



RETURN BIDS TO:

RETOURNER LES SOUMISSIONS À:

Public Works and Government Services Canada
Canada Place/Place du Canada
10th Floor/10e étage
9700 Jasper Ave/9700 ave Jasper
Edmonton
Alberta
T5J 4C3
Bid Fax: (780) 497-3510

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

Vendor/Firm Name and Address

Raison sociale et adresse du
fournisseur/de l'entrepreneur

Issuing Office - Bureau de distribution

Public Works and Government Services Canada
Canada Place/Place du Canada
10th Floor/10e étage
9700 Jasper Ave/9700 ave Jasper
Edmonton
Alberta
T5J 4C3

Title - Sujet Plant Growth Chambers	
Solicitation No. - N° de l'invitation 01581-200477/A	Date 2019-11-04
Client Reference No. - N° de référence du client 01581-200477	
GETS Reference No. - N° de référence de SEAG PW-\$EDM-405-11717	
File No. - N° de dossier EDM-9-42132 (405)	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2019-12-17	Time Zone Fuseau horaire Mountain Standard Time MST
F.O.B. - F.A.B. Plant-Usine: <input type="checkbox"/> Destination: <input checked="" type="checkbox"/> Other-Autre: <input type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Khalid, Omar	Buyer Id - Id de l'acheteur edm405
Telephone No. - N° de téléphone (587) 338-9051 ()	FAX No. - N° de FAX (780) 497-3510
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: DEPARTMENT OF AGRICULTURE AND AGRI-FOOD SWIFT CURRENT R&D CENTRE BOX 1030, 1 AIRPORT RD GATE 4 SWIFT CURRENT Saskatchewan S9H3X2 Canada	

Instructions: See Herein

Instructions: Voir aux présentes

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

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PART 1 - GENERAL INFORMATION

1.1 Statement of 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 Trade Agreements

The requirement is subject to the provisions of the North American Free Trade Agreement (NAFTA) and the Canadian Free Trade Agreement (CFTA).

1.4 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.

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) (<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](#) (2019-03-04) 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 the Public Works and Government Services Canada (PWGSC) Bid Receiving Unit specified below by the date and time indicated on page 1 of the bid solicitation:

Bid Receiving Public Works and Government Services Canada
Canada Place
Suite 1000, 9700 Jasper Avenue
Edmonton, Alberta T5J 4C3
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 Instructions [2003](#), or to send bids through an epost Connect message if the bidder is using its own licensing agreement for epost Connect.

Facsimile number: 780-497-3510

2.3 Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority no later than **ten (10)** 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 **Alberta**.

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.

PART 3 - BID PREPARATION INSTRUCTIONS

3.1 Bid Preparation Instructions

If the Bidder chooses to submit its bid electronically, Canada requests that the Bidder submits its bid 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 Bid
Section II: Financial Bid
Section III: Certifications

If the Bidder chooses to submit its bid in hard copies, Canada requests that the Bidder submits its bid in separately bound sections as follows:

Section I: Technical Bid (1 hard copies)
Section II: Financial Bid (1 hard copies)
Section III: Certifications (1 hard copies)

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

If the Bidder is simultaneously providing copies of its bid using multiple acceptable delivery methods, and if there is a discrepancy between the wording of any of these copies and the electronic copy provided

through epost Connect service, the wording of the electronic copy provided through epost Connect service will have priority over the wording of the other copies.

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 hard copy 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](https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=32573) (<https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=32573>). 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.

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

SACC Manual Clause [C3011T](#) (2013-11-06), Exchange Rate Fluctuation

3.1.3 SACC Manual Clauses

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

- a) Compliance with meeting all of the mandatory specification requirements, as identified under Annex "A", Requirement.
- b) Compliance with the Basis of Payment, as identified under Annex "B".

4.1.2 Financial Evaluation

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

4.2 Basis of Selection

4.2.1 Basis of Selection - Mandatory Technical Criteria

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](http://www.tpsgc-pwgsc.gc.ca/ci-if/declaration-eng.html) website (<http://www.tpsgc-pwgsc.gc.ca/ci-if/declaration-eng.html>), 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 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) (<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](https://www.canada.ca/en/employment-social-development/programs/employment-equity/federal-contractor-program.html#) 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 Statement of Requirement

The Contractor must provide the items detailed under the "Statement of 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) (<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](#) (2018-06-21), General Conditions - Goods (Medium Complexity), apply to and form part of the Contract.

