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

RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:

Public Works and Government Services Canada
ATB Place North Tower
10025 Jasper Ave./10025 ave. Jaspe
5th floor/5e étage
Edmonton
Alberta
T5J 1S6
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

Title - Sujet
LRC Exterior Envelope Replacement

Solicitation No. - N° de l'invitation
EP922-171869/A

Date
2016-12-02

Client Reference No. - N° de référence du client
AAFC EP922-171869

GETS Reference No. - N° de référence de SEAG
PW-$PWU-183-10919

File No. - N° de dossier
PWU-6-39248 (183)

CCC No./N° CCC - FMS No./N° VME

Solicitation Closes - L'invitation prend fin
at - à 02:00 PM
on - le 2017-01-10

Time Zone
Fuseau horaire
Mountain Standard Time MST

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

Address Enquiries to: - Adresser toutes questions à:
Tikhonovitch (RPC), Alex

Buyer Id - Id de l'acheteur
pwu183

Telephone No. - N° de téléphone
(780) 901-7940 ( )

FAX No. - N° de FAX
(780) 497-3510

Destination - of Goods, Services, and Construction:
Destination - des biens, services et construction:
DEPARTMENT OF PUBLIC WORKS AND GOVERNMENT SERVICES CANADA
HARRY HAYS BUILDING
759- 220 4 AVE SE
CALGARY
Alberta
T2G4X3
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
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**

Issuing Office - Bureau de distribution
Public Works and Government Services Canada
ATB Place North Tower
10025 Jasper Ave./10025 ave Jasper
5th floor/5e étage
Edmonton
Alberta
T5J 1S6

Canada

IMPORTANT NOTICE TO BIDDERS

SUPPORT THE USE OF APPRENTICES
Through Canada's Economic Action Plan 2013, the Government of Canada proposes to support the employment of apprentices in federal construction and maintenance projects. Refer to SI11.

INTEGRITY PROVISIONS - BID
Important changes have been made to the Integrity Provisions - Bid as of July 3rd 2015. See GI01, Integrity Provision-Bid of the General Instructions for more information.

REQUEST FOR PROPOSAL (RFP)

CONSTRUCTION MANAGEMENT SERVICES
Agriculture and Agri-Food Canada (AAFC) Lethbridge Research and Development Centre
Laboratory Annex Exterior Envelope Replacement, Lethbridge, Alberta.

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SPECIAL INSTRUCTIONS TO BIDDERS

SI01 INTEGRITY PROVISIONS – DECLARATION OF CONVICTED OFFENCES

As applicable, pursuant to GI01 of the Declaration of Convicted Offences, paragraph 10 (copied below) of the General Instructions, the Bidder must provide with its bid, a completed *Declaration Form*, to be given further consideration in the procurement process.

Declaration of Convicted Offences
Where a Bidder or its Affiliate is unable to certify that it has not been convicted of any of the offences referenced under the Canadian Offences Resulting in Legal Incapacity, the Canadian Offences and the Foreign Offences subsections, the Bidder must provide with its bid the completed Declaration Form, to be given further consideration in the procurement process.

SI02 BID DOCUMENTS

The following are the proposal documents:

(a) Request for Proposals - Page 1;
(b) Special Instructions to Bidders;
(c) Supplementary Conditions;
(d) General Instructions to Bidders;
(e) Submission Requirements and Evaluation, and
(f) Annex A - Terms of Reference
(g) Annex B - PWGSC Procedures and Standards Document
(h) Appendix 1 - Price Proposal Form
(i) Appendix 2 - Division 01 General Requirements
(j) Appendix 6 - Health and Safety Requirements
(k) Any amendments issued prior to solicitation closing

Submission of a proposal constitutes acknowledgment that the Bidder has read and agrees to be bound by these documents.

SI03 STANDARD INSTRUCTIONS, CLAUSES AND CONDITIONS

All instructions, clauses and conditions identified in the bid solicitation and resulting contract by number, date and title are set out in the Standard Acquisition Clauses and Conditions Manual issued by Public Works and Government Services Canada (PWGSC). The Manual is available on the PWGSC Website: Standard Acquisition Clauses and Conditions. https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual/5/R

Bidders who submit a bid agree to be bound by the instructions, clauses and conditions of this bid solicitation and accept the clauses and conditions of the resulting contract.

SI04 DEFINITION OF BIDDER

"Bidder" means the person or entity (or, in the case of a joint venture, the persons or entities) submitting a bid to perform a contract for goods or services or construction. It does not include the parent, subsidiaries or other affiliates of the Bidder, or its subcontractors.

"A joint venture" is defined as an association of two or more parties which combine their money, property, knowledge, skills, time or other resources in a joint business enterprise agreeing to share the profits and the losses and each having some degree of control over the enterprise. In order to avoid any conflict of interest, or any perception of conflict of interest, no person or entity acting as an individual Construction Manager or as part of a joint venture Construction Manager, and anyone not at arms length to the Construction Manager, shall be ineligible to submit bids for any construction tenders issued for work tendered as part of this Construction Management Contract. For further clarity, an entity acting as an individual Construction Manager or as part of a joint venture Construction Manager will be deemed to have a Conflict of Interest that would prevent it from being eligible to submit bids for any tenders issued in connection with the Project. This does not limit the Construction Manager's ability to use its own forces when permitted by the Departmental Representative.

SI05 ENQUIRIES DURING THE SOLICITATION PERIOD

1) Enquiries regarding this Request for Proposals must be submitted in writing to the Contracting Officer named on the Request for Proposals - Page 1 as early as possible within the solicitation period. Except for the approval of alternative materials as described in GI16 of the General Instructions to Bidders, enquiries should be received no later than ten (10) calendar days prior to the date set for solicitation closing to allow sufficient time to provide a response. Enquiries received after that time may not result in an answer being provided.

2) To ensure consistency and quality of the information provided to Bidders, the Contracting Officer shall examine the content of the enquiry and shall decide whether or not to issue an amendment.

3) All enquiries and other communications related to this Request for Proposals sent throughout the solicitation period are to be directed ONLY to the Contracting Officer named on the Request for Proposals - Page 1. Non-compliance with this requirement during the solicitation period can, for that reason alone, result in disqualification of a proposal.

SI06 REVISION OF BID

1) A bid may be revised by letter or facsimile in accordance with GI11 of the General Instructions to Bidders. The facsimile number for receipt of revisions is (780) 497-3510.

SI07 OPTIONAL SITE VISIT

There will be a site visit on December 20, 2016 at 12:00 pm. Interested bidders are to meet at:

Lethbridge Research and Development Centre
5403 – 1St Avenue South
Lethbridge, AB T1J-4B1
(meet in the main entrance lobby)

SI08 LATE SUBMISSIONS

It is PWGSC policy to return, unopened, submissions delivered after the stipulated closing date and time.

SI09 PROPOSAL VALIDITY PERIOD

1) Canada reserves the right to seek an extension to the proposal validity period prescribed in BA05 of the Price Proposal Form. Upon notification in writing from Canada, Bidders shall have the option to either accept or reject the proposed extension.

2) If the extension referred to in paragraph 1) of SI08 is accepted, in writing, by all those who submitted proposals, then Canada shall continue immediately with the evaluation of the proposals and its approvals processes.

3) If the extension referred to in paragraph 1) of SI08 is not accepted in writing by all those who submitted proposals then Canada shall, at its sole discretion, either

   (a) continue to evaluate the proposals of those who have accepted the proposed extension and seek the necessary approvals; or

   (b) cancel the request for proposals.

4) The provisions expressed herein do not in any manner limit Canada's rights in law or under GI12 of the General Instructions to Bidders

SI10 CONDUCT OF EVALUATION

1) In conducting its evaluation of the bids, Canada may, but will have no obligation to, do the following:

   (a) seek clarification or verification from bidders regarding any or all information provided by them with respect to the bid solicitation;

   (b) contact any or all references supplied by bidders to verify and validate any information submitted by them;

   (c) request, before award of any contract, specific information with respect to bidders' legal status;

   (d) Conduct a survey of bidders' facilities and/or examine their technical, managerial, and financial capabilities to determine if they are adequate to meet the requirements of the solicitation;

   (e) correct any error in the extended pricing of bids by using unit pricing and any error in quantities in bids to reflect the quantities stated in the bid solicitation; in the case of error in the extension of prices, the unit price will govern;

(f) verify any information provided by bidders through independent research, use of any government sources or by contacting third parties;

(g) interview, at the sole costs of bidders, any bidder and/or any or all of the resources proposed by bidders to fulfil the requirement of the bid solicitation.

2. Bidders will have the number of days specified in the request by the Contracting Authority to comply with any request related to any of the above items. Failure to comply with the request may result in the bid being declared non-responsive.

SI11 PUBLIC WORKS AND GOVERNMENT SERVICES CANADA APPRENTICE PROCUREMENT INITIATIVE

1. To encourage employers to participate in apprenticeship training, Contractors bidding on construction and maintenance contracts by Public Works and Government Services Canada (PWGSC) are being asked to sign a voluntary certification, signaling their commitment to hire and train apprentices.

2. Canada is facing skills shortages across various sectors and regions, especially in the skilled trades. Equipping Canadians with skills and training is a shared responsibility. In Economic Action Plan (EAP) 2013, the Government of Canada made a commitment to support the use of apprentices in federal construction and maintenance contracts. Contractors have an important role in supporting apprentices through hiring and training and are encouraged to certify that they are providing opportunities to apprentices as part of doing business with the Government of Canada.

3. Through the Economic Action Plan 2013 and support for training programs, the Government of Canada is encouraging apprenticeships and careers in the skilled trades. In addition, the government offers a tax credit to employers to encourage them to hire apprentices. Information on this tax measure administered by the Canada Revenue Agency can be found at: www.cra-arc.gc.ca. Employers are also encouraged to find out what additional information and supports are available from their respective provincial or territorial jurisdiction.

4. Signed certifications (Appendix 5) will be used to better understand contractor use of apprentices on Government of Canada maintenance and construction contracts and may inform future policy and program development.

5. The Contractor hereby certifies the following:

   In order to help meet demand for skilled trades people, the Contractor agrees to use, and require its subcontractors to use, reasonable commercial efforts to hire and train registered apprentices, to strive to fully utilize allowable apprenticeship ratios * and to respect any hiring requirements prescribed by provincial or territorial statutes

   The Contractor hereby consents to this information being collected and held by PWGSC, and Employment and Social Development Canada to support work to gather data on the hiring and training of apprentices in federal construction and maintenance contracts.

   To support this initiative, a voluntary certification signaling the Contractor's commitment to hire and train apprentices is available at Appendix 5.

   If you accept fill out and sign Appendix 5

* *The journeyperson-apprentice ratio is defined as the number of qualified/certified journeypersons that an employer must employ in a designated trade or occupation in order to be eligible to register an apprentice as determined by provincial/territorial (P/T) legislation, regulation, policy directive or by law issued by the responsible authority or agency.*

SI12 DEBRIEFING

Should a Proponent desire a debriefing, the Proponent should contact the person identified on the front page of the RFP within 15 working days of the notification of the results of the solicitation. The debriefing will include an outline of the strengths and weaknesses of the submission, referring to the evaluation criteria. The confidentiality of information relating to other submissions will be protected. The debriefing may be provided in writing, by telephone or in person.

SI13 COMMUNICATIONS NOTIFICATION

The Government of Canada requires the successful bidder to notify the Contracting Officer named on the Request for Proposal - Page 1 in advance of their intention to make public an announcement related to the award of a contract.

SI14 WEB SITES

The connection to some of the Web sites in the solicitation documents is established by the use of hyperlinks. The following is a list of the addresses of the Web sites:

Treasury Board Appendix L, Acceptable Bonding Companies
Http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=14494&section=text#appL

Contracts Canada (Buy and Sell) https://www.achatsetventes-buyandsell.gc.ca/eng/welcome
Canadian economic sanctions http://www.international.gc.ca/sanctions/index.aspx?lang=eng

Contractor Performance Evaluation Report (Form PWGSC-TPSGC 2913) http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/2913.pdf

Bid Bond (form PWGSC-TPSGC 504) http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/504.pdf

Performance Bond (form PWGSC-TPSGC 505) http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/505.pdf

Labour and Material Payment Bond (form PWGWSC-TPSGC 506) http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/506.pdf

Certificate of Insurance (form PWGSC-TPSGC 357) http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/357.pdf

SACC Manual https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual

Schedules of Wage Rates for Federal Construction Contracts http://www.rhdcc-hrsdc.gc.ca/eng/labour/employment_standards/contracts/schedule/index.shtml

PWGSC, Industrial Security Services Http://ssi-iss.tpsgc-pwgsc.gc.ca/index-eng.html

PWGSC, Code of Conduct and Certifications
Http://www.tpsgc-pwgsc.gc.ca/app-acq/cndt-cndct/index-eng.html

SUPPLEMENTARY CONDITIONS

SC01 Changes to Contract Documents
SC02 Soliciting Bids
SC03 Determination of Construction Cost
SC04 Insurance Terms
SC05 Security Related Requirements, Document Safeguarding

SC01 CHANGES TO CONTRACT DOCUMENTS

1) R2810D: Add the following sub-paragraph 1) (g) under GC1.2.2

   (g) Terms of Reference

2) R2850D: The following paragraph is added to GC5.4:

   6) The portion of the Work done under the Fixed Fee shall be invoiced in equal monthly installments over the duration of the Contract. The installments shall be recalculated on a monthly basis to account for any changes in the completion date of the Work."

3) R2860D: GC6.4 is replaced in its entirety with the following:

   GC6.4 Determination of Price

   1) Any adjustment to the price of the Work that is resulting from a change in the Work pursuant to GC6.1 will represent all reasonable and proper costs including delay incurred by or savings accruing to the Contractor in respect of the labour, Plant and Material that are payable as Construction Costs.

   2) If the final price of the Work, excluding the Contractor's fees, is not within 75 and 125 percent of the Estimated Construction Cost, either party to the Contract may request to negotiate a change in the Contractor's Percentage Fee for the Work outside of these thresholds if:

      A) there is a demonstrable difference between the cost to the Contractor of performing the Work for the Estimated Construction Cost and the cost to the Contractor of performing the Work for the actual Construction Cost; and,

      B) if the difference in cost is due solely to the difference in actual and estimated Construction Costs.

   The onus of establishing, justifying and quantifying a proposed change lies with the party making the request for negotiation. In no event shall the total amount paid as the Contractor's Percentage Fee, amended as a result of a reduction in the price of the Work, exceed the amount that would have been payable to the Contractor had the price of the Work actually accounted for 75 percent of the Estimated Construction Cost.

   3) The amount of the Contract shall be the final sum of the Fixed Fee, the actual Construction Cost, the Percentage Fee and any adjustments that are made in accordance with the Contract.

SC02 SOLICITING BIDS

1) The Contractor shall solicit bids whenever it is cost effective to do so for any portion of the Work that is estimated at less than $25,000.

2) The Contractor shall solicit a minimum of three bids before any subcontract is entered into for any portion of the Work that is estimated at $25,000 or more.

3) The Contractor, with Canada's agreement, may set aside the requirement to solicit three bids if it is not in the public interest to do so, or less than three firms are capable of performing the Work.

SC03 DETERMINATION OF CONSTRUCTION COST

1) The price of any portion of the Work that is subcontracted shall be equal to the amount of the subcontract plus the applicable CM Percentage Fee.

2) Any adjustment to the amount of a subcontract shall require Canada's approval in writing. The CM shall not be entitled to any additional fees other than the Percentage Fee.

3) Any request for adjusting the amount of a subcontract shall be substantiated with a cost estimate breakdown itemizing all labour, material, and plant costs, and the amount of any allowance. The Contractor shall ensure that all prices included in the breakdown are fair and reasonable and in conformance with the following:

   (a) Labour rates shall be established in accordance with applicable trade union agreements. Non-union labour rates shall be established in accordance with the General Fair Wage Clause of the Labour Conditions. All labour rates shall require approval by Canada in writing.

   (b) The costs of all material and plant must represent the actual amount paid to suppliers and said costs are to include all applicable discounts.

   (c) Allowances shall be negotiated by the Contractor for each change and shall represent the reasonable amount for the nature and complexity of each change.

4) The price of any portion of the Work that is not subcontracted or paid for as a Fixed Fee shall be equal to the actual cost of that portion of the Work plus the applicable Contractor's Percentage Fee.

SC04 INSURANCE TERMS

1) Insurance Contracts

   (a) The Contractor must, at the Contractor's expense, obtain and maintain insurance contracts in accordance with the requirements of the Certificate of Insurance. Coverage must be placed with an Insurer licensed to carry out business in Canada.

   (b) Compliance with the insurance requirements does not release the Contractor from or reduce its liability under the Contract. The Contractor is responsible for deciding if additional insurance coverage is necessary to fulfill its obligation under the Contract and to ensure compliance with any applicable law. Any additional insurance coverage is at the Contractor's expense, and for its own benefit and protection.

2) Period of Insurance

   (a) The policies required in the Certificate of Insurance must be in force from the date of contract award and be maintained throughout the duration of the Contract.

(b) The Contractor must be responsible to provide and maintain coverage for Products/Completed Operations hazards on its Commercial General Liability insurance policy, for a period of six (6) years beyond the date of the Certificate of Substantial Performance.

3) Proof of Insurance

(a) Before commencement of the Work, and no later than thirty (30) days after acceptance of its bid, the Contractor must deposit with Canada a Certificate of Insurance on the form attached herein.

(b) Upon request by Canada, the Contractor must provide originals or certified true copies of all contracts of insurance maintained by the Contractor pursuant to the Certificate of Insurance.

4) Insurance Proceeds

In the event of a claim, the Contractor must, without delay, do such things and execute such documents as are necessary to effect payment of the proceeds.

5) Deductible
The payment of monies up to the deductible amount made in satisfaction of a claim must be borne by the Contractor.

SC05 SECURITY RELATED REQUIREMENTS, DOCUMENT SAFEGUARDING

There is no document security requirement applicable to this Contract.

GENERAL INSTRUCTIONS TO BIDDERS

GI01 INTEGRITY PROVISIONS - BID

1. Interpretation
For the purposes of these Integrity Provisions, the following definitions apply:

"Administrative Agreement"

is a negotiated agreement between a supplier/potential supplier and the Minister of PWGS as provided for in the *Ineligibility and Suspension Policy*.

"Affiliate"

is a person, including, but not limited to, organizations, bodies corporate, societies, companies, firms, partnerships, associations of persons, parent companies or subsidiaries, whether partly or wholly-owned, as well as individuals, directors, officers and key employees if:

i. one controls or has the power to control the other, or

ii. a third party has the power to control both.

"Control"

means

a. direct control, such as where:

i. a person controls a body corporate if securities of the body corporate to which are attached more than 50 percent of the votes that may be cast to elect directors of the body corporate are beneficially owned by the person and the votes attached to those securities are sufficient, if exercised, to elect a majority of the directors of the body corporate;

ii. a person controls a corporation that is organized on a cooperative basis if the person and all of the entities controlled by the person have the right to exercise more than 50 percent of the votes that may be cast at an annual meeting or to elect the majority of the directors of the corporation;

iii. a person controls an unincorporated entity, other than a limited partnership, if more than 50 percent of the ownership interests, however designated, into which the entity is divided are beneficially owned by that person and the person is able to direct the business and affairs of the entity;

iv. the general partner of a limited partnership controls the limited partnership; and

v. a person controls an entity if the person has any direct or indirect influence that, if exercised, would result in control in fact of the entity.

b. deemed control, such as where:
a person who controls an entity is deemed to control any entity that is controlled, or deemed to be controlled, by the entity

c. indirect control, such as where:
a person is deemed to control, within the meaning of paragraph (a) or (b), an entity where the aggregate of

i. any securities of the entity that are beneficially owned by that person, and

ii. any securities of the entity that are beneficially owned by any entity controlled by that person

is such that, if that person and all of the entities referred to in paragraph (c)(ii) that beneficially own securities of the entity were one person, that person would control the entity.

"Ineligibility"

means not eligible for contract award.

"Suspension"

means a determination of temporary ineligibility by the Minister of PWGS.

2. Statement

a. Bidders must comply with the *Code of Conduct for Procurement* and be eligible for contract award under the *Ineligibility and Suspension Policy*. In addition, Bidders must respond to bid solicitations in an honest, fair and comprehensive manner, and that accurately reflect their capacity to satisfy the requirements stipulated in the bid solicitations and resulting contracts, and submit bids as well as enter into contracts only if they will fulfill all obligations of the Contract.

b. By submitting a bid, bidders confirm that they understand that being convicted of certain offences will render them ineligible to be awarded a contract. Canada will declare non-responsive any bid in respect of which the information requested is incomplete or inaccurate, or in respect of which the information contained in the certifications is found by Canada to be untrue in any respect, at the time of contract award. If it is determined by the Minister of PWGS, after contract award, that the Bidder made a false declaration, Canada will, following a notice period, have the right to terminate the Contract for default.

3. List of Names

a. Bidders who are incorporated, including those bidding as a joint venture, must provide a complete list of names of all individuals who are currently directors of the Bidder. Bidders bidding as sole proprietorship, as well as those bidding as a joint venture, must provide the name of the owner(s). Bidders bidding as societies, firms, or partnerships do not need to provide lists of names.

b. If the required list of names has not been received by the time the evaluation of bids is completed, Canada will inform the Bidder of a time frame within which to provide the information. Failure to provide the names within the time frame specified will render the bid non-responsive. Providing the required names is a mandatory requirement for contract award.

c. The Bidder must immediately inform Canada in writing of any changes affecting the list of names of directors during this procurement process.

4. Request for Additional Information
By submitting a bid, the Bidder certifies that it is aware, and that its Affiliates are aware, that Canada may request additional information, certifications, validations from a third party qualified by the Minister of PWGS, and other evidentiary elements proving identity or eligibility to contract with Canada. Canada may also verify the information provided by the Bidder, including the information relating to convictions for certain offences and any conditional or absolute discharges specified in these Integrity Provisions.

5. Lobbying Act
By submitting a bid, the Bidder certifies that neither it nor any of its Affiliates have directly or indirectly, paid or agreed to pay, and will not, directly or indirectly, pay a contingency fee to any individual for the solicitation, negotiation or obtaining of the Contract if the payment of the fee would require the individual to file a return under section 5 of the *Lobbying Act*.

6. Canadian Offences Resulting in Legal Incapacity
By submitting a bid, the Bidder certifies that:

a. it and the Affiliates of the Bidder have not been convicted of or pleaded guilty to an offence under any of the following provisions which would result in a legal incapacity under section 750(3) of the *Criminal Code* and for which they have not been pardoned or received a record of discharge under the Canadian Pardons subsection:

i. paragraph 80(1)(d) (*False entry, certificate or return*), subsection 80(2) (*Fraud against Her Majesty*) or section 154.01 (*Fraud against Her Majesty*) of the *Financial Administration Act*, or

ii. section 121 (*Frauds on the government and Contractor subscribing to election fund*), section 124 (*Selling or Purchasing Office*), section 380 (*Fraud*) for fraud committed against Her Majesty or section 418 (*Selling defective stores to Her Majesty*) of the *Criminal Code*, or

b. the Bidder has not been convicted of or pleaded guilty to the offences described in paragraph (a) and certifies that it has not directed, influenced, authorized, assented to, acquiesced in or participated in the commission or omission of the acts or offences that would render that Affiliate ineligible to be awarded a contract as described in (a).

7. Canadian Offences
By submitting a bid, the Bidder certifies that:

a. the Bidder and the Affiliates of the Bidder have not, in the last three years, from the bid submission date, been convicted of or pleaded guilty to an offence under any of the following provisions for which they would be ineligible for contract award under these Integrity Provisions and for which they have not been pardoned or received a record of discharge under the Canadian Pardons subsection:

i. section 119 (*Bribery of judicial officers, etc*), section 120 (*Bribery of officers*), section 346 (*Extortion*), sections 366 to 368 (*Forgery and other offences resembling forgery*), section 382 (*Fraudulent manipulation of stock exchange transactions*), section 382.1 (*Prohibited insider trading*), section 397 (*Falsification*

of books and documents), section 422 (*Criminal breach of contract*), section 426 (*Secret commissions*), section 462.31 (*Laundering proceeds of crime*) or sections 467.11 to 467.13 (*Participation in activities of criminal organization*) of the *Criminal Code*, or

ii. section 45 (*Conspiracies, agreements or arrangements between competitors*), section 46 (*Foreign directives*), section 47 (*Bid rigging*), section 49 (*Agreements or arrangements of federal financial institutions*), section 52 (*False or misleading representation*), section 53 (*Deceptive notice of winning a prize*) of the *Competition Act*, or

iii. section 239 (*False or deceptive statements*) of the *Income Tax Act*, or

iv. section 327 (*False or deceptive statements*) of the *Excise Tax Act*,or

v. section 3 (*Bribing a foreign public official*), section 4 (*Accounting*), or section 5 (*Offence committed outside Canada*) of the *Corruption of Foreign Public Officials Act*, or

vi. section 5 (*Trafficking in substance*), section 6 (*Importing and exporting*), or section 7 (*Production of substance*) of the *Controlled Drugs and Substance Act*; or

b. the Bidder has not been convicted of or pleaded guilty to the offences described in paragraph (a) and it has not directed, influenced, authorized, assented to, acquiesced in or participated in the commission or omission of the acts or offences that would render that Affiliate ineligible for contract award as described in (a).

8. Foreign Offences
By submitting a bid, the Bidder certifies that:

a. the Bidder and its Affiliates have not, in the last three years, from the bid submission date, been convicted of or pleaded guilty to an offence in a jurisdiction other than Canada that would, in Canada's opinion, be similar to an offence referenced in the Canadian Offences Resulting in Legal Incapacity and the Canadian Offences subsections, and for which it would be ineligible for contract award under these Integrity Provisions and for which they have not been pardoned under the Foreign Pardons subsection and:

i. the court, before which the Bidder or its Affiliate appeared, acted within the court's jurisdiction;

ii. the Bidder or its Affiliate appeared during the court's proceedings or submitted to the court's jurisdiction;

iii. the court's decision was not obtained by fraud, and

iv. the Bidder or its Affiliate was entitled to present to the court every defence that the Bidder or its Affiliate would have been entitled to present had the proceeding been tried in Canada; or

b. it has not been convicted of or pleaded guilty to the offences described in paragraph (a) and certifies that it has not directed, influenced, authorized, assented to, acquiesced in or participated in the commission or omission of the acts or offences that would render that Affiliate ineligible to be awarded a contract as described in (a).

9. Ineligibility for Contract Award

a. The Bidder confirms that it understands that where it or any of its Affiliates have been convicted of certain offences or have been held responsible of certain acts, as described under the Canadian Offences Resulting in Legal Incapacity, the Canadian Offences, the Foreign Offences and the Lobbying Act subsections, the Bidder or its Affiliate is ineligible to be awarded a contract, subject to a Public Interest Exception.

b. The Bidder confirms that it understands that it is ineligible for contract award where it has been so determined by the Minister of PWGS under the *Ineligibility and Suspension Policy* and that the period of ineligibility or suspension has not expired.

10. Declaration of Convicted Offences
Where a Bidder or its Affiliate is unable to certify that it has not been convicted of any of the offences referenced under the Canadian Offences Resulting in Legal Incapacity, the Canadian Offences and the Foreign Offences subsections, the Bidder must provide with its bid the completed Declaration Form, to be given further consideration in the procurement process.

