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

Title - Sujet
HVAC/Refrigeration Systems

Solicitation No. - N° de l'invitation	Date
F7049-160161/A	2017-06-28

Client Reference No. - N° de référence du client
F7049-160161

GETS Reference No. - N° de référence de SEAG
PW-$$ML-043-26360

File No. - N° de dossier	CCC No./N° CCC - FMS No./N° VME
043ml.F7049-160161	

Solicitation Closes - L'invitation prend fin
at - à 02:00 PM
on - le 2017-08-08

Time Zone
Fuseau horaire
Eastern Daylight Saving Time EDT

F.O.B. - F.A.B.
Plant-Usine: ☐ **Destination:** ☐ **Other-Autre:** ☐

Address Enquiries to: - Adresser toutes questions à:	Buyer Id - Id de l'acheteur
Byron, Dan	043ml

Telephone No. - N° de téléphone	FAX No. - N° de FAX
(819) 420-2898 ( )	( ) -

Destination - of Goods, Services, and Construction:
Destination - des biens, services et construction:

Specified Herein
Précisé dans les présentes

Instructions: See Herein

Instructions: Voir aux présentes

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

Delivery Required - Livraison exigée	Delivery Offered - Livraison proposée
See Herein	

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

Telephone No. - N° de téléphone
Facsimile No. - N° de télécopieur

Name and title of person authorized to sign on behalf of Vendor/Firm (type or print)
Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)

Signature **Date**

Issuing Office - Bureau de distribution
Marine Machinery and Services / Machineries et services maritimes
11 Laurier St. / 11, rue Laurier
6C2, Place du Portage
Gatineau
Québec
K1A 0S5

TABLE OF CONTENTS

PART 1 – GENERAL INFORMATION

1.1 Security Requirement

There is no security requirement associated with this bid solicitation.

1.2 Statement of Requirement

The Canadian Coast Guard has a requirement to replace the heating ventilation and air conditioning (HVAC) systems (port and starboard), the existing domestic refrigeration systems units (fore and aft), and the associated controls and ancillary equipment currently fitted on the Canadian Coast Guard Ships (CCGS) Sir William Alexander and Edward Cornwallis. The requirement is detailed under Annex “A” Statement of Requirement of the resulting contract clauses.

1.3 Debriefings

Bidders may request a debriefing on the results of the bid solicitation process. Bidders should make the request to the Contracting Authority within 15 working days from receipt of the results of the bid solicitation process. The debriefing may be in writing, by telephone or in person.

1.4 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

2.1 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 Manual* (https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-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 (2017-04-27) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

2.2 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.

Due to the nature of the bid solicitation, bids transmitted by facsimile to PWGSC will not be accepted.

2.2.1 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 15 days before the bid closing date. Canada will have the right to accept or reject any or all suggestions.

2.3 Enquiries – Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority no later than 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 question(s) or may request that the Bidder do so, so that the proprietary nature of the question(s) 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.

2.4 Applicable Laws

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

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.

2.5 Mandatory Site Visit - Vessel

It is mandatory that the Bidder or a representative of the Bidder visit the work site. Arrangements have been made for the site visit to be held on ** To be Confirmed ** at the Canadian Coast Guard Base (CCG), located at 50 Discovery Drive, Dartmouth, NS. **To Be Confirmed**

Bidders must communicate with the Contracting Authority no later than 3 business days (excludes weekends and holidays) before the site visit day and time to confirm attendance and provide the name(s) of the person(s) who will attend. Bidders will be required to sign an attendance sheet. Bidders should confirm in their bid that they have attended the site visit. Bidders who do not attend the mandatory site visit or do not send a representative will not be given an alternative appointment and their bid will be declared non-responsive. Any clarifications or changes to the bid solicitation resulting from the site visit will be included as an amendment to the bid solicitation

2.6 Bidders' Conference

A bidder's conference chaired by the Contracting Authority (CA) will be held at **To Be Confirmed** at the Canadian Coast Guard Base (CCG), located at 50 Discovery Drive, Dartmouth, NS. **To Be Confirmed**

The scope of the requirement outlined in the solicitation will be reviewed during the conference and questions will be answered. It is recommended that bidders who intend to submit a bid attend or send representation.

Bidders are requested to communicate with the CA before the conference to confirm attendance. Bidders should provide, in writing to the CA, the names of the person(s) who will be attending and a list of issues they wish to table no later than three (3) business days (excluding weekends and holidays) before the scheduled Conference.

Any clarifications or changes to the solicitation resulting from the Bidder's Conference will be included as an amendment to the solicitation. Bidders who do not attend the conference will not be precluded from submitting a bid.

PART 3 - BID PREPARATION INSTRUCTIONS

3.1 Bid Preparation Instructions

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

Section I: Technical Bid 2 hard copies and 1 soft copy on USB flash drive

Section II: Financial Bid 1 hard copy

Section III: Certifications 2 hard copies

If there is a discrepancy between the wording of the soft copy and the hard copy, the wording of the hard copy will have priority over the wording of the soft copy.

Prices must appear in the financial bid only. No prices must be indicated in any other section of the bid.