6.3.2 Warranty - Modification - General Conditions 2010A

Section 09 entitled *Warranty of general conditions 2010A* is amended by deleting subsection 2 in its entirety and replacing it with the following:

The Contractor 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. The Contractor must also 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. In such cases, the Contractor will be responsible for all Costs (including travel and living expenses) incurred in so doing, Canada will not reimburse these Costs.

All other provisions of the warranty section remain in effect.

6.3.3 Warranty Period

Section 09 of general conditions 2010A is amended by replacing the period of 12 months by 24 months

All other provisions of the warranty section remain in effect.

6.4 Term of Contract

6.4.1 Delivery Date

All the deliverables must be received on or before _____ **(to be determined)**.

6.4.2 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:

Omar Khalid
Procurement Officer
Public Works and Government Services Canada
Acquisitions Branch
Canada Place
Suite 1000, 9700 Jasper Avenue
Edmonton AB, T5J 4C3

Telephone: 587-338-9051
Facsimile: 780-497-3510
E-mail address: Omar.Khalid@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.

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EDM-9-42132

Buyer ID - Id de l'acheteur
edm405
CCC No./N° CCC - FMS No./N° VME

6.5.2 Technical Authority

The Technical Authority for the Contract is: **(to be provided at contract award)**

Name: _____
Title: _____
Organization: _____
Address: _____

Telephone: ____ - ____ - ____
Facsimile: ____ - ____ - ____
E-mail: _____.

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

(To be completed by the bidder)

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 unit price(s) as specified in Annex "B" for a cost of \$ _____ **(to be determined)**. Customs duties are _____ **(to be determined)** 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 Multiple Payments

SACC Manual Clause H1001C (2008-05-12), Multiple Payment

6.6.3 SACC Manual Clauses

C2000C (2007-11-30), Taxes - Foreign-based Contractor

6.6.4 Electronic Payment of Invoices – Contract

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

- a. Visa Acquisition Card;
- b. MasterCard Acquisition Card;
- c. Direct Deposit (Domestic and International);
- d. Electronic Data Interchange (EDI);
- e. Wire Transfer (International Only);
- f. Large Value Transfer System (LVTS) (Over \$25M)

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.
 - b. One (1) copy must be forwarded to the Contracting 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 Alberta

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 (2018-06-21), General Conditions - Goods (Medium Complexity);
- (c) Annex A, Statement of Requirement;
- (d) Annex B, Basis of Payment;
- (e) the Contractor's bid dated _____ **(insert date of bid)**

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6.11 **SACC Manual Clauses**

A9068C (2010-01-11), Government Site Regulations
B1501C (2018-06-21), Electrical equipment
B7500C (2006-06-16), Excess Goods
G1005C (2016-01-28), Insurance - No Specific Requirement
D0018C (2007-11-30), Delivery and Unloading

6.12 **Inspection and Acceptance**

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

ANNEX "A"

STATEMENT OF REQUIREMENT

1. Plant Growth Chamber

AAFC's Swift Current Research and Development Centre requires two (2), 3-tier flexible plant growth chambers with movable and removable lighting in order to provide one, two or three tiers for plant growth. The units must be programmable and capable of precise temperature and humidity control. The single-tier configuration must be capable of providing a light intensity of at least $1100 \mu\text{moles m}^{-2} \text{s}^{-1}$ in a single tier configuration, and at least $500 \mu\text{moles m}^{-2} \text{s}^{-1}$ in a multi-tier configuration (measured at 150 mm). One unit is to be equipped with the ability to increase CO_2 concentrations above ambient.

2. DELIVERY DATE

Preferred completion of delivery on or before March 31, 2020 with a mandatory completion by June 30, 2020.

The best delivery date that could be offered is _____

Preferred completion of all training and installation on or before March 31, 2020 with a mandatory completion by June 30, 2020.

The best installation and training date that could be offered is _____

3. DELIVERY LOCATION

All the deliverables must be received at the location specified below.

FOB destination locations:

Swift Current Research and Development Centre
1 Airport Road,
Swift Current, Saskatchewan, S9H 3X2

4. COMPLIANCE MATRIX – MINIMUM MANDATORY PERFORMANCE SPECIFICATIONS

A complete list of the minimum mandatory performance specifications are detailed below in the "Compliance Matrix". Bidders are to clearly demonstrate compliance with each mandatory specification.

