Public Works and Government Services Canada | Travaux publics et Services gouvernementaux Canada

RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:

Bid Receiving Public Works and Government Services Canada/Réception des soumissions\Travaux publics et Services gouvernementaux Canada
See herein for bid submission instructions/
Voir la présente pour les instructions sur la presentation d→une soumission
NA
Manitoba

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 Environmental Growth Chambers

Solicitation No. - N° de l'invitation	**Date**
01586-210212/B	2022-03-30

Client Reference No. - N° de référence du client
01586-210212

GETS Reference No. - N° de référence de SEAG
PW-$WPG-025-11328

File No. - N° de dossier	**CCC No./N° CCC - FMS No./N° VME**
WPG-1-44050 (025)	

Solicitation Closes - L'invitation prend fin
at - à 02:00 PM Central Daylight Saving Time CDT
on - le 2022-04-27 Heure Avancée du Centre HAC

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

Address Enquiries to: - Adresser toutes questions à:	**Buyer Id - Id de l'acheteur**
Simard, Colin	wpg025

Telephone No. - N° de téléphone	**FAX No. - N° de FAX**
(204) 583-7859 ( )	(418) 566-6167

Destination - of Goods, Services, and Construction:
Destination - des biens, services et construction:
DEPARTMENT OF AGRICULTURE AND AGRI-FOOD
5403 1ST AVENUE SOUTH
PO BOX 3000
LETHBRIDGE
Alberta
T1J4B1
Canada

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 – Voir ci-inclus	

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
Public Works and Government Services Canada - Western Region
Victory Building/Édifice Victory
Room 310/pièce 310
269 Main Street/269 rue Main
Winnipeg
Manitoba
R3C 1B3

Canada

This bid solicitation cancels and supersedes previous bid solicitation number 01586-210212/A dated March 3, 2022 with a closing of March 30, 2022 at 2:00pm CDT. A debriefing or feedback session will be provided upon request to bidders/offerors/suppliers who bid on the previous solicitation.

TABLE OF CONTENTS

PART 1 - GENERAL INFORMATION

1.1 Requirement

The requirement is detailed under Article 6.2 of the resulting contract clauses.

1.2 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.

1.3 epost Connect service

This bid solicitation allows bidders to use the epost Connect service provided by Canada Post Corporation to transmit their bid electronically. Bidders must refer to Part 2 entitled Bidder Instructions, and Part 3 entitled Bid Preparation Instructions, of the bid solicitation, for further information.

1.4 COVID-19 Vaccination Requirement

This requirement is subject to the COVID-19 Vaccination Policy for Supplier Personnel. Failure to complete and provide the COVID-19 Vaccination Requirement Certification as part of the bid will render the bid non-responsive. *NEW* COVID-19 vaccination

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 (2020-05-28) 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: 60 days
Insert: 90 days

2.2 Submission of Bids

Bidders are strongly encouraged to submit bids electronically using the Canada Post epost Connect application for the subject bid solicitation. The Bidder must send an email requesting to open an epost Connect conversation to the following address:

roreceptionSoumissions.wrbidreceiving@tpsgc-pwgsc.gc.ca

Note: Bids will not be accepted if emailed directly to this email address. This email address is to be used to open an epost Connect conversation, as detailed in Standard Instruction 2006, or to send offers through an epost Connect message if the Offeror is using its own licensing agreement for epost Connect.

It is the Bidder’s responsibility to ensure the request for opening an epost Connect conversation is sent to the email address above at least six days before the Request for Proposal closing date.

Faxed bids will be accepted at 1-418-566-6167.

Hard copy (submitted in person or via mail/courier) bids will not be accepted for the subject bid solicitation.

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 Manitoba.

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 Bid Challenge and Recourse Mechanisms

(a) Several mechanisms are available to potential suppliers to challenge aspects of the procurement process up to and including contract award.

(b) Canada encourages suppliers to first bring their concerns to the attention of the Contracting Authority. Canada's Buy and Sell website, under the heading "Bid Challenge and Recourse Mechanisms" contains information on potential complaint bodies such as:

- Office of the Procurement Ombudsman (OPO)
- Canadian International Trade Tribunal (CITT)

(c) Suppliers should note that there are **strict deadlines** for filing complaints, and the time periods vary depending on the complaint body in question. Suppliers should therefore act quickly when they want to challenge any aspect of the procurement process.

PART 3 - BID PREPARATION INSTRUCTIONS

3.1 Bid Preparation Instructions

The Bidder is strongly encouraged to submit its offer electronically in accordance with section 08 of the 2003 standard instructions. The epost Connect system has a limit of 1GB per single message posted and a limit of 20GB per conversation. The bid must be gathered per section and separated as follows:

Section I: Technical Offer
Section II: Financial Offer
Section III: Certifications
Section IV: Additional Information

Faxed offers will be accepted at 1-418-566-6167.

Hard copy (submitted in person or via mail/courier) offers will not be accepted for the subject bid solicitation.

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.

Section II: Financial Bid
Bidders must submit their financial bid in accordance with the Basis of Payment.

3.1.1 Electronic Payment of Invoices – Bid

If you are willing to accept payment of invoices by Electronic Payment Instruments, complete Annex C Electronic Payment Instruments, to identify which ones are accepted.

If Annex C Electronic Payment Instruments is not completed, it will be considered as if Electronic Payment Instruments are not being accepted for payment of invoices.

Acceptance of Electronic Payment Instruments will not be considered as an evaluation criterion.

3.1.2 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

See Annex A, Requirement

4.1.2 Financial Evaluation

SACC Manual Clause A0222T (2014-06-26) Evaluation of Price-Canadian/Foreign Bidders

4.2 Basis of Selection

SACC Manual Clause A0031T, (2010-08-16), Basis of Selection – Mandatory Technical Criteria

PART 5 – CERTIFICATIONS AND ADDITIONAL INFORMATION

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

The certifications provided by 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 contractor 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 bid.

5.1.1 Integrity Provisions - Declaration of Convicted Offences

In accordance with the Integrity Provisions of the Standard Instructions, all bidders must provide with their bid, **if applicable**, the declaration form available on the Forms for the Integrity Regime website (http://www.tpsgc-pwgsc.gc.ca/ci-if/declaration-eng.html), to be given further consideration in the procurement process.

5.1.2 Additional Certifications Required with the Bid

5.1.2.1 COVID-19 Vaccination Requirement Certification

5.1.2.1.1 Annex C must be completed and is required with the bid.

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 section titled Information to be provided when bidding, contracting or entering into a real property agreement of 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.

5.2.2 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 available at the bottom of the page of the Employment and Social Development Canada (ESDC) - Labour's website (https://www.canada.ca/en/employment-social-development/programs/employment-equity/federal-contractor-program.html#).

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.

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 Requirement

The Contractor must provide the items detailed under the "Requirement" at Annex "A".

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 (2021-12-02) General Conditions - Goods (Medium Complexity), apply to and form part of the Contract.

The 2010A (2021-12-02)) General Conditions - Goods (Medium Complexity) are modified as followed:

2010A: General conditions: Goods (medium complexity)
ID: 2010A
Effective Date: 2022-01-21
SACC Manual item status: Active
Parent Section: General Conditions
SACC Item usage**:** Reference
Legal text for SACC item
[…]
31 Code of Conduct for Procurement—contract
32 Anti-forced labour requirements
[…]
2010A 31 (2016-04-04) Code of Conduct for Procurement—contract
The Contractor agrees to comply with the *Code of Conduct for Procurement* and to be bound by its terms for the period of the Contract.
[…]
2010A 32 (2022-01-21) Anti-forced labour requirements

1. The Contractor represents and warrants that the Work is not mined, manufactured or produced wholly or in part by forced labour. Regardless of who acts as an importer, the Contractor must not during the performance of the Contract, directly or indirectly, deliver Work to Canada or import Work into Canada the importation of which is prohibited pursuant to ss. 136(1) of the *Customs Tariff Act* and tariff item No. 9897.00.00 of the *Customs Tariff* – Schedule (as amended from time to time), because it is mined, manufactured or produced wholly or in part by forced labour.