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;
(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 8.5 x 11 inch (216 mm x 279 mm) 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.

The bidder should include within the bid submission package, a completed reference document entitled "Mandatory Requirements Reference Section" as referred to in Part 4 of this document, which will serve to indicate the bid reference, page number and paragraph number within the bid submission package, where the requirements stated within this specification are met.

Section II: Financial Bid
Bidders must submit their financial bid in accordance with Annex "B", Basis of Payment. The total amount of Applicable Taxes must be shown separately.

3.1.1 Exchange Rate Fluctuation

C3011T (2013-11-06), Exchange Rate Fluctuation

Section III: Certifications
Bidders must submit the certifications and additional information required under Part 5.

PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

4.1 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.

4.1.1 Technical Evaluation

4.1.1.1 Mandatory Technical Criteria

In order to be compliant, Bidder's proposal must, to the satisfaction of Canada, meet all the mandatory technical criteria as per Annex "A":

HVAC Systems:

TSOR Reference	Point of Evaluation	Bid Reference Page(s)	Compliant Yes/No
1	Part 3: Technical Description (48 HOUR RESPONSE)		
2	3.2.1		
3	3.2.2		
4	3.2.3		
5	3.2.4		
6	3.2.5		
7	3.2.6		
8	3.2.7		
9	3.2.8		
10	3.2.9		
11	3.2.10		

12	3.2.11		
13	3.2.12		
14	3.2.13		
15	3.2.14		
16	3.2.15		
17	3.2.16		
18	3.2.17		
19	3.2.18		
20	3.2.19		
21	3.2.20		
22	3.2.21		
23	3.2.22		
24	3.2.23		
25	3.2.24		
26	3.2.25		
27	3.2.26		
28	3.2.27		
29	3.2.28		
30	3.2.29		
31	3.2.30		
32	3.2.31		
33	3.2.32		
34	3.2.33		
35	3.2.34		
36	3.2.35		
37	3.2.36		
38	3.2.37		
39	3.2.38		
40	3.2.39		
41	3.2.40		
42	3.2.41		
43	3.2.42		
44	3.2.43		
45	3.2.44		
46	3.2.45		
47	3.2.46		
48	3.2.47		
49	3.2.48		

Domestic Refrigeration Systems

TSOR Reference	Point of Evaluation	Bid Reference Page(s)	Compliant Yes/No
1	3.3.1		
2	3.3.2		
3	3.3.3		
4	3.3.4		
5	3.3.5		
6	3.3.6		
7	3.3.7		
8	3.3.8		
9	3.3.9		
10	3.3.10		

11	3.3.11		
12	3.3.12		
13	3.3.13		
14	3.3.14		
15	3.3.15		
16	3.3.16		
17	3.3.17		

4.1.1.2 Mandatory Experience

In order to be compliant, Bidder's proposal must, to the satisfaction of Canada, meet all the mandatory experience:

TSOR Reference	Point of Evaluation	Bid Reference Page(s)	Compliant Yes/No
1	3.4.1		
2	3.4.2		

4.1.2 Financial Evaluation

The price of the bid will be evaluated in Canadian dollars, Applicable Taxes excluded, FOB destination, Canadian customs duties and excise taxes included.

4.2 Basis of Selection – Mandatory Technical Criteria

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

PART 5 – CERTIFICATIONS AND ADDITIONAL INFORMATION

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

The certifications provided by the Bidders to Canada are subject to verification by Canada at all times. Unless specified otherwise, Canada will declare a bid non-responsive, or will declare a Bidder in default 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 to cooperate with any request or requirement imposed by the Contracting Authority will render the bid non-responsive or constitute a default under the Contract.

5.1 Certifications Required with the Bid

Bidders must submit the following duly completed certifications as part of their proposal.

5.1.1 Integrity Provisions - Declaration of Convicted Offences

In accordance with the *Ineligibility and Suspension Policy* (http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html), the Bidder must provide with its bid the required documentation, as applicable, to be given further consideration in the procurement process.

5.2 Certifications Precedent to Contract Award and Additional Information

The certifications and additional information listed below should be submitted with the bid, but may be submitted afterwards. If any of these required certifications or additional information 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 provide the certifications or the additional information listed below within the time frame provided will render the bid non-responsive.

5.2.1 Integrity Provisions – Required Documentation

In accordance with the *Ineligibility and Suspension Policy* (http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html), the Bidder must provide the required documentation, as applicable, to be given further consideration in the procurement process.

PART 6 – RESULTING CONTRACT CLAUSES

The following clauses and conditions apply to and form part of any contract resulting from the bid solicitation.

6.1 Security Requirements

6.1.1 There is no security requirement applicable to the Contract.

6.2 Statement of Requirement

The Canadian Coast Guard has a requirement to replace the heating ventilation and air conditioning (HVAC) systems (port and starboard), the existing domestic refrigeration systems units (fore and aft), and the associated controls and ancillary equipment currently fitted on the Canadian Coast Guard Ships (CCGS) Sir William Alexander and Edward Cornwallis. The requirement is detailed under Annex “A” Statement of Requirement of the resulting contract clauses.