11. Period of Ineligibility
The following rules determine the period for which a Bidder or its Affiliate that has been convicted of certain offences is, ineligible to be awarded a contract:

a. for all offences referenced under the Canadian Offences Resulting in Legal Incapacity subsection for which a Bidder or an Affiliate of the Bidder has pleaded guilty to or has been convicted of, the period of ineligibility to be awarded a contract is indefinite, subject to the Canadian Pardons subsection.

b. subject to an Administrative Agreement, for all offences referenced under the Canadian Offences and Foreign Offences subsections for which a Bidder or an Affiliate of the Bidder has pleaded guilty to or been convicted of, as the case may be, in the last three years, from the bid submission date, the period of ineligibility for contract award is ten years from the date of determination by the Minister of PWGS, subject to the Canadian Pardons and Foreign Pardons subsections.

c. subject to an Administrative Agreement, for violations of matters referenced in the Lobbying Act subsection for which a Bidder or an Affiliate of the Bidder has been found responsible, as the case may be, in the last three years, from the bid submission date, the period of ineligibility for contract award is ten years from the date of determination by the Minister of PWGS, subject to the Canadian Pardons and Foreign Pardons subsections.

12. Canadian Pardons
A determination of ineligibility for contract award will not be made or maintained by the Minister of PWGS under these Integrity Provisions, in respect of an offence or act that gave rise or that could give rise to a determination of ineligibility, if the Bidder or its Affiliate has:

a. been granted an absolute discharge in respect of the offence, or has been granted a conditional discharge in respect of the offence and those conditions have been satisfied;

b. been granted a pardon under Her Majesty's royal prerogative of mercy;

c. been granted a pardon under section 748 of the *Criminal Code*;

d. received a record of suspension ordered under the *Criminal Records Act*; and

e. been granted a pardon under the *Criminal Records Act*, as that Act read immediately before the day section 165 of the *Safe Streets and Communities Act* comes into force.

13. Foreign Pardons
A determination of ineligibility for entering into government contracts will not be made or

maintained, as the case may be, by the Minister of PWGS in respect of matters referenced in the Foreign Offences subsection and with respect to an offence or act that gave rise or will give rise to a determination of ineligibility, if the Bidder or its Affiliate, has at any time, benefited from foreign measures that are similar to Canadian pardons, conditional discharges, absolute discharges, record suspensions, or restoration of legal capacities by the Governor in Council.

14. Suspension of Period of Ineligibility
    The Bidder confirms that it understands that a determination of ineligibility for entering into government contracts made under these Integrity Provisions may be suspended by the Minister of PWGS through an Administrative Agreement, to the extent that it is permissible in law. The period of ineligibility applicable to that Bidder or its Affiliate and the right to participate in a given procurement process are guided by the terms and conditions of the Administrative Agreement. Subject to the Public Interest Exception, an Administrative Agreement may only suspend a period of ineligibility on solicitations issued after it has been concluded.

15. Period of Ineligibility for Providing False or Misleading Information
    The Bidder confirms that it understands that where it has made a false declaration or provided false or misleading information under these Integrity Provisions, the Minister of PWGS will declare a Bidder to be ineligible to be awarded contracts for a period of ten years. The period of ineligibility is effective from the date of determination by the Minister of PWGS.

16. Period of Ineligibility for Breaching Administrative Agreements
    The Bidder confirms that it understands that where it has concluded an Administrative Agreement and that it has breached any of its terms and conditions, the Minister of PWGS will lengthen the period of ineligibility for a period to be determined by the Minister of PWGS.

17. Suspension of a Bidder
    The Bidder confirms that it understands that the Minister of PWGS may suspend a Bidder from being awarded a contract for a period of up to 18 months, subject to renewal, pending completion of the criminal proceeding, if the Bidder has been charged with any of the offences listed in the Canadian Offences Resulting in Legal Incapacity, the Canadian Offences and the Foreign Offences subsections or if the Bidder has admitted to being guilty of any of these offences. The period of suspension is effective from the date of determination by the Minister of PWGS. A period of suspension does not abridge or suspend all other periods of ineligibility that may be imposed on a Bidder by the Minister of PWGS.

18. Third Party Validation
    The Bidder confirms that it understands that where it or any of the Bidder's Affiliates has been subject to a period of ineligibility to be awarded contracts, for which the Canadian Pardons and the Foreign Pardons subsections do not apply, the Bidder must provide by bid closing date, a confirmation from an independent third party, recognized in advance by the Minister of PWGS, confirming that measures have been put in place in order to avoid the reoccurrence of such wrongdoings that led to the convictions. Failure to provide the said confirmation from an independent third party renders this bid non-responsive.

19. Subcontractors
    The Bidder must ensure that contracts with first tier subcontractors include Integrity Provisions similar to those imposed in the resulting contract.

20. Public Interest Exception
    The Bidder confirms that it understands:

    a. that, with the exception of a legal incapacity to contract resulting from section 750(3) of the Criminal Code, Canada may enter in a contract with a Bidder, or any of its Affiliates, which have been convicted of or have pleaded guilty to any of the offences referenced in the Canadian Offences and Foreign Offences subsections, where Canada considers it necessary to the public interest for reasons which include, but are not limited to:

i. the need is one of pressing emergency in which delay would be injurious to the public interest;

ii. the Bidder is the only person capable of performing the contract;

iii. the contract is essential to maintain sufficient emergency stocks in order to safeguard against possible shortages; and;

iv. not entering into the contract with the Bidder would have a significant adverse impact on the health, national security, safety, security or economic or financial well-being of the people of Canada or the functioning of any portion of the federal public administration;

b. Canada may only enter into a contract with a Bidder under this subsection where the ineligible Bidder has concluded an Administrative Agreement with the Minister of PWGS, on such terms and conditions that are necessary to safeguard the integrity of the procurement process and can apply to any procurement. The Administrative Agreement need not be concluded in advance of the solicitation.

GI02 COMPLETION OF BID

1) The bid shall be

(a) submitted on the Bid and Acceptance Form provided through the Government Electronic Tendering Service (GETS) or on a clear and legible reproduced copy of such Bid and Acceptance Form that must be identical in content and format to the Bid and Acceptance Form provided through GETS;

(b) based on the Bid Documents listed in the Special Instructions to Bidders;

(c) correctly completed in all respects;

(d) signed by a duly authorized representative of the Bidder; and

(e) accompanied by

(i) bid security as specified in GI09; and

(ii) any other document or documents specified elsewhere in the solicitation where it is stipulated that said documents are to accompany the bid.

2) Subject to paragraph 6) of GI12, any alteration to the pre-printed or pre-typed sections of the Bid and Acceptance Form, or any condition or qualification placed upon the bid shall be cause for disqualification. Alterations, corrections, changes or erasures made to statements or figures entered on the Bid and Acceptance Form by the Bidder shall be initialed by the person or persons signing the bid. Initials shall be original(s). Alterations, corrections changes or erasures that are not initialed shall be deemed void and without effect.

3) Unless otherwise noted elsewhere in the Bid Documents, facsimile copies of bids are not acceptable.

GI03 IDENTITY OR LEGAL CAPACITY OF THE BIDDER

1) In order to confirm the authority of the person or persons signing the bid or to establish the legal capacity under which the Bidder proposes to enter into Contract, any Bidder who carries on business in other than its own personal name shall, if requested by Canada, provide satisfactory proof of

(a) such signing authority; and

(b) the legal capacity under which it carries on business;

prior to contract award. Proof of signing authority may be in the form of a certified copy of a resolution naming the signatory(ies) that is (are) authorized to sign this bid on behalf of the corporation or partnership. Proof of legal capacity may be in the form of a copy of the articles of incorporation or the registration of the business name of a sole proprietor or partnership.

GI04 (2015-02-25) APPLICABLE TAXES

“Applicable Taxes” means the Goods and Services Tax (GST), the Harmonized Sales Tax (HST), and any provincial tax, by law, payable by Canada such as, the Quebec Sales Tax (QST) as of April 1, 2013.

GI05 CAPITAL DEVELOPMENT AND REDEVELOPMENT CHARGES

1) For the purposes of GC1.8, "Laws, Permits and Taxes", in the General Conditions of the Contract, only fees or charges directly related to the processing and issuing of building permits shall be included. The Bidder shall not include any monies in the bid amount for special municipal development, redevelopment or other fees or charges which a municipal authority may seek as a prerequisite to the issuance of building permits.

GI06 COMPOSITION OF CONSTRUCTION MANAGEMENT TEAM

1) By submitting a proposal, the Bidder represents and warrants that the entities and persons proposed in the proposal to perform the required services will be the entities and persons that will perform the services in the fulfillment of the project under any contractual arrangement arising from submission of the proposal. If the Bidder has proposed any person who is not an employee of the Bidder, the Bidder warrants that it has written permission from such person (or the employer of such person) to propose the services of such person in relation to the services to be performed.

GI07 LIMITATION OF SUBMISSIONS

1) While there is no requirement for firms to participate in this procurement in joint venture, they may elect to do so if they see fit. However, only one submission per bidder will be accepted, whether it is submitted by a firm as an individual Bidder or by that firm as part of a joint venture Bidder. If more than one submission is received from a firm acting either individually or in joint venture, all such submissions shall be rejected and no further consideration shall be given to the firm or to any proposed joint venture of which the firm forms part.

2) A joint venture is defined as an association of two or more parties which combine their money, property, knowledge, skills, time or other resources in a joint business enterprise agreeing to share the profits and the losses and each having some degree of control over the enterprise.

3) An arrangement whereby Canada contracts directly with a Contractor who may retain sub-contractors to perform portions of the work is not a joint venture arrangement. A sub-contractor may be proposed as part of the Construction Management Team by more than one Bidder.

4) Notwithstanding paragraph 3. above, in order to avoid any conflict of interest, or any perception of conflict of interest, no firm acting as an individual Bidder or as part of a joint venture Bidder, shall be proposed as a member of another Bidder's Team, either as a sub-contractor or as part of another joint venture Bidder. Failure to comply with this limitation will result in all submissions so involved being rejected.

5) Any joint venture must be in full compliance with the requirements of any provincial or territorial law pertaining thereto in the Province or Territory in which the project is located.

GI08 LISTING OF SUBCONTRACTORS AND SUPPLIERS

1) Notwithstanding any list of Subcontractors that the Bidder may be required to submit as part of the bid, the Bidder shall, within 48 hours of receipt of a notice to do so, submit all information requested in the said notice including the names of Subcontractors and Suppliers for the part or parts of the Work listed. Failure to do so shall result in the disqualification of its bid.

GI09 BID SECURITY REQUIREMENTS

1. The Bidder shall submit bid security with the bid in the form of a bid bond or a security deposit in an amount that is equal to not less than 10 percent of the bid amount. Applicable Taxes shall not be included when calculating the amount of any bid security that may be required. The maximum amount of bid security required with any bid is $2,000,000.

2. A bid bond (form PWGSC-TPSGC 504) shall be in an approved form, properly completed, with original signatures and sealed by the approved bonding company whose bonds are acceptable to Canada either at the time of solicitation closing or as identified in Treasury Board Appendix L, Acceptable Bonding Companies.

3. A security deposit shall be an original, properly completed, signed where required and be either

    a. a bill of exchange, bank draft or money order made payable to the Receiver General for Canada and certified by an approved financial institution or drawn by an approved financial institution on itself; or

    b. bonds of, or unconditionally guaranteed as to principal and interest by, the Government of Canada.

4. For the purposes of subparagraph 3. a. of GI08

    a. a bill of exchange is an unconditional order in writing signed by the Bidder and addressed to an approved financial institution, requiring the said institution to pay, on demand, at a fixed or determinable future time a sum certain of money to, or to the order of, the Receiver General for Canada;

    b. if a bill of exchange, bank draft or money order is certified by or drawn on an institution or corporation other than a chartered bank, it must be accompanied by proof that the said institution or corporation meets at least one of the criteria described in subparagraph 4.c. of GI08, either by letter or by a stamped certification on the bill of exchange, bank draft or money; and

    c. An approved financial institution is

        i. a corporation or institution that is a member of the Canadian Payments Association as defined in the *Canadian Payments Act*;

        ii. a corporation that accepts deposits that are insured, to the maximum permitted by law, by the Canada Deposit Insurance Corporation or the "Autorité des marchés financiers";

iii. a corporation that accepts deposits from the public if repayment of the deposit is guaranteed by Her Majesty the Queen in right of a province;

iv. a corporation, association or federation incorporated or organized as a credit union or co-operative credit society that conforms to the requirements of a credit union which are more particularly described in paragraph 137(6) of the *Income Tax Act*; or

v. Canada Post Corporation.

5. Bonds referred to in subparagraph 3. b. of GI08 shall be provided on the basis of their market value current at the date of solicitation closing, and shall be

   a. payable to bearer;

   b. accompanied by a duly executed instrument of transfer of the bonds to the Receiver General for Canada in the form prescribed by the Domestic Bonds of Canada Regulations; or

   c. registered as to principal or as to principal and interest in the name of the Receiver General for Canada pursuant to the Domestic Bonds of Canada Regulations.

6. As an alternative to a security deposit an irrevocable standby letter of credit is acceptable to Canada and the amount shall be determined in the same manner as a security deposit referred to above.

7. An irrevocable standby letter of credit referred to in paragraph 6) of GI08 shall

   a. be an arrangement, however named or described, whereby a financial institution (the "Issuer") acting at the request and on the instructions of a customer (the "Applicant") or on its own behalf,

      i. is to make a payment to, or to the order of, the Receiver General for Canada as the beneficiary;

      ii. is to accept and pay bills of exchange drawn by the Receiver General for Canada;

      iii. authorizes another financial institution to effect such payment or accept and pay such bills of exchange; or

      iv. authorizes another financial institution to negotiate against written demand(s) for payment provided that the terms and conditions of the letter of credit are complied with;

   b. state the face amount which may be drawn against it;

   c. state its expiry date;

   d. provide for sight payment to the Receiver General for Canada by way of the financial institution's draft against presentation of a written demand for payment signed by the Departmental Representative identified in the letter of credit by his/her office;

   e. provide that more than one written demand for payment may be presented subject to the sum of those demands not exceeding the face value of the letter of credit;

   f. provide that it is subject to the International Chamber of Commerce (ICC) *Uniform Customs and Practice (UCP) for Documentary Credits, 2007 Revision*, ICC Publication

No. 600, Pursuant to the ICC UCP, a credit is irrevocable even if there is no indication to that effect; and

g. be issued or confirmed, in either official language, by a financial institution which is a member of the Canadian Payments Association and is on the letterhead of the Issuer or Confirmer. The format is left to the discretion of the Issuer or Confirmer.

8. Bid security shall lapse or be returned as soon as practical following

   a. the solicitation closing date, for those Bidders submitting non-compliant bids; and

   b. the administrative bid review, for those Bidders submitting compliant bids ranked fourth to last on the schedule of bids; and

   c. the award of contract, for those Bidders submitting the second and third ranked bids; and

   d. the receipt of contract security, for the successful Bidder; or

   e. the cancellation of the solicitation, for all Bidders.

9. Notwithstanding the provisions of paragraph 8 of GI08 and provided more than three compliant bids have been received, if one or more of the bids ranked third to first is withdrawn or rejected for whatever reason then Canada reserves the right to hold the security of the next highest ranked compliant bid in order to retain the bid security of at least three valid and compliant bids.

GI10 SUBMISSION OF BID

1) The Bid and Acceptance Form, duly completed, and the bid security shall be enclosed and sealed in an envelope provided by the Bidder, and shall be addressed and submitted to the office designated on the Front Page "Request for Proposal" for the receipt of bids. The bid must be received on or before the date and time set for solicitation closing.

2) Unless otherwise specified in the Special Instructions to Bidders

   (a) the bid shall be in Canadian currency;
   (b) exchange rate fluctuation protection is not offered; and
   (c) any request for exchange rate fluctuation protection shall not be considered.

3) Prior to submitting the bid, the Bidder shall ensure that the following information is clearly printed or typed on the face of the bid envelope:

   (a) Solicitation Number;
   (b) Name of Bidder;
   (c) Return address; and
   (d) Closing Date and Time.

4) Timely and correct delivery of bids is the sole responsibility of the Bidder.

GI11 REVISION OF BID

1) A bid submitted in accordance with these instructions may be revised by letter or facsimile provided the revision is received at the office designated for the receipt of bids, on or before the date and time set for the closing of the solicitation. The letter or facsimile shall be on the Bidder's letterhead or bear a signature that identifies the Bidder.

2) A revision to a bid that includes unit prices must clearly identify the change(s) in the unit price(s) and the specific item(s) to which each change applies.

3) A letter or facsimile submitted to confirm an earlier revision shall be clearly identified as a confirmation.

4) Failure to comply with any of the above provisions shall result in the rejection of the non-compliant revision(s) only. The bid shall be evaluated based on the original bid submitted and all other compliant revision(s).

GI12 REJECTION OF BID

1) Canada may accept any bid, whether it is the lowest or not, or may reject any or all bids.

2) Without limiting the generality of paragraph 1) of GI12, Canada may reject a bid if any of the following circumstances is present:

   (a) the Bidder's bidding privileges are suspended or are in the process of being suspended;

   (b) the bidding privileges of any employee or subcontractor included as part of the bid are suspended or are in the process of being suspended, which suspension or pending suspension would render that employee or subcontractor ineligible to bid on the Work, or the portion of the Work the employee or subcontractor is to perform;

   (c) the Bidder is bankrupt or where for whatever reason, its activities are rendered inoperable for an extended period;

   (d) evidence, satisfactory to Canada, of fraud, bribery, fraudulent misrepresentation or failure to comply with any law protecting individuals against any manner of discrimination, has been received with respect to the Bidder, any of its employees or any subcontractor included as part of its bid;

   (e) evidence satisfactory to Canada that based on past condut or behavior, the Bidder, a sub-contractor or a person who is to perform the Work is unsuitable or has conducted himself/herself improperly;

   (f) with respect to current or prior transactions with Canada

      i. Canada has exercised, or intends to exercise, the contractual remendy of taking the work out of the contractor's hands with respect to a contract with the bidder, any of its employees or any subcontractor included as part of its bid; or

      ii. Canada determines that the Bidder's performance on other contracts is sufficiently poor to jeopardize the successful completion of the requirement being bid on.

3) In assessing the Bidder's performance on other contracts pursuant to subparagraph 2)(d)(iv)of GI12, Canada may consider, but not be limited to, such matters as:

   (a) the quality of workmanship in performing the Work;

   (b) the timeliness of completion of the Work;

   (c) the overall management of the Work and its effect on the level of effort demanded of the department and its representative; and

   (d) the completeness and effectiveness of the Contractor's safety program during the performance of the Work.

4) Without limiting the generality of paragraphs 1), 2) and 3) of GI12, Canada may reject any bid based on an unfavourable assessment of the

(a) adequacy of the bid price to permit the work to be carried out and, in the case of a bid providing prices per unit, whether each such price reasonably reflects the cost of performing the part of the work to which that price applies;

(b) Bidder's ability to provide the necessary management structure, skilled personnel, experience and equipment to perform competently the work under the Contract; and

(c) Bidder's performance on other contracts.

5) Where Canada intends to reject a bid pursuant to a provision of paragraphs 1), 2), 3) or 4) of GI12, other than subparagraph 2)(f) of GI12, the contracting Authority will inform the Bidder and provide the Bidder ten (10) days within which to make representations, before making a final decision on the bid rejection.

6) Canada may waive informalities and minor irregularities in bids received if Canada determines that the variation of the bid from the exact requirements set out in the Bid Documents can be corrected or waived without being prejudicial to other Bidders.

GI13 BID COSTS

1) No payment will be made for costs incurred in the preparation and submission of a bid in response to the bid solicitation. Costs associated with preparing and submitting a bid, as well as any costs incurred by the Bidder associated with the evaluation of the bid, are the sole responsibility of the Bidder.

GI14 PROCUREMENT BUSINESS NUMBER

1. Bidders are required to have a Procurement Business Number (PBN) before Contract award. Bidders may register for a PBN in the Supplier Registration Information system on the Contracts Canada Web site. For non-Internet registration, Bidders may contact the nearest Supplier Registration Agent.

GI15 COMPLIANCE WITH APPLICABLE LAWS

1. By submission of a bid, the Bidder certifies that the Bidder has the legal capacity to enter into a contract and is in possession of all valid licences, permits, registrations, certificates, declarations, filings, or other authorizations necessary to comply with all federal, provincial and municipal laws and regulations applicable to the submission of the bid and entry into any ensuing contract for the performance of the work.
2. For the purpose of validating the certification in paragraph 1) of GI15, a Bidder shall, if requested, provide a copy of every valid licence, permit, registration, certificate, declaration, filing or other authorization listed in the request, and shall provide such documentation within the time limit(s) set out in the request.
3. Failure to comply with the requirements of paragraph 2) of GI15 shall result in disqualification of the bid

GI16 APPROVAL OF ALTERNATIVE MATERIALS

1) When materials are specified by trade names or trademarks, or by manufacturers' or suppliers' names, the bid shall be based on use of the named materials. During the solicitation period, alternative materials may be considered provided full technical data is received in writing by the Contracting Officer at least ten (10) calendar days prior to the solicitation closing date. If the

alternative materials are approved for the purposes of the bid, an addendum to the bid documents shall be issued.

GI17 PERFORMANCE EVALUATION

1) Bidders shall take note that the performance of the Contractor during and upon completion of the work shall be evaluated by Canada. The evaluation shall be based on the quality of workmanship; timeliness of completion of the work; project management, contract management and management of health and safety. Should the Contractor's performance be considered unsatisfactory, the Contractor's bidding privileges on future work may be suspended indefinitely.

2) The form PWGSC-TPSGC 2913, SELECT - Contractor Performance Evaluation Report Form, is used to record the performance.

GI18 CONFLICT OF INTEREST - UNFAIR ADVANTAGE

1) In order to protect the integrity of the procurement process, bidders are advised that Canada may reject a bid in the following circumstances:

   (a) if the Bidder, any of its subcontractors, any of their respective employees or former employees was involved in any manner in the preparation of the bid solicitation or in any situation of conflict of interest or appearance of conflict of interest;

   (b) if the Bidder, any of its subcontractors, any of their respective employees or former employees had access to information related to the bid solicitation that was not available to other bidders and that would, in Canada's opinion, give or appear to give the Bidder an unfair advantage.

2) The experience acquired by a bidder who is providing or has provided the goods and services described in the bid solicitation (or similar goods or services) will not, in itself, be considered by Canada as conferring an unfair advantage or creating a conflict of interest. This bidder remains however subject to the criteria established above.
3) Where Canada intends to reject a bid under this section, the Contracting Authority will inform the Bidder and provide the Bidder an opportunity to make representations before making a final decision. Bidders who are in doubt about a particular situation should contact the Contracting Authority before bid closing. By submitting a bid, the Bidder represents that it does not consider itself to be in conflict of interest nor to have an unfair advantage. The Bidder acknowledges that it is within Canada's sole discretion to determine whether a conflict of interest, unfair advantage or an appearance of conflict of interest or unfair advantage exists.

GI19 FINANCIAL CAPABILITY

1) **Financial Capability Requirement:** The Bidder must have the financial capability to fulfill this requirement. To determine the Bidder's financial capability, the Contracting Authority may, by written notice to the Bidder, require the submission of some or all of the financial information detailed below during the evaluation of bids. The Bidder must provide the following information to the Contracting Authority within fifteen (15) working days of the request or as specified by the Contracting Authority in the notice:

   a. Audited financial statements, if available, or the unaudited financial statements (prepared by the Bidder's outside accounting firm, if available, or prepared in-house if no external statements have been prepared) for the Bidder's last three fiscal years, or for the years that the Bidder has been in business if this is less than three years (including, as a minimum, the Balance Sheet, the Statement of Retained Earnings, the Income Statement and any notes to the statements).

b. If the date of the financial statements in (a) above is more than five months before the date of the request for information by the Contracting Authority, the Bidder must also provide, unless this is prohibited by legislation for public companies, the last quarterly financial statements (consisting of a Balance Sheet and a year-to-date Income Statement), as of two months before the date on which the Contracting Authority requests this information.

c. If the Bidder has not been in business for at least one full fiscal year, the following must be provided:

   i. the opening Balance Sheet on commencement of business (in the case of a corporation, the date of incorporation); and

   ii. the last quarterly financial statements (consisting of a Balance Sheet and a year-to-date Income Statement) as of two months before the date on which the Contracting Authority requests this information.

d. A certification from the Chief Financial Officer or an authorized signing officer of the Bidder that the financial information provided is complete and accurate.

e. A confirmation letter from all of the financial institution(s) that have provided short-term financing to the Bidder outlining the total of lines of credit granted to the Bidder and the amount of credit that remains available and not drawn upon as of one month prior to the date on which the Contracting Authority requests this information.

f. A detailed monthly Cash Flow Statement covering all the Bidder's activities (including the requirement) for the first two years of the requirement that is the subject of the bid solicitation, unless this is prohibited by legislation. This statement must detail the Bidder's major sources and amounts of cash and the major items of cash expenditures on a monthly basis, for all the Bidder's activities. All assumptions made should be explained as well as details of how cash shortfalls will be financed.

g. A detailed monthly Project Cash Flow Statement covering the first two years of the requirement that is the subject of the bid solicitation, unless this is prohibited by legislation. This statement must detail the Bidder's major sources and amounts of cash and the major items of cash expenditures, for the requirement, on a monthly basis. All assumptions made should be explained as well as details of how cash shortfalls will be financed.

2) If the Bidder is a joint venture, the financial information required by the Contracting Authority must be provided by each member of the joint venture.

3) If the Bidder is a subsidiary of another company, then any financial information in 1. (a) to (f) above required by the Contracting Authority must be provided by the ultimate parent company. Provision of parent company financial information does not by itself satisfy the requirement for the provision of the financial information of the Bidder, and the financial capability of a parent cannot be substituted for the financial capability of the Bidder itself unless an agreement by the parent company to sign a Parental Guarantee, as drawn up by Public Works and Government Services Canada (PWGSC), is provided with the required information.

4) **Financial Information Already Provided to PWGSC:** The Bidder is not required to resubmit any financial information requested by the Contracting Authority that is already on file at PWGSC with the Contract Cost Analysis, Audit and Policy Directorate of the Policy, Risk, Integrity and Strategic Management Sector, provided that within the above-noted time frame:

   a. the Bidder identifies to the Contracting Authority in writing the specific information that is on file and the requirement for which this information was provided; and

b. the Bidder authorizes the use of the information for this requirement.
It is the Bidder's responsibility to confirm with the Contracting Authority that this information is still on file with PWGSC.

5) **Other Information:** Canada reserves the right to request from the Bidder any other information that Canada requires to conduct a complete financial capability assessment of the Bidder.

6) **Confidentiality:** If the Bidder provides the information required above to Canada in confidence while indicating that the disclosed information is confidential, then Canada will treat the information in a confidential manner as permitted by the Access to Information Act, R.S., 1985, c.c. A-1, Section 20(1) (b) and (c).

7) **Security:** In determining the Bidder's financial capability to fulfill this requirement, Canada may consider any security the Bidder is capable of providing, at the Bidder's sole expense (for example, an irrevocable letter of credit from a registered financial institution drawn in favour of Canada, a performance guarantee from a third party or some other form of security, as determined by Canada).

SUBMISSION REQUIREMENTS AND EVALUATION

SRE 1 General Information
SRE 2 Technical Proposal Submission Requirements and Evaluation
SRE 3 Price Evaluation
SRE 4 Basis of Selection

SUBMISSION REQUIREMENTS AND EVALUATION

SRE 1 GENERAL INFORMATION

1.1 Submission of Proposals

1.1.1 Proposals are to be submitted following a "two-envelope" procedure in which Bidders submit technical aspects of their proposal in one envelope and the proposed price and bid security in a second envelope.

1.1.2 Submit **one (1) original and five (5) copies** of the technical proposal in envelope one.

Submit a signed proposal, duly completed, in the format requested, on or before the closing date and time, and direct proposals ONLY to the designated office identified on the front page of the Request for Proposal.