2. If a tariff classification determination is made under the *Customs Act* that the importation of the Work, or any part of the Work, is prohibited, the Contractor must immediately inform the Contracting Authority in writing. Canada may terminate the Contract for default in accordance with section 2010A 23 - Default by the Contractor if the Work or any part of the Work is

classified under tariff item no. 9897.00.00 of the *Customs Tariff* – Schedule as mined, manufactured or produced wholly or in part by forced labour. If the Contractor is aware that the Work, or any part of the Work, is being or has been investigated regarding whether it is prohibited from entry pursuant to tariff item No. 9897.00.00, the Contractor must immediately inform the Contracting Authority in writing of that investigation.

3. Canada may terminate the Contract for default in accordance with section 2010A 23 - Default by the Contractor if it has reasonable grounds to believe the Work was mined, manufactured or produced in whole or in part by forced labour or linked to human trafficking. Reasonable grounds for making such a determination may include:
   a. Findings or Withhold Release Orders issued by the United States Customs and Border Protection, under the US *Trade Facilitation and Trade Enforcement Act* (TFTEA) of 2015; or
   b. Credible evidence from a reliable source, including but not limited to non-governmental organizations.

4. Canada may terminate the Contract for default in accordance with section 2010A 23 - Default by the Contractor if the Contractor has, in the past three years, been convicted of any of the following offences under the *Criminal Code* or the *Immigration and Refugee Protection Act*:
   Criminal Code
   i. section 279.01 (Trafficking in persons);
   ii. section 279.011 (Trafficking of a person under the age of eighteen years);
   iii. subsection 279.02(1) (Material benefit - trafficking);
   iv. subsection 279.02(2) (Material benefit - trafficking of person under 18 years);
   v. subsection 279.03(1) (Withholding or destroying documents - trafficking);
   vi. subsection 279.03(2) (Withholding or destroying documents - trafficking of person under 18 years); or
   Immigration and Refugee Protection Act
   vii. section 118 (Trafficking in persons).

5. Canada may terminate the Contract for default in accordance with section 2010A 23 - Default by the Contractor if the Contractor has, in the past three years, been convicted of an offence in a jurisdiction other than Canada that, in Canada's opinion, is similar to any of the offences identified in paragraphs 4(i) to (vii).

6. For purposes of determining whether a foreign offence is similar to a listed offence, PWGSC will take into account the following factors:
   i. in the case of a conviction, whether the court acted within its jurisdiction;
   ii. whether the supplier was afforded the right to appear during the court's proceedings or to submit to the court's jurisdiction;
   iii. whether the court's decision was obtained by fraud; or
   iv. whether the supplier was entitled to present to the court every defence that the supplier would have been entitled to present had the proceeding been tried in Canada.

7. Where Canada intends to terminate the Contract under this section, Canada will inform the Contractor and provide the Contractor an opportunity to make written representations before making a final decision. Written representations must be submitted within 30 days from receiving a notice of concern unless Canada establishes a different deadline.

6.3.2 Supplemental General Conditions

4013(2021-11-29), Compliance with on-site measures, standing orders, policies, and rules, apply to and form part of the Contract.

The Contractor must comply and ensure that its employees and subcontractors comply with all security measures, standing orders, policies or other rules in force at the site where the Work is performed.

4014 (2021-11-29) , Suspension of the work, apply to and form part of the Contract.

1. The Contracting Authority may at any time, by written notice, order the Contractor to suspend or stop the Work or part of the Work under the Contract for a period of up to 180 days. The Contractor must immediately comply with any such order in a way that minimizes the cost of doing so. While such an order is in effect, the Contractor must not remove any part of the Work from any premises without first obtaining the written consent of the Contracting Authority. Within these 180 days, the Contracting Authority must either cancel the order or terminate the Contract, in whole or in part, under section(s) 23 “Default by the Contractor” or 24 “Termination for convenience” of general conditions 2010A (2021-12-02).

2. When an order is made under subsection 1, unless the Contracting Authority terminates the Contract by reason of default by the Contractor or the Contractor abandons the Contract, the Contractor will be entitled to be paid its additional costs incurred as a result of the suspension plus a fair and reasonable profit.

3. When an order made under subsection 1 is cancelled, the Contractor must resume work in accordance with the Contract as soon as practicable. If the suspension has affected the Contractor's ability to meet any delivery date under the Contract, the date for performing the part of the Work affected by the suspension will be extended for a period equal to the period of suspension plus a period, if any, that in the opinion of the Contracting Authority, following consultation with the Contractor, is necessary for the Contractor to resume the Work. Any equitable adjustments will be made as necessary to any affected conditions of the Contract.

6.4 Term of Contract

6.4.1 Period of the Contract

The period of the Contract is from date of Contract to March 31, 2023.

6.4.2 Delivery Date

All the deliverables must be received on or before March 31, 2023.

6.4.3 Delivery Points

Delivery of the requirement will be made to delivery point(s) specified at Annex A of the Contract.

6.5 Authorities

6.5.1 Contracting Authority

The Contracting Authority for the Contract is:

Colin Simard
Procurement Officer
Public Works and Government Services Canada
Acquisitions Branch
Room 310, 269 Main Street
Winnipeg, Manitoba R3C 1B3

Telephone: 204-583-7859
E-mail address: colin.simard@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 Project Authority

The Project Authority for the Contract is: TBD

The Project Authority 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 Project Authority, however the Project 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: _____
Title: _____
Organization: _____
Address: _____

Telephone: ___ ___ _____
Facsimile: ___ ___ _____
E-mail address: _____

6.6 Payment

6.6.1 Basis of Payment

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 Annex B for the amount 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.

6.6.2 Limitation of Price

SACC Manual clause C6000C (2017-08-17) Limitation of Price

6.6.3 Single Payment

H1000C (2008-05-12), Single Payment

6.6.4 Electronic Payment of Invoices – Contract

The Contractor accepts to be paid using any of the following Electronic Payment Instrument(s):

a. Visa Acquisition Card;
b. MasterCard Acquisition Card;

c. Direct Deposit (Domestic and International);
d. Electronic Data Interchange (EDI);
e. Wire Transfer (International Only);

6.7 Invoicing Instructions

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.

2. Invoices must be distributed as follows:

    a. The original and one (1) copy must be forwarded to the address shown on page 1 of the Contract for certification and payment.

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 Manitoba.

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 supplemental general conditions 4013 (2021-11-29), Compliance with on-site measures, standing orders, policies, and rules;
(c) the supplemental general conditions 4014 (2021-11-29), Suspension of the work;
(b) the general conditions 2010A (2021-12-02) General Conditions - Goods (Medium Complexity);
(c) Annex A, Requirement;
(d) Annex B, Basis of Payment;
(e) the Contractor's bid dated _____ (*TBD)*

6.11 *SACC Manual* Clauses

A9062C (2011-05-16), Government Site Regulations
B1501C (2018-06-21), Electrical Equipment
B7500C (2006-06-16), Excess Goods

6.12 Dispute Resolution

(a) The parties agree to maintain open and honest communication about the Work throughout and after the performance of the contract.

(b) The parties agree to consult and co-operate with each other in the furtherance of the contract and promptly notify the other party or parties and attempt to resolve problems or differences that may arise.

(c) If the parties cannot resolve a dispute through consultation and cooperation, the parties agree to consult a neutral third party offering alternative dispute resolution services to attempt to address the dispute.

(d) Options of alternative dispute resolution services can be found on Canada's Buy and Sell website under the heading "Dispute Resolution".