6.3 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* (https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual) issued by Public Works and Government Services Canada.

6.3.1 General Conditions

2010A (2016-04-04), General Conditions - Goods (Medium Complexity), apply to and form part of the Contract.

This revision is to revise 2010A (2016-04-04), General Conditions - Goods (Medium Complexity), and delete Sub-Article 2010A 09 (2014-09-25) Warranty, in its entirety and insert the following:

Sub-Clause SACC Manual 2010A 09 (2016-09-15) Warranty

1. Despite inspection and acceptance of the Work by or on behalf of Canada and without restricting any provisions of the Contract or any condition, warranty or provision imposed by law, the Contractor, if requested by Canada to do so, must replace, repair or correct, at its own option and expense any work that becomes defective or fails to conform to the requirements of the Contract, where applicable. The warranty period will be 12 months after delivery and acceptance of the Work and will remain in effect thereafter, from the date at which each HVAC system becomes

operational. The operational date is anticipated to commence within eight (8) months of the date of delivery, or the length of the Contractor's or manufacturer's standard warranty period, whichever is longer. The warranty applies to any part of the Work replaced, repaired or corrected pursuant to subsection 1, for the greater of the warranty period remaining, including the extension.

2. Canada must pay the transportation cost associated with returning the Work or any part of the Work to the Contractor's plant for replacement, repair or making good, and the Contractor must pay the transportation cost associated with forwarding the replacement or returning the Work or part of the Work when rectified to the delivery point specified in the Contract or to another location as directed by Canada. If, in the opinion of Canada, it is not expedient to remove the Work from its location, the Contractor must carry out any necessary repair or making good of the Work at that location and will be reimbursed its reasonable travel and living expenses.

3. The warranty period is automatically extended by the duration of any period or periods where the Work is unavailable for use or cannot be used because of a defect or non-conformance during the original warranty period.

4. For the purpose of the installations, the various components may need to be separated and subsequently reassembled. If separation and reassembly is required, this practice shall not void the manufacturer’s warranty.

5. Supplier must indicate if warranty requires Field Service Representative installation and commissioning.

6.4 Term of Contract

6.4.1 Period of the Contract

The period of the Contract is from date of Contract to January 31, 2018 inclusive.

6.4.2 Delivery Date

All of the contract deliverables must be received on or before January 31, 2018.

6.4.3 Delivery Point - Shipping Instructions - Delivery at Destination

Goods must be consigned to the destination specified in the Contract and delivered:

Delivered Duty Paid (DDP) Canadian Coast Guard Warehouse, 13 Akerley Blvd, Dartmouth NS, Incoterms 2000 for shipments from a commercial contractor.

The Contractor must contact Canada and obtain its approval, before making any arrangements to have the systems packaged and shipped to the aforementioned address. Canada will confirm at that time, the exact shipping details with the Contractor.

6.5 Authorities

6.5.1 Contracting Authority

The Contracting Authority for the Contract is:

Dan Byron
Supply Team Leader
Public Services and Procurement Canada
Acquisitions Branch, Marine Systems Directorate
11 Laurier Street, Gatineau, Québec K1A 0S5
Telephone: 819-420-2898
Facsimile: 819-956-6648
Dan.Byron@pwgsc-tpsgc.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.

6.5.2 Technical Authority

The Technical Authority for the Contract is:

Glen Thompson
Organization: CCG_DFO
Address: Bedford Institute of Oceanography
PO Box 1000
50 Discovery Drive
Dartmouth, Nova Scotia
B2Y 3Z8

Telephone: (902) 483-5523
Email: Glen.Thompson@dfo-mpo.gc.ca

The Technical Authority named above is the representative of the department or agency for whom the Work is being carried out under the Contract and is responsible for all matters concerning the technical content of the Work under the Contract. Technical matters may be discussed with the Technical Authority, however the Technical Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of the Work can only be made through a contract amendment issued by the Contracting Authority.

6.5.3 Contractor's Representative

Name: TBD at Contract award
Telephone:
Facsimile:
E-mail:

6.6 Payment

6.6.1 Basis of Payment

6.6.1.1 Firm Price

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid a firm price, as specified in the contract for a cost of $ _____ Customs duties are included, 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.

6.6.1.2 Charge-out Rate / Material Mark-up

The following rates are included in the Basis of Payment and must remain valid for the duration of the contract:

1. The Charge-out Rate specified below includes all classes of labor, engineering and foreperson, and all overheads, supervision and profit. The Charge-out Rate will be used for pricing unscheduled work that results in an increase or decrease in the Work Period, except as noted in the clause entitled “Overtime”.

Charge-out Rate - $...../person/hour

2. Overtime:

Occasionally, Canada may elect to authorize overtime, for Unscheduled Work only. If this is the case, and the rate is greater than the Charge-out Rate, cost of labor hours will be determined on the following basis;

Time and one-half rate: $...../person/hour
Double Time Rate: $...../person/hour

3. The cost of material must be the net laid-down cost of the material to which must be added a mark-up of 10% of the net laid-down cost of the material. For the purposes of pricing, Unscheduled Work and material must be deemed to include subcontracts.