1.1.3 Submit one (1) signed original of the price proposal and bid security in a sealed envelope (envelope two).

Submit a signed Price Proposal Form duly completed, in the format requested, on or before the closing date and time accompanied by bid security per the General Instructions to Bidders.

1.2 Format of Proposals

1.2.1 The following proposal format information should be implemented when preparing the proposal:

a) Paper size should be - 216mm x 279mm (8.5" x 11")
b) Minimum font size - 11 point Times or equal
c) Minimum margins - 12 mm left, right, top, and bottom
d) Double-sided submissions are preferred
e) One (1) 'page' means one side of a 216mm x 279mm (8.5" x 11") sheet of paper 279mm x 432 mm (11" x 17") fold-out sheets for spreadsheets, organization charts etc. will be counted as two pages.
f) The order of the proposals should follow the order established in the Request for Proposal SRE section
g) The maximum number of pages (including text and graphics) to be submitted for the Rated Requirements under SRE 2 is thirty (30) pages. The following are not part of the page limitation:
   i) Covering letter, index or section dividers not containing technical information
   ii) Front page of the RFP and front page of solicitation amendments
   iii) Table of Contents
   iv) Section Dividers not containing technical information
   v) Price Proposal Form (Appendix "A")

Consequence of non-compliance: any pages which extend beyond the first 30 pages and any other attachments will be extracted from the proposal and will not be forwarded to the PWGSC Evaluation Board members for evaluation.

1.3 Evaluation of Proposals

1.3.1. To be declared responsive, a bid must:

a) comply with all the mandatory requirements of the bid solicitation;
b) meet all mandatory technical evaluation criteria;
c) be accompanied by a Price proposal form that must be fully completed and accompanied by the required bid security.

1.3.2. Bids not meeting 1.3.1 will be declared non-responsive. Responsive proposals will be evaluated and assigned a score against the criteria described in SRE 2.

SRE 2 TECHNICAL PROPOSAL SUBMISSION REQUIREMENTS AND EVALUATION

2.1 TECHNICAL CRITERION 1 - Experience of the Bidder: (Maximum Points: 30; mandatory minimum score: 18 points)

Describe the accomplishments and achievements of the Bidder for work related to the identified project.

Information to be supplied:

Describe a maximum of three (3) projects in which the firm acted as the construction manager, preferably where a Certificate of Completion was issued, within the last fifteen (15) years. Clearly indicate how the projects are comparable to the subject Project of this RFP. The Evaluation Team is looking for construction management experience in:

- laboratory or research facility construction or renovation
- Sustainable projects such as LEED, LABS 21, or other similar sustainability methodology
- Working with the Federal Government including projects involving a knowledgeable client organization from the project management organization

Include in your description, at a minimum, the following information:

- A brief project description and intent including total construction value and contracts managed as well as start and move-in date. Clearly indicate if any of the above six (6) experience items listed above are applicable to the project being presented and how it related to the subject Project of this RFP;
- How advice was provided during the design stage of the project and later when the project is being implemented, tender methodology, challenges and issues;
- How budget was controlled and managed (i.e. contract price & final construction cost with explanation to address variances);
- How schedule was controlled and managed (i.e. initial schedule and revised schedule with explanation to address variances);
- How scope, quality and risks were managed to achieve client's expectations;
- Names of key personnel responsible for delivery; and
- Client references including name, address, phone and email address of client contact at the working level - (PWGSC reserves the right to verify and consider the satisfaction of the referenced clients).
- The Bidder must ensure that all references provided are currently available and can be contacted by the PWGSC Evaluation Team within five (5) working days of bid closing.

2.2 TECHNICAL CRITERION 2 - Experience of Key Personnel of the Bidder: (Maximum Points: 30; mandatory minimum score: 18 points)

Describe the academic qualifications, accomplishments / achievements, relevant experience / expertise, roles / responsibilities / degree of involvement / years with the firm of all key personnel and their back-ups. The key personnel include, at a minimum, the Senior Project Manager, Site Superintendent, Commissioning Specialist, Site Safety Officer, Cost Estimator and Scheduler/Risk Officer.

Information to be supplied for each member of the key personnel:

- Academic and/or relevant qualifications such as PMP, Gold Seal, etc.;
- Relevant experience in the proposed position and number of years of experience in both the proposed position and the construction industry (if not done with Bidder firm, specify name of firm);
- Role, responsibility and degree of involvement of individual in past projects (especially those identified in Criterion 1;
- Client references and acknowledgments: Provide name, address, phone and fax of client contact at working level - (PWGSC reserves the right to verify and consider the satisfaction of the referenced clients); The Contractor must ensure that all references provided are currently available and can be contacted by the PWGSC Evaluation Team within five (5) working days of bid closing.
- Name and qualifications of the back-up person for each key personnel

Although the quality of the Project Team remains the key to the successful delivery of the project, the Bidder's organization is usually structured to provide management overview and to support those in the field with specialized support services.

- Confirm, given constrained timeline, that proposed team is available immediately for this Project;
- Identify what other corporate resources may be necessary/available and explain how they will assist the Project team in specific areas.

2.3 TECHNICAL CRITERION 3 - Understanding of the Project (Maximum Points: 5; mandatory minimum score: 3 points)

The Bidder should demonstrate an understanding of the goals, the constraints, the challenges and the issues of the Project that will shape the end product.

Information to be supplied:

- Description of the Project goals with highlights of those that are particularly significant to the Project;
- Description of the Contractor's Construction Management philosophy/methodology to meet the intent of the Project and PWGSC's expectations;
- Description of the approach to major issues to be dealt with during the Project such as:
- Multiple stakeholders
- Quality control
- High visibility of the site

2.4 TECHNICAL CRITERION 4 - Management of Services: (Maximum Points: 5; mandatory minimum score: 3 points)

The Bidder should demonstrate capability to manage the services and meet Project challenges and to ensure consistent control and communication efficiency. The Bidder should also demonstrate how the team will be organized and managed.

Information to be supplied:

- Organization chart with key personnel and other position titles and names of the Bidder's team;
- Description of reporting relationships within the firm and with PWGSC;
- Communication strategy; and
- Description of how advice will be provided during the design and implementation stages;

2.5 TECHNICAL CRITERION 5 - Management of Services and Work (Maximum Points: 30; mandatory minimum score: 18 points)

The Bidder should describe how it proposes to perform the Services and deliver the Work while meeting the project constraints.

Information to be supplied:

- Work plan - detailed breakdown of Work tasks and deliverables;
- Description of Time Services, explain how schedule control will be applied throughout the delivery of the Project;
- Description of Cost Services, explain how cost control will be applied throughout the delivery of the project;
- Description of Scope control methodology;
- Description of Risk management methodology;
- Description of Quality control methodology, explain how quality control will be applied throughout the delivery of the Project;
- Description of Tendering methodology;
- Sustainability plan;
- Description of Health and Safety methodology; and
- Description of Commissioning methodology

2.6 EVALUATION AND RATING

The technical components of the proposals which are responsive will be reviewed, evaluated and rated by a PWGSC Evaluation Board in accordance with the following to establish Technical Ratings:

Criterion	Weight Factor	Rating	Weighted Rating
Experience of Bidder	3.0	0 - 10	0 - 30
Experience of Key Personnel of the Bidder	3.0	0 - 10	0 - 30
Understanding of the Project	0.5	0 - 10	0 - 5
Management of Services	0.5	0 - 10	0 - 5
Management of Services and Work	3.0	0 - 10	0 - 30
Technical Rating	10.0		0 - 100

To be considered further, Bidders must achieve the mandatory minimum score for each Technical Criterion, and a minimum Technical Rating of sixty (60) points out of the hundred (100) points available as specified above.

No further consideration will be given to Bidders not achieving the mandatory minimum score for each Technical Criterion, **and a minimum pass mark of sixty (60) points.**

SRE 3 PRICE EVALUATION

The price proposal and bid security shall be submitted in a separate sealed envelope. The price envelopes of all responsive proposals will be considered upon completion of technical submission evaluation. The Total Proposal Amount submitted by the Bidder will be divided by the Technical Score to establish the Fee per Point of the Proposal.

SRE 4 BASIS OF SELECTION

The Bidder whose responsive proposal achieves the lowest overall Fee per Point is the first entity that the Evaluation Board will recommend be approached to finalize the details of a Contract for the provision of the required Services and Work. In the case of a tie, the Bidder submitting the higher Technical Score will be selected.

ANNEX A

TERMS OF REFERENCE

(Attached)

ANNEX B

CONSTRUCTION MANAGEMENT SERVICES

GENERAL PROCEDURES AND STANDARDS DOCUMENT

(Attached)

ANNEX C

VOLUNTARY REPORTS FOR APPRENTICES EMPLOYED DURING THE CONTRACT

(Attached)

ANNEX D

CERTIFICATE OF INSURANCE

(Attached)

APPENDIX 1

PRICE PROPOSAL FORM (4 pages)

BA01 IDENTIFICATION

1) Description of the Work: Construction Management Services Agriculture and Agri-Food Canada (AAFC) Lethbridge Research and Development Centre Laboratory Annex Exterior Envelope Replacement, Lethbridge, Alberta.

2) Solicitation Number: EP922-171869/A

3) Project Number: R.086095.001

BA02 BUSINESS NAME AND ADDRESS OF BIDDER

1) Name: _____

2) Address: _____

_____

_____

3) Telephone: _____ Fax: _____

4) PBN: _____ E-mail: _____

BA03 THE OFFER

1) The Bidder offers to Her Majesty the Queen in right of Canada to perform and complete the Work for the above named project in accordance with the Proposal Documents for the Total Proposal Amount of

$ _____excluding GST/HST
(to be expressed in numbers only)

The above amount represents the sum of (a) the Fixed Fee; (b) Estimated construction cost of $3,340,000.00; (c) $3,340,000.00 multiplied by the Contractor's Percentage Fee (a+b+(b*c)).

(a) A Fixed Fee of $_____ for the portion of the Work that is defined in Sections 2.1 to 2.8 of the Terms of Reference document and for any additional Work that is required to execute the contract other than what is provided for in 1) (b) and 1)(c) of BA03;

(b) the Estimated Construction Cost of $3,340,000.00 for all reasonable and proper amounts actually expended or legally payable by the Contractor in respect of the

labour, Plant and Material, other than those provided for in 1)(a) and 1(c) of BA03, that fall within one of the classes of expenditure described in BA04, that are directly attributable to the performance of the Contract;

(c) the Contractor's Percentage Fee of ____%, that will be applied to the price of the Work that is defined in Section 2.9 CM General Contractor Services and 2.10 - CM General Construction and Contract Administration Services of the Terms of Reference.

The Percentage fee shall cover profit, overhead and general administration costs, all charges relating to the financing of the project, general supervision, site supervision, management and coordination of all sub-trades, and the Contractor's expenses and administrative costs relative to the project.

2) Any errors in the addition or multiplication of the amounts in subparagraphs 1)(a), (b), and (c) of BA03 shall be corrected by Canada to obtain the Total Proposal Amount.

BA04 CONSTRUCTION COST OF THE WORK

1) The cost of labour, Plant and Material referred to in subparagraph 1)(b) of BA03 shall be limited to the following categories of expenditure:

(a) payments to Subcontractors and Suppliers;

(b) wages, salaries, bonuses of employees of the Contractor provided they are actually and properly engaged on the Work under the Contract;

(c) assessments payable under any statutory authority relating to workers' compensation, employment insurance, pension plan or holidays with pay, provincial health or insurance plans, environmental reviews, and GST/HST collection costs;

(d) rent that is paid for Plant, or an amount equivalent to the said rent if the Plant is owned by the Contractor, that is necessary for and used in the performance of the Work, if the rent or the equivalent amount is reasonable and use of that Plant has been approved by Canada;

(e) payments for maintaining and operating Plant necessary for and used in the performance of the Work, and payments for effecting repairs thereto that, in the opinion of Canada, are necessary for the proper performance of the Contract, other than payments for any repairs to the Plant arising out of defects existing before its allocation to the Work;

(f) payments for Material that is necessary for and incorporated in the Work, or that is necessary for and consumed in the performance of the Contract;

(g) payments for preparation, delivery, handling, erection, installation, inspection, protection and removal of the Plant and Material necessary for and used in the performance of the Contract; and

(h) any other payments made by the Contractor with the approval Canada that are necessary for the performance of the Contract in accordance with the Contract Documents.

BA05 PROPOSAL VALIDITY PERIOD

1) The proposal shall not be withdrawn for a period of one hundred twenty (120) days following the date of solicitation closing.

BA06 CONTRACT DOCUMENTS

1. The following are the contract documents:

   a. Contract Page when signed by Canada;
   b. Duly completed Bid and Acceptance Form and any Appendices attached thereto;
   c. Drawings and Specifications;
   d. General Conditions and clauses

GC1	General Provisions – Construction Services	R2810D	(2015-07-09);
GC2	Administration of the Contract	R2820D	(2015-02-25);
GC3	Execution and Control of the Work	R2830D	(2015-02-25);
GC4	Protective Measures	R2840D	(2008-05-12);
GC5	Terms of Payment	R2850D	(2015-02-25);
GC6	Delays and Changes in the Work	R2860D	(2013-04-25);
GC7	Default, Suspension or Termination of Contract	R2870D	(2008-05-12);
GC8	Dispute Resolution	R2880D	(2016-01-28);
GC9	Contract Security	R2890D	(2014-06-26);
GC10	Insurance	R2900D	(2008-05-12);
	Allowable Costs for Contract Changes Under GC6.4.1	R2950D	(2015-02-25);
	Supplementary Conditions		

   e. Any amendment issued or any allowable bid revision received before the date and time set for solicitation closing;
   f. Any amendment incorporated by mutual agreement between Canada and the Contractor before acceptance of the bid; and
   g. Any amendment or variation of the contract documents that is made in accordance with the General Conditions.

2. The documents identified by title, number and date above are incorporated by reference and are set out in the Standard Acquisition Clauses and Conditions (SACC) Manual, issued by Public Works and Government Services Canada (PWGSC). The SACC Manual is available on the PWGSC Web site: https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual

3. The language of the contract documents is the language of the Bid and Acceptance Form submitted.

BA07 ACCEPTANCE AND CONTRACT

1) Upon acceptance of the Contractor's proposal by Canada, a binding Contract shall be formed between Canada and the Contractor. The documents forming the Contract shall be the contract documents referred to in BA06 CONTRACT DOCUMENTS.

BA08 CONSTRUCTION TIME

1) All work / construction is to be completed by January 31, 2019.

BA09 BID SECURITY

1) The Bidder shall enclose bid security with its proposal in accordance with GI09 BID SECURITY REQUIREMENTS.

2) If the security furnished does not comply fully with the requirements referred to in paragraph 1) herein, the proposal shall be disqualified.

3) If a security deposit is furnished as bid security, it shall be forfeited in the event that the proposal is accepted by Canada and the Contractor fails to provide Contract Security in accordance with GC9 CONTRACT SECURITY.

BA10 SIGNATURE

Name and title of person authorized to sign on behalf of Bidder (Type or print)

_____	_____
Name	Title
_____	_____
Signature	Date

APPENDIX 2

DIVISION 01 GENERAL REQUIREMENTS

The attached list of General Requirements specifications is intended as a guide for preparation of individual tender package specific General Requirements specifications. The specification listing is based on National Master Specification numbering.

The design content of individual tender packages will be different for each assignment, and not all of the listed General Requirements may be relevant or required. The Construction Manager and Consultant are to prepare a draft Division 01 General Requirements specification listing for each tender package in the project, for review by PWGSC Departmental Representative. Content within each specification section may also be customized to suit the unique requirements of the tender package and project.

Section Title
01 11 00 Summary of Work
01 14 00 Work Restrictions
01 29 00 Payment Procedures
01 29 83 Payment Procedures for Testing Laboratory Services
01 31 19 Project Meetings
01 32 15 Construction Progress Schedule
01 33 00 Submittal Procedures
01 35 43 Environmental Procedures
01 41 00 Regulatory Requirements
01 45 00 Quality Control
01 51 00 Temporary Facilities
01 52 00 Construction Facilities
01 56 00 Temporary Barriers and Enclosures
01 61 00 Common Product Requirements
01 71 00 Examination and Preparation
01 73 03 Execution Requirements
01 74 11 Cleaning
01 74 21 Construction Demolition Waste Management and Disposal
01 77 00 Closeout Procedures
01 78 00 Closeout Submittals

APPENDIX 3 – INTEGRITY PROVISIONS – LIST OF NAMES

If the required list of names has not been received by the time the evaluation of bids is completed, Canada will inform the Bidder of a time frame within which to provide the information. Failure to provide the names within the time frame specified will render the bid non-responsive. Providing the required names is a mandatory requirement for contract award.

Bidders who are incorporated, including those bidding as a joint venture, must provide a complete list of names of all individuals who are currently directors of the Bidder.

Bidders bidding as sole proprietorship, as well as those bidding as a joint venture, must provide the name of the owner(s).

Bidders bidding as societies, firms or partnerships do not need to provide lists of names.

Prénom/ First name	**Nom Last Name**	**Position (si applicable) / Position (if applicable)**

APPENDIX 4 – DEPARTMENTAL REPRESENTATIVE AUTHORITY

TO BE PROVIDED AT CONTRACT AWARD.

Contracting Authority is:

Name: Alex Tikhonovitch

Title: Procurement Specialist

Department: Public Works and Government Services Canada

Division: Real Property Contracting

Telephone: 780-901-7940

E-mail: alex.tikhonovitch@pwgsc-tpsgc.gc.ca

Technical Authority is:

Name : _____

Title : _____

Department :_____

Division : _____

Telephone : ____- ____- _____

e-mail : _____

APPENDIX 5 - VOLUNTARY CERTIFICATION TO SUPPORT THE USE OF APPRENTICES

Note; The contractor will be asked to fill out a report every six months or at project completion as per sample "Voluntary Reports for Apprentices Employed during the Contract" provided at Annex E

Name: _____

Signature: _____

Company Name: _____

Company Legal Name: _____

Solicitation Number: _____

Number of company employees: _____

Number of apprentices planned to be working on this contract: _____

Trades of those apprentices:

_____

_____

_____

_____

_____

_____

_____

_____

APPENDIX 6 – HEALTH AND SAFETY REQUIREMENTS

MANDATORY HEALTH AND SAFETY - *for Work in the Province of Alberta*

1.) SPECIAL INSTRUCTIONS TO BIDDERS (SI):

SI15 WCB AND SAFETY PROGRAM

1) The recommended Bidder shall provide to the Contracting Authority, prior to Contract award:

   1.1 a Workers Compensation Board Premium Rate Statement - Alberta, or equivalent documentation from another jurisdiction;

   1.2 a Workers Compensation Board letter of good standing, also listing covered Directors, Principals, Proprietor(s) or Partners who will be or who are anticipated to be present on the work site(s), or equivalent documentation from another jurisdiction; and

   1.3 a Certificate of Recognition (COR) or Registered Safety Plan (RSP). A health and safety policy and program, as required by other provincial/territorial Occupational Health and Safety Acts, will be acceptable in lieu of a COR or RSP.

2) The recommended Bidder shall deliver all of the above documents to the Contracting Authority on or before the date stated (usually 3-5 days after notification) by the Contracting Authority. Failure to comply with the request may result in the bid being declared non-compliant.

2.) SUPPLEMENTARY CONDITIONS (SC):

SC06 Workplace Safety and Health

1. EMPLOYER/PRIME CONTRACTOR

   1.1 The Contractor shall, for the purposes of the Occupational Health and Safety Act, Alberta, and for the duration of the Work:

      1.1.1 act as the Employer, where there is only one employer on the work site, in accordance with the Authority Having Jurisdiction;

      1.1.2 accept the role of Prime Contractor, where there are two or more employers involved in work at the same time and space at the work site, in accordance with the Authority Having Jurisdiction; and

      1.1.3 agree, in the event of two or more Contractors working at the same time and space at the work site, without limiting the General Conditions, to Canada's order * to:

         1.1.3.1 accept, as the Prime Contractor, the responsibility for Canada's other Contractor(s); or

         1.1.3.2 accept that Canada's other Contractor is Prime Contractor and conform to that Contractor's Site Specific Health and Safety Plan.

** "order" definition: after contract award, Contractor is ordered by a Change Order*

2. SUBMITTALS

2.1 The Contractor shall provide to Canada:

2.1.1 prior to the pre-construction meeting, a transmittal and copy of a completed Notice of Project form PWGSC - TPSGC 458 (form will be provided to the proposed contractor prior to award), as sent to the Authority Having Jurisdiction (AHJ); and

2.1.2 prior to commencement of work and without limiting the terms of the General Conditions:

2.1.2.1 copies of all other necessary permits, notifications and related documents as called for in the scope of work/specifications and/or by the AHJ; and

2.1.2.2 a site specific Health and Safety Plan as requested.

NOTE: Please do not include any forms that include personal 3rd party information such as the names of the contractor's employees and their related claims information.

3. LABOUR AUTHORITY CONTACT*:*

The contact below represents the Labour Authority in the jurisdiction (AHJ). They are not representatives of the Workers Compensation.

Do not contact the people referenced below for issues pertaining to WCB or WCB Clearances. Those queries must be directed specifically to the WCB, and where the WCB has both a Labour and Compensation component, WCB issues must be directed to the Compensation/Employer Services sections.

ALBERTA South

Alberta Human Resources and Employment
Workplace Health and Safety
600 – 727, 7th Avenue S.W.
Calgary, Alberta, T2P 0Z5

Telephone: 1(866) 415-8690
Email: All submissions are to be scanned and emailed to whs@gov.ab.ca

ALBERTA North

Alberta Human Resources and Employment
Workplace Health and Safety
10th Floor, 7th Street Plaza
10030-107 Street
Edmonton, Alberta, T5J 3E4

Telephone: 1(866) 415-8690
Email: All submissions are to be scanned and emailed to whs@gov.ab.ca

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

Canada

Respect ◆ Integrity ◆ Excellence ◆ Leadership

Serving GOVERNMENT, Serving CANADIANS.

Construction Management (CM) Services

- For Advisory Services (CMa) and Construction Services (CMc)

TERMS OF REFERENCE

Lethbridge Research and Development Centre Laboratory Annex Exterior Envelope Replacement

Lethbridge, Alberta

FOR:

Agriculture and Agri-Food Canada (AAFC)

October 12, 2016

www.pwgsc-tpsgc.gc.ca

Table of Contents:

1. PROJECT DESCRIPTION

1.1 GENERAL

1.1.1 PURPOSE

.1 Terms of Reference (TOR) have been developed to engage the services of a Construction Manager (CM) to provide CM Advisory (CMa) and CM General Contractor (CMc), Semi–at-Risk services for the Lethbridge Research and Development Centre Laboratory Annex Exterior Envelope Replacement and to ensure that the CM has a clear understanding of the project scope, procedures and performance requirements.

.2 TOR, supported by Definitions, GP&S and Division 01 General Requirements documents address project scope, procedures, performance requirements, services and deliverables for the Construction Management of the Lethbridge Research and Development Centre Laboratory Annex Exterior Envelope Replacement project.

1.1.2 PROJECT INFORMATION

Project Information	
Project Title:	Lethbridge Research and Development Centre Laboratory Annex Exterior Envelope Replacement
Project Location:	Lethbridge Research and Development Centre Lethbridge, Alberta
PWGSC Project Number:	R.086095.001
User Department:	Agriculture and Agri-Food Canada (AAFC)
PWGSC Departmental Representative:	Bruce Bartnik

1.2 BACKGROUND INFORMATION

1.2.1 PROJECT GOAL AND MANDATE

.1 Agriculture and Agri-Food Canada requires the following work on the Laboratory Annex building:

.1 Replacement of the exterior building envelope to repair numerous water leaks;

.1 The air/vapour barrier membrane has been installed with numerous workmanship related deficiencies, contributing to sources of air and water leakage,

.2 The stucco cladding system is not effectively draining, which has contributed to corrosion of various components. Long term attachment of the stucco cladding is a concern,

.3 Window perimeter details have not effectively been sealed or drained, contributing to the water leakage and moisture damage reported. Although the moisture damage is likely most significant on the north building elevation (subjected to more frequent wind driven rains) similar conditions are assumed to exist on all elevations.

.2 Roof replacement.

1.2.2 User Department

.1 The User Department referred to throughout the TOR is Agriculture and Agri-Food Canada (AAFC).

.1 Agriculture and Agri-Food Canada provides information, research, technology, policies and programs to achieve an environmentally sustainable, competitive and innovative agriculture, agri-food and agri-based products sector and one that proactively manages risk.

1.2.3 The Site

.1 The Laboratory Annex of the Lethbridge Research and Development Centre is part of a complex of buildings that house office and laboratory accommodation for AAFC.

.2 Constructed in 2004, the building is a three storey (plus penthouse) concrete frame extension of the Laboratory/Penthouse block that is also linked to the main Administration and Greenhouse blocks.

.3 The flat roof is comprised of four levels. Major mechanical equipment is contained within the building and building penthouse structure.

.4 The building exterior has been designed and constructed with the air/vapour barrier membrane, insulation and cladding installed to the exterior of the structure. Cladding consists of brick and concrete block masonry veneer (level 1) over a reinforced concrete building structure and of a cementitious stucco system (levels 2, 3 and penthouse) installed over sub-girt framing and rigid insulation. Glazing consists of conventional aluminum curtain wall framing with double glazed sealed units.

.5 In 2006 AAFC noted that the north elevation windows were leaking. A minor project replacing the leaking windows (2007) was unsuccessful. A meeting room on the 3rd floor remained unusable and unoccupied until temporary patches were installed above the windows (2012).

.6 Two building envelope reviews were undertaken in 2012 (north elevation only) and in 2014 (refer to Appendix A) to review causes of building leaks in the Laboratory Annex building and make recommendations for repair / replacement.

.7 Hazardous Materials and Environmental Restrictions

.1 It is suspected that mould has developed due to failures in the building envelope (i.e. exterior windows and walls).

.2 Bio-security procedures and protocols must be observed to avoid exposure to pathogens.

1.2.4 THE NEED

.1 The project requires design work to replace the Laboratory Annex exterior wall building envelope. Work will involve:

.1 Demolition, re-design and replacement of the complete existing exterior wall cladding systems including new exterior cladding, girts, insulation, air/vapour barrier and exterior sheathing (where required due to water/mould damage);

.1 The new building envelope will match the connecting main Laboratory Block building (i.e. aluminum composite panels) that is currently under construction.

.2 Repair / replace exterior glazing caps and pressure plates;

.1 Retain all other glazing assembly components where possible.

.3 Repairing connection details between major building envelope components (i.e. walls, windows, roof and parapets).

.4 Roof replacement of all flat roof levels of the Lab Annex building in coordination with the building envelope replacement.

.1 Replace all roof components above the existing roof deck (e.g. membrane, protection board, insulation, vapour barrier, etc.),

.2 Replace all flashings, blocking and parapets as required.

.3 Provide additional fall protection and access features as required by current codes and regulations.

.5 A comparison of the existing building envelope with the existing as-built contract documents will be conducted by the Design Consultant during the demolition of the existing building envelope.

.2 Project phasing may be required to accommodate the temporary relocation of the building occupants affected by construction noise and potential discomfort due to the removal of the building insulation and air barrier.

.3 Although it is not expected that the building interior will be affected by this scope of work as the existing structure, wall studs, interior finishes and windows are thought to be of good quality /condition and that the exterior only construction process can maintain these elements in place, it is important to maintain air pressure differentials in critical rooms. Coordination and discussion with the User Department will be required to ensure the air pressure differentials are not affected by the removal and replacement of the air barrier.

.4 Refer also to the Building Envelope Review reports in Appendix A.

1.2.5 PROJECT CONSTRAINTS AND CHALLENGES

.1 The Construction Manager will be required to become familiar with the project site and obtain local information as required.

.2 AAFC will provide escorts if access to secure interior areas are required.