ANNEX A

REQUIREMENT

Agriculture and Agri-Food Canada(AAFC) has a requirement for the supply, delivery, installation and training of two (2) reach-in, 40sqft Plant Growth Chambers for Agriculture and Agri-Food Canada, Lethbridge, Alberta.

The work will consist of the supply of all materials, labour, supplies, equipment, supervision, training and commissioning necessary to install Plant Growth Chambers. Work will also include moving units into the building and connecting to existing infrastructure.

Existing Site Conditions

- One double doorway 69” wide and 82” high.
- Each unit will have an existing transformer matching the utility requirements listed in the electrical requirements below.
- Transformers are to be mounted on top of each cabinet.
- Due to the restriction of room available to fit the units in their designated area, the large growth chambers will need to be assembled on-site as they are to be installed in the center of the other chambers
- All utilities are to be roughed in within 2 meters from the chamber installation location.

Mandatory Technical Criteria

Item	Description	Status
	STATUS: M = Mandatory; Failure to meet the mandatory requirements will result in your proposal being deemed non-responsive, and be given no further consideration in the evaluation process, O = Option; I = Information only; D = Desirable	
1	**General specifications**	
1.1	**Existing Technology:**	
1.1.1	All equipment must be new (not previously used for demonstration or loan), in that it must not include refurbished equipment, and in that all equipment must be of current manufacture.	**M**
1.2	**Electrical Certification:**	
1.2.1	All electrical equipment supplied under the Contract must be certified or approved for use in accordance with the Canadian Electrical Code, Part 1, before delivery, by a certified organization accredited by the Standards Council of Canada.	**M**

1.2.2.1	Proof of certification must be given to the Technical Authority before delivery.	**M**
1.3	**Quality Standards:**	
1.3.1	Bidder to ensure a Nationally Recognized quality program such as ISO9001, is used in the order, design and manufacturing processes.	**M**
1.4	**Warranty:**	
1.4.1	Bidder to ensure equipment and labour is warrantied for a minimum of 24 months from date of assembly.	**M**
1.5	**Light Intensity:**	
1.5.1	Instrument must provide light scans that verify specified micromoles/m²/sec measure at 6” from the lamps, verified at 25°C.	**M**
1.6	**Utility Connections:**	
1.6.1	All utility connections required to connect existing infrastructure to the units will be provided by the contractor. To be roughed-in within 2 meters of each growth chamber.	**M**
1.6.2	The unit will have all utility connections labeled appropriately.	**M**
1.7	**Qualifications and Certifications:**	
1.7.1	Any work required for the install and/or servicing of instrument must be performed by liscenced technicians. Individuals completing the work on-site must provide evidence they are qualified before doing the work.	**M**
2	**LOCAL CONTROL SYSTEM**	
2.1	**Programing:**	
2.1.1	Control system must have a minimum 1 Mb storage capacity for user-entered programs	**M**
2.1.2	Programming must be set in real-time on a 24-hour cycle and includes both stepped and ramped temperature set-point functionality.	**M**
2.1.3	Daily programs must have the ability to be linked to simulate mutli-day or seasonal programs;	**M**
2.1.4	Controls must allow the following adjustments at the chamber and remotely: set points and actual temperature, humidty and light level	**M**

2.1.5	Must allow for programs to be entered to the controller via high resolution colour LCD touch screen interface or via desktop computer	**M**
2.1.5.1	Touch screen interface must be at least 6" in size diagonally	**M**
2.1.6	The controller must be industrial grade.	**M**
2.2	**Data logging and graphing:**	
2.2.1	All controlled parameters must be recorded to provide a log of actual experimental results.	**M**
2.2.2	Stored data must be transferable to a desktop computer via a portable storage device or the network.	**M**
2.2.3	Graphing program must allow you to view historical data in graph form or compare actual performance to programmed performance	**M**
2.3	**Alarms:**	
2.3.1	System must incorporate automated pre-set floating alarms tracking temperature and must be configurable to other controlled parameters such as humidity or lighting.	**M**
2.3.2	Alarm set points must be programmable on a per experiment basis.	**M**
2.3.3	Alarms must be logged and be transferable to a portable storage device or to the network	**M**
2.4	**Security:**	
2.4.1	Multiple password-protected levels must be provided for users, administrators, technicians, and manufacturer’s service personnel	**M**
2.5	**Trouble Shooting:**	
2.5.1	Unit must provide an on screen help manual for trouble shooting	**M**
2.5.2	On board diagnostics screen must allow for service personnel to view all inputs and outputs plus access the service life of many components including lamp burning hours, valve cycles etc	**M**
2.6	**Start-Up Delay:**	
2.6.1	Chambers must be programmable with varying restart times to reduce start-up loads in the event of a power failure.	**M**
2.7	**Communications:**	

2.7.1	Controller must be shipped communications-ready for hookup to a local area network.	**M**
2.8	**Power Protection:**	
2.8.1	System must include surge suppression, and an uninterrupted power supply to protect against surge conditions, power spikes, and momentary loss of power.	**M**
3	**Construction**	
3.1	**Exterior Dimensions:**	
3.1.1	The dimensions of the growth chamber must be smaller than 151”L X 71”W X 113”H (3835mmL x 1803mmW x 2870mmH) to fit in designated area as these are replacement of existing units.	**M**
3.2	**Growth Area:**	
3.2.1	Must be a minimum of 39ft^2 (3.62M^2)	**M**
3.3	**Growth Height:**	
3.3.1	Must be a minimum of 76" (1930.4mm)	**M**
3.4	**Flooring:**	
3.4.1	Must be made made of Aluminum or Stainless steel channel floor providing uniform upward air flow.	**M**
3.5	**SubFlooring/Drain Pan:**	
3.5.1	Must be stainless steel or molded resin fiberglass.	**M**
3.5.2	Must have a floor drain	**M**
3.6	**Cabinet Construction:**	
3.6.1	Must be of a woodless construction, using CFC-free high density polystyrene insulation or CFC-free polyurethane insulation or comparable.	**M**
3.7	**Exterior Finish:**	
3.7.1	Should be either enamel baked on galvanized steel or powder coated aluminium	**D**
3.8	**Interior Finish:**	
3.8.1	The walls should be reflective: either enamel baked on galvanized steel or pre-painted aluminium	**D**
3.9	**Condensing Unit Access:**	

3.9.1	Compressor and refrigeration components must be accessible on the sides of the chamber.	**M**
3.10	**Conditioning Compartment:**	
3.10.1	The unit must have a rust resistant drain pan	**M**
3.11	**Doors:**	
3.11.1	Access to the growing chamber must be accessible by doors on one or both sides. Minimum opening size: 28" Maximum door size: 30"	**M**
3.11.2	Each door must be lockable	**M**
3.11.3	Door must be able to open from the inside for safety purposes	**M**
3.11.4	Doors must be located on the side of the controller interface.	**M**
3.11.5	Must have One (1) dual pane observation window with light tight covers. Minimum size 250mm x 356mm (10" x 14") maximum size 380mm x 380mm (15” x 15”). Mounted door closes to the controller interface.	**M**
3.12	**Control Panel**:	
3.12.1	The inferface must be mounted on the left hand side the unit	**M**
3.13	**Instrument Ports**:	
3.13.1	Two (2) ports, of a minimum of 1" (50mm) in diameter must be provided with light tight caps.	**M**
3.14	**Receptacle**:	
3.14.1	A programable wall or light canopy must be mounted at less than 6 amp, 120Volt. 1 phase receptacle must be provided within growth area.	**M**
3.14.2	Must have its own dedicated GFI circuit breaker or the receptacle must be a GFI receptacle	**M**
3.15	**Automatic watering:**	
3.15.1	Unit must have a hose bib connection that is connected to the local controls system for timed control of automatic watering.	**M**