6.6.2 Limitation of Price

SACC Manual clause C6000C (2011-05-16) Limitation of Price

6.6.3 Multiple Payments

SACC Manual clause H1001C (2008-05-12) Multiple Payments

6.7 Invoicing Instructions

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.

6.7.1 Invoices must be distributed as follows:

a. one (1) copy must be forwarded to the following email address for certification and payment:
DFOinvoicing-MPOfacturation@DFO-MPO.GC.CA
ATTN: Kim Green

b. one (1) copy must be forwarded to the Contracting Authority identified under the section entitled "Authorities" of the Contract.

c. one (1) copy must be forwarded to the Technical Authority identified under the section entitled "Authorities" of the Contract.

6.8 Certifications and Additional Information

6.8.1 Compliance

Unless specified otherwise, the continuous compliance with the certifications provided by the Contractor in its bid or precedent to contract award, and the ongoing cooperation in providing additional information are conditions of the Contract and failure to comply will constitute the Contractor in default. Certifications are subject to verification by Canada during the entire period of the Contract.

6.9 Applicable Laws

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

6.10 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) the general conditions 2010A (2016-04-04) Goods (Medium Complexity);
(c) Annex A, Statement of Requirement;
(d) Annex B, Basis of Payment;
(e) Annex C, the Contractor's bid dated _____.

6.11 Insurance – No Specific Requirement

SACC Manual clause G1005C (2016-01-28) Insurance – No Specific Requirement

ANNEX “A” – STATEMENT OF REQUIREMENT

ANNEX "B" – BASIS OF PAYMENT

B1 Firm Price

B1.1	Two (2) HVAC Systems complete as per Annex A	**$_____ (CAD)**
B1.2	Two (2) Domestic Refrigeration Systems complete as per Annex A	**$_____ (CAD)**
B1.3	Two (2) HVAC Systems crated individually, stored and prepared for delivery as per manufacturer's recommendations	**$_____ (CAD)**
B1.4	Two (2) Domestic Refrigeration Systems crated individually, stored and prepared for delivery as per manufacturer's recommendations	**$_____ (CAD)**
B1.5	Shipping of two (2) HVAC Systems complete to: Incoterm 2000 Delivered Duty Paid (DDP): Delivery point of the HVAC systems is: Coast Guard 05C Warehouse Door #1 13 Akerley Blvd. Dartmouth, Nova Scotia B3B 1J6	**$_____ (CAD)**
B1.6	Shipping of tow (2) Domestic Refrigeration Systems complete to Incoterm 2000 Delivered Duty Paid (DDP): Delivery point of the Domestic Systems is: Coast Guard 05C Warehouse Door #1 13 Akerley Blvd. Dartmouth, Nova Scotia B3B 1J6	**$_____ (CAD)**
B1.7	All Mechanical and electrical genuine OEM spares required to perform two (2) years of the recommended regularly scheduled maintenance as published in the manufacturer's maintenance manuals (for the two (2) HVAC systems, and the two (2) refrigeration systems)	**$_____ (CAD)**
	TOTAL WITHOUT GST/HST	**$_____ (CAD)**

B2 Separate price, as a costed option as per Annex A
(Note: These prices will not be evaluated for the purpose of awarding this contract)

B2.1	Spare HVAC blower motor	**$_____ (CAD)**
B2.2	Spare heating coil	**$_____ (CAD)**
B2.3	Two (2) spare HVAC air filter frames	**$_____ (CAD)**
B2.4	Spare domestic refrigeration motor	**$_____ (CAD)**
B2.5	One year supply of consumable items & parts required to properly operate & service the equipment as per OEM recommended operating/servicing procedures	**$_____ (CAD)**
	TOTAL WITHOUT GST/HST	**$_____ (CAD)**

ANNEX "C" – CONTRACTOR'S BID

(To be inserted at Contract Award)

Statement of Requirements for Supply of New Heating Ventilation and Air Conditioning Systems (HVAC) and Domestic Refrigeration Systems for CCGS Sir William Alexander and CCGS Edward Cornwallis

April 24, 2017

Contents

Part 1: Scope:

The Canadian Coast Guard has a requirement to replace the heating ventilation and air conditioning (HVAC) systems (port and starboard), the existing domestic refrigeration systems units (fore and aft), and the associated controls and ancillary equipment currently fitted on the Canadian Coast Guard Ships (CCGS) Sir William Alexander and Edward Cornwallis.

1.1 Background

The CCGS Sir William Alexander is a Type 1100 Class vessel operated by the Canadian Coast Guard year round on the East Coast of Canada. The vessel performs Search and Rescue, Buoy Tending and Ice Breaking Operations.

1.2 General Particulars of the CCGS Sir William Alexander

Name: CCGS Sir William Alexander
Type: Type 1100 High Endurance Multitasked Vessel
Ice Class Notations: DNV Ice 1A (Arctic Ice Class 2)
Year Built: 1987
Builder: Marine Industries Ltd.
Length: 83 meters
Breadth, molded: 16.2 meters
Loaded Draft: 6 meters
Tonnage: 3728 GT, 1503 RT

Part 2: References and Drawings:

2.1 Standards:

The requirements of the following standards must be complied with in carrying out this work. Current edition of documents at time of solicitation must be used.