.3 The construction on the project site will be performed during the full operation of the facilities. Project phasing must be planned to ensure that disruption to the daily operation of the facilities is kept to a minimum.

.4 The work will be carried out during normal working hours, when the building is fully occupied and operational.

.5 Environmental conditions must be kept under control during all phases of the work.

.6 The project scope must be tailored to meet the User Department's budget. Diligent cost estimating and cost control is required.

.7 The Lab Annex is an occupied Bio-Safety Level #3 facility dealing with non-indigenous pathogens and insects. Bio-security must be maintained at all times. Any loss of pathogenic materials could have serious economic and/or environmental consequences. The Construction Manager may be required to attend bio-security training and become familiar with bio-security procedures and protocols.

1.3 PROJECT DELIVERY APPROACH

1.3.1 PROJECT DELIVERY OBJECTIVES AND REQUISITE

.1 Collaborative Project Delivery.

.1 Aspects of CDP include:

.1 Integrated project delivery process as per the Project Procedures Manual (PPM) – see Definition;

.1 Developed in collaboration with the Project Team – see Definitions.

.2 Demonstration of continuous leadership to prevent unnecessary re-Work, waste, cost, time and administration.

.2 Provide Construction Management services, CMa and CMc Required Services, throughout the project life cycle:

.1 Deliver project according to the Project Milestones, within approved scope, quality, budget and construction cost estimate and schedule;

.2 Prevent unnecessary re-Work, waste, cost, time and administration;

.3 Services and duties listed and allocated to the CM throughout the Required Services sections, are not exhaustive and do not preclude alternative or supplementary approaches as may be suggested by the CM for consideration by the Departmental Representative and vice versa.

1.3.2 REQUIRED SERVICES APPROACH

.1 Diagrams below depict a conventional combined CMa and CMc services condition with respective Level of Effort and Advisory and Contractor Role switchovers.

.2 Level of effort associated with the CMa and CMc Required Services vary with the project delivery lifecycle – as depicted in Figure 1.

Figure 1 Level of Effort

.3 Roles of CMa and CMc switch and remain interrelated over the project delivery lifecycle - as depicted in Figure 2.

.1 Role switch-over typically occur when the CM implements Work by Own Force or upon entering into contract with Sub-Contractors.

.1 All the while, continuing with CMa Required (Advisory) Services during or in between CMc Work by Own Forces or Sub-Contractor Work.

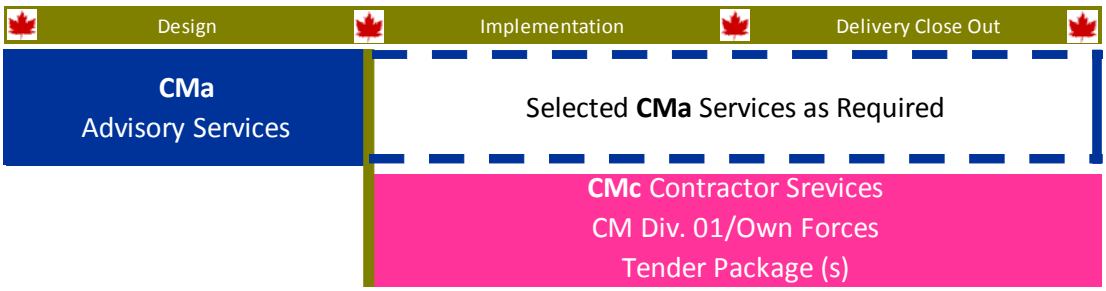


Figure 2 CMa / CMc Roles and Fees

1.3.3 Design Phase

.1 The Crown will be selecting an Architectural prime consultant (referred herein as the Consultant Team) to complete the design and preparation of construction documentation for the tender packages required for the Design Phase of the project.

.2 Design Consultant team will:

- .1 Work with the CM to develop the design and ensure that all information is made available to the CM;
- .2 Provide Architectural and related services;
- .3 Provide cross discipline coordination (if required);
- .4 Provide advice on CM activities related, but not limited to;
  - .1 Construction estimates schedules,
  - .2 Design approach and documentation,
  - .3 Design sequence and co-ordination with tender packages,
  - .4 Market forecasts/surveys regarding material, labour contingency projections,
  - .5 Material delivery & construction schedules,
  - .6 Constructability,
  - .7 Biddability,
  - .8 Suitability and availability of materials and components, and
  - .9 Sustainable design, construction, and operation principles and practices.

.3 As Construction Manager Advisory (CMa) provide:

- .1 Advisory and support services to the Departmental Representative and Design Consultant team;
- .2 Quality Assurance (QA) reviews.

1.3.4 Construction / Implementation Phase

.1 Design Consultant:

- .1 Notwithstanding further Design Consultant TOR detail, the Design Consultant is to;
  - .1 Provide distinct and separate tender packages in a timely manner and ensure full co-ordination of the work of all disciplines;
  - .2 Assist Departmental Representative with contract administration of CMc's Work by Own Forces or Sub-Contractor Work;

.2 Construction Manager (CMc):

- .1 Enter into contract with Sub-Contractors and with PWGSC for Work by Own Forces;

.1 Coordinate Work, provide quality assurance and ensure effective and efficient delivery of Work Results

.2 Turn over a fully functional and commissioned asset, complete with;

.1 Submittal Documentation.

1.3.5 WORK / TENDER PACKAGES

.1 Tender packages will be determined prior to the start of the construction document phase.

.2 Project may be delivered using multiple work and tender packages. However, at this time, it is anticipated that only one tender package will be required delivered in multiple phases

1.4 SUMMARY OF PERSONNEL AND QUALIFICATIONS

1.4.1 GENERAL

.1 Provide a Construction Management Team consisting of:

.1 Advisory and Support Services;

.1 Project Manager,
.2 Risk Management Specialist,
.3 Schedule Management Specialist,
.4 Waste Management Specialist,
.5 Budgeting and Cost Estimating Specialist,
.6 Quantity Surveying Specialist.

.2 General Contractor Services;

.1 Construction Project Manager,
.2 Health and Safety Officer,
.3 Construction Site Superintendent,
.4 Construction Quality Management Specialist.

.2 Report directly to the PWGSC Departmental Representative.

1.5 PROJECT SCHEDULE

1.5.1 GENERAL

.1 Project is required to be substantially complete and ready for occupancy in accordance with the list of deliverables identified below.

.2 Prepare a Project Schedule, in accordance with the schedule in 1.5.2.

1.5.2 ANTICIPATED SCHEDULE

ITEM	DELIVERABLES	DURATION
1.0	Award of CM Contract	
3.0	Design Development	8 weeks
4.0	Preparation of Construction Documents	11 weeks
8.0	Tendering to Sub-trades for Construction	5 weeks
9.0	Substantial Completion of Construction	18 months
10.0	Completion of Final Inspection and Acceptance	6 weeks
11.0	Post-construction Warranty Evaluation	10 months after Substantial Completion

1.6 PROJECT BUDGET

1.6.1 ESTIMATED CONSTRUCTION COSTS

.1 The total Estimated Construction Cost for the project is $3,340,000.

.1 The construction cost estimates do not include Administration costs; Project Management fees; Design Consultant or CM fees; Risk Allowance or GST.

.2 Estimated Construction Cost is in 'Budget-Year (Current)' dollars and it includes General Contractor Services and an allowance for escalation and contingencies.

.3 Crown will not accept scope creep or cost escalation of selected Proponent's proposal, except in the limited situations as stipulated in the terms of the contract.

1.7 EXISTING DOCUMENTATION

1.7.1 DISCLAIMER

.1 Reference information will be available in the language in which it is written.

1.7.2 DOCUMENTS AVAILABLE TO THE SUCCESSFUL PROPONENT IN ENGLISH ONLY

.1 Existing building drawings (AutoCAD – dwg and/or PDF formats).

.2 Design submissions prepared by the Consultant Team.

1.8 CODES, ACTS, STANDARDS, GUIDELINES AND REGULATIONS

1.8.1 GENERAL

.1 A listing of Codes, Acts, Standards and Guidelines applicable to this project are referenced in the Consultant's TOR document. In addition the following codes and standards also apply to this project:

.1 Canadian Bio-Safety Standard, 2nd Edition;

.2 The 2015 editions of the National Building Code, National Fire Code, National Plumbing Code and the National Energy Code of Canada.

.2 The Authorities Having Jurisdiction (AHJ) on this project are:

.1 The local AHJs;

.2 Treasury Board of Canada, accessed through the Department Representative.

.3 Identify, analyze and manage the construction of the project in accordance with the requirements of all AHJs and all applicable Codes, Acts, Standards and Guidelines and Legislation.

.1 The applicability of various Codes, Acts, Standards and Guidelines as may be listed in the Consultant's TOR document arise out of direct and indirect references in documents which apply to Federal buildings, such as the Canada Labour Code.

.2 At the CM project start-up meeting, Departmental Representative will confirm required Codes, Acts, Standards and Regulations unique to Federal Government projects.

.1 Baring copyrights, and if not available through public media or purchase, copies of applicable Code, Acts, Standards and Regulations will be provided by the Departmental Representative.

2. REQUIRED SERVICES - CMa

2.1 GENERAL REQUIREMENTS

2.1.1 GENERAL

.1 As CMa provide the Departmental Representative, Design Consultant team and project stake holders the advisory support services of this Section throughout the project lifecycle and the respective deliverables associated with the Project Milestones to achieve a Collaborative Project Delivery (CPD) – see Definitions.

.1 See Figure 2, CMa and CMc Roles, for interrelated CMa Services during Implementation/Construction and Delivery Closeout project phases.

.2 Regarding Project Milestones/milestones, for further detail refer to GP&S document, section 2 Project Administration, article Project Management.

.2 In consultation with the Departmental Representative develop and maintain an integrated process, lines of communication and reporting between all members of the project delivery team and stakeholders.

2.1.2 SUMMARY OF SERVICES

.1 CMa, Advisory Support Services include:

.1 Project Oversight Services;

.2 Cost Management Services;

.3 Schedule Management Services;

.4 Risk Management Services.

.5 Quality Management Services;

.6 Tendering Services.

.2 CMc, construction, see Section 3, Required Services - CMc.

2.2 PROJECT OVERSIGHT SERVICES

2.2.1 GENERAL

.1 Throughout the project life cycle (and respective Project Milestones) provide general oversight and project management Services and deliverables.

.1 Oversight service is to secure confidence that the design and construction quality management system is effective and efficient to ensure a quality project delivery.

.2 In mutual support of and in collaboration with PWGSC and the Design Consultant, develop, implement and up-date the Project Procedure Manual (PPM) – see Definitions.

.1 Conduct progress of the PPM and the respective Sections; and

.2 Collaborate on amendments as may be required.

.3 Provide, as part of the Work and the without being limited to Scope and Activities listing below, all required Oversight Services to meet or exceed the Project requirements and expectations.

.4 Notwithstanding the Design Consultant's requirement to submit minutes and reports, document and submit to the Departmental Representative commentaries, minutes and reports resulting from CM activities associated with:

.1 Approvals and acceptances;

.2 Supportive and leadership roles throughout the project life cycle.

2.2.2 Scope and Activities

.1 In collaboration with the Departmental Representative led Partnering Workshop, lead PPM development, production and monitoring.

.1 As part of the QC Plan, assess and mutually amend the PPM throughout the project lifecycle.

.2 During the provision of Oversight Services consider as progressive PPM assessment for amendment purposes, aspects inherent in the PPM Sections, such as:

.1 Governance;

.1 Relevant policies, legislation, standards, agency requirements Subcontractor/Own Forces approvals.

.2 Risk Management;

.1 Financial and non-financial risks and impact; and

.2 Risk assessment methodologies and management.

.3 Planning;

.1 Process to identify requirements and performance;

.2 Analysis of delivery method options and business case development;

.4 Procurement;

.1 Open, fair and competitive solicitation;

.2 Procurement selection options;

.3 Timely tender deliverables; and

.4 Tendering processes, evaluation and award practices.

.5 Contract Management;

.1 Contract types and document preparation;

.2 Insurance and performance bonds;

.3 Building Code Schedules of Professional Involvement;

.4 Progress claims, billing and payments;

.5 Use of contract amendments and change orders; and

.6 Legal considerations and claims prevention.

.6 Budget and Cost Management;

.1 Management mechanisms; and

.2 Estimates at various project lifecycle project milestones.

.7 Monitoring and Reporting;

.1 Routine standards;

.2 Approval standards (review authority – Acceptance responsibility); and

.3 Reporting requirements such as financial, performance and risk based.

.8 Project Evaluation;

.1 Project performance related to design and construction;

.2 Sub-Contractor/Own Forces evaluations;

.3 Project Close Out submittals; and

.4 Long term asset performance.

.3 Analyze and become familiar with all the Project background documents and reports.

.4 Review site conditions, with respect to technical and implementation issues affecting this project

.5 Obtain Departmental Representative sign-off on all original and updated documentation.

.6 Attend project progress and evaluation workshops.

.1 Provide QA Review commentary.

.7 Review Design Consultant milestone Deliverables.

.1 Provide QA Review commentary.

.8 Analyze and become familiar with all the Project background documents and reports.

.9 Review site conditions, with respect to technical and implementation issues affecting this project:

.1 Notwithstanding the requirement for CM Cx Issues and Resolutions Log, provide input to and review of the Design Consultant's overall project Issues and Resolutions Log.

.10 Develop, review and update the anticipated project tender package program:

.1 Determine appropriate construction Tender Packages; and

.2 Develop and update a list of recommended sub- contractors.

.11 Prepare Master formats and supporting breakdown formats associated with; Cost Management, Schedule Management, Risk Management, Quality Management, Commissioning, Construction, Delivery Closeout and Issues/Resolutions Logs (including Cx I/R Log).

.12 Provide Project Monitoring and Reporting as identified in the General Procedures and Standards (GP&S) document – Project Monitoring and Reporting section.

.1 Refer to GP&S; Project Monitoring and Reporting and Monthly Quarterly Reporting sections for further detail.

.13 Assist in providing liaison and coordination with Government Authorities for various reviews and approvals.

.14 Advice on construction related matters for the Departmental Representative, the User Department, the Design Consultant team and members of the CM's Project Delivery Team.

.15 Mitigate potential conflict and overlap, with respect to:

.1 The design services performed by the Design Consultant team; and

.2 The Work to be performed by the various Subcontractors.

.16 Develop procurement strategies and construction implementation phasing.

.17 Determine the potential impact to the Project of applicable labour conditions and availability of materials.

.18 Obtain and administer project warrantees and manufacturer's guarantees.

.19 Provide advice on methods of construction as may be required from time to time by the Design Consultant team;

2.2.3 DELIVERABLES

.1 Project Procedures Manual (PPM) including all progressive updates associated with:

.1 Project Execution Plan;

.2 Project Management Plan;
.3 Quality Management Plan; and
.4 Risk Management Program.

.2 Quality Assurance Reviews, including:
.1 Commentaries, minutes and reports.

.3 Permits, fees paid and agency sign-offs.

.4 Tender Package program including:
.1 Market conditions commentary;
.2 Phasing opportunities;
.3 Tender Package listing;
.4 Sub-Contractor listing.

.5 Master formats for schedules, plans and programs.

.6 Monitoring and Reporting.

.7 Constructions Schedule, including:
.1 Procurement strategies and implementation plan.

.8 Project Monitoring and Reporting:
.1 Monthly and Quarterly Reports.

.9 Compiled Warranties and Guarantees.

.10 Phasing and procurement strategies.

.11 Project Closeout Deliverables.

2.3 COST MANAGEMENT SERVICES

2.3.1 GENERAL

.1 Throughout the project life cycle and respective Project Milestones, provide Cost Management Services and Deliverables.
.1 The Departmental Representative manages all funding for the Project including budgeting, expenditures and Progress Payment approvals.
.2 Refer to the GP&S and Definitions documents for further detail regarding project applicable Cost Management and Reporting Service requirements.

.2 Lead, produce and update the Master Cost Plan and Cash Flows encompassing the entire project life cycle. – see Definitions.
.1 Based on CM comparative Construction Cost Estimates provide QA Reviews, complete with CM supporting data, of costing data as may be submitted by the Design Consultant and or stakeholders.
.2 Participate in reconciling Design Consultant estimates with the Project Budget.

.3 Prepare independent and iterative project Construction Cost Estimates;
.1 Intent of CM Construction Cost Estimates to provide supports to CM QA Reviews of Design Consultant's and other stakeholder cost submissions.
.1 Refer to Definitions Document regarding Estimates and GP&S Document documents Cost Management detail.

2.3.2 Scope and Activities

.1 Develop and submit for review within 14 calendar days of award of contract a design and construction Master Cost Plan and Cash Flows, made ready for Monthly and Quarterly Reporting.

.2 Collaborate with the Design Consultant in giving consideration to the Design Consultant's and CM's project specific costs and estimates to be rolled up and coordinate in the CM's Master.

.3 Revise and refine the Master Cost Plan and Cash Flows throughout the project life cycle, complete with narrative:

- .1 Advise of deviations and seek and report on authorization as per the Departmental Representatives change process;
- .2 Monitor Project costs and expenditures against the Estimated Construction Cost limits and identify respective estimates variances;
  - .1 Notify Departmental Representative of a cost estimate potential to exceed the Estimated Construction Cost limit,
    - .1 Provide recommendations for remedial action.
- .3 With each Sub-Contract tender and Own Forces construction contract award, revise the schedule-based cash-flow to reflect the changes emanating and resulting from each award.

.4 Attend Workshops, advise, make recommendations and submit QA Reviews and Workshop Reports related to cost estimate planning associated with aspects such as:

- .1 Construction feasibility, availability of materials and labour time requirements for installation and construction and third party contract amendments and Change Orders;
- .2 Systems, assemblies, equipment, materials and specialty labour;
- .3 Alternate materials, construction techniques and installation methods;
- .4 Current pricing levels and trends in associated activities relating to the project;
- .5 Selection, availability and pricing of goods and services;
- .6 Insurance and bonding requirements;
- .7 Value Analysis/Engineering (VE/A);
- .8 Life Cycle Costing (LCC);
- .9 Construction Schedule acceleration opportunities.

.5 Track and log project costs and earned value - relative performance to project progress throughout the project life cycle.

.6 Develop Budgets for each Sub-Contractor Tender Package and Own Forces Work Package as soon as major project requirements have been identified accompanied by respective elemental Construction Cost Estimate(s).

.7 Update at various interim milestones, as agreed with the Departmental Representative.

.8 Visit the Work as required throughout the course of Contract be knowledgeable and familiar with aspects such as, site conditions, site access and on-site progress:

- .1 Submit site visit report.

.9 Analysis of all change order cost estimates submitted by the Design Consultant and Work Package Contractors.

.10 Address all costs in Federal Fiscal Year (FY) format (April 01 to March 31 of the following year).

2.3.3 DELIVERABLES

.1 QA Reviews of Design Consultant's Cost Estimates and Plans.

.2 Site visit Repot(s).

.3 Workshop Reports.

.4 Master Cost Plan and Cash Flows

.5 Cost Estimates planning documentation.

.6 Interim project milestones Construction Cost Estimate(s) and Budget.

.7 Master Cost Plan Reports.

.8 Project Cost/Earned Value Logs.

.9 Tender Package and Work by Own Forces estimates.

2.4 SCHEDULE MANAGEMENT SERVICES

2.4.1 GENERAL

.1 Throughout the project life cycle provide and respective Project Milestones provide Schedule Management Services and Deliverables.

.1 Refer to the GP&S and Definition documents for further detail regarding project applicable Schedule Management Service requirements.

.2 Lead, produce and update the Master Schedule encompassing the entire project life cycle. – see Definitions.

.1 Based on CM comparative Master Schedule provide QA Reviews, complete with CM supporting data of schedule data as may be submitted by other Project Team members and or stakeholders.

2.4.2 SCOPE AND ACTIVITIES

.1 Develop and submit for review, within 14 calendar days of award of contract, a design and construction a Master Schedule made ready for Monthly and Quarterly Reporting.

.1 Collaborate with the Design Consultant in giving consideration to the Design Consultant's and CM's project specific schedules to be rolled up and coordinate in the CM's Master Schedule.

.2 Revise and refine the Master Schedule throughout the project life cycle:

.1 Advise of deviations and seek and report on authorization as per the Departmental Representatives change process;

.2 Up-date schedule component Project Execution Plan complete with narrative addressing variances and corresponding impacts.

.3 Monitor Project schedule against the Departmental Representative estimated milestone deliverable dates and identify respective variances:

.1 Notify Departmental Representative of a potential for any Deliverables to exceed a milestone date;

.2 Submit to Departmental Representative for review;

.1 Recommendations for remedial action,

.2 Impact of delay, reasons for delay and proposed actions.

.4 Advise, make recommendations and submit documentation related to:

.1 Procurement strategies for equipment or materials to be pre-ordered to meet the Master Schedule; and

.2 Means to avoid disruption to the facility operations during construction.

.5 In event of schedule changes indicate the impact and the reasons for such changes and submit proposed amendments to the Departmental Representative for review and acceptance.

2.4.3 DELIVERABLES

.1 QA Reviews of Design Consultant's Schedule Data and Plans.

.2 CM Project Execution Schedule and narrative.

.3 Master Project Schedule and narrative.

.4 Monthly/Quarterly Master Schedule Reports.

2.5 RISK MANAGEMENT SERVICES

2.5.1 GENERAL

.1 Throughout the project life cycle and respective Project Milestones provide Risk Management Services and Deliverables.

.1 Refer to Definitions Document for further Risk Management Program detail.

.2 The Departmental Representative, as part of the PWGSC National Project Management system (NPMS) risk management strategy, prepares and is responsible for the project specific Risk Management Plan and Risk Register Profile and Response Plans.

.1 Refer to the GP&S and Definition documents for general information regarding project applicable Risk Management Service requirements.

2.5.2 SCOPE AND SERVICES

.1 Collaborate on the planning of the Risk Management Program, review, provide documented commentary and advise the Departmental Representative (D/R) on the D/R Risk Management Plan.

.1 Track mitigation actions and results and compile a monthly report.

.2 Advise on risks and recommend mitigation options.

.3 Advise on issues of risk that integrate project planning with procurement planning and construction.

.4 Identify and implement methodologies aimed at mitigating and minimizing the impact of construction activities on occupants and user department operations during construction.

.5 Implement a claims avoidance program.

.6 Twice annually, participate in Risk Management Workshop sessions by the Departmental Representative (D/R) as Lead.

.1 Provide documented comment on the D/R Project Risk Management Plan and the Risk Register, including all revisions.

2.5.3 DELIVERABLES

.1 Commentary on the D/R Project Risk Management Plan and the Risk Register.

.2 Risk Management planning documentation.

.3 QA Reviews and advisory documentation.

.4 Monthly Risk Management Report.

.5 Risk Management Program.

.1 Quality Management (QM) Services

2.6 QUALITY MANAGEMENT SERVICES

2.6.1 GENERAL

.1 Throughout the project life cycle and respective Project Milestones provide Quality Management Services and Deliverables.

.2 Integral to the Project Procedures Manual develop and implement the Quality Management Plan (QMP) including the interrelated processes; QP, QA, and QC.

.1 Refer to Definitions Document for further QMP detail.

2.6.2 SCOPE AND SERVICES

.1 Conduct progress of the QMP.

.1 Collaborate on amendments as may be required.

.2 Conduct Quality Assurance Reviews including participation in reviews of the systems, components, construction tools and techniques of the proposed design and construction.

.1 Develop a QA summary Risk Assessment matrix:

.1 Risk on Quality and Likelihood;

.2 Corresponding level of required mitigation;

.3 Establish Sub-Contractor/Own Forces quality and performance requirements and performance monitoring, including quality of deliverables, adherence to schedules and costs include;

.1 Industry standard practices,

.2 Professional conduct.

.3 Participate in workshops:

.1 The Design Consultant Team shall facilitate workshops throughout the design process;

.2 Attend workshops to provide advice on various options being considered by the Consultant, including;

.1 Selection of materials, building systems and equipment,

.2 Constructability of the design and details contained in the contract documents,

.3 Costing, pricing and bid suitability,

.4 Scheduling the Work and Deliverables,

.5 Coordination between all design disciplines.

.4 Attend Design Consultant facilitated Construction Documentation progress review meetings.

.5 Review the Value Engineering and Life Cycle Costing Report prepared by the Design Consultant.

.1 See Required Cost Management Service for related workshop attendance.

.6 Review and assist the Design Consultant with the development of construction drawings and specifications for each tender package at various stages acceptable to the Departmental representative.

.1 As part of QA Plan; conduct technical QA Reviews during Design, Documentation, Implementation/Construction and Delivery Closeout include:

.1 Issues tracking through the Issues/Resolutions Log;

.2 Project Milestone reviews including Schematic Design and Design Development Reports;

.3 Construction Documentation reviews at milestones associated with each Tender/Work Package;

.4 Each Tender Package specific Division 00 and 01;

.5 Request for Information, Construction, Contemplated Change Notices/Change Orders.

.7 Compile a Monthly Report by tracking quality management actions and results including:

.1 Review and assessment of;

.1 Strategy effectiveness and metrics progress and appropriateness associated with the 4 Sections of the Project Procedures Manual (PPM);

.1 Project Execution Plan;

.2 Project Management Plan;

.3 Quality Management Plan; and

.4 Risk Management Program.

.2 Project Deliverables verification of;

.1 Acceptable quality;

.2 Delivery on agreed upon schedule and cost including scope and detail appropriate to the respective current phase.

.8 Compile a Post Implementation Report validating if:

.1 Project metrics and success criteria are met to realize the intended value;

.2 Investment and technical objective are met based on scope and acceptance criteria.

2.6.3 DELIVERABLES

.1 Updated Project Procedures Manual including the Quality Management Plan (QMP);

.2 QA Reviews - various.

.3 Information data and narrative submission for Design Consultant project Issues/Resolutions Log.

.4 Quarterly, QMP-Report:

.1 QMP Progress and Impact;

.2 QM current status, planned/actual actions and results.

.5 Post Implementation Report

.1 Project delivery having had reasonably met investment and technical requirements for the project in respect to schedule, cost, scope, functionality, utility, security, claims avoidance and other relevant quality standards.

2.7 CMA TENDERING SERVICES

2.7.1 GENERAL

.1 While the delivery of Construction Management Services Contract for the Project is between the Department Representative and the Construction Manager (CM), it

is understood that the CM will deliver Construction services called for in the Terms of Reference (TOR) through CM Sub-Contractors and CM Own Forces.

.1 CM's Own Forces shall only be permitted for individual work package coordination activities less than $25,000 value with the specific approval of the Departmental Representative where there is fair value to Canada.

.2 Ensure selection processes used by the CM to retain Sub-Contractors are fair, open and transparent and that all qualified subcontractors have the opportunity to be considered for the Construction Work.

.1 Consider at the minimum three to five bidders.

.1 In the event that fewer than three bids are received on any tender package, PWGSC reserves the right to require the CM to re-tender the respective tender package, unless prior acceptance has been issued by the Departmental Representative.

.2 Coordinate trade definitions with the Construction Association Bid Depository, unless specified.

.3 Publicly advertise to industry acceptable methods.

.3 Review tendering and contracting method with the Departmental Representative and Design Consultant to select the most appropriate procurement method to achieve value for money.

.1 Ensure a proposed subcontractor trade is essential to the delivery of the Work result and are pre-qualified prior to being invited to submit tenders.

.2 Use standard construction industry documents such as those by Canadian Construction Documents Committee (CCDC) and Canadian Construction Association (CCA).

.1 Ensure the Crown/PWGSC/Departmental Representative or Design Consultant are not a contract entity or a third party or inferred agent.

.1 The only subcontract designated entities will be the CM and the Sub-Contractor.

.2 Required Departmental Representative or Design Consultant contract interface is to be by means of the CM.