1. Bidders **must** show compliance by addressing each performance specification in the Compliance Matrix, whether the product offered "meets" or "doesn't meet".
2. Bidders are requested to indicate how they meet each performance specification by recording this information under the Performance Specification Offered column in the Compliance Matrix.

3. 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.
4. 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, will deem the bid non-responsive and the bid will be given no further consideration.
5. 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.
6. Failure to meet each performance specification will result in the bid being deemed non-responsive, and be given no further consideration.

Requirement	Manufacturer Offered:	Model number Offered#
Plant Growth Chambers		

Table 1: Mandatory performance specifications for both growth chambers

Item #	Performance Specification	Status (M) Mandatory	Performance Specification Met? Indicate either Yes/No	Performance Specification Offered: Bidder should indicate how they meet the performance specification by recording this information in this column	Cross Reference: In this column, Bidders should cross-reference where this performance specification is indicated in their supporting documents.
1.0	General requirements				
1.1	Manufacturer must be ISO 9001 certified. The certification applies to the order, design and manufacturing processes.	M			

1.2	As part of the installation process, vendors must provide growth chamber light scan to confirm light intensity is as specified and stated in $\mu\text{moles m}^{-2}\text{s}^{-1}$ measured at 152 mm (6") from seasoned lamps, verified at 25°C.	M			
2.0	Technical Requirements				
2.1	The plant growth chamber's wall panel construction must be woodless and employ CFC-free insulation.	M			
2.2	The exterior finish must be galvanized steel or aluminum, finished with baked on enamel paint.	M			
2.3	The interior finish must be stainless steel for scratch and corrosion resistance, long life, and ease of cleaning or aluminum or galvanized steel with baked on enamel paint with a smooth high reflective white finish.	M			
2.4	The plant growth chamber must be supported by a base constructed of a water and rust resistant material, and accommodate anchoring to a concrete floor.	M			
2.5	The plant growth chamber must be equipped with two reach in doors with keyed lock and magnetic gaskets for positive perimeter seal.	M			
2.6	The control panel and instrument displays must be located on the front of the unit for accessibility	M			
2.7	The plant growth chamber outside dimensions must be no greater than 2700 mm (L) x 1100 mm (W) x 2900 mm (H)	M			
2.8	The plant growth chamber inside dimensions must be no less than 2300 mm (W) x 725 mm (D)	M			
2.9	The plant growth chamber interior growth area must be no less than: <ul style="list-style-type: none"> 1.7 m² for one (1) tier; 3.4 m² on two (2) tiers, one of which being adjustable; 5.1 m² on three (3) tiers, two of which are adjustable. 	M			
2.10	The plant chamber interior growth heights must be: <ul style="list-style-type: none"> Single lamp: not less than 1500 mm Dual lamp mode: not less than 600 mm Tri lamp mode: not less than 350 mm 	M			
2.11	The chamber interior must include three light banks, one that can be raised or lowered using a pulley system or equivalent, two (2) adjustable light banks that can be easily removed for chamber flexibility and can be adjusted at 75 mm \pm 10 mm intervals.	M			

2.12	Chamber must have a minimum of two (2) instrumentation ports with each port having a minimum diameter of 38mm. Each port must have a light tight cap.	M			
2.13	Chamber must be able to deliver air horizontally and ensure uniform environmental conditions in dual and tri lamp modes.	M			
2.14	Chamber subfloor and the subfloor drain must be corrosion resistant and be waterproofed to preclude side panel water leakage.	M			
2.15	The supplier must ensure the subfloor drain can be connected by AAFC to the existing floor drain in the complex using either copper or PVC pipes supplied by AAFC and that the drain is capable of evacuating excess irrigation of plant material on all tiers. Connection size ranges from 1/2" to 1". (see appendix 1)	M			
2.16	Chamber must undergo a factory acceptance test which will include but not be restricted to the assembly and testing prior to delivery to ensure the chamber will meet the mandatory specifications and requirements of the research facility.	M			
3.0	Lighting Requirements				
3.1	Chamber light intensity must be at least 1100 $\mu\text{moles m}^{-2} \text{s}^{-1}$ in a single tier configuration, and at least 500 $\mu\text{moles m}^{-2} \text{s}^{-1}$ in a multi-tier configuration (measured at 150 mm from lamps verified at 25°C with 100 hour old lamps).	M			
3.2	Each tier must provide an optimal spectrum for plant growth using broad spectrum and far red LEDs to better replicate atmospheric lighting conditions.	M			
3.3	Lighting at each level must be dimmable based on quantum output as programmed by the user for each lighting level.	M			
4.0	Temperature Requirements				
4.1	Chamber must be fully operational under the following programs; minimum temperature range of +4°C to +40°C, lights OFF and, minimum temperature range +10°C to +40°C lights ON with fresh air at full.	M			
4.2	Temperature control must be accurate to $\pm 0.5^\circ\text{C}$ of the control temperature set point.	M			
4.3	Chamber must include primary temperature safety limits for programmable high and low temperature alarm limits that automatically alarm if programmed experimental set points are exceeded.	M			