- Classification Society Rules and Regulations for the Classification of Ships.
- Federal Halocarbon Regulations 2003
- MOSH SOR 2010-120
- TCMS Ship Safety Electrical Standard TP-127e
- IEEE 45
- Canada Shipping Act, 2001 (CSA 2001).
- Canada Shipping Act Air Pollution Regulations.
- Vessel Pollution and Dangerous Chemicals Regulations.
- IMO International Convention for the Prevention of Pollution from Ships (MARPOL).
- Marine Machinery Regulations.
- IP Code, International Protection Marking, IEC standard 60529.
- International Electrotechnical Commission.

2.2 Drawings:

- A/C Accommodation Boat Deck # 229-27 Sheet 2of 12
- General Arrangement Main Deck, ER Flat and Tank Top # 978-01 Sheet 3 of 3
- General Arrangement Upper, Boat, and Bridge Decks # 978-01 Sheet 2 of 3
- Central Cooling Water System # 465-01
- Stork - Refrigerant Flow # 1047-24
- Stork - Electrical #1047-25
- Stork – Steam Flow #1047-26
- Tombstone Data – Original Equipment
- Noise Assessment Document

Part 3: Technical Description:

Proposed HVAC and domestic refrigeration systems must currently be in marine service and have Original Equipment Manufacturer (OEM) representation in Canada. The manufacturer's appointed service organization must hold a stock of spares required for maintaining the equipment, be capable of providing qualified field service representatives (FSRs), have thorough component documentation support, and have the capability to provide technical support for normal overhaul as well as repair. The service organization must be capable of delivering these services and parts to Dartmouth, Nova Scotia within 48 hours of notification by the Canadian Coast Guard (CCG). All references to Class approval within this specification are defined as approval by one of the Recognized Organizations (RO) approved by Transport Canada within the Delegated Statutory Inspection Program (DSIP).
The Contractor must be available to supervise the installation and commissioning of these systems, however the intent of this requirement is only to supply equipment prior to the refit of the vessels.

The new systems will be located in the same area as the existing systems are found and be compatible with all existing infrastructure and ducting.

3.1 Overview of existing HVAC and Domestic Refrigeration Systems:

The existing AHU's of the HVAC systems are comprised of two independent Stork Workspoor units (port and starboard) located in a HVAC Room (AC Fan Room). These units are raised off the deck as the accommodation spaces are directly below them. The condensing units are found in the Engine Room. These units handle air for respective sides of accommodation ducting for the ship. There is a crossover valve on the discharge ducting to allow one unit to supply air to the other unit in case of failure. The port and starboard HVAC controls operate completely independent of each other.

The existing domestic refrigeration systems are comprised of two independent Stork Workspoor units (fore and aft). These units are located in the Engine Room on each ship. One unit is in operation while one is standby. The systems provide refrigeration properties to four (4) spaces on board the vessel. One space is maintained at -20 deg. C and the other 3 spaces range from 3 to 5 deg. C.

3.2 Requirements for New HVAC Systems

For the purpose of clarity, all references to a single HVAC system in this Statement of Requirement are understood to be a vessel system comprised of both port and starboard units including all the controls and all ancillary equipment.

3.2.1 The accommodation HVAC systems must be engineered, designed, and built by the supplier. At the design stage and prior to manufacturing the system must be approved by the Coast guard Technical Authority (CGTA).

3.2.2 The accommodation HVAC systems must meet or exceed the capacities of the existing systems.

3.2.3 The HVAC units must be complete, including a blower section, filter section, steam heating coil section, cooling coil section, mixing section, humidification section, thermostatic and humidity controls. The units must include louvres, dampers, drains, insulation, mounts, vapor sealing and lagging, metering, labelling, air handling units and blower assemblies all sized and rated for satisfactory operation and performance.

3.2.4 Each AHU must have doors with latches or removable panels to gain access to the interior sections.

3.2.5 Design Parameters:

All accommodation spaces must be air conditioned as follows:

- Winter: Outside air -20°C with 35 knots wind velocity, to 22°C indoor air at 30% relative humidity.
- Summer: Outside air 35°C at 70% relative humidity, to 27°C at 50% relative humidity indoor air.
- The system must be capable of maintaining the above conditions when supplied with a minimum of 40% fresh air supplied to the accommodations.

3.2.6 The new accommodation HVAC systems must include two (2) air handling units, two (2) condensing units, two (2) humidification units, and two (2) sets of modernized digital controls.

3.2.7 The HVAC systems must be designed to function properly without buildup of pressure or vacuum from weather, normally closed doors, hatches, or when other similar accesses are closed.