.4 Provide Departmental Representative with:

.1 Sub-Contractor pre-qualification standards of practice and process;

.1 Sub-Contractors not at arm's length to CM will be ineligible to submit bids.

.2 Advance copies of CM trade Subcontractors contracts;

.1 Include copy of intended contract in Division 00.

.3 Include Division 00, Instruction to Bidders, and Division 01, General Requirements and all Bidders' Submission Requirements and Bid Submission Forms;

.1 As part of the Bid Submission Form requirements include;

.1 Construction cost price breakdown table as agreed upon Departmental Representative and Design Consultant; and

.2 Listing of all Addenda.

.4 Dispute resolution, initiation of subcontract amendments and payments Contract articles.

2.7.2 Scope and Services

.1 For Work other than Work by Own Forces, tender for trade Subcontractors and enter into sub-contract agreements compliant with industry recommended practices and PWGSC contract administration practices.

.1 Departmental Representative will provide a copy of the PWGSC procurement and contract administration practices.

.2 Support Design Consultant Lead on the development of CMc Sub-Contractor Construction Tender Packages.

.1 Collaborate on specifying Sub-Contractor tender specific packages including:

.1 Division 00, Instruction to Bidders, Procurement and Contracting Requirements;

.1 Specify that requests for information regarding Bid Solicitation be submitted in writing to the CM at least 10 calendar days before Tender Closing,

.2 Division 01, General Requirements;

.1 Specify those facilities and services being provided to Sub-Contractor(s).

.3 Develop the list of specific phased Work Tender Packages with the Departmental Representative and Design Consultant.

.1 Review all tender packages for long delivery items which may warrant pre-ordering/tender.

.1 Items shall be specified by the Consultant complete with documentation, ready for, pre-order/tender by CMa.

.2 Propose Tender time periods for review.

.1 Based Tender time periods on cost, complexity/risk and market and labour conditions.

.3 Provide a scope narrative for all Tender Packages.

.1 Avoid gaps or conflicts between Tender Packages, the Work of the CM's Own Forces and between the Works all of the CM's trades Subcontractors.

.4 Lead the, tender and related cost of tendering, tender closing, bid analysis bids and award recommendation submission to Departmental Representative prior to any subcontract award.

.1 During Tender collaborate with the Design Consultant on:

.1 Pre-tender site visits and documented question/answers responses; and

.2 Addenda development;

.1 Prepare and issue addenda, in writing, no oral information no later than 7 calendar days before Tender Closing.

.2 Pre-Ordered equipment or other items.

.1 Review all tender packages for long delivery items which may warrant pre-ordering; and

.2 All pre-ordered equipment or items shall be specified by the Design Consultant.

.5 Receive and open Tenders at the agreed upon location in the presence of the Departmental Representative.

.1 Prepare a bid analysis.

.1 Recommend alternate strategies, in the event that the low bid exceeds the accepted Construction Cost Estimate (Class 'A' level) by more than 5%.

.2 Re-tender if:

.1 No satisfactory reduction can be negotiated with the low bidder; or

.2 If the desired price reduction entails significant changes in the scope of work or the character of the design.

.6 Re-tendering.

.1 Collaborate with Design Consultant and Departmental Representative Tender Package revisions, substantiated by an Estimated Construction Cost.

.2 Re-issue the package for tender.

.7 Prepare Tender Package summary.

.1 Prepare a Tender Package summary and contract award recommendation including:

.1 Copy of Bids received, complete with time stamp verification;

.2 Witnessed record of the bid opening;

.3 Names of all Subcontractors invited and those whom have submitted bids;

.4 Tender submission summary including respective bid construction cost amount breakdowns and totals, verification of bid security (if applicable) and addenda listing (as per Bid Submission Form) provided with the bid, information on any tender qualifications or disqualifications; and identification of bidder recommended for contract award;

.5 Addenda Records;

.6 Question and Answer (Q&A) Records; and

.7 Contract award recommendation;

.1 Provide justification for no award.

.8 Notify in writing Sub-Contractors who are unsuccessful.

.9 Confirm readiness as CMc to enter into contracts with qualified Sub-Contractors who submit the lowest-priced compliant tenders.

.1 Obtain Departmental Representative approval of the procurement process and the contract award recommendation.

.1 Proceed with the preparation of sub-contracts for execution between the CM and Sub-Contractor as the counteract entities.

.10 Information Technology (IT):

.1 Based in Design Consultant design drawings and specifications and Delivery Plan PWGSC, by way off Shared Service Canada will facilitate, provide and install, IT (cabling, voice, and data).

2.7.3 DELIVERABLES

.1 Meeting Minutes.

.2 Consultation/Review Reports.

.3 Sub-Contractor Pre-Qualification Methodology.

.4 Sub-Contractor Listings.

.5 Tender Package(s), complete with respective;

.1 Narratives;

.2 Division 00;

.3 Division 01;

.4 Bidder Cost Breakdown Tables;
.5 Proposed form of contract; and
.6 Dispute Resolution

.6 Tender Package Work Estimate(s).
.7 Bid Analysis and Process Format Document.
.8 Bid Submissions and Opening Records.
.9 Tender Summary, Bid Analysis and Recommendation.
.10 Sub-Contractor contracts.
.11 Detailed schedules and delivery plans.
.12 Monthly Reports:
.1 Planning Progress; and
.2 Deliverable to date.

3. REQUIRED SERVICES - CMc

3.1 GENERAL REQUIREMENTS

3.1.1 GENERAL

.1 In consultation the Departmental Representative develop and maintain a partnership, lines of communication and reporting between all members of the project delivery team and stakeholders throughout the project life cycle.

.1 Update Project Procedures Manual (PPM)

3.1.2 SUMMARY OF SERVICES

.1 CMc, Construction Support Services for this project include as follows:

.1 Cost Management Services;

.2 Schedule Control Services;

.3 Risk Control Services;

.4 Quality Management Services;

.5 CM Tendering Services;

.6 CM General Contractor Services; and

.7 CM General Construction and Contract Administration Services.

.2 CMa, Advisory Support Services for this project, see Section 2, Required Services CMa.

3.2 CMc GENERAL CONTRACTOR SERVICES

3.2.1 GENERAL

.1 Perform all the duties of a Construction/Implementation and Delivery Close Out General Contractor.

.2 Manage the Work of the CM's Own Forces and trades Subcontractors and ensure that the Work is carried out in accordance with the requirements of:

.1 General Conditions (GCs) and Supplementary Conditions (SCs) of the Contract and as per Division 01, General Requirements document;

.2 Tender Package specific Division 01, General Requirements; and

.3 Terms of Reference (TOR) and supporting documents.

.3 Prepare and up-date the Construction Management (CMc) Plan - construction milestone – see Definitions.

3.2.2 SCOPE AND SERVICES

.1 For Work other than Work by Own Forces, tender for trade Subcontractors and enter into sub-contract agreements compliant with industry recommended practices and PWGSC contract administration practices.

.1 Departmental Representative will provide a copy of the PWGSC procurement and contract administration practices.

.2 Provide and maintain full-time staff at the project site to:

.1 Coordinate and provide general direction of the project and progress of the trade Subcontractors on the project;

.2 Provide Quality Assurance (QA), monitoring and reporting throughout the construction stage of the project;

.1 Rectify issues identified by the CM QA process or Design Consultant.

.3 Coordinate access to project Work by trade Subcontractors in existing faculty with Departmental Representative or designate.

.1 Departmental Representative mandate is to ensure uncompromised daily operations.

.4 Establish on-site organization and lines of communications in order to carry out the work of the project as may be directed by the Departmental Representative.

.3 CM's General Contractor "Own Forces" work.

.1 The CM shall identify labour and material, which is beyond bid depository trade scopes.

.2 This work shall be included in the trade tenders as "Not Withstanding Clauses" only.

.3 Continue with responsibility for:

.1 Division 01 as per CM contract with PWGSC.

.2 Completeness of Tender Packages; and

.3 Delivery of the trade Subcontractor packages and construction phase responsibilities identified in the TOR.

.4 There will be no "Own Forces Work" extra to the CM's Contract.

3.2.3 DIVISION 01 - GENERAL REQUIREMENTS

.1 In addition to adhering to the project administration requirements contained in this TOR, comply with the general requirements contained in the Division 01 Document for a smooth and safe operation and coordination of the site.

3.2.4 DELIVERABLES

.1 Construction Management (CMc) Plan.

.2 QA Reports - monthly

3.3 CMc TENDERING SERVICES

3.3.1 GENERAL

.1 Proceed with procurement method as agreed upon with Departmental Representative.

.2 Consider at least three-five bidders either:

.1 Experienced in the work; or

.2 Through public advertisement to the industry using methods acceptable in Alberta.

.3 Design Consultant, in collaboration with CM, will:

.1 Document pre-tender site visit meeting and question/answer responses; and

.2 Prepare addenda.

3.3.2 SCOPE AND ACTIVITIES

.1 Undertake tendering of trade packages in accordance with the General Conditions of the CM contract, and as agreed upon by the Departmental representative;

.1 Include as part of each tender, Bidders' Requirements and as part of a Bid Submission to complete a cost breakdown table.

.2 Coordinate the preparation of Tender Package specifications.

.1 Ensure facilities and services being provided to Sub-Contractors are identified.

.3 Endeavour to ensure that a minimum of three bids are received for every tender package issued, and

.1 In the event that fewer than three bid are received on any tender package, PWGSC reserves the right to require the CM to re-tender the respective tender package, unless prior acceptance has been issued by the Departmental Representative.

.2 Issue all addenda in writing (no oral information):

.1 Ensure in Instruction to Bidders that requests for information regarding a Bid Solicitation, be submitted in writing to the CM at least ten (10) calendar days before Solicitation Closing Date;

.2 Addenda to Tender Documents are to be issued through the Bid Depository (if applicable), or as either wise agreed upon, to all recipients of the Tender Documents;

.3 Ensure bidders receive all addenda and that they are listed a part of CM Bid Submission Form; and

.4 Endeavour to issue addenda no later than seven (7) calendar days before the tenders close.

.3 Receive and open Tenders at the agreed upon location in the presence of the Departmental Representative:

.1 Analyze the bids for each tender package to determine if the work should be awarded or if changes are required to keep costs within the budget;

.2 Make recommendations for alternate strategies, in the event that the low bid exceeds the budgeted amount;

.3 Prepare Tender Package Summary including;

.1 Names of all Subcontractors invited and participating,

.2 List of all tender documents including addenda, and

.3 Results.

.4 If the low bid on a Tender Package exceeds the CM's Construction accepted Cost Estimate (Class 'A' level) by more than 5%:

.1 Re-tender the Tender package if;

.1 No satisfactory reduction can be negotiated with the low bidder, or

.2 If the desired price reduction entails significant changes in the scope of work or the character of the design.

.5 If re-tendering is required, the CM shall:

.1 Collaborate with Design Consultant and Departmental Representative Tender Package revisions, substantiated by an Estimated Construction Cost;

.2 Re-issue the package for tender.

3.3.3 DELIVERABLES

.1 Sub-Contractor contracts.

.2 Tender, tender opening and contract award.

.3 Monthly Reports.

3.4 CMc, GENERAL CONSTRUCTION AND CONTRACT ADMINISTRATION SERVICES

3.4.1 GENERAL

.1 Fulfill the obligations as General Contractor responsible for:

.1 Trade Subcontractors, Suppliers and any maintenance or operational requirement contractors that require access to the site; and

.2 Prime Contractor in accordance with the Provincial Health and Safety Act.

.2 The CM's Own Forces shall only be permitted for individual work package coordination activities less than $25,000 value with the specific approval of the Departmental Representative where there is fair value to Canada.

3.4.2 SCOPE AND SERVICES

.1 Construction Work.

.1 When construction Work is duly authorized and assigned to the CM's contract agreement, the CM must:

.1 Provide and be responsible for the development, coordination and management of all Work and Services included in Division 01 in the CM Agreement.

.2 CM General Contractor Services.

.1 Provide equipment and resources as required to perform the services.

.2 Procure, coordinate, administer and manage all construction work and contracts as interdependent parts.

.3 Prepare and execute contracts with the successful trade Subcontractors:

.1 Coordinate and manage the respective contracts in an integrated manner to avoid any conflicts between the Work of the trade Subcontractors;

.2 Coordinate, manage and complete all the Work of each trade Subcontractor's tender package in adherence to the approved drawings and specifications of each tender package, including all addenda and authorized change orders;

.3 Develop and implement a procedure for review, certification, processing and payment of trade Subcontractors in accordance with the terms and conditions of the CM Agreement;

.4 Schedule and conduct progress meetings at which trade Subcontractors, PWGSC, Consultant Team and the CM can jointly discuss such matters as procedures, progress, problems and scheduling, and

.5 Provide timely response to correct issues, as they occur.

.4 Complete the Work of the CM's Own Forces in adherence to Division 01 of the CM agreement and/or in accordance with the approved scope of Work.

.5 Maintain a Daily Log, listing, as a minimum: weather conditions; visitors; workforce; by trade and number of employees; safety issues; and any other major issues.

.6 Keep current As-Built documentation:

.1 Record accepted changes that occur during construction; and

.2 Make ready for Design Consultant to complete Record documents.

.7 Prepare lists of incomplete and deficient items "punch list":

.1 Schedule completion of these items with the trade Subcontractors and

distribute all lists as appropriate.

.8 Distribute interim and final completion certificates.

.9 Arrange with the Departmental Representative for the issuance of necessary forms respecting interim and final completion of the work

.3 Cost Management Services (provide as an Interrelated CMa Service).

.1 Provide updated cost information for monthly/quarterly reports, as outlined in the “Cost Management Services” heading of this Section.

.4 Schedule Management (provide as an Interrelated CMa Service).

.1 Provide updated schedule information for monthly/quarterly reports, as outlined in the “Schedule Management Services” heading of this Section.

.5 Quality Management Services (provide as an Interrelated CMa Service).

.1 Provide, as part of the Project Procedures Manual (PPM), updated results of implementing the QMP and the QP, QA and QC components of QMP for quarterly reports, as outlined in the “Quality Management Services” heading of this Section

.1 Ensure that Quality Assurance measures are implemented and that impacts on in the project are minimized.

.6 Health and Safety.

.1 Continue responsibly for the development, implementation and maintenance for the Healthy and Safe associated with the project Work.

.1 Be the Prime Contractor as defined in the Occupational Health and Safety Act of Alberta.

.2 Ensure full compliance with the applicable Occupational Health and Safety Regulations in effect in Alberta.

.2 Provide full health and safety protection afforded under the Canada Labour Code to all visitors to the site, including workers, staff, contractors and the general public.

.3 Provide appropriate safeguards to ensure safe protection and security of materials and holdings on the site.

.4 Comply with Workplace Hazardous Materials Information System (WHMIS) and all other applicable regulations with respect to hazardous materials to ensure that:

.1 Treated, handled and store designated hazardous materials as per legislated requirements, codes and industry practices.

.5 Ensure exposure to fumes is within acceptable health and safety limits.

.7 Shop Drawings.

.1 Provide, as part of the Project Procedures Manual – document control, a schedule and log, complete with commentary, of shop drawing submissions/re-submissions for each tender package.

.2 Provide updated quarterly reports for each Tender Package as per GP&S, Quarterly Up-Date Reporting Outline.

.3 Check and certify correct for construction:

.1 Forward to Design Consultant for review before forwarding to Departmental Representative for review and returning to the Sub-Contractor; and

.2 Stamp documents with “Checked and Certified Correct for Construction”;
.1 Design Consultant stamp will include “Reviewed”.

.4 Review, discuss, record problems and identify agreed remedial action.

.5 Monitor and record the progress of shop drawing review.

.1 Record, as relating shop drawings, in the Issues/Resolutions Log, parties designated for action and follow up.

.6 In compliance with Project Procedures Manual - Record Management and Control, on completion of project forward reviewed shop drawings to the Departmental Representative.

.7 Verify that shop drawings include the project number and are recorded in the same sequence as the O&M and Systems Manual.

.8 Verify the number of copies of shop drawings required; and

.1 Provide additional copies for User Department.

.9 Expedite the processing of Shop Drawings in a timely manner.

.8 Sustainable Development.

.1 Co-operate with all members of the Project team in contributing to the achievement of the sustainable construction requirements.

.9 Permits and Approvals.

.1 Continue responsibility for coordinating, paying and obtaining all permits and approvals from local and statutory authorities;

.1 Liaise with local and statutory authorities with respect to hoarding, traffic restrictions, services and associated diversions and/or connections;

.2 Inform Departmental Representative of their requirements to inform any statutory body via applications or orders;

.3 Ensure that all applications are filed and executed successfully; and

.4 Verify that all necessary approvals have been obtained.

.10 Post Construction and Warranty Stage.

.1 Coordinate trade Subcontractor activity to provide final As-Built Documents (Operations and Maintenance Manuals, As-built drawings and specifications) as required for each trade:

.1 Assemble Record Documents in whole packages per tender packages, trades or as directed by the Departmental Representative; and

.2 Provide copies of Record Documents and updated records to PWGSC as directed by the Departmental Representative including compliance to PWGSC AutoCAD Standards.

.2 Review and verify the accuracy of warranties and guarantees:

.1 Before completion of work, collect all manufacturer's guarantees, and warranties, complete with relevant contract numbers, and submit to the Departmental Representative for review and acceptance: and

.2 Ensure that warranties and guarantees are included in the Operation and Maintenance Manuals.

.3 Within ten (10) months of the commencement of the warranty period, arrange for an inspection of the facility to determine all deficiencies to be corrected:

.1 Prepare a deficiency list for review and acceptance by the Departmental Representative;

.2 Provide a schedule indicating when correction of all deficiencies covered under the warranty will be corrected and submit to the Departmental Representative for review and acceptance;

.3 Arrange for and correct all identified deficiencies in accordance with the schedule and advise when all deficiencies have been properly corrected; and

.4 Ensure that all warranty deficiencies are properly corrected in a timely manner.

.4 Provide information and advice during the post construction evaluation sessions.

.11 Arrange for all key CM staff and representatives from the CM's key trade Subcontractors to attend a one-day Post Construction Evaluation session, at a time and place to be determined with the Departmental Representative.

.12 Deliver As-Built documents to Design Consultant to produce Record construction documentation.

3.4.3 DELIVERABLES

.1 Project contracts corresponding Construction Documentation such as drawings, specifications, addenda, change orders and contract amendments.

.2 Daily Logs.

.3 Shop Drawings; including all logs and quarterly Reports.

.4 As-Built documents.

.5 Operations and Maintenance (O&M) and Systems Manual.

.6 Punch List.

.7 Reporting:

.1 Cost Management;

.2 Schedule Management;

.3 Quality Management;

.4 Risk Management;

.5 Waste Management;

.6 Health and Safety.

.8 Up-dated construction related documentation, including:

.1 Project contracts and corresponding Construction Documentation such as drawings, specifications, addenda, change orders and contract amendments;

.2 Project correspondence;

.3 Samples, purchases, materials and equipment;

.4 Trade Subcontractors data;

.5 Health and Safety Plan;

.6 Manufacturers Standard Data (MSD) Sheets;

.9 Input to/Review of Design Consultant overall project Issues/Resolutions Log.

4. APPENDIX A

4.1 BUILDING ENVELOPE REVIEW REPORTS

4.1.1 BUILDING ENVELOPE ENGINEERING INC. (JUNE, 2014)

June 16, 2014

Public Works and Government Services Canada
1650, 635 - 8th Ave SW
Calgary, AB
T2P 3M3

Mr. Henry Lee

Email: henry.lee@pwgsc.gc.ca

BUILDING ENVELOPE ENGINEERING INC.

Dear Sir:

RE: Building Envelope Review
Lethbridge Research Centre Annex

In response to your request, we completed a Building Envelope Review at this site. Our program was initiated following reports of water leakage into portions of the building, and preliminary investigations completed by others. Specifically, we were requested to complete a visual review of accessible portions of the as-built Building Envelope construction following removal of portions of the cladding (by others), provide comments with respect to issues noted, and provide recommendations for repair.

1.0 PROGRAM

Our program to date has included the following;

- onsite review of portions of the as-built construction on May 22, 2014,
- review of a Condition Report prepared by Building Science Engineering Ltd. (dated August 2012), and
- review of a partial Architectural Drawing set, prepared by CPV Architects (dated May 17, 1999).

Our program to date has been based primarily on a visual review of components, following removal of portions of the glazing and cladding assemblies by others. Our program did not include any performance testing and was not totally exhaustive, however we believe it was sufficiently detailed to provide comments regarding the as-built Building Envelope construction and provide recommendations for repair. A portion of the photographs documenting our observations are attached, with the remainder retained on file.

2.0 BACKGROUND INFORMATION

The building is a three storey concrete frame commercial building, constructed in approximately 2004 (Photographs 1 and 2). The building exterior has been designed and constructed using Rainscreen principles, where the air/vapour barrier membrane, insulation and cladding are installed to the exterior of the structure. Glazing consists of conventional aluminum curtain wall framing with double glazed sealed units. Cladding consists primarily of a cementitious stucco system, installed over subgirt framing and rigid insulation.

Sources of water leakage have been reported into the building since 2006, primarily at the North elevation window perimeters. The leakage has contributed to significant moisture damage to the interior finishes, including some mould. An investigation was completed by Building Science Engineering Ltd. in 2012, which included removal of portions of the stucco cladding at one Level 3 window head corner. Their report recommended further investigation.

3.0 ARCHITECTURAL DESIGN - GENERAL

Only a few pages of the Architectural Drawings were forwarded for our use. In general, the drawings provided only limited information with respect to the proposed Building Envelope construction. It is our understanding that Specifications were not prepared for the project. The drawings indicated the following typical exterior wall assembly:

- 16 mm gypsum board,
- 152 mm metal stud framing,
- 13 mm gypsum board,
- peel & stick air/vapour barrier membrane,
- 50 mm thick Type 4 extruded polystyrene insulation,
- sheathing paper,
- galvanized metal lath secured to masonry ties, and
- acrylic finish on two coats of cementitious stucco.

In this type of wall assembly, we assume that the design intent is for; air tightness and vapour resistance to be provided by the peel & stick membrane, and primary thermal resistance by the insulation. Resistance to moisture penetration is based on a Concealed Barrier Design where the cladding provides the primary resistance to moisture penetration, with secondary provisions for drainage behind the cladding.

Glazing or Cladding Shop Drawings were not available for our use.

4.0 OBSERVATIONS & DISCUSSION

4.1 Disassembly of the Existing Components

Portions of the existing stucco cladding assembly and glazing were removed on the North elevation of Level 3 by representatives of Graham Construction, prior to our site review (Photograph 2). Additional portions of the cladding were removed during our review, including; the Level 3 roof parapet to saddle connection to the mechanical room wall, and the sill corner of the East elevation Level 4 mechanical room louvre. Significant observations related to the as-built Building Envelope construction are discussed below.

4.2 Stucco Cladding

4.2.1 Design vs. As-Built

The stucco system installed at this building was changed from the Architectural Design, including deletion of the sheathing membrane behind the metal lath and installation of subgirt framing to attach the lath onto (versus the masonry tie system proposed, Photograph 6). We are uncertain as to whether the assembly was revised through a Change Order, approved through onsite mockups, or was simply a deviation from the intended design.

Although difficult to install and secure in place, deletion of the sheathing membrane behind the metal lath was a significant deviation from the original design intent. We assume the purpose of the sheathing membrane was to provide a secondary drainage layer immediately behind the stucco cladding, and prevent moisture penetration into the wall assembly to the air/vapour barrier (which significantly increase the potential for water leakage where membrane deficiencies exist). Revising the stucco attachment from brick ties to subgirts was less significant.

We assume the Architectural Design intent was to provide a Rainscreen cladding assembly, however both the design documents and as-built construction failed to provide a vented and drained cavity behind the stucco. Without the cavity, moisture inside the wall assembly is retained for longer periods of time, and with only limited drying potential. Additional comments are provided below.

4.2.2 Workmanship

In general, the stucco application appeared to be consistent with industry standards at the time of construction in Alberta. Stucco thickness in the locations reviewed was in excess of the minimum Code requirements (19 mm, Photograph 3). Stucco density and durability appeared normal. Control joint profiles were installed through the assembly to provide allowance for movement.

Various cracks were noted through the finish coat of the installed assembly (Photograph 4). The cracks may be related to inadequate curing conditions during installation and/or

movement (due to the weight of the stucco assembly and cantilevered attachment back to the wall). The cracks increase the amount of moisture penetration into the wall assembly. Stucco embedment onto the metal lath was limited in most locations, creating potential attachment issues (Photographs 3 and 5).

4.2.3 Moisture Damaged Components

Significant portions of the metal lath, fasteners which attach the lath onto the subgirt framing, and subgirt framing have corroded (Photographs 3, 5 to 9). Although the components appear to have been manufactured with a galvanized finish, excessive moisture penetration into the assembly and prolonged periods of wetting appear to have contributed to significant deterioration. "J" channel profiles have been installed in several locations, without effective provisions for drainage (ie. notches or drain holes). Long term attachment of the stucco cladding is of concern.

Abnormal moisture stains were observed on the exterior surface of the stucco cladding below some control joint details (Photographs 10 and 11). The stains indicate excessive moisture penetration into the wall areas above, draining through to the exterior in this location. The source of penetration may be through open cracks, control joint details, or the roof parapet detail (prior to installation of new parapet cap flashings, discussed later in this Report).

4.3 Air/Vapour Barrier Membrane

A self-adhered asphalt membrane has been installed as the air/vapour barrier (Bakor Blueskin SA). Various workmanship related issues were noted with the membrane installation in the locations reviewed, including deviations from the manufacturer's recommended installation procedures, as summarized below:

- Adhesion & Joint Seals – Overall membrane adhesion was not acceptable, with several loose edges, wrinkles, and open 'fishmouths' at lap joints visible (Photographs 12 to 16, 21). Non shingled or 'reverse' membrane lap joints were not sealed with mastic (manufacturer's requirement). Primer application onto the substrates was limited, particularly at the concrete column and slab edge details.

- Support – The concrete slab edge and column details were recessed back from the plane of the gypsum board walls in the locations reviewed (likely related to construction tolerances). The membrane was 'tented' over the transitions, with various open loops noted at the lap joints and small tears noted at the subgirt ends (Photographs 12 to 15, 21). The manufacturer requires that the membrane be fit tight through the inside corners, with a maximum 19 mm unsupported span.

- Continuity – The membrane must be continuous to provide an effective air and water seal, although several significant discontinuities were noted in the locations reviewed. At the NE corner stairwell area, the membrane was not installed over the top of the roof parapets to provide a continuous seal to the roofing (with the upper portion of the wall

sheathing exposed, Photograph 14). At the roof parapet saddle connection to the mechanical room wall, the wall membrane was not sealed onto the parapet (with an open hole and indications of previous water leakage noted, Photograph 16). At the East elevation mechanical room louvre perimeter, the wall membrane was not sealed onto the mechanical duct (with evidence of moisture damage noted to the interior wall assembly, Photographs 17 and 18). Insulation fastener penetrations at the concrete slab edge and column details were not self-sealing, with several small holes visible (Photograph 19). Scaffold tie-back anchors were not sealed (Photograph 20). No membrane tie-ins appear to have been completed to the existing Lab Block building. We assume similar types of deficiencies exist in other locations.

4.4 Thermal Barrier

The wall insulation appeared to generally be continuous in the locations reviewed, except at the recessed column and slab edge details. The insulation was not cut to fit tight to the substrates in these locations, creating large open gaps behind the insulation (Photograph 21). The open gaps significantly decrease the effectiveness of the insulation, and increase the potential for condensation inside the wall cavity.