3.15.2	At below freezing temperatures the chamber controller must have the ability automatically purge or drain the water out of the water supply lines required for the automatic irrigation system.	**M**
4	**Lighting:**	
4.1	**Intensity**:	
4.1.1	Light intensity must be at least 1350 micromoles/m²/s measured at 6” from the underside of lamp canopy.	**M**
4.2	**Programming and Control**:	
4.2.1	Dimmable programming of lamps must be provided for each light type.	**M**
4.3	**Lamps**:	
4.3.1	Balanced spectrum for plant growth must be provided using LED's	**M**
4.4	**Lamp Fixture:**	
4.4.1	Lamp canopy must be counterbalanced and easily adjustable by hand.	**M**
4.5	**Lamp Heat**:	
4.5.1	Must be removed by refrigeration system.	**M**
4.6	**Light Meter**:	
4.6.1	Quantum light meter must be included with chamber for displaying and recording of light output.	**M**
5	**Temperature Control:**	
5.1	**Range:**	
5.1.1	The operating temperatures ranges must be at least -10°C to +35°C lights OFF, -5°C to +35°C lights ON (Full fresh air above 8ºC) Design must be tested to meet the above conditions based on ambient temperature of no greater than +35°C	**M**
5.1.2	Must include Sequential Defrost to minimize temperature spike during defost.	
5.2	**Control**:	
5.2.1	Must have ±0.5°C, at control point.	**M**
5.3	**Temperature Safety Limits**:	
5.3.1	**Primary**:	
5.3.1.1	A programmable high and low temperature limit tracking alarm that automatically follows the programmed set point must be provided.	**M**

5.3.2	**Secondary**:	
5.3.2.1	An independent (factory-set) high and low temperature limit must be provided for increased security.	**M**
5.3.3	An audible alarm must be provided for both primary and secondary limits.	**M**
5.4	**Sensing Package**:	
5.4.1	Sensors must be located in a self-contained, portable aspirator.	**M**
5.5	**Fan Speed Control**:	
5.5.1	Must allow the user to control the speed of the circulating air.	**M**
6	**Refrigeration:**	
6.1	**Condensing Unit:**	
6.1.1	Cabinet must be supplied with a water-cooled hermetically sealed condensing unit with hot gas bypass system for continuous compressor operation.	**M**
6.1.2	Condensing unit must be located inside the machine compartment.	**M**
6.1.3	Must include a 3-way water valve, a hand operated bypass shut off valve and a water condenser sized for a maximum inlet water temperature of +29 degrees C (85 degrees F). Maximum pressure drop across condenser and water valve must not to exceed 10 psi (0.7 bar).	**M**
6.2	**Compressor**: .	
6.2.1	should included a scroll compressor	**D**
6.3	**Modulation**:	
6.3.1	An electromagnetic proportional valve must be provided for refrigeration control.	**M**
6.4	**Evaporator**:	
6.4.1	Must be of copper-tube construction.	**M**
6.5	**Refrigerant**:	
6.5.1	Condensing unit must be charged with an environmentally friendly CFC-free and HCFC-free refrigerant, and dye.	**M**
6.6	**Monitoring**:	

6.6.1	High and low pressure transducer must be provided to monitor the condition of the refrigeration system.	**M**
6.6.2	Control systems must be able to log, and alarm should high/ low pressure values exceed user specified alarm value	**M**
6.7	**Power Phase Protection**	
6.7.1	Must include a Loss of power phase alarm for protection of the compressor and other components.	**M**
7	**Air Flow:**	
7.1	**Direction - vertical**	
7.1.1	Conditioned air must be directed uniformly upward through perforated aluminum or stainless steel channel flooring.	**M**
7.2	**Fresh Air**:	
7.2.1	Individual adjustment of positively sealed inlet and outlet from open (atleast) 55ft³/min (1.55m³/min) to closed must be provided.	**M**
8	**Humidity Control:**	
8.1	**Range**:	
8.1.1	Must have up to 75% RH lights OFF, and up to 75% RH lights ON.	**M**
8.1.2	Additive humidity must be through use of automated spray nozzles.	**M**
8.1.2.1	Humidification system must be designed to meet the following specifications: 60 psi (4.2 bar) minimum pressure supplied with clean water (pH=7.0±0.5, filtration <2 microns and resistivity between 0.5 and 1.0 Meg Ohms).	**M**
8.2	**Control**: .	
8.2.1	Control to ±3% RH must be provided.	**M**
8.2.2	System must incorporate a dry humidity sensor to directly measure humidity in %RH	**M**
8.2.3	At below freezing temperatures the chamber controller will automatically purge or drain the water out of the water supply lines required for the additive humidity system.	**M**
9	**Utility Requirements:**	
9.1	Chambers must be designed for the following Electrical Service: 60Hz: 120/208 - 3phase - 4 wire plus ground.	**M**
10	**Drain:**	

10.1	Drain must be plumbed to outside footprint of cabinet.	M
11	**Installation:**	
11.1	On-site installation including utility connections and start up must be provided and must be carried out by a qualified service technician.	M
12	**Manuals:**	
12.1	Three complete sets of user documentation, technical specifications and complete drawings in English must be provided with delivery.	M
13	**Training and User Instructions:**	
13.1	Complete on-site user training and instructions must be provided for research staff, support staff and maintenance personnel. (Estimated 5 people)	M
14	**Delivery**	
14.1	While delivery is Requested as soon as possible, all goods must be delivered by March 31, 2023.	M

Item	Description	Status

STATUS: M = Mandatory; Failure to meet the mandatory requirements will result in your proposal being deemed non-responsive, and be given no further consideration in the evalation process, O = Option; I = Information only; D = Desirable

1	**General specifications**	
1.1	**Existing Technology:**	
1.1.1	All equipment must be new (not previously used for demonstration or loan), in that it must not include refurbished equipment, and in that all equipment must be of current manufacture.	M
1.2	**Electrical Certification:**	
1.2.1	All electrical equipment supplied under the Contract must be certified or approved for use in accordance with the Canadian Electrical Code, Part 1, before delivery, by a certified organization accredited by the Standards Council of Canada.	M
1.2.2.1	Proof of certification must be given to the Technical Authority before delivery.	M
1.3	**Quality Standards:**	
1.3.1	Bidder to ensure a Nationally Recognized quality program such as ISO9001, is used in the order, design and manufacturing processes.	M

1.4	**Warranty:**	
1.4.1	Bidder to ensure equipment and labour is warrantied for a minimum of 24 months from date of assembly.	**M**
1.5	**Light Intensity:**	
1.5.1	Instrument must provide light scans that verify specified micromoles/m²/sec measure at 6” from the lamps, verified at 25°C.	**M**
1.6	**Utility Connections:**	
1.6.1	All utility connections required to connect existing infrastructure to the units will be provided by the contractor.	**M**
1.6.2	The unit will have all utility connections labeled appropriately.	**M**
1.7	**Qualifications and Certifications:**	
1.7.1	Any work required for the install and/or servicing of instrument must be performed by liscenced technicians. Individuals completing the work on-site must provide evidence they are qualified before doing the work.	**M**
2	**LOCAL CONTROL SYSTEM**	
2.1	**Programing:**	
2.1.1	Control system must have a minimum 1 Mb storage capacity for user-entered programs	**M**
2.1.2	Programming must be set in real-time on a 24-hour cycle and includes both stepped and ramped temperature set-point functionality.	**M**
2.1.3	Daily programs must have the ability to be linked to simulate mutli-day or seasonal programs;	**M**
2.1.4	Controls must allow the following adjustments at the chamber and remotely: set points and actual temperature, humidty and light level	**M**
2.1.5	Must allow for programs to be entered to the controller via high resolution colour LCD touch screen interface or via desktop computer	**M**
2.1.5.1	Touch screen interface must be at least 6" in size diagonally	**M**
2.1.6	The controller must be industrial grade.	**M**
2.2	**Data logging and graphing:**	