3.2.8 The HVAC systems must be capable of using a modern supportable refrigerant gas.

3.2.9 The controls, including housings for the PLC shall be mounted in the HVAC room in an easily accessible location.

3.2.10 Noise and vibration created or transmitted by systems or equipment described herein must be considered during the design stage. The HVAC air handling units are located just above the accommodation spaces.
The ambient noise levels have been measured in the HVAC space and in 4 cabins that are directly beneath the port and starboard AHU's by a qualified Audiologist. These levels have been recorded and can be found in the "Noise Assessment HVAC" document. The new HVAC units must not exceed these measurements.

It is the responsibility of the Contractor to obtain enough information regarding the noise levels on the site visit in order to meet these levels.

Once the new HVAC units are installed another ambient noise level assessment will be done in the same spaces and under similar conditions to the first (baseline) test by a qualified Audiologist. If the new noise levels exceed the original levels then it is the responsibility of the Contractor to provide solutions and repairs in order that the noise levels can be met.

3.2.11 All blowers, motors and compressors must be installed on Class approved resilient mounts.

3.2.12 The HVAC system must be capable of utilizing existing duct work for the inlet, outlet, and return air without causing any interference with surrounding passageways in the HVAC Room. The unit must be connected to this existing ductwork with flexible connections of a suitable material able to withstand the environment.

3.2.13 The components of the systems must fit within the existing spaces, allowing enough surrounding space to perform required maintenance.

3.2.14 Each AHU must include a variable speed centrifugal supply fan and be capable of delivering a minimum of 4000 cfm's @ 5 inches of static pressure with 40% fresh air and 60% return air.

3.2.15 Each new blower must be Class approved for marine operations and directly coupled to a Premium Efficiency motor. It shall be supplied with a compatible digital drive unit and digitally controlled. The motor must have an inverter rating.

3.2.16 Each AHU must have a built in slope for condensate removal fitted with a manual valve at the lowest point.

3.2.17 Each AHU must have its own steam to steam humidification unit able to produce pure uncontaminated steam.

3.2.18 The potable water entering the steam to steam humidifiers must include a filtration unit to satisfy the requirements of the humidifier.

3.2.19 The potable water must also include a filtration system to remove any chlorine present in the system. The potable water chlorine level is 1.5 mg/L.

3.2.20 Thermostatic control for the heating section must be done through an electric control valve. An electrically controlled solenoid valve will be fitted to bypass the control valve.

3.2.21 Each AHU must incorporate a steam trap and check valve on the condensate return line.

3.2.22 Each AHU must have a steam heating coil. The steam heating coil must be sized to preheat the air to 21°C. The steam supply available to each AHU is 7 Bar (244kg/hr flow). Steam coils must meet the requirements of CSA-B51.85
MAWP 17.25 bar @ 163 degree C (max allowable working pressure)
MDMT – 28.8 degree C @ 17.25 bar (min design metal temp)

3.2.23 Each AHU must have a direct expansion cooling coil.

3.2.24 All heating and cooling coils must be made of seamless copper tube and die formed self-spacing full collared copper plate fins housed in stainless steel casing.

3.2.25 Each AHU casing shall be solid double-wall, without perforations, and provide thermal insulation between the inner and outer casings. Use of exposed interior insulation is not permitted. The combination of the casing wall thickness and the insulation characteristics (insulation type, thickness, and density) shall:

- Provide stiffness to resist damage
- Limit vibration
- Limit inlet, discharge, and casing-radiated noise
- Avoid condensation on the exterior surface of the air handling unit when located in non-conditioned space
- The inner surface must have a 3 Mil. high gloss polyurethane finish to meet the latest ASTM B-117 salt spray test.

3.2.26 Each AHU must be braced as required. All internals must be housed in a galvanized steel frame.

3.2.27 Each AHU must include 16 gauge 316L stainless steel filter banks. The filter must be a Class approved cleanable type.

3.2.28 The particulate matter filters or air cleaners must have a minimum efficiency reporting value (MERV) of not less than 6 when rated in accordance with the latest ASHRAE Standards 52.2-1999.

3.2.29 The filters must be fitted upstream of all cooling & heating coils.

3.2.30 There must be an air mixing inlet plenum complete with automatically controlled dampers for the return and fresh air. The dampers must be made of 316L stainless steel. The axles must be made of 316L stainless steel rotating in self lubricated nylon bushings. The dampers will be linked to thermostatically controlled electric actuators. The dampers must be arranged to direct recirculated air and fresh air into a single blended air stream before reaching the coil face.

3.2.31 The mixing plenum must ensure the recirculated and fresh air is properly mixed before entering the coils. The present arrangement does not promote proper mixing of the air. The fresh air duct enters straight into the coils and the return air from above. In the winter the mixed air temperature would routinely drop below freezing.

3.2.32 Each AHU must have a discharge plenum complete with a manual damper capable of being secured in the open or closed position. The damper shall be made of 316L stainless steel. The axles shall be made of 316L stainless steel rotating in self lubricated nylon bushings.

3.2.33 Each AHU must have a stainless steel drip pan with a drain port and valve.

3.2.34 Each AHU must have enough surrounding area to service the air filters, allow for correct layout of steam and condensate piping, and perform maintenance.