4.5 Glazing

Typical glazing consists of a conventional aluminum curtain wall frame section, common to this type of construction. If fabricated and installed correctly, this type of window provides appropriate performance levels for a building of this type. We noted various design and workmanship related issues with the glazing as installed, which appear to have contributed to the water leakage through the framing. Significant issues are discussed below.

- Anchorage – The frames have been anchored to the wall using perimeter angles installed into the glazing rebate (as compared to ‘sleeve’ type anchors installed into the vertical tubes, Photographs 24 and 25). The angles do not appear to have been sealed to the framing. This type of anchorage is not typically recommended, as the angles prevent an adequate membrane bond from the wall to the framing. Onsite, the membrane was adhered onto the perimeter angles however was not sealed to the window frames (Photograph 12).

- Head Flashing – A continuous aluminum head flashing was installed above the windows, however the vertical leg of the flashing was not sealed to the wall membrane (allowing moisture penetration past the flashing and into the window head detail below, Photograph 22). The underside of the head flashing was sealed to the glazing caps on the North elevation (likely as a remedial repair attempt to resolve the water leakage), which restricted venting and drainage.

- Window Head Detail – Rigid insulation has been installed as the anti-rotation blocking at the window perimeters. The insulation fills the glazing rebate, and limits effective venting and drainage of the frame perimeter. Previous moisture stains were noted at the window head framing where moisture appears to have accumulated and leaked through the unsealed joint between the perimeter angles and framing (Photograph 23). In addition, weep holes through the pressure plates have been sealed (reported to have been completed as a remedial repair attempt during previous service work) which significantly increases the potential for leakage.

- Glazing Seals – Rubber corner blocks installed at the frame corners were not adequately sealed, creating potential sources of water leakage through the head detail (Photograph 24 and 25). At the sill corners, excess sealant has restricted provisions for venting and drainage (Photograph 26).

4.6 Roof/Wall Connections

A 2 ply SBS roofing system has been installed to the mechanical level roof (which appears to be from the original construction), although adjacent roof areas to the Annex on the South elevation have recently been replaced.

Portions of the roof curb were disassembled at the SW corner of the mechanical penthouse. The base ply of the roof membrane stripping was not adequately sealed to the wall air/vapour barrier, with a potential for water leakage into the roofing system or building interior (Photograph 27). Similar conditions likely exist in other locations.

New parapet cap flashings appear to have been installed to portions of the upper roof perimeter, likely during roofing replacements to the adjacent building. The current parapet caps flashings have been installed to provide a good shingle lap over the existing stucco cladding, however the existing flashing profile is not known (which may have been shorter, allowing wind driven rain to penetrate through this interface detail). Similarly, a double flashing detail has been installed to the roof curb details (Photograph 28).

5.0 SUMMARY & RECOMMENDATIONS

We reviewed representative portions of the as-built Building Envelope construction, following removal of representative portions of the stucco cladding and disassembly of the window components. The investigation was completed subsequent to reports of previous water leakage through the North elevation windows. Review locations included the North elevation Level 3 wall areas near the East window, a roof/wall saddle detail, the East elevation mechanical penthouse louvre sill corner, and a typical roof curb detail. Several significant Building Envelope related issues were noted, as discussed below.

The stucco cladding was originally designed as a Rainscreen assembly, however without an intentional cavity behind the cladding (to allow for venting and drainage). The as-built construction deleted a sheathing membrane layer between the insulation and stucco cladding, increasing the amount of moisture penetration into the wall assembly. The stucco installations appear to be consistent with current industry standards (for thickness, hardness, reinforcement, etc.), however excessive cracking has increased moisture penetration into the wall assembly. As provisions for venting and drainage are limited, the excessive moisture penetration has contributed to prolonged wetting of components and corrosion of the metal lath, subgirts, and fasteners. Long term attachment of the stucco cladding is of concern. Replacement of the stucco cladding is recommended.

A self-adhered (peel-and-stick) membrane has been installed to the exterior of the wall sheathing. The membrane was not installed in accordance with the manufacturer's recommendations, with various workmanship related issues noted. Significant issues included; inadequate application of primer to substrates, membrane not fit tight to the substrates (with the membrane tented over transitions between the plane of the sheathing and concrete frame), poor seal at lap joints, excessive wrinkles, mastic not applied to non-shingled lap joints, membrane seals not continuous at penetrations (including the roof parapet at the stairwell, roof parapet saddle connection to the wall, louvre perimeter, etc.), holes at concrete insulation fasteners and subgirt ends, etc. We assume similar deficiencies exist in other locations, which are not readily visible without removal of the stucco cladding. Membrane repairs cannot effectively be completed from the interior.

Exterior rigid insulation was generally continuous, with the exception of the recessed concrete slab edge and column details. The insulation was not cut to fit tight to the substrates in these locations, creating large open gaps behind the insulation. The open gaps significantly decrease the effectiveness of the insulation, and increase the potential for condensation inside the wall cavity.

A conventional curtain wall window system has been installed at the site, typically recommended for this type of building, however various workmanship related issues have contributed to sources of water leakage. Perimeter angles used to attach the windows to the stud framing have prevented an effective air/vapour barrier membrane tie-in between the wall and glazing. Installation of a window head flashing without sealing the vertical leg to the wall membrane has allowed excessive moisture drainage past and accumulations within the upper glazing rebate. Filling the glazing rebate with rigid insulation, and plugging weep holes in the pressure plates, have prevented effective venting and drainage. Deficiencies in the glazing corner block installations have created potential leakage paths. Repairs to the glazing are required to improve both air and water tightness, which can be completed by removing the exterior glazing caps and pressure plates (in conjunction with repairs to the stucco and air/vapour barrier membrane).

The existing SBS roofing membrane has not effectively been sealed to the walls at the upper mechanical roof curb details, with a potential for water leakage into the roofing system. Repairs can be completed in conjunction with repairs to the stucco and air/vapour barrier

membrane, however may require disassembly of some roofing components. Further investigation is required to confirm the scope.

The Building Envelope construction requires replacement. The air/vapour barrier membrane has been installed with numerous workmanship related deficiencies, contributing to sources of air and water leakage. The stucco cladding system is not effectively drained, which has contributed to corrosion of various components. Long term attachment of the stucco cladding is a concern. Window perimeter details have not effectively been sealed or drained, contributing to the water leakage and moisture damage reported. Although the moisture damage is likely most significant on the North elevation (subjected to more frequent wind driven rains), we assume similar conditions exist on all elevations.

6.0 CLOSURE

This report is for the exclusive use of those copied. No representations will made by Building Envelope Engineering Inc. to any other party. This report has been prepared in a manner consistent with good engineering judgement and current Building Envelope principles. Building Envelope Engineering Inc. reserves the right to re-evaluate the conclusions contained in this report should additional information become available. Reproduction of this report in whole or part is not permitted without the express written consent of Building Envelope Engineering Inc.

We trust this information meets with your present requirements. If you have any questions or if we may be of further service, please contact us at your convenience.

Sincerely yours,
BUILDING ENVELOPE ENGINEERING INC.
APEGGA Permit to Practice #P4589

Anton Vlooswyk, P.Eng.

attachments

Photograph 1 – SE Building Corner

Photograph 2 – North Elevation
Note: Area of stucco removed, including the previous review location (white membrane).

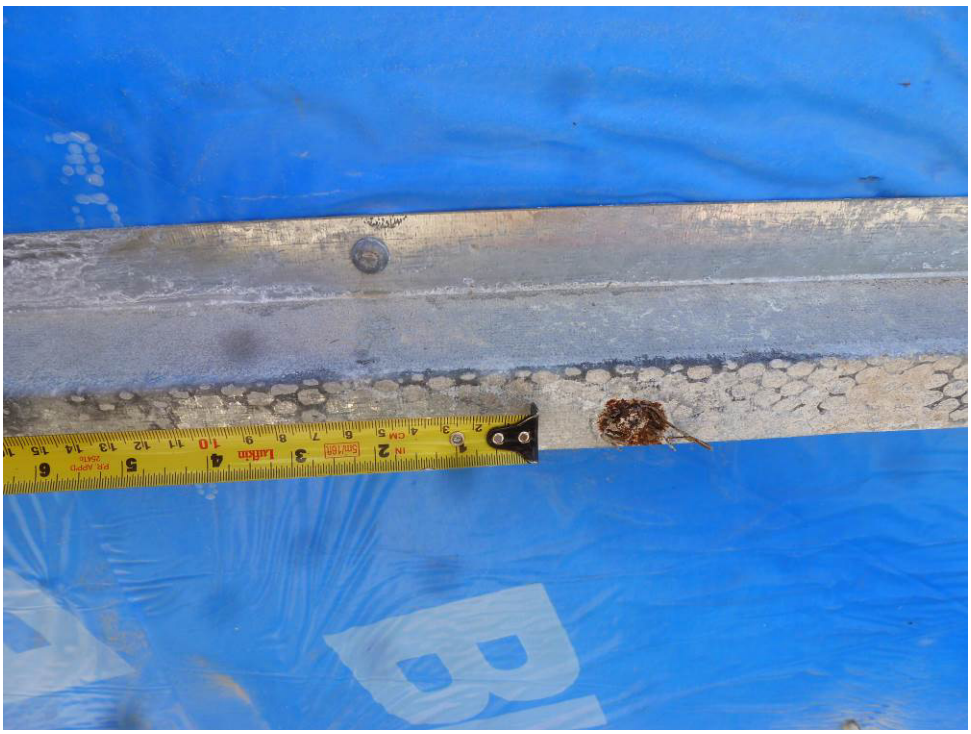
Photograph 3 – Stucco Thickness
Note: Overall stucco thickness, corrosion of the reinforcing, and minimal embedment of the lath into the stucco.

Photograph 4 – Typical Stucco Cracking

Photograph 5 – Typical Removed Stucco
Note: Corrosion of the reinforcing, and minimal embedment of the reinforcing into the stucco.

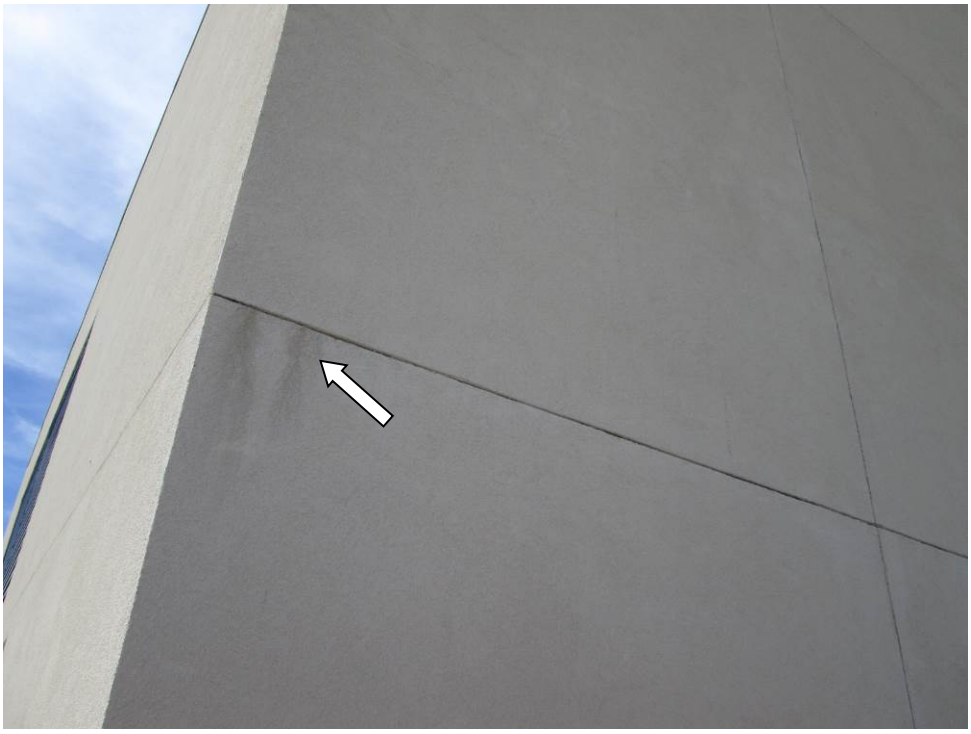
Photograph 6 – Level 3 Column Detail Between Windows
Note: Corrosion of the subgirt framing and reinforcing lath.

Photograph 7 – Level 3 Window Head Detail
Note: Corrosion of the subgirt framing, including the ‘J’ channel profile at the window head.

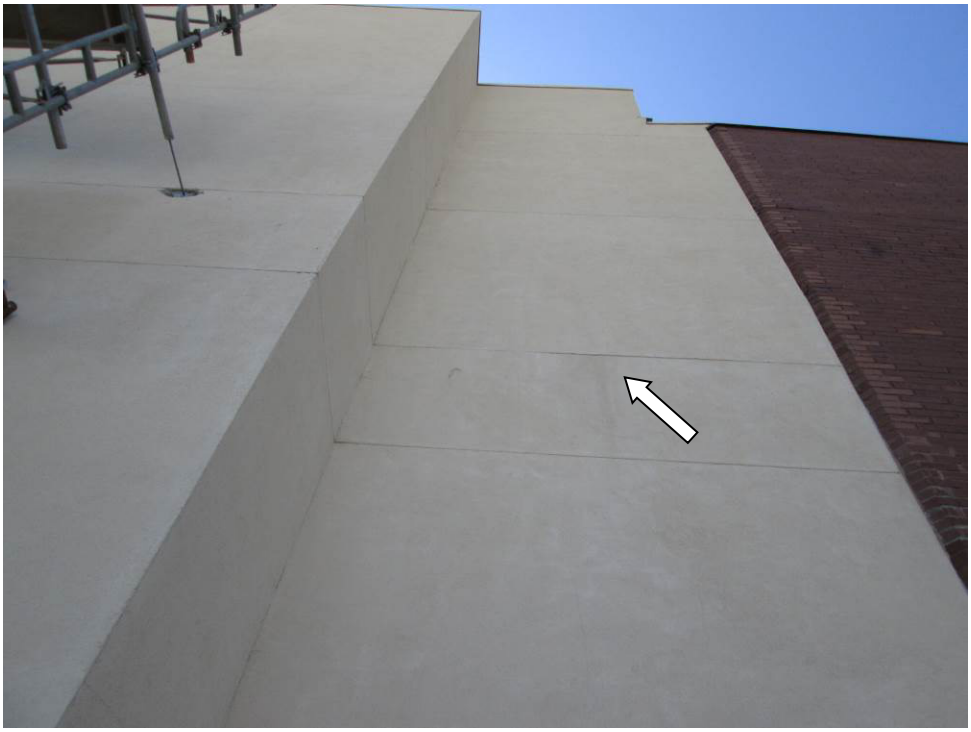


Photograph 8 – Typical Fastener Used to Secure the Metal Lath to the Subgirt Framing
Note: Corrosion.

Photograph 9 – Typical Fastener Used to Secure Metal Lath into the Stud Framing
Note: Corrosion.



Photograph 10 – NE Corner
Note: Moisture stains indicate excessive moisture drainage out through the wall, although no penetrations above.



Photograph 11 – NW Corner
Note: Moisture stains indicate excessive moisture drainage out through the wall, although no penetrations above.

Photograph 12 – Typical Membrane Installation
Note: Poor bond, open loops at joints, inadequate support at transitions, wrinkles, no seal to glazing frames, etc.

Photograph 13 – Typical Membrane Installation (Blue Membrane Only)
Note: Poor bond, open loops at joints, inadequate support at transitions, wrinkles, etc.

Photograph 14 – Typical Membrane Installation
Note: Poor bond at joints, inadequate support at transitions, wrinkles, membrane not continuous to roofing, etc.

Photograph 15 – Typical Subgirt
Note: Membrane tear at end of subgirt where not adequately supported

Photograph 16 – Roof Parapet Saddle Detail
Note: Membrane not continuous

Photograph 17 – East Elevation Louvre Sill Corner
Note: Open hole into the wall assembly at the corner.

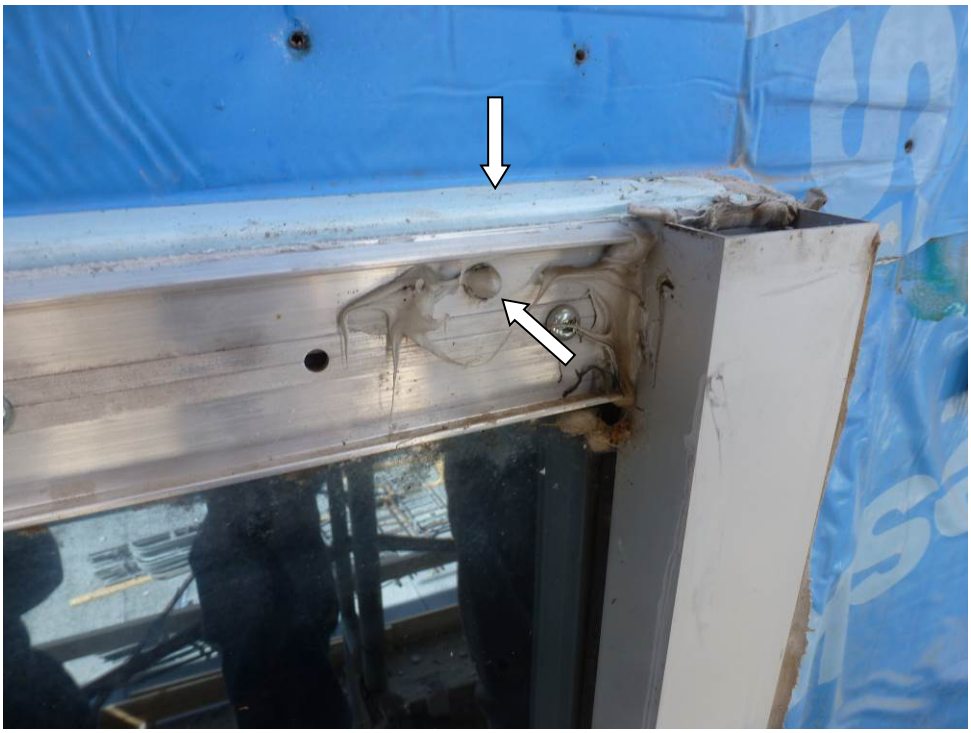
Photograph 18 – East Elevation Louvre Sill Corner Interior
Note: Indications of previous water leakage.

Photograph 19 – Typical Insulation Fastener into Concrete
Note: Small unsealed holes through the membrane.

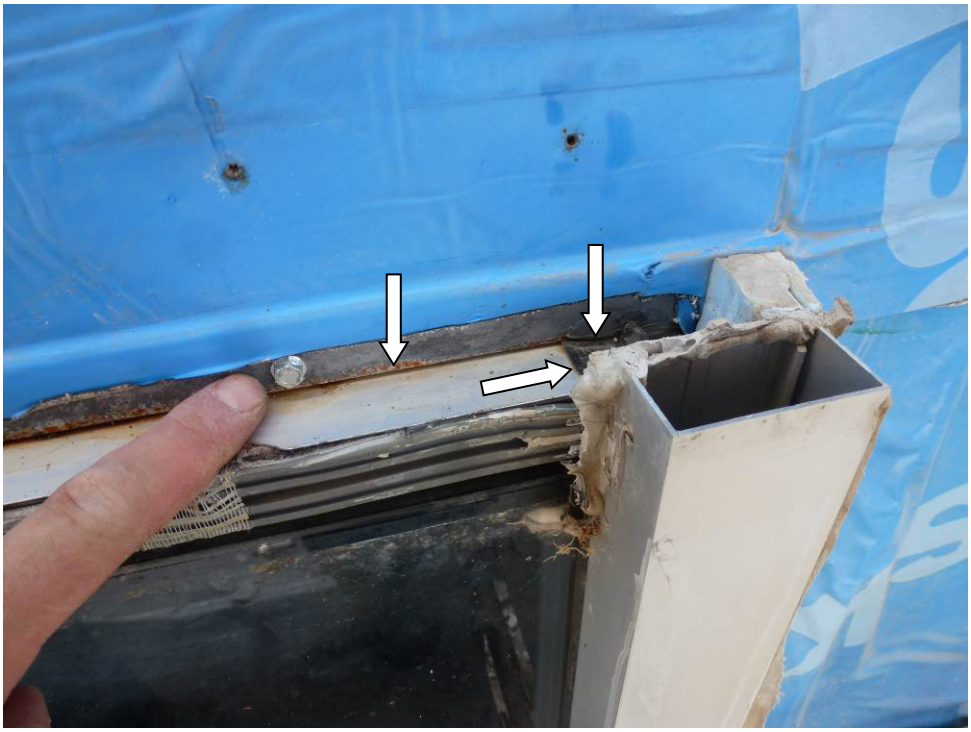
Photograph 20 – Scaffold Tie-Back
Note: Membrane not sealed at tie-back location, and corrosion of the subgirt framing.

Photograph 21 – Typical Column Detail
Note: Large gaps between the insulation and air/vapour barrier membrane.

Photograph 22 – Typical Head Flashing Detail
Note: Vertical leg of flashing not sealed to the wall, allowing moisture drainage past.



Photograph 23 – Typical Window Head Detail (Flashing Removed)
Note: Glazing packet filled with rigid insulation, and weep holes plugged with sealant.



Photograph 24 - Typical Window Head Detail (Pressure Plate and Insulation Blocking Removed)
Note: Previous moisture stains, membrane not sealed to framing, unsealed fasteners and corner block, etc.

Photograph 25 - Typical Window Head Detail (Corner Block Removed)
Note: Corner block not sealed, allowing moisture leakage onto the sealed unit head below.

Photograph 26 – Typical Window Sill Corner
Note: Excess corner block sealant restricts drainage, and the membrane leading edge not sealed.

Photograph 27 – Roof Curb Detail, SW Building Corner
Note: Roofing membrane not sealed to the wall air/vapour barrier.

Photograph 28 – Typical Roof Curb Detail
Note: Double flashing detail indicates new roof perimeter flashings have been installed since construction.

4.1.2 KASIAN (SEPTEMBER, 2012)

KASIAN ARCHITECTURE INTERIOR DESIGN AND PLANNING LTD
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September 18, 2012

Professional & Technical Services, Real Property Services Branch
Public Works & Government Services Canada / Travaux publics et Services Gouvernement aux Canada
Room 1650, 635 8th Ave SW, Calgary AB T2P 3M3

Attention: Mr. Gerald Galambos, P Eng.,MBA, Project Manager

Dear Gerald:

Subject: LETHBRIDGE RESEARCH CENTER LABORATORY ANNEX BUILDING BUILDING ENVELOPE INVESTIGATION

We have enclosed the enclosed report prepared by Building Sciences Engineering (BSE) Ltd. dated August 2012 for the Lethbridge Research Center Laboratory Annex Building on a localized review of the reporting of water ingress into the envelope components. This investigation was led by HIP / Kasian working with BSE Ltd. as our building envelope specialty sub-consultant.

In summary, a Pressure Equalized Rain Screen Insulated Structure Technology (PERSIST) was designed for this building. The detailed construction documents for the envelope in the area of investigation appear to be consistent with this building envelope systems intent. It appears that the actual implementation and construction may have significantly compromised the benefits of the technology. The localized opening of the wall construction revealed that the water ingress, especially along the north facing storm side of the building, appears to be a result of the following:

1. Inconsistent application of the SBS membrane to the exterior wall assembly substrate;
2. Inconsistent and insufficient allowances for construction tolerance resulting from the predictable expansion and contraction of adjacent differing building materials;
3. The suspected inconsistent and unreliable connectivity of the SBS membrane to exterior window frames,
4. inconsistent installation of the exterior rigid insulation tight to the exterior SBS membrane; and insufficient provisions for the drainage and drying of the exterior cavity wall assembly.

The scope of the investigation was limited to one particular window/office location on the north elevation of the Laboratory Block but the report proposes additional investigations for the remainder of the elevations. It is suspected that the construction conditions would be consistent throughout the entire building and that the problems experienced in this one location would eventually show themselves throughout. If the entire Laboratory Annex Building is not completed as to prevent future potential additional water ingress then interior mold growth may threaten the health and safety of building occupants in the other areas of the building. In addition a remediation plan that considers the entire Laboratory Annex Building with the Laboratory Building Building Envelope Project is

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Toronto
Abu-Dhabi
Mumbai
Shanghai

strongly encouraged. Doing the projects in tandem would be far more cost effective and ensure continuity of building envelope performance throughout the Lab Block itself.

We have reviewed a potential remediation plan that considers dealing with localized areas of detailing and construction defects. This work would be similar to the work in which we are already involved for the Administration and Atrium portions of this facility, the process for remediation could largely be conducted from the exterior and prevent the significant relocation of internal personnel during a construction upgrade project. Other than any necessary removal of interior mold infested drywall finishing materials, we expect the remainder of the work could be conducted from the outside of the building.

The scope of the remediation construction would include all major exterior wall assembly components including repairs to the substrate, re-installation of the SBS membrane on the exterior sheathing, ensuring a proper connection of the exterior membrane to all window units, repairing connectivity details between major building envelope components (walls, roofs, and parapets), and re-installation of the exterior-mounted insulation system, and the re-design of an exterior cladding system that would provide sufficient inter-cavity drainage and drying.

We look forward to continuing to assist you with these matters and are available to discuss this report and our summary in more detail at your convenience.

Sincerely,

Kasian Architecture Interior Design and Planning Ltd

Randy Krebes
Architect, AAA, MRAIC
Principal

RK, dsh

Enclosure(s) BSE Lethbridge Research Facility - Annex Building Leakage

cc: n/a

REPORT

Lethbridge Research Facility

Annex Building Leakage

Presented to:

Kasian Architecture Interior Design & Planning Limited

Public Works & Government Services Canada

Job No. 1015 August 2012

TABLE OF CONTENTS

1. INTRODUCTION

1.1 Terms of Reference

Building Science Engineering Ltd. was retained by Kasian Architects (formerly HIP Architects) to review the water leakage that has been a problem in an addition to the Lethbridge Research Facility Lab Block known as the Annex.

1.2 Scope of Work

The scope of work was to investigate the source of the water leakage and propose solutions for the repair of the building enclosure.

1.3 Basic Information

We were provided with the following information:

- There were limited drawings and no specifications available to indicate what was actually built. The details in the documents provided little information as far as tie-ins of the various components of the construction.

- On-site personnel had already removed the interior finish gypsum board at the head of the windows on the third floor north wall, exposing the steel studs and exterior sheathing of the building enclosure. There was mold present on the surfaces of the interior face of the exterior sheathing and on interior gypsum where it had not been removed from the adjacent window. There was some minor corrosion of the galvanized studs. There was water staining on the aluminium window framing on the interior surfaces.

- Chandos Construction provided scaffold and manpower to remove the cladding and enclosure components from the exterior.

2. EVALUATION OF EXISTING CONDITIONS

2.1 Background

The building is located in Lethbridge Alberta. The Annex was built in approximately 2005 as the drawings were issued for tender in 2004.

2.2 Review of Construction Documents

The drawings provided were not very detailed as to how the contractor and his subtrades were to achieve continuity of the air seal. There was no indication as to a design for a water management system.

The structure in this portion of the building is constructed of cast in place concrete with infill walls of galvanized metal studs and gypsum sheathing. The glazing system is comprised of a sealed unit glazing in an aluminium curtain wall system. Metal flashings bridge from the glazing system to the stucco. According to the notes on the drawings a membrane is adhered to the exterior of the sheathing and structure. Insulation is installed exterior of the membrane. Stucco cladding is then applied to the exterior. The enclosure approach follows a Pressure Equalized Rain Screen Insulated Structure Technique (PERSIST). The membrane in contact with the backup structure and tied into the other components should provide both an air barrier function as well as a plane of waterproofing. There is no cavity however for drainage and ventilation.

2.3 Field Investigation

On August 1 2012 BSE was on site to review and direct the deconstruction of the exterior cladding above the third floor window on the north wall. Chandos Construction had set up a scaffold and provided assistance and equipment to remove sections of the cladding to see how the enclosure components were “as built”. There can often be variances in the construction both in materials specified, tolerances of construction and workmanship we have found over the years in other investigations.