2.2.1	All controlled parameters must be recorded to provide a log of actual experimental results.	M
2.2.2	Stored data must be transferable to a desktop computer via a portable storage device or the network.	M
2.2.3	Graphing program must allow you to view historical data in graph form or compare actual performance to programmed performance	M
2.3	**Alarms:**	
2.3.1	System must incorporate set and forget floating alarms tracking temperature and must be configurable to other controlled parameters such as humidity or lighting.	M
2.3.2	Alarm set points must be programmable on a per experiment basis.	M
2.3.3	Alarms must be logged and be transferable to a portable storage device or to the network	M
2.4	**Security:**	
2.4.1	Multiple password-protected levels must be provided for users, administrators, technicians, and manufacturer's service personnel	M
2.5	**Trouble Shooting:**	
2.5.1	Unit must provide an on screen help manual for trouble shooting	M
2.5.2	On board diagnostics screen must allows for service personnel to view all inputs and outputs plus access the service life of many components including lamp burning hours, valve cycles etc	M
2.6	**Start-Up Delay:**	
2.6.1	Chambers must programmable with varying restart times to reduce start-up loads in the event of a power failure.	M
2.7	**Communications:**	
2.7.1	Controller must be shipped communications-ready for hookup to a local area network.	M
2.8	**Power Protection:**	
2.8.1	System must ~~be supplied with~~ include surge suppression, and an uninterrupted power supply to protect against surge conditions, power spikes, and momentary loss of power.	M
3	**Construction**	
3.1	**Exterior Dimensions:**	

3.1.1	The dimensions of the growth chamber must be smaller than 151”L X 71”W X 113”H (3835mmL x 1803mmW x 2870mmH) to fit in designated area as these are replacement of existing units.	**M**
3.2	**Growth Area:**	
3.2.1	Must be a minimum of 40ft^2 (3.7M^2)	**M**
3.3	**Growth Height:**	
3.3.1	Must be a minimum of 79" (2006mm)	**M**
3.4	**Flooring:**	
3.4.1	Must be made made of Aluminum or Stainless steel channel floor providing uniform upward air flow.	**M**
3.5	**SubFlooring/Drain Pan:**	
3.5.1	Must be stainless steel or molded resin fiberglass.	**M**
3.5.2	Must have a floor drain	**M**
3.6	**Cabinet Construction:**	
3.6.1	Must be of a woodless construction, using CFC-free high density polystyrene insulation or CFC-free polyurethane insulation	**M**
3.7	**Exterior Finish:**	
3.7.1	Must be either enamel baked on galvanized steel or powder coated aluminium	**M**
3.8	**Interior Finish:**	
3.8.1	The walls must be reflective: either enamel baked on galvanized steel or pre-painted aluminium	**M**
3.9	**Condensing Unit Access:**	
3.9.1	Compressor and refrigeration components must be accessible on the side of the chamber.	**M**
3.10	**Conditioning Compartment:**	
3.10.1	The unit must have a Stainless steel drain pan	**M**
3.11	**Doors:**	

3.11.1	Must be two (2) (on one side) at a maximum size of 760mmW x 1980mmH (30”W x 78”H) or four (4) (two on each side) at a maximum size of 760mmW x 1980mmH (30”W x 78”H) with light tight magnetic gaskets and self closing cam-lift hinges.	**M**
3.11.2	Each door must include a keyed magnetic lock and keys	**M**
3.11.3	Door must be able to open from the inside for safety purposes	**M**
3.11.4	Two doors must be located on the side of the controller interface.	**M**
3.11.5	Must have One (1) dual pane observation window with light tight covers. Minimum size 250mm x 356mm (10" x 14") maximum size 380mm x 380mm (15” x 15”). Mounted door closes to the controller interface.	**M**
3.12	**Control Panel**:	
3.12.1	The inferface must be mounted on the left hand side the unit	**M**
3.13	**Instrument Ports**:	
3.13.1	Two (2) ports, of a minimum of 1" (50mm) in diameter must be provided with light tight caps.	**M**
3.14	**Receptacle**:	
3.14.1	A programable wall or light canopy mounted of at less than 6 amp, 120Volt. 1 phase receptacle must be provided within growth area.	**M**
3.14.2	Must have its own dedicated GFI circuit breaker or the receptacle must be a GFI receptacle	**M**
3.15	**Automatic watering:**	
3.15.1	Unit must have a hose bib connection that is connected to the local controls system for timed control of automatic watering.	**M**
4	**Lighting:**	
4.1	**Intensity**:	
4.1.1	Light intensity must be at least 1400 micromoles/m²/s measured at 6” from the underside of lamp canopy.	**M**
4.2	**Programming and Control**:	
4.2.1	Dimmable programming of lamps must be provided for each light type.	**M**
4.3	**Lamps**:	

4.3.1	Balanced spectrum for plant growth must be provided using either T5 fluorescent lamps and halogen incandescent lamps or LED's	**M**
4.4	**Lamp Fixture:**	
4.4.1	Lamp canopy must be counterbalanced and easily adjustable by hand.	**M**
4.5	**Lamp Heat**:	
4.5.1	Must be removed by refrigeration system.	**M**
4.6	**Light Meter**:	
4.6.1	Quantum light meter must be included with chamber for displaying and recording of light output.	**M**
4.7	**Safe Operation and Service**:	
5	**Temperature Control:**	
5.1	**Range:**	
5.1.1	The operating temperatures rages must be at least -10°C to +35°C lights OFF, -10°C to +35°C lights ON (Full fresh air above 8ºC) Design must be tested to meet the above conditions based on ambient temperature of no greater than +35°C	**M**
5.1.2	Must include Sequential Defrost to minimize temperature spike during defost.	
5.2	**Control**:	
5.2.1	Must have ±0.5°C, at control point.	**M**
5.3	**Temperature Safety Limits**:	
5.3.1	**Primary**:	
5.3.1.1	A programmable high and low temperature limit tracking alarm that automatically follows the programmed set point must be provided.	**M**
5.3.2	**Secondary**:	
5.3.2.1	An independent (factory-set) high and low temperature limit must be provided for increased security.	**M**
5.3.3	An audible alarm must be provided for both primary and secondary limits.	**M**
5.4	**Sensing Package**:	
5.4.1	Sensors must be located in a self-contained, portable aspirator.	**M**
5.5	**Fan Speed Control**:	

5.5.1	Must allow the user to control the speed of the circulating air.	M
6	**Refrigeration:**	
6.1	**Condensing Unit:**	
6.1.1	Cabinet must be supplied with a water-cooled hermetically sealed condensing unit with hot gas bypass system for continuous compressor operation.	M
6.1.2	Condensing unit must be located inside the machine compartment.	M
6.1.3	Must include a 3-way water valve, a hand operated bypass shut off valve and a water condenser sized for a maximum inlet water temperature of +29 degrees C (85 degrees F). Maximum pressure drop across condenser and water valve must not to exceed 10 psi (0.7 bar).	M
6.2	**Compressor**: .	
6.2.1	Scroll compressor	D
6.3	**Modulation**:	
6.3.1	An electromagnetic proportional valve must be provided for refrigeration control.	M
6.4	**Evaporator**:	
6.4.1	Must be of copper-tube construction.	M
6.5	**Refrigerant**:	
6.5.1	Condensing unit must be charged with an environmentally friendly CFC-free and HCFC-free refrigerant, and dye.	M
6.6	**Monitoring**:	
6.6.1	High and low pressure transducer must be provided to monitor the condition of the refrigeration system.	M
6.6.2	Control systems must be able to log, and alarm should high/ low pressure values exceed user specified alarm value	M
6.7	**Power Phase Protection**	
6.7.1	Must include a Loss of power phase alarm for protection of the compressor and other components.	M
7	**Air Flow:**	
7.1	**Direction - vertical**	