3.2.35 The condensing units must be Class approved type packages consisting of a motor with a direct driven compressor, water cooled condenser, control panel complete with controls, and self-acting fresh water regulating valve. The condenser must be fitted with a refrigerant pressure relief valve.

3.2.36 Fresh water cooling is supplied to each condenser at 291 liters/min, 32° C and 2 Bar.

3.2.37 The condensing units must be capable of using a modern supportable refrigerant gas.

3.2.38 The HVAC system must include modern network compatible digital PLC controllers for both local and remote operation. Each air handling unit (port and starboard) would have its own standalone panel operating independently. These controllers shall have the ability to be locked out to prevent unauthorized tampering.

3.2.39 The following must be included in the controls and incorporated into the Alarm and Monitoring System for each port and starboard HVAC Units:

a. Space temperature sensors – 8 temperature sensors (used for monitoring only)
b. Relative Humidity level – 2 humidity sensors (for cascade control)
c. Pressure Switch – loss of steam
d. Air proving switch
e. Outdoor air temperature
f. Recirculating air temperature
g. Mixed air temperature
h. Supply air temperature
i. Compressor trip
j. Blower trip
k. Motor trip
l. Compressor high pressure trip
m. Compressor loss of oil pressure
n. Compressor high & low side pressure analogue transducers
o. Compressor temperature – high side analogue RTDs.

3.2.40 The condensing units must have a local Visual Display Unit (VDU) showing the following values, at a minimum.

a. Supply voltage
b. Low voltage trip
c. Motor running indication
d. Motor running current
e. Crankcase heater on/off indication
f. Compression suction pressure
g. Compressor discharge pressure
h. Compressor trip
i. Hour meter

3.2.41 The condensing/receiving unit must come equipped with service valves. All gauges must have shut off valves.

3.2.42 Each condensing unit must be capable of pumping down and storing at least a full system charge of the refrigerant gas.

3.2.43 The proposed HVAC system must match the existing electrical power supplies.
The power available in the HVAC Room for the air handling unit is 600 Volts, 60 Hz, 3 phase 15 Amp breaker. The existing fan unit power box/controller has a rating of 6 amps including the control 120 VAC, 60 Hz posted on the control box.
The power available for the AC Compressor unit in the Engine Room is 600 Volts, 60 Hz 3 phase, 40 Amp breaker. The existing compressor unit power box/controller has a rating of 30 amps including the control 120 VAC, 60 Hz posted on the control box.

3.2.44 The new HVAC Systems must communicate with the existing Trihedral VTSCanada (VTS) alarm and monitoring system via Ethernet drop (provided by Canada). A list of supported protocols can be found at: https://www.trihedral.com/device-driver-list.

3.2.45 All control panels must be IP 44 protected or better.

3.2.46 The new controllers must come preloaded with the software and programmed by the Contractor. A copy of programming instructions and backup software must be given to CGTA.

3.2.47 The new controllers must allow the HVAC units to run in separate summer and winter modes of operation. The condensing unit must be able to be shut down during the winter months.

3.2.48 The new controllers must include freeze protection for the AHU's.

3.3 Requirements for the New Domestic Refrigeration:

3.3.1 For the purpose of clarity, all references to a single refrigeration system in this Statement of Requirement are understood to be a vessel system comprised of two refrigeration units (one operational and one standby) including all the controls and all ancillary equipment.

3.3.2 The domestic refrigeration must be engineered, designed, and built by the supplier to provide the proper amount of cooling required for the existing refrigerated spaces. At the design stage and prior to manufacturing, the system must be approved by the CGTA.

3.3.3 The domestic refrigeration system must consist of two (2) condensing units each capable of supplying the entire refrigeration load. One unit is in operation while the other unit is on standby. The systems provide refrigeration properties to four (4) spaces on board the vessel. One space is maintained at -20 deg. C and the other three spaces range from 3 to 5 deg. C.

The volume of the spaces are:
- Cold Room 28.98 m^3
- Cool Room 20.4 m^3
- Potato Room 6.4 m^3
- Lobby 3.4 m^3

3.3.4 The refrigeration system must include auto defrosting evaporators properly sized for every cooled space.

3.3.5 The refrigeration system must be Class approved packages consisting of a motor with a direct driven compressor, a fresh water cooled condenser with refrigerant safety relief valve, control panel complete with controls, and self-acting fresh water regulating valve.

3.3.6 The refrigeration system must be capable of using a modern supportable refrigerant gas.

3.3.7 The refrigeration system components must fit in the existing spaces and have enough surrounding area to perform maintenance.

3.3.8 The refrigeration system must have a local VDU showing the following values at a minimum.

- Supply voltage
- Low voltage trip
- Motor running indication
- Motor running current
- Crankcase heater on/off indication
- Compression suction pressure
- Compressor discharge pressure
- Compressor trip
- Hour meter

3.3.9 The systems provide refrigeration properties to four (4) spaces on board the vessel. One space is maintained at -20 deg. C and the other 3 spaces range from 3 to 5 deg. C.