The process started at the head of the window and continued up the façade to the wall of the mechanical room above the concrete curb. It extended to a control joint at the concrete column of the third floor to the east of the window and to the mid-point of the window.

3. DISCUSSION

3.1 Design

While the design is based on PERSIST (Pressure Equalized Rain Screen Insulated Structure Technique) which in our opinion is the best approach for any insulated building enclosure, it is not a foolproof technique. The designer and contractors must still understand the forces placed on the enclosure and how they are accommodated by the specific materials used. That being said the technique should by its layering approach and separation of the structure from the enclosure make it a much simpler construction to achieve the intended requirements of Part 5 of the Alberta Building Code and the National Building Code, *Environmental Separation*.

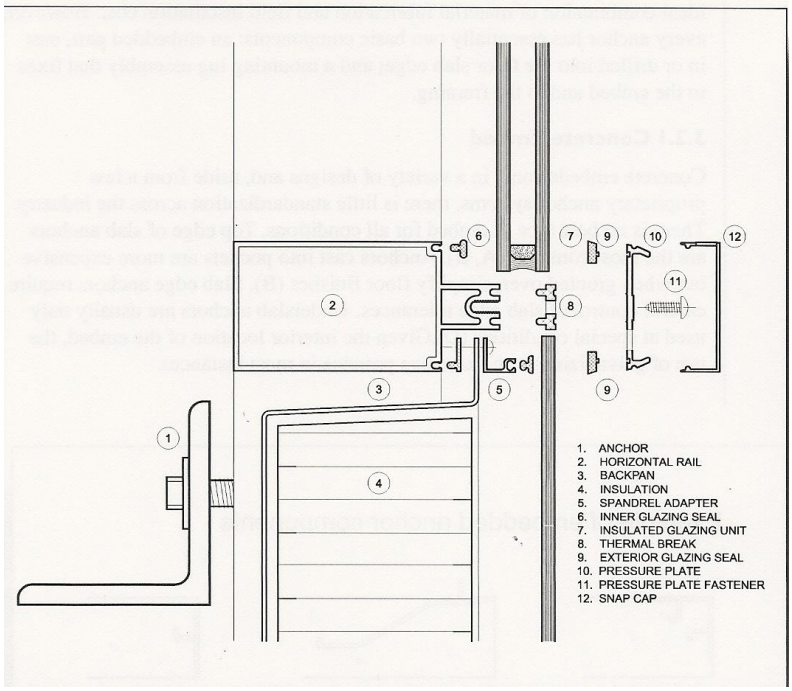
On the interior the sheathing had mold on the inner surface. To get mold you need mold spores, a food source (dirt or the paper surfacing of the sheathing board), air and water. The water at first was believed to be coming from the window perimeter as the major amount of mold was at the head and water had appeared on the surfaces of the window framing.

3.2 Windows

Because of our experience with similar problems it was first thought that the window anchorage or sealing of the window to the membrane on the exterior sheathing was incomplete or had been damaged. The north exposure subjects the wall/window surface and junctions to significant wind and water loads. Water leakage at the head of the window at the junction from the wall to the framing could wick up the porous gypsum and surfacing of the board.

The aluminium curtain wall system installed is made up of several components. The main body of the window is a square or rectangular tube which provides the structural resistance to imposed wind loads. As part of that section at about mid span of the outer face of the tube is a fin (throat, nosing) or extension that creates an upper and lower area known as the glazing rabbet. This extension should include a thermal break in the design. The glazing rabbet provides the pocket in which the sealed unit or glazing is supported (at the sill) and a space for tolerance and movement of the unit in the system. The face around the perimeter of the framing allows for the tie-in of a membrane and its mechanical retention by an anti-rotation channel.

Once the glazing unit is installed a pressure plate is secured to the nosing to retain the glass. Both the tube section and the pressure plate contain glazing tapes or gaskets to separate the glass of the unit from contacting the aluminium surfaces which could result in breakage (each manufactures' system is different). The glazing rabbet should be compartmentalized and drained for each unit. Drainage is provided through slots in the profile of the pressure plate. The aesthetic snap on cover cap is clipped onto the exterior edges of the pressure plate and has offset drainage holes to drain water that may enter through discontinuities in the glazing gaskets or tapes and that has drained from the glazing rabbet through the slots in the pressure plate.



Sketch 1: Section of aluminium curtain wall sill noting components. Rather than a backpan with insulation the design has a SBS membrane on sheathing on a metal stud backup wall.

The curtain wall glazing approach is probably the most tested system in North America and around the world as it recognizes that no system is perfect on the exterior (face seal approach). Some water will get in past the imperfections in the exterior surfaces and must be controlled and removed back to the exterior otherwise it may enter to the interior or prematurely degrade the sealing components of the system.

That being said there are installation procedures that may affect the desired performance of the curtain wall to control water and air movement (if air can get through then condensation may occur within the system and must also be drained to the exterior). Holes in the aluminium framing may not be properly placed or sealed. Anchorage of the aluminium windows is often achieved with short aluminium angle pieces placed in the window rough opening prior to the installation of the frame. The flanges would be used to fasten to the rough opening construction and the tube face of the glazing rabbet perimeter. These angles usually from our experience interfere with the tie-in of any seal for water control and air barrier continuity from the wall construction surrounding the rough opening to the tube face of the window framing.

The actual installation may have had drainage through the flashings, but at some point there has been an application of caulking between all the surfaces at the head of the window where drainage might have occurred if it had been installed. This caulking had to be removed to allow the cover caps and pressure plates to be removed (there was little tolerance allowed for removal of the cover cap). There were a few drainage holes in the horizontal pressure plates but not slots (holes tend to become clogged whereas slots tend to be self-cleaning. They were also installed too high thereby retaining water in the glazing rabbet). Type IV polystyrene had been used in the glazing rabbet of the perimeter rather than an anti-rotation channel. This means there is no mechanical retention of the membrane (as required by the membrane manufacturer).

Photo 1: Insulation in glazing rabbet was saturated with water.

At the horizontal head of the window the polystyrene was saturated with water but on the jamb it was dry.

The SBS membrane from the wall appeared to be sealed to the back of the tube. No anchorage was evident. Testing with theatrical smoke from a smoke generator did not indicate any significant leakage paths around the perimeter of the window (this does not mean water is not leaking at this joint location, but it did show that there were no large discontinuities in the seal). There is a great deal of sealant and rather than destroying what seal there is it was felt that a greater source of leakage needed to be found above the window joint.

3.3 Stucco Cladding

The stucco cladding above the left corner of the window was removed in sections to ascertain where water might be leaking through the cladding construction higher in the system above the window.

The stucco is a cement based application on metal lath supported back though the insulation by galvanized metal profiles (three coat system of cement plaster approximately ¾ of an inch in thickness).

Photo 2: Cement stucco cladding.

There was corrosion on the galvanized lath and the metal support system components. Most was just surface corrosion although there were locations of more significant corrosion of the trim profiles where they may have been either more exposed to water entry or where retention of water has occurred due to a lack of drainage.

Photo 3: Corrosion of the horizontal metal edge profile. Not significant corrosion on the vertical profile or the lath.

The polystyrene insulation was removed in sections as well. It had been in tight contact with the stucco. There is no drainage cavity between the insulation and the stucco so water that enters the system can bridge at fasteners and joints in the board and travel back to the interior. Rigid insulations are used for a couple of reasons: a) higher R (RSI) value per inch (mm), b) when the installer is pressing the base coat into the lath to key it in to the lath, a more flexible insulation would result in varying thicknesses of stucco which may result in cracking and discolouration of the finish under certain weather conditions. This however limits the drainage potential of the system when water does enter. Some gap does occur when the stucco dries due to it shrinking (why there are multi-layers applied), but water can easily bridge the small gap.

There were some larger gaps between pieces of insulation board and when it was removed higher in the wall the insulation was not in contact with the SBS membrane. This could lead to the membrane and sheathing reaching the dew point of the interior air and may result in condensation at this plane.

Photo 4: Insulation was not in contact with SBS membrane in some locations.

3.4 SBS Membrane and Backup

The SBS membrane used in the wall enclosure was a peel and stick membrane by Bakor/Henry named Blueskin. It is an SBS membrane made of SBS (Styrene Butadiene Styrene) on one side of a polyethylene carrier sheet. The polyethylene provides the only reinforcement for the product while the SBS provides the adhesion to the backup substrate and the sealing of it.

A primer appears to have been used but it may have been a water base primer rather than a solvent base primer. BSE has had issues with water base primers on other projects. The primer may not be sufficiently mixed, it may not be allowed to dry sufficiently, or if water does get to this plane after installation, the primer may re-emulsify and affect the adhesion of the membrane. There was a great deal of wrinkling in the body of the membrane signifying that the membrane may not have been roll with a roller. There were several areas where the SBS was either not adhered to the substrate or tented to bridge gaps. While small gaps can be accommodated these exceeded the manufacturers recommendations. There was no sign of the use of mastic at the joints or penetrations.

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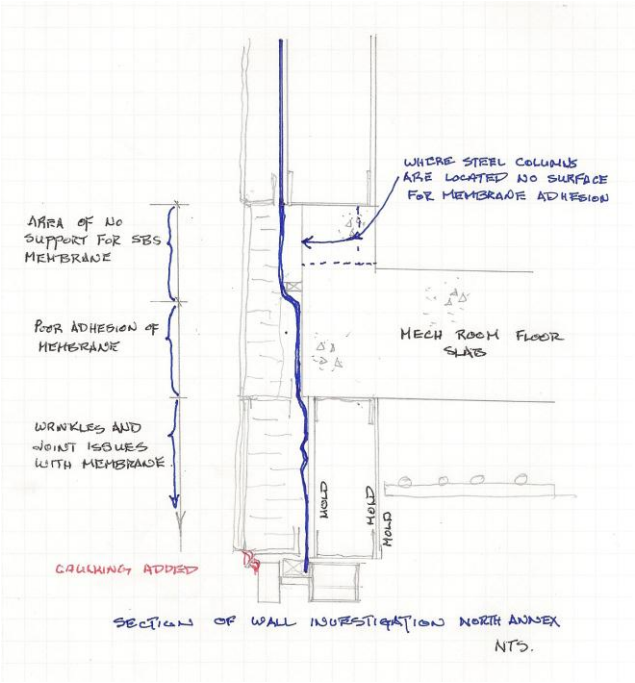
Photo 5, 6: Wrinkles in the membrane means that there is a lack of bond between the gypsum sheathing and the membrane. These voids make increase in time or become collection areas for water to accumulate on the interior of the SBS membrane.

As more of the stucco was removed the areas where adhesion was lacking increased. Normally at the underside of the concrete slab we would have expected a deflection gap in the sheathing and a dual track stud for the allowance of long term creep of the concrete. There doesn't appear to be this deflection allowance.



Sketch 2: The offsets of the construction are not to scale but can be seen in the pictures below.

The backup surfaces for adhesion of the SBS membrane were offset between the wall plane of the mechanical room and the concrete face of the edge beam of the concrete slab and curb of the mechanical floor. A further off set then existed between the concrete of the floor and the stud wall below to the window.

The SBS membrane is supposed to provide the seal to the enclosure for both water and air but it must be adhered to the backup wall as it relies on it to provide the structure to resist the imposed loads of wind, stack effect and mechanical pressurization. In the case of the wall the lack of adhesion to the backup wall system allows the SBS and its joints to flex with those forces resulting in openings. Where it had not been properly sealed at seams and where the membrane is penetrated to mechanically fasten the insulation or the galvanized steel profiles for the stucco and lath there are now passageways for water entry. At the column locations of the mechanical room wall there was no infill provided for the support of the SBS membrane. The introduction of strip of galvanized sheet metal aligned with the exterior plane of the concrete upstand could have been provided but was not.


7


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Photo 7, 8: Concrete beam and curb of the mechanical floor. No adhesion of membrane to the concrete. A wood strapping piece was used to align the trim but then the SBS membrane is unsupported from the sheathing above the curb to the trim. Below the trim the membrane is angled to the concrete and adhered to the concrete. Holes for the form ties were not filled. Holes to the right were for insulation pins but with a lack of seal to them by the SBS membrane this is where water could enter.

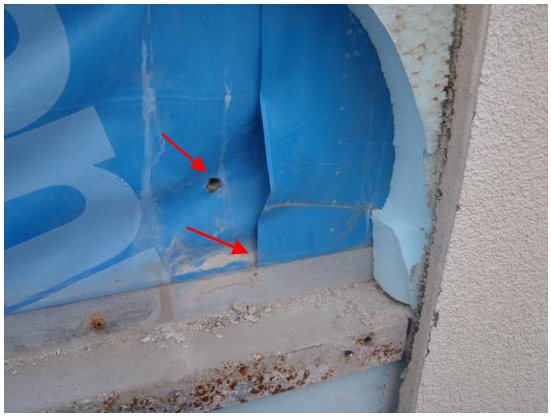
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Photo 9, 10: The membrane is wrinkled and the joint between membrane pieces is not sealed. Note the water staining above the “Z” bar where it was located may drain behind the lap of the membrane to the right. There was no primer evident at the laps and no mastic was used to seal the joints.

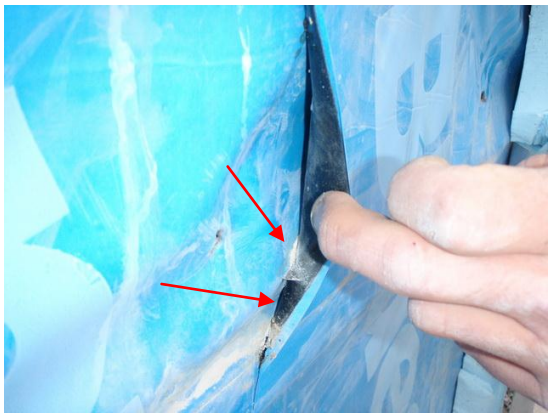

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Photo 11, 12: The white water staining on the membrane poly surface drains behind these two joint locations.

The SBS membrane could have been adhered to the various planes, but then the insulation would need to be cut to the correct thickness to accommodate the variances.

In the mechanical room there is no indication of water entry where the owner has removed the interior gypsum. There is however air movement that can be felt at all the steel profiles where the interior gypsum butts to them. This indicates that there is a lack of air seal and the potential for water entry and/or condensation in the construction

4.0 CONCLUSIONS

4.1 While PERSIST used for the construction of the Annex wall is in our opinion the best approach to ensuring that water and air movement through the construction is minimized, the technique does not make the construction foolproof. It is not just the use of materials that makes the technique a success; it is the understanding of what each material does in the technique and what reliance there is form one material to the next in the system. Tolerances are unavoidable in today's fast construction. Each material has its own allowable tolerance both positive and negative. Those sometimes add to significant variances.

Had the backup wall systems been installed to minimize the changes in the plane of air seal (sheathing to SBS membrane) then this leakage problem may not have occurred.

Had the SBS membrane been installed to the varied substrates that did occur and then the insulation installed tight to the SBS membrane in varied thicknesses, there may not have been this problem of water entry.

Had the cladding been a material that provided a cavity for drainage and drying of the cavity, there may not have been water entry to the plane of the SBS and thereby no water entry.

Schedules and costs often run projects with quality sometimes taking a back seat.

5.0 RECOMMENDATIONS

We make the following recommendations:

5.1 Option 1: Remove the stucco and construction to the metal studs of the backup wall, in a strip along the north wall above the third floor windows. This is the wall of greatest exposure and greatest risk. This should provide the contractor and Government Services the opportunity to assess whether or not that this is an isolated situation or a rampant problem on the entire Annex.

Remove the stucco to the corner of the east and west and the coping of the lower roof (AREA 1). The retrofit may need to be extended to the area (AREA 2) noted on the elevation photo 13 depending on what evidence of backup wall deterioration is found. Remove the exterior sheathing to the underside of the mechanical room floor. Access the need for a movement joint in the stud backup infill wall system. Install the SBS membrane ensuring it is fully adhered to the plane of the backup systems. Cut thicknesses of insulation to be in full contact with the SBS membrane then re-clad. Depending on what is found it may be that the cladding is just temporary. A light gauge metal could be used as a temporary cladding, or the cement stucco could be reinstated.

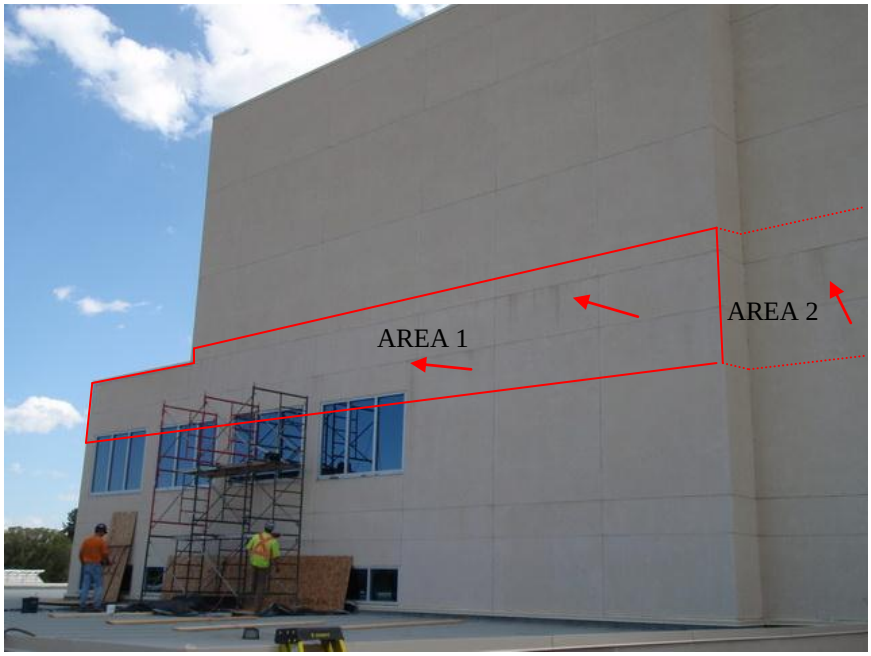
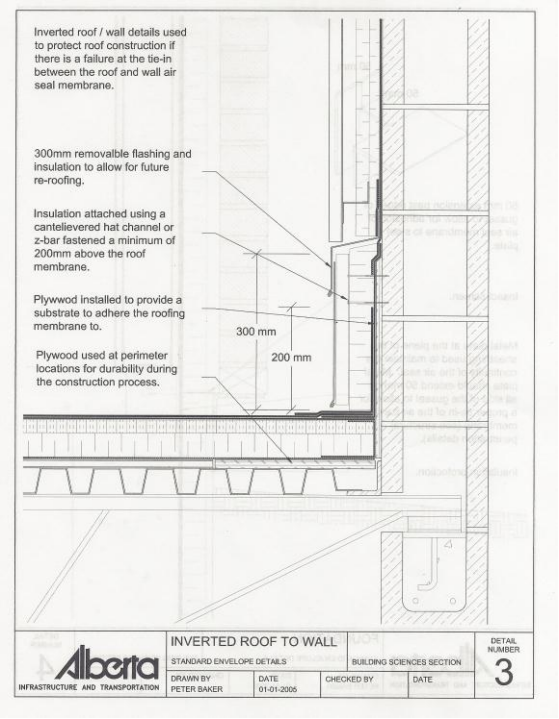


Photo 13: Areas of retrofit 2012. Note staining of the stucco at the horizontal joint in these areas.

5.2 Option 2: While option one addresses the existing known problem area there are some details that we see in the construction that would lead us to be believe that the problem we see today is greater than some water leakage and mold at this location only. These issues may be an indication that the Annex has a greater problem of water leakage.

For instance: a) The SBS membrane installation we have seen does not meet with the manufactures requirements for the use of the membrane as an air barrier.

b) The tie in from the roof to the wall is a poor detail as the roofing ends exterior of the plane of the air seal. The through wall flashing is critical component to ensure a long performing junction between the wall and the roof but it is not accessible for monitoring or repair. The roofing membrane and wall membrane should tie into each other leaving access in the future for reroofing.



Sketch 3: Detail for protected membrane tie-in of roofing to wall.

Photo 14: Example from Regional Roof Inspections The insulation and cladding would continue across the upstand SBS membrane that is sealed to the SBS membrane air seal of the wall above.

c) The tie-in of the building to the vertical veneer walls of the Lab Block appear to butt to the veneer not the plane of air seal which in its case would be the interior drywall or the concrete backup of the stair wells. We would have expected to see a cutting back of the veneer and none is evident.

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Photo 15, 16: These details provide no indication that the continuity of the air seal or water protection of the original building construction and the newer Annex were joined.

6.0 ADDITIONAL POTOGRAPHS


17


18


19


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Photo 17, 18, 19, 20: Mold above windows on north wall third floor. Photo 18 is the mechanical room wall which showed no mold.


21


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Photo 21, 22: Coping detail of lower roof off mechanical room may also be allowing water into the construction of the north wall and the roof.

Photo 23: Window head/jamb showing no mechanical fastening of the SBS membrane to the tube face of the curtain wall with an anti-rotation channel.

Christopher B Makepeace, B. Tech, CET.
Building Science Engineering

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

Canada

Respect ◆ Integrity ◆ Excellence ◆ Leadership

Serving GOVERNMENT, Serving CANADIANS.

Construction Management Services

- For Advisory Services (CMa) and Construction Services (CMc)

TERMS OF REFERENCE DEFINITIONS

Lethbridge Research and Development Centre Laboratory Annex Exterior Envelope Replacement

Lethbridge, Alberta

FOR:

Agriculture and Agri-Food Canada (AAFC)

October 12, 2016

www.pwgsc-tpsgc.gc.ca

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1. DEFINITIONS

1.1 GENERAL

1.1.1 PURPOSE

.1 Terms of Reference (TOR) Definitions.

.1 (TOR) Definitions and General Procedures and Standards documents ensure a clear understanding of the project scope, services and deliverables, procedures and performance requirements.

1.1.2 DEFINITIONS

.1 Acceptance

.1 A formal action taken by a person with assigned authority (contractual or otherwise) to declare that some aspect of the project is permitted to proceed.

.2 Basis of Design (BOD)

.1 Refer to CSA Z320 Article 3, Definitions

.2 A dynamic document throughout the project lifecycle constantly confirming design conformance to the explanation of the ideas, concepts and criteria considered important to the owner as contained in the Owner Performance Requirements (OPR).

.3 Is a documentation of the primary thought processes and assumptions behind design decisions.

.4 Includes descriptions of systems, components, conditions, and methods selected to meet the OPR.

.3 Basis of Estimate (BOE)

.1 A “living” narrative document throughout the project design and construction process and project life cycle.

.2 Prepared and up-dated to facilitate the understanding, assessment and validation of the estimated value breakdowns, independent of any other supporting documentation.

.3 Includes;

.1 Estimate methodology,
.2 Pricing basis, cost data sources, allowances,
.3 Assumptions, exclusions, cost risks assessments,
.4 Opportunities, and any deviations from standard practices,
.5 Record of pertinent communications and agreements that have been made between the estimator and other project stakeholders,
.6 Major changes relative to previous estimates, and
.7 Significant market events that may have an effect on the costs.

.4 Biddability

.1 Collaborative development of strategies to facilitate clear and competitive bids and avoid clams and extra contract administrative service costs.

.2 Includes reviews to analyze the completeness, correctness, compatibility - to project requirements, clarity, and consistency of the collection of plans, specifications, clauses, forms, schedule, and other

documents and references comprising the total solicitation package and the planned contract.

.5 Budget

.1 Built using the Cost Estimates and the Project Schedule.

.2 Provides a view of how much the project is estimated to cost both in total and periodically.

.3 Determines a cost performance baseline used in determining earned performance value analysis and other cost management variance analysis techniques.

.4 Aligned with funding limits to ensure funding availability/appropriation.

.6 Budget/ Estimated Construction Cost Estimate

.1 The Budget identified in the TOR or subsequently in writing by the Departmental Representative.

.2 TOR states, “Construction Cost Estimate”

.7 “Canada”, “Crown”/“Her Majesty”

.1 Her Majesty the Queen in right of Canada.

.8 Commissioning Advisor (PWGSC)

.1 PWGSC Commissioning Advisor is responsible for the oversight of the development, implementation and evaluation of the Commissioning Process.

.2 Completes the final Evaluation Report.

.9 Commissioning Evaluation Report

.1 Cx Manual component.

.2 Prepared by the PWGSC Commissioning Advisor at end of Project Delivery stage, close-out phase.

.3 De-briefing report and including a complete assessment of the project, lessons learned, variances between the actual and planned levels of performance, listing of components and systems not commissioned and the reasons for this; recommended follow-up actions and any other related information.

.10 Commissioning Manual

.1 Refer to CSA Z320 Article 4.9.2, Commissioning manual.

.11 Commissioning Plan

.1 Dynamic document throughout project life cycle.

.2 CM project specific commissioning plan, also refer to CSA Z320 Article 4.2.3 Commissioning Plan.

.12 Commissioning Process

.1 Dynamic document throughout project life cycle.

.2 Refer to CSA Z320 Article 4, Commissioning Process.

.13 Commissioning Process Manager

.1 CM Cx Process Manger, overall responsible for managing the Commissioning Activities to demonstrate that the installed components and systems and overall facility meet the requirements of the OPR and facility design. Includes Cx;

.1 Sequencing;
.2 Means and methods; and
.3 Documentation and related sign-offs.

.2 Manager may require a unique combination of engineering, design fundamentals and building operations knowledge including: energy systems design, installation and operation, commissioning planning and process management, hands-on field experience with energy systems performance, interaction, start-up, balancing, testing, troubleshooting, operation, and maintenance procedures and energy systems automation control knowledge.

.3 Also assumes the role of the “independent Commissioning Authority” and “Commissioning Authority “as addressed in LEED for New Construction and Major Renovations 2009 Rating System, as applicable.

.14 Commissioning Report

.1 Cx Manual Component (at contract Substantial Performance and Completion – post Warranty/Final).

.2 Cx Report (at Substantial Performance) based on;

.1 Final BOD and OPR
.2 Final performance spreadsheets – OPR values to actuals.
.3 Final performance spreadsheets; component, systems and integrated systems - design values to actuals.
.4 Final training sessions,
.5 Post occupancy changes,
.6 Deferred commissioning, and
.7 Current information not available or incomplete at Interim Acceptance/Substantial Performance.

.3 Final Commissioning Report (prior to end of Warranty Period) also includes;

.1 Final Cx Evaluation Report – produced by PWGSC Cx Advisor;
.2 Updated Cx Report from Substantial Performance;
.3 Post-Occupancy test results and evaluations; and
.4 Up-dated Issues/Resolutions Log – highlighting documented Cx resolutions.

.15 Commissioning Risk Assessment

.1 Cx Risk Assessment aligns the rigor of the Commissioning Process with the following 2 risk items associated with Architectural and Engineering systems;

.1 Building: function and performance as outlined in PWGSC Stewardship Excellence Protocols Principles; and
.2 Deliverables: deficiencies, such as; inaccurate as-built documentation, ineffective owner/occupant training, lack of documented system performance testing, and lack of comprehensive systems manuals

.2 Cx Risk Assessment is often summarized in a matrix and accompanied by a basis of assessment narrative.

.3 Premise of Cx Risk Assessment is;

.1 Building type and intended use is guide for Cx risk assessment associated with the intended building systems.
.2 Performance of each system will affect the performance of all other systems, and non-performance places building in a negative impact on function and operational confidence.

