style="list-style-type: none"> <li>Display control and alarm notification as specified in the unit sequence of operation and the unit points list,</li> </ul>	Yes____No____
	<ul style="list-style-type: none"> <li>All communication from the chiller unit controller as specified in the points list must be via standard BACnet objects.</li> </ul>	Yes____No____

## APPENDIX 1 – Technical Evaluation Grid

Building 2C Heating and Cooling System  
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Technical Evaluation Grid  
**AIR COOLED CHILLER**  
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### 2.5 WARRANTY

- The refrigeration equipment manufacturer's warranty must be for a period of one (1) year from date of equipment start up, but not more than 18 months from shipment. It must cover replacement parts having proven defective within the above period. Yes\_\_\_No\_\_\_
- 1st Year Labor Warranty: Included. Yes\_\_\_No\_\_\_
- Extended Compressor Warranty: 5 years from date to start-up. Yes\_\_\_No\_\_\_

### 2.6 OPTIONS AND ACCESSORIES

#### 2.6.1 Hot Gas Bypass:

- Allows unit operation to 10 percent of full load, Yes\_\_\_No\_\_\_
- Includes factory-mounted hot gas bypass valve, solenoid valve, and manual shutoff valve for each circuit, Yes\_\_\_No\_\_\_
- Remote evaporator unit with hot gas line field piped to the evaporator inlet according to manufacturer instructions. Yes\_\_\_No\_\_\_

#### 2.6.2 Ground Fault Protection:

- Factory installed circuit breaker to protect equipment from damage from line-to-ground fault currents less than those required for conductor protection, Yes\_\_\_No\_\_\_
- BAS interface module to provide interface with the BACnet/IP Protocol. Yes\_\_\_No\_\_\_