3.3.10 The following must be included in the controls and incorporated into the Alarm and Monitoring System for each unit:

- Motor trip
- High Pressure trip
- Loss of oil pressure
- Compressor high and low side pressure analogue transducers.
- Compressor temperature – high side analogue RTDs.

3.3.11 The proposed Domestic Refrigeration Systems must communicate with the existing Trihedral VTSCanada (VTS) alarm and monitoring system via Ethernet drop (provided by Canada). A list of supported protocols can be found at: https://www.trihedral.com/device-driver-list

3.3.12 The refrigeration system must come equipped with service valves. All gauges must have shut off valves.

3.3.13 The fresh water cooling is supplied to each condenser at 30 liters/min at 32°C and 2 Bar.

3.3.14 All motors and compressors must be installed on Class approved resilient mounts.

3.3.15 Each unit must be capable of pumping down and storing a full charge of the refrigerant gas.

3.3.16 The refrigeration system must match the existing electrical power supplies. The power available for each unit is 600 volts, 60 Hz, 3 phase, 15 amps on the supply breaker. The existing controller is rated for 6 amps

3.3.17 All control panels must be IP44 protected or better.

3.4 Experience:

3.4.1 The Contractor must supply a list of at least five (5) marine installations within the last ten (10) years with HVAC systems which consist of the same or very similar equipment as proposed for the CCGS Sir William Alexander and CCGS Edward Cornwallis.

3.4.2 The Contractor must supply a list of at least five (5) marine installations within the last ten (10) years with domestic refrigeration systems which consist of the same or very similar equipment as proposed for the CCGS Sir William Alexander and CCGS Edward Cornwallis.

Part 4: Quality Assurance:

4.1 The HVAC and domestic refrigeration systems must be tested in accordance with Classification and Regulatory requirements. Factory Acceptance Testing (FAT) procedures must be carried out at the manufacturer's facility.

4.2 The FAT procedures must be submitted to CGTA for approval.

4.3 All temperatures and pressures must be monitored and recorded during and after the load tests and recorded every 15 minutes during the load tests, the final reading must be taken 15 minutes after completion of the tests.

4.4 Noise levels must be monitored and recorded during the load tests and recorded every 15 minutes during the tests.

4.5 At an agreed time by both parties, the Contractor must allow Canada to witness the verification, which is comprised of observe, record, and compare with the manufacturer's settings and standards.

4.6 All gauge readings must be verified and all shutdowns and alarms must be demonstrated. The temperatures and or pressures at which the alarm sounds and or when shutdown occurs are to be recorded.

4.7 Two (2) hard copies and two (2) electronic copies in Adobe PDF of all above–noted test data must be provided to the Coast Guard Technical Authority (CGTA) prior to acceptance.

4.8 After the tests are complete, the HVAC and domestic refrigeration systems must be crated individually stored and prepared for delivery as per manufacturer's recommendations to the location stated for each purchase.

Part 5: Deliverables:

5.1 The Contractor must supply two complete HVAC (each consisting of a port and starboard unit) Systems and two Domestic Refrigeration Systems.

5.2The following technical data must be supplied for the HVAC and domestic refrigeration systems; the documentation must be supplied in two (2) typewritten and two (2) electronic copies in Adobe PDF documents.

- Material List.
- Operation, Maintenance and Troubleshooting Manuals.
- Equipment and Arrangement drawings.
- Parts Manuals.
- Mounting dimensions.
- Installation Procedures Manual.
- Electrical Wiring Diagrams.
- Inspection and Test Plan
- Weights of the equipment and total of each complete set.
- Original and two (2) copies of Class Approval certificates.

5.3 The Contractor must provide guidance drawings for the CCGS Sir William Alexander and CCGS Edward Cornwallis showing the proposed HVAC and Domestic Refrigeration systems fitting within the dimensional areas required for installation, in electronic format compatible with AutoCAD for each ship.

5.4 The Contractor must provide all mechanical and electrical spares required to perform two (2) years of the recommended regularly scheduled maintenance. The required spares must be genuine OEM parts as published in the manufacturer's maintenance manual.

5.5 The Contractor must provide a separate price, as a costed option, for the following spares:

- Spare HVAC blower motor.
- Spare heating coil.
- Two spare HVAC air filter frames.
- Spare domestic refrigeration motor.
- One year supply of consumable items & parts required to properly operate & service the equipment as per OEM recommended operating/servicing procedures.

5.6 The Contractor must provide a list of manufacturer recommended spares for a fifteen (15) year lifespan as published in the manufacturer's maintenance manual. The list must include part numbers, lead-time to order, retail prices at time of bid submission with a list of Canadian distributors and service centers.

5.7 The Contractor must provide the Field Service rates the time of solicitation for budgetary purposes.

5.8 The Contractor must provide two (2) English (and French if available) paper copies and two (2) English (and French if available) electronic copies for each HVAC and domestic refrigeration system of the manufacturer's operation, service and repair manuals (including maintenance schedules) and parts manuals. Electronic documents must be supplied within sixty (60) days of award of contract and be Adobe PDF. Electronic files must have a resolution no less than 300 dpi, be manufacturer approved and retain the colors of the original paper documents.