4.4	The secondary temperature safety limits must be provided to allow for the setting of independent high and low temperature limits in order to avoid the equipment damage.	M			
4.5	Chamber must have an integrated audible alarm for primary limits and on alarm, when the set temperatures are exceeded, the power is extinguished to the chamber	M			
5.0	Relative Humidity Requirements				
5.1	Chamber must provide additive humidity to achieve a minimum of 90% RH at lights OFF and 75% RH at lights ON, limited by a +25°C maximum dew point. Additive humidity must be through the use of spray nozzles	M			
5.2	Chamber humidity control must be accurate to ±5% RH and must incorporate a dry humidity sensor sensing, measuring and controlling humidity.	M			
6.0	Refrigeration System and Components				
6.1	The refrigeration unit must be a water-cooled, hermetically sealed condensing unit with hot gas bypass system for continuous compressor operation, extended compressor life and accurate temperature control.	M			
6.2	Refrigeration system must be a hot-gas system incorporating a proportional valve to ensure a steady-state system without the use of individual solenoids on separate heating and cooling circuits.	M			
6.3	The refrigeration system evaporator coil must be fabricated from copper tubing	M			
6.4	The refrigeration system condensing unit must be charged with and use a CFC-free refrigerant product	M			
6.5	The refrigeration system must be capable of removing radiant lamp heat	M			
6.6	The chamber control system must monitor the refrigeration system operation and deviations from set or preset values must be identified by an integrated visual and audible alarm	M			
7.0	Control System				
7.1	Control system must be programmable and provide the user with a color touch screen interface.	M			
7.2	The control system must provide a minimum of three (3) levels of security	M			
7.3	The control system must allow users multi-line scheduling to allow for simulations of multi-day environmental variations	M			
7.4	The control system must allow users to ramp between variable set points or provide high resolution stepping	M			

7.5	The control system must allow users to access through the touch screen an online help menu/manual for programming assistance	M			
7.6	The control system must include a means of allowing users to view the status of the variables being monitored for their experiments.	M			
7.7	The control system must be capable of logging the chamber's controlled data parameters and record/store this data to provide a log of actual experimental conditions and results.	M			
7.8	The control system must incorporate a stored data transfer capability to a desktop workstation using a portable storage device or local area network.	M			
7.9	The control system must include a graphing program to allow for the graphing of both set points and actual performance values.	M			
7.10	The control system graphing program must allow users to view historical data in a graph format to compare with current performance through the controller	M			
7.11	The control system must provide the ability to provide on-screen graphical displays to view past data on chamber performance and future chamber set points.	M			
7.12	The control system must provide the ability to provide on-screen graphical displays to view past data on chamber performance and future chamber set points.	M			
7.13	The control system must be capable of providing diagnostic information on alarms, failures and information on the service life of the components.	M			
7.14	The chamber must be equipped with an integrated start-up delay capability to stagger activation of multiple chambers.	M			
7.15	The growth chamber must be equipped with a means of allowing the operator to remotely track and receive high and low temperature alarms, humidity, lighting and other controlled parameters mentioned in other specification.	M			
7.16	The control system must log all alarms. All logged alarms must download to a portable storage device or the network.	M			
7.17	The control system must be capable of providing both audible alarms and a means of transmitting alarms to authorized personnel.	M			
7.18	The chamber must come equipped with its own surge protection system and uninterruptible power supply to protect the controller and control circuits from changes in power conditions.	M			