7.1.1	Conditioned air must be directed uniformly upward through perforated aluminum or stainless steel channel flooring.	M
7.2	**Fresh Air**:	
7.2.1	Individual adjustment of positively sealed inlet and outlet from open (atleast) 55ft³/min (1.55m³/min) to closed must be provided.	M
8	**Humidity Control:**	
8.1	**Range**:	
8.1.1	Must have up to 90% RH lights OFF, and up to 75% RH lights ON.	M
8.1.2	Additive humidity must be through use of spray nozzles.	M
8.1.2.1	Humidification system must be designed to meet the following specifications: 60 psi (4.2 bar) minimum pressure supplied with clean water (pH=7.0±0.5, filtration <2 microns and resistivity between 0.5 and 1.0 Meg Ohms).	M
8.2	**Control**: .	
8.2.1	Control to ±3% RH must be provided.	M
8.2.2	System must incorporate a dry humidity sensor to directly measure humidity in %RH	M
9	**Utility Requirements:**	
9.1	Chambers must be designed for the following Electrical Service: 60Hz: 120/208 - 3phase - 4 wire plus ground.	M
10	**Drain:**	
10.1	Drain must be plumbed to outside footprint of cabinet.	M
11	**Installation:**	
11.1	On-site installation including utility connections and start up must be provided and must be carried out by a qualified service technician.	M
12	**Manuals:**	
12.1	Three complete sets of user documentation, technical specifications and complete drawings in English must be provided with delivery.	M
13	**Training and User Instructions:**	
13.1	Complete on-site user training and instructions must be provided for research staff, support staff and maintenance personnel. (Estimated 5 people)	M
14	**Delivery**	

14.1	While delivery is Requested by March 31st, 2022, all goods must be delivered by July 29, 2022.	**M**

Delivery Location:
Agriculture and Agri-Food Canada
Lethbridge Research and Development Centre
5403 – 1 Avenue South
P.O. Box 3000,
Lethbridge, AB
T1J 4B1

APPENDIX 1

MANDATORY TECHNICAL CRITERIA

To be considered responsive, a bid must demonstrate compliance with all of the mandatory criteria**.** Bidders must demonstrate their ability to meet those requirements.

It is requested that supporting technical documentation, including but not limited to, specification sheets, technical brochures, photographs or illustrations be provided with the bid at solicitation close and be cross-referenced on the Compliance Matrix for each performance specification to outline where in the supporting technical documentation it demonstrates compliance. It is the Bidders responsibility to ensure that the submitted supporting technical documentation provides detail to prove that the proposed product(s) meet the requirements of the Performance Specification. If published supporting technical document is not available, the Bidder should prepare a written narrative complete with a detailed explanation of how its bid demonstrates technical compliance.

If the supporting documentation referenced above has not been provided at bid closing, the Contracting Authority will notify the Bidder that they must provide supporting documentation within two (2) business days following notification. Failure to comply with the request of the Contracting Authority within that time period could deem the bid non-responsive and the bid will be given no further consideration.

Bidders must address any concerns with the performance specifications in written detail to the Contracting Authority before bid closing as outlined in the Request for Proposal (RFP) document.

Failure to meet each mandatory performance specification will result in the bid being deemed non-responsive, and be given no further consideration.

Requirement Specifications

Item	Description	What's expected in your proposal
	STATUS: M = Mandatory; Failure to meet the mandatory requirements will result in your proposal being deemed non-responsive, and be given no further consideration in the evaluation process, O = Option; I = Information only; D = Desirable	In this column, Bidders are to cross-reference where this technical specification is indicated in their brochure, technical data sheet.
1	**General specifications**	
1.1	**Existing Technology:**	
1.1.1	All equipment must be new (not previously used for demonstration or loan), in that it must not include refurbished equipment, and in that all equipment must be of current manufacture.	
1.2	**Electrical Certification:**	
1.2.1	All electrical equipment supplied under the Contract must be certified or approved for use in accordance with the Canadian Electrical Code, Part 1, before delivery, by a certified organization accredited by the Standards Council of Canada.	

1.2.2.1	Proof of certification must be given to the Technical Authority before delivery.	please acknowledge your commitment to meet this spec
1.3	**Quality Standards:**	
1.3.1	Bidder to ensure a Nationally Recognized quality program such as ISO9001, is used in the order, design and manufacturing processes.	Please provide proof of quality program
1.4	**Warranty:**	
1.4.1	Bidder to ensure equipment and labour is warrantied for a minimum of 24 months from date of assembly.	Please indicate your commitment to meeting this requirement and include Warranty information with the bid.
1.5	**Light Intensity:**	
1.5.1	Instrument must provide light scans that verify specified micromoles/m²/sec measure at 6” from the lamps, verified at 25°C.	Provide detailed documentation, brochures with proposal.
1.6	**Utility Connections:**	
1.6.1	All utility connections required to connect existing infrastructure to the units will be provided by the contractor. To be roughed-in within 2 meters of each growth chamber.	Please indicate your commitment to meeting this requirement and include Warranty information with the bid.
1.6.2	The unit will have all utility connections labeled appropriately.	Please indicate your commitment to meeting this requirement in addition to details of warranty provided.
1.7	**Qualifications and Certifications:**	
1.7.1	Any work required for the install and/or servicing of instrument must be performed by liscenced technicians. Individuals completing the work on-site must provide evidence they are qualified before doing the work.	Please indicate your commitment to meeting this requirement in addition to details of warranty provided.
2	**LOCAL CONTROL SYSTEM**	
2.1	**Programing:**	
2.1.1	Control system must have a minimum 1 Mb storage capacity for user-entered programs	Provide detailed documentation, brochures with proposal.
2.1.2	Programming must be set in real-time on a 24-hour cycle and includes both stepped and ramped temperature set-point functionality.	Provide detailed documentation, brochures with proposal.
2.1.3	Daily programs must have the ability to be linked to simulate mutli-day or seasonal programs;	Provide detailed documentation, brochures with proposal.
2.1.4	Controls must allow the following adjustments at the chamber and remotely: set points and actual temperature, humidty and light level	Provide detailed documentation, brochures with proposal.

2.1.5	Must allow for programs to be entered to the controller via high resolution colour LCD touch screen interface or via desktop computer	Provide detailed documentation, brochures with proposal.
2.1.5.1	Touch screen interface must be at least 6" in size diagonally	Provide detailed documentation, brochures with proposal.
2.1.6	The controller must be industrial grade.	Provide detailed documentation, brochures with proposal.
2.2	**Data logging and graphing:**	
2.2.1	All controlled parameters must be recorded to provide a log of actual experimental results.	Provide detailed documentation, brochures with proposal.
2.2.2	Stored data must be transferable to a desktop computer via a portable storage device or the network.	Provide detailed documentation, brochures with proposal.
2.2.3	Graphing program must allow you to view historical data in graph form or compare actual performance to programmed performance	Provide detailed documentation, brochures with proposal.
2.3	**Alarms:**	
2.3.1	System must incorporate automated pre-set floating alarms tracking temperature and must be configurable to other controlled parameters such as humidity or lighting.	Provide detailed documentation, brochures with proposal.
2.3.2	Alarm set points must be programmable on a per experiment basis.	Provide detailed documentation, brochures with proposal.
2.3.3	Alarms must be logged and be transferable to a portable storage device or to the network	Provide detailed documentation, brochures with proposal.
2.4	**Security:**	
2.4.1	Multiple password-protected levels must be provided for users, administrators, technicians, and manufacturer’s service personnel	Provide detailed documentation, brochures with proposal.
2.5	**Trouble Shooting:**	
2.5.1	Unit must provide an on screen help manual for trouble shooting	Provide detailed documentation, brochures with proposal.
2.5.2	On board diagnostics screen must allow for service personnel to view all inputs and outputs plus access the service life of many components including lamp burning hours, valve cycles etc	Provide detailed documentation, brochures with proposal.
2.6	**Start-Up Delay:**	
2.6.1	Chambers must be programmable with varying restart times to reduce start-up loads in the event of a power failure.	Provide detailed documentation, brochures with proposal.
2.7	**Communications:**	