8.0	Utility Requirements				
8.1	The chamber must connect to existing electrical service on site with an external disconnect switch. Growth chamber must be configured for 120/208 volt, three phase, 60 cycle, four wire plus ground electrical service.	M			
8.2	The chamber must provide connections to connect to the supply and return condenser cooling water lines from the central chiller system. There is 1/2" or 3/4" copper connections on the condenser for AAFC to tie on to (supply & Return).	M			
8.3	The chamber must provide connections to connect humidity system to existing purified water. This connection must be plastic as the purified water will eat metal. Connection size ranges from 3/8" to 1/2".	M			
9.0	Installation Specifications				
9.1	The contractor must transport the equipment from the off-loading or storage area to the assembly area.	M			
9.2	The contractor must uncrate equipment and dispose of crating material in customer supplied disposal bins	M			
9.3	The contractor must assemble and make work the supplied equipment using qualified personnel	M			
9.4	The contractor must start-up and check equipment performance and operation to factory specifications.	M			
9.5	The contractor must provide a minimum 2 hours of instruction for up to 10 individuals on use and maintenance of the equipment after setup.	M			
9.6	Two complete sets one (1) hard copy and one (1) electronic copy of user documentation, technical specifications and complete drawings in English must be provided with delivery.	M			

Table 2: Mandatory performance specification for second growth chamber

Item #	Performance Specification	Status (M) Mandatory	Performance Specification Met? Indicate either Yes/No	Performance Specification Offered: Bidder <u>should</u> indicate how they meet the performance specification by recording this information in this column	Cross Reference: In this column, Bidders should cross-reference where this performance specification is indicated in their supporting documents.
1.0	CO₂ Control System				
1.1	Chamber must be equipped with an additive CO ₂ system (excluding CO ₂ tank source)	M			
1.2	System must be capable of measuring CO ₂ levels to within $\pm 3\%$	M			
1.3	System must be able to provide CO ₂ levels to at least 1500 ppm	M			
1.4	CO ₂ levels must be monitored and tracked through the chamber control system, and must be programmable in the same manner as temperature and humidity	M			

Appendix 1: Floor Drain Photos

The photos below are of the existing floor drain in the complex, which AAFC will connect to the growth chamber.



ANNEX "B"

BASIS OF PAYMENT

- The Firm Unit Prices are FOB destination and include all delivery, off-loading, installation and training charges to Agriculture and Agri-Food Canada, 1 Airport Road, Swift Current, SK S9H 3X2

- Canadian-based bidders must submit firm prices, Canadian customs duties and excise taxes included, and Applicable Taxes excluded.

- Foreign-based bidders must submit firm prices, Canadian customs duties, excise taxes and Applicable Taxes excluded. Canadian customs duties and excise taxes payable by Canada will be added, for evaluation purposes only, to the prices submitted by foreign-based bidders.

- The Firm Lot Price for the Installation and Testing include all costs for labour, materials, equipment, tools, travel/meals/lodging, and supervision necessary to provide the work.

This section, when completed, will be considered as the Bidders Financial Proposal and payment will be made in accordance with the following pricing:

Item	Description	Qty	Firm Unit Price (CND)	Extended Price (CND)
1	Supply and delivery of one (1), 3-tier flexible plant growth chamber, accessories and operation manuals in compliance with the minimum Performance Specifications and the requirement outlined in table 1 of Annex A;	1 Lot	\$	\$
2	Supply and delivery of one (1), 3-tier flexible plant growth chamber with CO ₂ control system, accessories and operation manuals in compliance with the minimum Performance Specifications and the requirement outlined in table 1 AND table 2 of Annex A;	1 Lot	\$	\$
3	Uncrating, Installation, setup and testing of two (2), 3-tier flexible plant growth chambers at destination	1 Lot	\$	\$
4	On-site training for up to ten (10) AAFC employees	1 Lot	\$	\$
Total			\$	

Invoices will be sent to:

Original and two copies are to be made and send out to:
Swift Current Research and Development Centre
Agriculture and Agri-Food Canada
Box 1030
Swift Current, SK
S9H 3X2

Solicitation No. - N° de l'invitation
01581-200477/A
Client Ref. No. - N° de réf. du client
01581-200477

Amd. No. - N° de la modif.
File No. - N° du dossier
EDM-9-42132

Buyer ID - Id de l'acheteur
edm405
CCC No./N° CCC - FMS No./N° VME

ANNEX "C" to PART 3 OF THE BID SOLICITATION

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);
- ☐ () Large Value Transfer System (LVTS) (Over \$25M)