2.7.1	Controller must be shipped communications-ready for hookup to a local area network.	Provide detailed documentation, brochures with proposal.
2.8	**Power Protection:**	
2.8.1	System must include surge suppression, and an uninterrupted power supply to protect against surge conditions, power spikes, and momentary loss of power.	Provide detailed documentation, brochures with proposal.
3	**Construction**	
3.1	**Exterior Dimensions:**	
3.1.1	The dimensions of the growth chamber must be smaller than 151”L X 71”W X 113”H (3835mmL x 1803mmW x 2870mmH) to fit in designated area as these are replacement of existing units.	Provide detailed documentation, brochures with proposal.
3.2	**Growth Area:**	
3.2.1	Must be a minimum of 39ft^2 (3.62M^2)	Provide detailed documentation, brochures with proposal.
3.3	**Growth Height:**	
3.3.1	Must be a minimum of 76" (1930.4mm)	Provide detailed documentation, brochures with proposal.
3.4	**Flooring:**	
3.4.1	Must be made made of Aluminum or Stainless steel channel floor providing uniform upward air flow.	Provide detailed documentation, brochures with proposal.
3.5	**SubFlooring/Drain Pan:**	Provide detailed documentation, brochures with proposal.
3.5.1	Must be stainless steel or molded resin fiberglass.	Provide detailed documentation, brochures with proposal.
3.5.2	Must have a floor drain	Provide detailed documentation, brochures with proposal.
3.6	**Cabinet Construction:**	
3.6.1	Must be of a woodless construction, using CFC-free high density polystyrene insulation or CFC-free polyurethane insulation or comparable.	Provide detailed documentation, brochures with proposal.
3.7	**Exterior Finish:**	
3.7.1	Must be either enamel baked on galvanized steel or powder coated aluminium	Provide detailed documentation, brochures with proposal.
3.8	**Interior Finish:**	
3.8.1	The walls should be reflective: either enamel baked on galvanized steel or pre-painted aluminium	Provide detailed documentation, brochures with proposal.
3.9	**Condensing Unit Access:**	

3.9.1	Compressor and refrigeration components must be accessible on the sides of the chamber.	Provide detailed documentation, brochures with proposal.
3.10	**Conditioning Compartment:**	Provide detailed documentation, brochures with proposal.
3.10.1	The unit must have a rust resistant drain pan	Provide detailed documentation, brochures with proposal.
3.11	**Doors:**	
3.11.1	Access to the growing are must be accessible by doors on one or btoh sides. Minimum opening size: 28" Maximum door size: 30"	Provide detailed documentation, brochures with proposal.
3.11.2	Each door must be lockable	Provide detailed documentation, brochures with proposal.
3.11.3	Door must be able to open from the inside for safety purposes	Provide detailed documentation, brochures with proposal.
3.11.4	Doors must be located on the side of the controller interface.	Provide detailed documentation, brochures with proposal.
3.11.5	Must have One (1) dual pane observation window with light tight covers. Minimum size 250mm x 356mm (10" x 14") maximum size 380mm x 380mm (15” x 15”). Mounted door closes to the controller interface.	Provide detailed documentation, brochures with proposal.
3.12	**Control Panel**:	
3.12.1	The inferface must be mounted on the left hand side the unit	Provide detailed documentation, brochures with proposal.
3.13	**Instrument Ports**:	
3.13.1	Two (2) ports, of a minimum of 1" (50mm) in diameter must be provided with light tight caps.	Provide detailed documentation, brochures with proposal.
3.14	**Receptacle**:	
3.14.1	A programable wall or light canopy must be mounted at less than 6 amp, 120Volt. 1 phase receptacle must be provided within growth area.	Provide detailed documentation, brochures with proposal.
3.14.2	Must have its own dedicated GFI circuit breaker or the receptacle must be a GFI receptacle	Provide detailed documentation, brochures with proposal.
3.15	**Automatic watering:**	
3.15.1	Unit must have a hose bib connection that is connected to the local controls system for timed control of automatic watering.	Provide detailed documentation, brochures with proposal.

3.15.2	At below freezing temperatures the chamber controller must have the ability automatically purge or drain the water out of the water supply lines required for the automatic irrigation system.	Provide detailed documentation, brochures with proposal.
4	**Lighting:**	
4.1	**Intensity**:	
4.1.1	Light intensity must be at least 1350 micromoles/m²/s measured at 6” from the underside of lamp canopy.	Provide detailed documentation, brochures with proposal.
4.2	**Programming and Control**:	
4.2.1	Dimmable programming of lamps must be provided for each light type.	Provide detailed documentation, brochures with proposal.
4.3	**Lamps**:	
4.3.1	Balanced spectrum for plant growth must be provided using LED's	Provide detailed documentation, brochures with proposal.
4.4	**Lamp Fixture:**	
4.4.1	Lamp canopy must be counterbalanced and easily adjustable by hand.	Provide detailed documentation, brochures with proposal.
4.5	**Lamp Heat**:	
4.5.1	Must be removed by refrigeration system.	Provide detailed documentation, brochures with proposal.
4.6	**Light Meter**:	
4.6.1	Quantum light meter must be included with chamber for displaying and recording of light output.	Provide detailed documentation, brochures with proposal.
5	**Temperature Control:**	
5.1	**Range:**	
5.1.1	The operating temperatures ranges must be at least -10°C to +35°C lights OFF, -5°C to +35°C lights ON (Full fresh air above 8°C) Design must be tested to meet the above conditions based on ambient temperature of no greater than +35°C	Provide detailed documentation, brochures with proposal.
5.1.2	Must include Sequential Defrost to minimize temperature spike during defost.	Provide detailed documentation, brochures with proposal.
5.2	**Control**:	
5.2.1	Must have ±0.5°C, at control point.	Provide detailed documentation, brochures with proposal.
5.3	**Temperature Safety Limits**:	
5.3.1	**Primary**:	
5.3.1.1	A programmable high and low temperature limit tracking alarm that automatically follows the programmed set point must be provided.	Provide detailed documentation, brochures with proposal.

5.3.2	**Secondary**:	
5.3.2.1	An independent (factory-set) high and low temperature limit must be provided for increased security.	Provide detailed documentation, brochures with proposal.
5.3.3	An audible alarm must be provided for both primary and secondary limits.	Provide detailed documentation, brochures with proposal.
5.4	**Sensing Package**:	
5.4.1	Sensors must be located in a self-contained, portable aspirator.	Provide detailed documentation, brochures with proposal.
5.5	**Fan Speed Control**:	
5.5.1	Must allow the user to control the speed of the circulating air.	Provide detailed documentation, brochures with proposal.
6	**Refrigeration:**	
6.1	**Condensing Unit:**	
6.1.1	Cabinet must be supplied with a water-cooled hermetically sealed condensing unit with hot gas bypass system for continuous compressor operation.	Provide detailed documentation, brochures with proposal.
6.1.2	Condensing unit must be located inside the machine compartment.	Provide detailed documentation, brochures with proposal.
6.1.3	Must include a 3-way water valve, a hand operated bypass shut off valve and a water condenser sized for a maximum inlet water temperature of +29 degrees C (85 degrees F). Maximum pressure drop across condenser and water valve must not to exceed 10 psi (0.7 bar).	Provide detailed documentation, brochures with proposal.
6.2	**Compressor**: .	
6.2.1	should included a scroll compressor	Provide detailed documentation, brochures with proposal.
6.3	**Modulation**:	
6.3.1	An electromagnetic proportional valve must be provided for refrigeration control.	Provide detailed documentation, brochures with proposal.
6.4	**Evaporator**:	
6.4.1	Must be of copper-tube construction.	Provide detailed documentation, brochures with proposal.
6.5	**Refrigerant**:	
6.5.1	Condensing unit must be charged with an environmentally friendly CFC-free and HCFC-free refrigerant, and dye.	Provide detailed documentation, brochures with proposal.
6.6	**Monitoring**:	

6.6.1	High and low pressure transducer must be provided to monitor the condition of the refrigeration system.	Provide detailed documentation, brochures with proposal.
6.6.2	Control systems must be able to log, and alarm should high/ low pressure values exceed user specified alarm value	Provide detailed documentation, brochures with proposal.
6.7	**Power Phase Protection**	
6.7.1	Must include a Loss of power phase alarm for protection of the compressor and other components.	Provide detailed documentation, brochures with proposal.
7	**Air Flow:**	
7.1	**Direction - vertical**	
7.1.1	Conditioned air must be directed uniformly upward through perforated aluminum or stainless steel channel flooring.	Provide detailed documentation, brochures with proposal.
7.2	**Fresh Air**:	
7.2.1	Individual adjustment of positively sealed inlet and outlet from open (atleast) 55ft³/min (1.55m³/min) to closed must be provided.	Provide detailed documentation, brochures with proposal.
8	**Humidity Control:**	
8.1	**Range**:	
8.1.1	Must have up to 75% RH lights OFF, and up to 75% RH lights ON.	Provide detailed documentation, brochures with proposal.
8.1.2	Additive humidity must be through use of automated spray nozzles.	Provide detailed documentation, brochures with proposal.
8.1.2.1	Humidification system must be designed to meet the following specifications: 60 psi (4.2 bar) minimum pressure supplied with clean water (pH=7.0±0.5, filtration <2 microns and resistivity between 0.5 and 1.0 Meg Ohms).	Provide detailed documentation, brochures with proposal.
8.2	**Control**: .	
8.2.1	Control to ±3% RH must be provided.	Provide detailed documentation, brochures with proposal.
8.2.2	System must incorporate a dry humidity sensor to directly measure humidity in %RH	Provide detailed documentation, brochures with proposal.
8.2.3	At below freezing temperatures the chamber controller will automatically purge or drain the water out of the water supply lines required for the additive humidity system.	Provide detailed documentation, brochures with proposal.
9	**Utility Requirements:**	
9.1	Chambers must be designed for the following Electrical Service: 60Hz: 120/208 - 3phase - 4 wire plus ground.	Provide detailed documentation, brochures with proposal.
10	**Drain:**	

10.1	Drain must be plumbed to outside footprint of cabinet.	Provide detailed documentation, brochures with proposal.
11	**Installation:**	
11.1	On-site installation including utility connections and start up must be provided and must be carried out by a qualified service technician.	Provide detailed documentation, brochures with proposal.
12	**Manuals:**	
12.1	Three complete sets of user documentation, technical specifications and complete drawings in English must be provided with delivery.	Provide detailed documentation, brochures with proposal.
13	**Training and User Instructions:**	
13.1	Complete on-site user training and instructions must be provided for research staff, support staff and maintenance personnel. (Estimated 5 people)	Provide detailed documentation, brochures with proposal.
14	**Delivery**	
14.1	While delivery is Requested as soon as possible, all goods must be delivered by March 31, 2023.	Please indicate the best available delivery date

ANNEX B

BASIS OF PAYMENT

It is **MANDATORY** that Bidders submit firm prices/rates for the period of the proposed Contract for all items listed hereafter. **This section, when completed, will be considered as the Bidder's financial proposal.**

Bidders shall provide bids as per unit of issue requested. It is the responsibility of the bidder to provide conversion to the unit of issue requested. Failure to do so may render the bid non-responsive without further consideration.

Should there be an error in the extended pricing of the Bidder's proposal, the unit pricing shall prevail and the extended pricing shall be corrected in the evaluation. Any errors in the quantities of the Bidder's proposal shall be changed to reflect the quantities stated in the RFP.

Rates quoted must remain firm for the period of the Contract. Rates MUST include ALL costs associated with providing the goods in accordance with the Requirement, Annex “A” attached herein. GST, if applicable, is to be shown as a separate item on any resulting invoice. Payment will be made in accordance with the following pricing.

Table 1: Goods to be delivered (Firm prices, CAD, FOB Destination)					
Item	**Description**	**Unit of issue**	**Qty**	**Firm Unit Price (CAD)**	**Extended total (CAD)**
1	supply of two (2) Growth Chambers in Accordance with Annex A **<u>Price includes</u>:** **Supply of all equipment indicated in Annex A**	**ea**	**2**	**$**	**$**
2	**Delivery and installation to destination:** Agriculture and Agri-Food Canada Lethbridge Research and Development Centre 5403 – 1 Avenue South P.O. Box 3000, Lethbridge, AB T1J 4B1	**Lot**	**1**	**$**	**$**
				total	**$**

Annex C

COVID-19 vaccination requirement certification

In accordance with the COVID-19 Vaccination Policy for Supplier Personnel, all Bidders must provide with their bid, the COVID-19 Vaccination Requirement Certification attached to this bid solicitation, to be given further consideration in this procurement process. This Certification incorporated into the bid solicitation on its closing date is incorporated into, and forms a binding part of any resulting Contract.

COVID-19 Vaccination Requirement Certification:

I, _____ *(first and last name)*, as the representative of _____ *(name of business)* pursuant to _____ *(insert solicitation number)*, warrant and certify that all personnel that _____ *(name of business)* will provide on the resulting Contract who access federal government workplaces where they may come into contact with public servants will be:

a. fully vaccinated against COVID-19;

b. for personnel that are unable to be vaccinated due to a certified medical contraindication, religion or other prohibited grounds of discrimination under the *Canadian Human Rights Act*, subject to accommodation and mitigation measures that have been presented to and approved by Canada; or

c. partially vaccinated against COVID-19 for a period of up to 10 weeks from the date of their first dose and subject to temporary measures that have been presented to and approved by Canada, immediately after which period the personnel will meet the conditions of (a) or (b) or will no longer access federal government workplaces where they may come into contact with public servants under this Contract;

until such time that Canada indicates that the vaccination requirements of the COVID-19 Vaccination Policy for Supplier Personnel are no longer in effect.

I certify that all personnel provided by _____ *(name of business)* have been notified of the vaccination requirements of the Government of Canada's COVID-19 Vaccination Policy

for Supplier Personnel, and that the _____ *(name of business)* has certified to their compliance with this requirement.

I certify that the information provided is true as of the date indicated below and will continue to be true for the duration of the Contract. I understand that the certifications provided to Canada are subject to verification at all times. I also understand that Canada will declare a contractor in default, if a certification is found to be untrue, whether made knowingly or unknowingly, during the bid or contract period. Canada reserves the right to ask for additional information to verify the certifications. Failure to comply with any request or requirement imposed by Canada will constitute a default under the Contract.

Signature: _____

Date: _____

Optional

For data purposes only, initial below if your business already has its own mandatory vaccination policy or requirements for employees in place. Initialing below **is not** a substitute for completing the mandatory certification above.

Initials: _____

Information you provide on this Certification Form and in accordance with the Government of Canada's COVID-19 Vaccination Policy for Supplier Personnel will be protected, used, stored and disclosed in accordance with the *Privacy Act*. Please note that you have a right to access and correct any information on your file, and you have a right to file a complaint with the Office of the Privacy Commissioner regarding the handling of your personal information. These rights also apply to all individuals who are deemed to be personnel for the purpose for the Contract and who require access to federal government workplaces where they may come into contact with public servants.

ANNEX D

ELECTRONIC PAYMENT INSTRUMENTS

The Bidder accepts any of the following Electronic Payment Instrument(s):

( ) VISA Acquisition Card;

( ) MasterCard Acquisition Card;

( ) Direct Deposit (Domestic and International);

( ) Electronic Data Interchange (EDI);

( ) Wire Transfer (International Only);