.16 Commissioning Team (Cx Team)
.1 Live document throughout project life cycle
.2 At the start of the Cx Process, the identification and definition of the Cx Team composition.
.3 Size and membership varies, dependant on project size, complexity and phase of design and construction.
.4 Objective is for interdisciplinary collaboration to ensure the Cx Process is completed and facility criteria has been achieved.
.5 Offers expanded roles and responsibilities to address project delivery and commissioning tasks
.6 Team make-up may consist of;
.1 Departmental Representative;
.2 User Department Operating Personnel;
.3 Design Consultants (dependant on TOR, including a Cx Process Manager);
.4 CMa/c (dependant on TOR, including a Cx Process Manager); and
.5 Sub-Trade Contractors (and Suppliers).

.17 Constructability
.1 The extent to which the design of the building facilitates ease of construction, subject to the overall requirements for the completed building project.
.2 The effective and timely integration of construction knowledge into the conceptual planning, design, construction, and field operations of a project to achieve the overall project objectives in the best possible time and accuracy at the most cost-effective levels.
.3 The integration of construction knowledge in the project delivery process and balancing the various project and environmental constraints to achieve the project goals and building performance at the optimal level.

.18 Construction Cost Estimate
.1 Estimates costs associated with the work/tender packages or activities within the project schedule.
.1 As compared to Budget – see Definition.
.2 Cost breakdown estimating format as per CIQS best practice;
.1 CSC/CSI ASTM UniFormat II – to 4th level of definition.
.2 CSC/CSI MasterFormat - Divisional and Sectional detail using CIQS best practice; and

.19 Construction Manager (CM)
.1 Under separate contracts the Departmental Representative retains a Design Consultant and a Construction Manager simultaneously.

.2 CM as a subject matter expert in construction provides functional services throughout the specified project life cycle.

.1 Remuneration for CM services may have one or more 'fixed price' components and one or more 'cost reimbursement' components, with some of the services covered by the fixed price(s) and others cost reimbursable.

.3 CM contract, notwithstanding being specified otherwise, includes two (2) functional service types under one contract;

.1 CM, in an Advisory consulting capacity;

.1 Is not held responsible for technical design defects and does not assume any contractual responsibilities or duties of the Design Consultant(s);

.2 Works alongside the Design Consultant as a team member, sharing experience (for example, constructability and sequencing) as the design evolves, taking responsibility for the budget and schedule within the limits as may be also established by the Departmental Representative.

.3 Tenders construction trade packages.

.1 In the case of PWGSC requirement to use mandatory Departmental Procurement Instruments (to procure, for example, furniture and equipment) CM provides procurement and installation support.

.2 CM, Semi – at-Risk in a General Contractor capacity;

.1 Notwithstanding limited Work by Own Forces CM engages trade Subcontractors to perform the Work.

.2 Departmental Representative retains full control of the project scope and budget.

.20 Construction Manager (CM) as Advisor (CMa)

.1 CM as Advisor is a form of Construction Management under which the CM acts as an advisor and support to, the Departmental Representative during Pre-Design, Design, Construction and Closeout by maintaining a working relationship with the Departmental Representative , User Department, the Design Consultant(s) (Architect/Engineers), construction subcontractors, and other consultants supporting the Departmental Representative.

.1 CMa and CMc roles remain interrelated during Construction/ Implementation and Delivery/Closeout Phases

.21 Construction Manager (CM) as Contractor/Constructor (CMc)

.1 See Semi-At-Risk.

.1 CMc and CMa roles remain interrelated during Construction/ Implementation and Delivery/Closeout Phases.

.22 Construction Management (CMa) Plan – Design, Documentation and Construction milestones

.1 CM activities include;

.1 Project execution management;

.2 Staffing plan;

.3 On-site administration;

.4 OPR evolution regarding;
  .1 Performance criteria, program, schedule, construction, cost estimate requirements - each evaluated in terms of the other.
.5 Cost estimates and alternative evaluations
.6 Project schedule, including;
  .1 Milestone and master schedules, phased construction sequencing, Design Consultant required service performance.
.7 Risk and issues Management (RM) input into Departmental Representative RM Plan.
.8 Quality management approach, including;
  .1 Quality design application of PWGSC Stewardship Excellence Protocols Principles;
  .2 QA documentation quality, constructability/biddability, life-cycle data, market factors;
.9 Commissioning (Cx) process development, including;
  .1 Cx risk assessment and Cx cost.
.10 Project delivery methods, including;
  .1 Phased construction and advance procurement;
.11 Trade Sub-Contractors' scope Work (multiple contracts/fast-track construction); and
.12 Meetings

.23 Construction Management (CMc) Plan – Construction milestone.
.1 CM activities include;
  .1 Project execution management;
  .2 Staffing plan
  .3 Co-ordination trade Sub-Contractor(s) Work and CM Work related to Division 01.
  .4 Site mobilization, site facilities and site work verification;
  .5 Environmental and archeological considerations;
  .6 Communication protocol; co-ordination, leadership and establishment of lines of commendation;
  .7 Issues/resolution management
  .8 Meetings: preconstruction, progress and special meetings;
  .9 Time management: master and detailed construction schedules – development and up-dating, slippage recovery and claims avoidance;
  .10 Budget and cost monitoring: tracking, projecting and monitoring;
  .11 Status reporting;
  .12 Progress payment requesting;
  .13 Change Orders;
  .14 RFI tracking
  .15 Claims Management: towards equitable resolutions and minimal disruptions;
  .16 Quality management including field test not part of trade Sub-contractor.
  .17 Commissioning; monitoring, implementation and acceptance of performance testing;
  .18 Furniture, furnishings and equipment related services

.19 Tenant/User related services
.20 Substantial Performance, including Owner occupancy of Partial Substantial Performance.
.21 Final inspection and punch list;
.22 As-Builts;
.23 Project record keeping;
.24 Issues/Resolution Log up-dates; and
.25 LEED management.

.24 Construction Management (CM) Plan - General
.1 Refer to Project Procedures Manual/CM Plan

.25 Construction Management (CM) Project Management Plan (CM-PMP)
.1 Respective roles and responsibilities of various project team members introduce differing management process and procedures. CM, as CMa and CMc, is still responsible for providing quality project management services associated the Required Service and Deliverables – actual or virtual.
.2 PMPs a component management program of the CM Plans – CMa and CMc, Plan.
.1 PMP defines expected management level – management tasks, processes and procedures.
.2 Tasks, processes and procedures are linked to QC metrics.
.3 PMP creates an opportunity to monitor/be aware of other project members' management process and procedures.
.4 PMP consists for at least 3 parts element;
.1 Intended purpose of procedure;
.2 Assignment of primary responsibility to carry out procedure; and
.3 Required steps to carry out procedures.

.26 Constant dollar estimate;
.1 This is an estimate expressed in terms of the dollars of a particular base fiscal year.
.1 It includes no provision for inflation.
.2 Cash flows over a number of fiscal years may also be expressed in constant dollars of the base year including no allowance for inflation in the calculation of costs.
.3 Current Dollar estimate:
.1 Budget year dollars is also be referred to as Nominal dollars or Budget Year dollars.
.2 This is an estimate based on costs arising in each FY of the project schedule.
.3 It is escalated to account for inflation and other economic factors affecting the period covered by the estimate.
.4 The costs and benefits across all periods should initially be tabulated in budget year dollars for the following reasons;
.1 First; this is the form in which financial data are usually available,
.2 Second; adjustments, such as tax adjustments, are

accurately and easily made in budget year dollars,

.3 Finally; working in budget-year dollar enables the analyst to construct a realistic picture over time, taking into account changes in relative prices.

.27 Construction Manager's (CM)/Contractor's Percentage Fee

.1 Refer to Contract Documents; Supplementary Conditions (SCs) and General Condition (GCs)

.28 Consultant Team

.1 An architectural or engineering firm and their sub-consultants and professionals and advisors with whom PWGSC has contracted to provide other services on this project.

.29 Current Dollar estimate:

.1 Budget year dollars is also be referred to as Nominal dollars or Budget Year dollars.

.2 This is an estimate based on costs arising in each FY of the project schedule.

.3 It is escalated to account for inflation and other economic factors affecting the period covered by the estimate.

.4 The costs and benefits across all periods should initially be tabulated in budget year dollars for the following reasons;

.1 First; this is the form in which financial data are usually available,

.2 Second; adjustments, such as tax adjustments, are accurately and easily made in budget year dollars,

.3 Finally; working in budget-year dollar enables the analyst to construct a realistic picture over time, taking into account changes in relative prices.

.30 Departmental Representative

.1 Means the person designated in the Contract, or by written notice to the Contractor, to act as the Departmental Representative for the purposes of the Contract, and includes a person designated and authorized in writing by the Departmental Representative to the Contractor.

.31 Design Development

.1 Subsequent to the Consultant's Schematic Design, the Design Development process provides a method to:

.1 Coordinate and resolve the design of all major components associated with architectural, structural, mechanical, and electrical;

.2 Prepare an outline project specifications including an initial Cx focused testing procedures and check sheets/forms document related to;

.1 Static Verification,

.2 Start-up,

.3 Functional Performance Testing.

.3 Perform preliminary modeling and simulations (such as energy analysis and daylight simulation); and

.4 Update of the construction and commissioning cost estimates.

.2 The Design Consultants Design Report is of sufficient detail to assist Cx Process Manager with the ongoing development of the initial Cx Plan that also updates;

.1 Commissioning activities based on risk and complexity,

.2 Construction Cx cost.

.32 Facility Turnover

.1 CSA Z320 Article 4.7, Facility Turnover Activities.

.33 Integrated Project Delivery Workshops

.1 Mechanism that enables early and ongoing engagement of a project team to provide a better designed, constructed cost effective and timely project.

.2 Early engagement of the CM allows for the potential of early starts in the construction sequence, as the design is proceeding.

.34 Interim acceptance

.1 Refer to CSA Z320 Article 4.6, Interim Acceptance

.2 Interim Acceptance will be synonymous with Substantial Completion as GC's of the Consultant Contract.

.35 Issues Log

.1 Issues/Resolution Log contains description of project issues and/or variances ranging from specifics such as with the Owner Project Requirements (OPRs) to general design and construction and related processes.

.1 On an ongoing basis the log maintains status of current and resolved issues.

.2 Issues are identified and tracked as encountered during all design phases, construction and operations of the facility.

.3 Issues Log is also included as part of the monthly construction phase reporting on the Cx Plan.

.1 For information to be documented refer to ASHRAE Guideline, The Commissioning Process.

.36 Leads (as per Roles and Responsibilities Matrix)

.1 Facilitates activity and is accountable for the resultant final documentation delivery.

.37 Master Schedule

.1 Component of each up-dated Project Procedures Manual

.2 Master Schedule is produced by and is the responsibility of the CM-A/C with input from the Design Consultant team and Departmental Representative.

.3 An authoritative project schedule to which all other schedules roll up and are coordinated.

.4 Prepared using Microsoft Project to develop/prepare;

.1 Detailed network diagrams, with work breakdown structures and Key milestones listings;

.2 Critical Paths for all key activities, with key milestone dates and lead times for each activity.

.1 Gantt Charts require Department Representative agreement.

.3 An anticipated start and completion dates for all design and construction activities, linked by interdependence on activities that must be completed prior to the start of a subsequent activity.

.4 Separate schedules for each tender package and incorporated into the Master Schedule.

.5 Schedule process and software has the capability of tracking changes.

.38 Move Plan

.1 Identifies move tasks, dependencies and task duration

.2 Explores potential move optimization and risk minimization

.3 Includes phasing, specific timeline/Gantt chart, order and process for relocations, hoteling (office) and final moves.

.39 Move Process

.1 Requires co-ordination with User Department process and protocols, including;

.1 Resource and a Roles and Responsibilities matrix

.2 Move activities and logistics associated with;

.1 Pre-Move - supply of boxes, packing, data labeling requirements.

.2 Move Day - preventative operational downtime logistics.

.3 Post Move – unpacking and walkthroughs

.4 IT Moves – equipment/infrastructure disconnect/reconnect.

.3 Meetings Schedule

.4 Checklists

.5 Occupational Health and Safety – Canada Labour Code

.40 Owner Project Requirements (OPR)

.1 A dynamic document throughout the project lifecycle that provides the explanation of the ideas, concepts and criteria considered important to the owner.

.2 OPRs are project specific and include quantifiable and measurable performance benchmarks that when the project is also commissioned, it is confirmed that owner's objectives have been met to the greatest extent possible. (Also refer to CSA Z320 Article 3, Definitions.)

.41 Own Forces

.1 Supplementary Conditions (to the GCs), SC – Soliciting Bids and the TOR establish limits to the value of individual construction work packages for which the CM is allowed to submit tenders.

.1 Intent is to limit to Own Forces to advisory, coordination and services as a contractor

.2 CM own work force not subject to competitive bidding often includes conducting limited amount of construction not included in trade contract work, such as temporary facilities and services (e.g. hoarding, temporary heat, site office, power, water, security, hoisting, etc.) clean-up, miscellaneous cutting, patching, blocking, and other similar when permitted by Departmental Representative.

.42 Participates

.1 As per Roles and Responsibilities Matrix)

.1 Responsibility to participant in the activity and/or deliverable.

.43 Partnering Session Workshops

.1 Workshop led by the Departmental Representative with all project stakeholders addressing;

.1 Role and responsibilities,

.2 Rules of engagement,

.3 Project status, goals, objectives, elements, scope, funding preliminary schedule,

.4 Project risks and development of initial risk management plan,

.5 Review of existing available documentation and site,

.6 Schedule biweekly (or as otherwise determined by Departmental Representative) project and milestone meetings, and

.7 Establish communication and document control plan.

.2 CM as part of the design team is responsible for matters such as the Master Schedule and Commissioning Plan and provides input into matters such as, phasing, constructability, availability of material and equipment.

.44 Permits and Fees

.1 Refer to Contract Documents; General Conditions (GCs).

.45 Project Procedures Manual (PPM) – CM Plan (CMa/CMc Plans)

.1 Live document throughout project life cycle.

.2 PPM intent to enforce mutually agreed upon (CM and Departmental Representative) policies, procedures, standards of practices, basic systems and measures for evaluating performances, to be linked to various task elements of various Plans and Deliverables.

.3 Integral component to the PPM is the CM Plan.

.1 The CM Plan is dynamic and establishes how the design, construction and closeout process will be structured to deliver a Project on time, budget, scope and quality

.2 CM Plan is structured as separate CMa and CMc Plans to reflect the respective service categories.

.1 Task elements of each CM Plan are implemented by applying CM industry project management practices; CM Project Management Plan is a component of the CM Plans – see (CM) Project Management Plan (CM-PMP) Definition.

.4 Includes related items such as;

.1 Organization and communication charts;

.2 Quality Management Plan (QMP) - see Definition;

.3 Quality assurance procedures and documentation plan to determine for example documentation completeness and suitability, testing, inspection and submissions requirements;

.4 Master Schedule complete with a detailed Work Breakdown Structure,

.5 Master Cost Plan including;

.1 Cost estimating, control and management techniques,

.6 Risk management;

.7 Bid packaging description and contracting strategy;

.8 Division 01 work and site mobilization;

.9 Commissioning Plan;

.10 Record management plan (including e-mails) establishing procedure regarding collection recording, tracking, access and storage;

.11 Tender package reviews, acceptance, change orders billing;

.12 Safety management – preparation, update monitoring maintenance and incidence response and reporting;

.46 PWGSC Cx Advisor

.1 Government commissioning liaison amongst all project stakeholders and reports to the Departmental Representative.

.2 A Cx Team member.

.3 Provides due diligence overview.

.4 Responsible for delivering the Final Cx Evaluation Report.

.47 Quality

.1 The degree to which the Work meets or exceeds the Project requirements and expectations.

.48 Quality Management Plan (QMP)

.1 Component of Project Procedures Manual;

.1 Live document throughout project life cycle.

.2 QMP is an output of a Quality Planning (QP) process in collaboration with the Departmental Representative and therefore is an integral part of the Departmental Representative and CM Project Management plans (PMP).

.1 Similarly, as part of QP process/activity, Consultants and Contractors develop their respective PMPs and QMPs in support of each other processes and in support of the Departmental Representative's PMP.

.3 Describes how Quality will be managed during CMa and CMc Required Services; Scope and Activities and Deliverables throughout the project life cycle.

.1 Includes procedures for continuous process monitoring quality improvement.

.4 Identifies/confirms, quantifiable and measureable, quality related, performance requirements to be achieved for both the management of the project or process and the management of the product or outcome.

.5 Determines method if deliverables are being produced to an acceptable quality level and if the project design, procurement and construction processes used to manage and create deliverables are effective and appropriate.

.6 Consists of four (4) continuously Interrelated Processes with respective supporting plans and accompanying detail to be link CMa and CMc

respective tasks/deliverables;

.1 Quality Planning (QP)
  .1 Process of identifying/confirming quality requirements and/or standards for the project and deliverables, and documenting how the project will demonstrate compliance.
  .2 Process of reviewing project processes and supporting deliverables and detailing their corresponding quality standards in the Quality Assurance (QA) and Quality Control (QC) of the QMP.
  .3 Process of establishing, for example, Quality related standards, metrics, checklists and problem remediation strategies.
  .4 Deliverables, such as; Quality Metrics and Scope, Cost, Schedule and Risk Management Plans and base-line performance narratives.
    .1 Refer to TOR for project specific related Deliverables.

.2 Quality Assurance (QA) Plan
  .1 Process of identifying, assessing, responding to, monitoring and controlling project Quality
  .2 Process of iterative reviews, providing confidence that quality requirements are being fulfilled and confirming Quality Control (QC) program effectiveness.
  .3 Process of establishing for example data collection, distribution and response organization/structure for planning data collection.
  .4 Deliverables, such as; Design and Construction review commentaries, Site Reviews/Inspections and Issues/Resolution Logs.
    .1 Refer to TOR for project specific related Deliverables.

.3 Quality Control (QC) Plan
  .1 Process of developing procedures, systems and controls to address unexpected conditions internal and external to the project.
  .2 Process of monitoring project deliverables to verify that the deliverables are of acceptable quality, complete and correct.
  .3 Process of for maintaining and retrieving records
  .4 Deliverables, such as; Deliverables schedules, QC tools and methodologies, Guidelines (for routine technical activities - reviews, testing, inspections and action) and QC Reporting
    .1 Refer to TOR for project specific related Deliverables.

.4 Independent Verification and Validation Plan (IV&VP)
  .1 Process of evaluating project and deliverables by an independent third party (outside the project process), to confirm they meet specified requirements (verification), and meet the needs of the intended target performance/audience (validation).
  .2 Process for high risk and complex projects.
  .3 Deliverables, refer to TOR if project determined to be high risk and complex.

.7 Ccompliance with an overall project QMP, principles and objectives, is the shared responsibility of all project personnel including mutually supporting Design Consultant's and Construction Manager's respective QMPs.

.49 Quality Control (QC) Methodologies and Tools

.1 CM Project Management Plan component

.2 Application of Interrelated Process of the Quality Management Plan (QMP), involve;

.1 Availability and cost comparisons of construction materials;
.2 Project costs and expenditures;
.3 Project schedule and progress;
.4 Methods of construction and constructability;
.5 Scope and quality of design and construction materials and systems;
.6 Alternative approaches to completing the Work;
.7 Change and Change Order control;
.8 Life Cycle Cost analysis;
.9 Sustainability;
.10 Cx Plan;
.11 Value Engineering;
.12 Risk Management; and
.13 Claims Avoidance.

.50 Quality Control (QC) Process and Metrics Manual.

.1 CM Project Management Plan component.

.2 QC Processes and metrics forecast or evaluate management and deliverables.

.3 Application of Interrelated Process of the Quality Management Plan (QMP), involve;

.1 Development of project activities to be executed.
.2 Description of procedures, roles and responsibilities and levels of authority.
.3 Documentation; type, outline formats and corresponding reporting schedules.
.4 Application of QC process, methods and metrics to:

.1 Project management program;
.2 Monitor the project and report (as per a schedule);
.3 Maintain project records;
.4 Implement a Quality Assurance program;
.5 Prepare, update, monitor and maintain the Master Schedule;
.6 Update, monitor and maintain the Cost Plan, Progress Payments, Change Orders and Cash Flow;
.7 Manage communications as directed by the Departmental Representative between Project Delivery Team participants based upon the documented roles, responsibilities and authority of Team members, and maintain a listing of meetings, frequency, type, etc.;
.8 Manage correspondence, reports and performance records;

.9 Distribute correspondence electronically;

.10 Process Shop Drawings;

.11 Document the process for reviews and approvals of Tender Package Contracts and change orders; and

.12 Maintain a decision log during the construction of the project, recording participants, date and place of all decisions affecting schedule, budget, scope, or quality.

.51 Risk Management Program

.1 Project Procedures Manual (PPM) component

.2 An articulated approach or framework to identifying risk and its impact in advance and managing the risk with a goal of reducing, transferring or avoiding risk where appropriate.

.3 Program is designed in collaboration with Departmental Representative (D/R) on the basis of the D/R's Risk Management Plan developed as per the PWGSC National Project Management System (NPMS).

.52 Roles and Responsibility Matrix

.1 Establishes pre-construction, construction and project closeout roles and responsibilities.

.2 Communication activities, consensus building, project team reviews, conceptual design, data gathering, documentation, and formal public notice are planned by the appropriate responsible party and coordinated with all team members. Overlapping accomplishment and parallel paths of activity are to be planned to finish the respective development phase in accordance with the shortest possible schedule.

.3 It is not the intent of the summarized Roles and Responsibilities be exclusive of overall contractual services to thereby alleviate CM's obligations.

.53 Schematic Design

.1 Subsequent to the Consultant's BOD document, the Schematic Design process provides a method to fully investigate and fine tune the Owner's planning and technical requirements before beginning Design Development.

.2 Detail includes preliminary selection of assemblies, systems and load calculations.

.3 The Design Consultants Schematic Design Report is of sufficient detail to assist CM with the further development of the CM Plan/Project Procedures Manual.

.54 Semi-at-Risk [1]

.1 A more common PWGSC/NPMS term for CM Contracts including CMa and/or CMc Required Services.

.2 CM as Contractor safely facilitates and coordinates the Work and the trade work to maximize quality, limit the schedule and prioritize costs

.3 CM as Contractor is a form of Construction Management under which the CM enters into multiple trade contracts with the trade Subcontractors and Suppliers and is;

.1 Solely responsible for the construction means, methods,

sequences and procedures used in construction of the project and for related quality performance.

.2 Accountable for contracting risks inherent in each of the trade contracts and assumes responsibility for the performance of the trade contracts (subcontracts), much as a general contractor would under the traditional method (design/bid/build), and is paid for the trade contract work on a cost reimbursement basis.

.4 CM preforms' project management planning, cost management, time management, quality management, contract administration and safety management.

.55 Stewardship Excellence Protocols Principles.

.1 Creativity and Technical Competence;

.1 Create solutions in accordance with good design principles with an ingenious and productive team.

.2 Functional Suitability;

.1 Appropriate for use and place. Fit-for-purpose solutions.

.3 Whole-of-Life Performance;

.1 Enhanced long-term economic advantage and value;

.4 Health, Safety and Security;

.1 Health, safe and comfortable workplace.

.5 Inspiring and Attractive;

.1 Expression of civic significance, cultural values and sense of place;

.6 Appropriate Innovation;

.1 Ingenious solutions in response to current and future needs and changing uses; and

.7 Sustainable and Enduring;

.1 Environmentally responsive, timeless and durable solutions.

.56 Sub-Project

.1 User Department project work by a Departmental Service Provider, coordinated delivery in a main capital works project.

.1 For example, IT works

.57 Systems

.1 Refer to CSA Z320 Article, 5 Specific systems.

.58 Work

.1 Refer to Contract Documents; General Conditions (GCs).

---------- END ----------

Public Works and Government Services Canada
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Canada

Respect ◆ Integrity ◆ Excellence ◆ Leadership

Serving GOVERNMENT, Serving CANADIANS.

Construction Management (CM) Services

– For Advisory Services (CMa) and Construction Services (CMc)

DIVISION 01
GENERAL REQUIREMENTS

Lethbridge Research and Development Centre Laboratory Annex Exterior Envelope Replacement

Lethbridge, Alberta

FOR:

Agriculture and Agri-Food Canada (AAFC)

October 12, 2016

www.pwgsc-tpsgc.gc.ca

Table of Contents:

1. DIVISION 01 – GENERAL REQUIREMENTS

1.1 GENERAL

1.1.1 MASTERFORMAT

.1 Division 01, General Requirements are structured using MasterFormat 2010" Section title numbering system.

1.1.2 DIVISION 01 – CM AS "GENERAL" CONTRACTOR (CMC)

.1 Perform the Work in accordance with contract documents including, Division 01 requirements below.

1.1.3 DIVISION 01 – CM AS CMC, TENDERING FOR SUB-CONTRACTORS

.1 Division 01 directed at Sub-Contractor(s)/Sub-Trade(s);

.1 Prepare for each tender package, with the PWGSC Design Consultant, a tender specific, Division 01 requirements using the PWGSC/NRC, National Master Specifications (NMS) latest data base version.

1.2 01 11 00 – SUMMARY OF WORK

1.2.1 WORK SEQUENCE

.1 Construct Work in stages to accommodate Departmental Representative's continued use of the site and existing surrounding premises during construction.

.2 Maintain fire access/control.

1.2.2 WORK BY OTHERS

.1 Co-operate with other Contractors in carrying out their respective works and carry out instructions from Departmental Representative.

.2 Co-ordinate work with that of other Contractors. If any part of work under this Contract depends for its proper execution or result upon work of another Contractor, report promptly to Departmental Representative, in writing, any defects which may interfere with proper execution of Work.

1.2.3 CONSTRUCTION MANAGER USE OF PREMISES

.1 Restricted use of site and premises as directed by Departmental Representative until Substantial Performance.

.2 Limit use of premises for Work, and for storage.

.3 Utilize indicated Laydown Area for all storage, all vehicle and equipment parking, and all site offices and trailers.

.4 Maintain Laydown Area to prevent dusting and mud.

.5 Make good Laydown Area to original condition, composition, nature and character upon completion of Work.

.6 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.

1.2.4 DEPARTMENTAL REPRESENTATIVE FURNISHED ITEMS

.1 Construction Manager Responsibilities:

.1 Disassemble, ship and reassemble all items being relocated;

.2 Arrange for replacement of damaged, defective or missing items;

.3 Designate submittals and delivery date for each product in progress

schedule;

.4 Review shop drawings, product data, samples, and other submittals. Submit to Departmental Representative notification of observed discrepancies or problems anticipated due to non-conformance with Contract Documents;

.5 Receive and unload products at site;

.6 Inspect deliveries jointly with Departmental Representative; record shortages, and damaged or defective items;

.7 Handle products at site, including uncrating and storage;

.8 Protect products from damage, and from exposure to elements;

.9 Assemble, install, connect, adjust, and finish products;

.10 Provide installation inspections required by public authorities; and

.11 Repair or replace items damaged by Construction Manager or subcontractor on site.

1.2.5 EXISTING SERVICES

.1 Notify, Departmental Representative and utility companies of intended interruption of services and obtain required permission.

.2 Where Work involves breaking into or connecting to existing services, give Departmental Representative 7 days' notice for necessary interruption of mechanical or electrical service throughout course of work. Minimize duration of interruptions. Carry out work at times as directed by governing authorities with minimum disturbance to pedestrian and vehicular traffic and Departmental Representative's operations.

.3 Provide alternative routes for personnel, pedestrian and vehicular traffic.

.4 Establish location and extent of service lines in area of work before starting Work. Notify Departmental Representative of findings.

.5 Submit schedule to and obtain approval from Departmental Representative for any shut-down or closure of active service or facility including power and communications services. Adhere to approved schedule and provide notice to affected parties.

.6 Provide temporary services to maintain existing buildings' systems.

.7 Provide adequate bridging over trenches which cross sidewalks or roads to permit normal traffic.

.8 Provide traffic control in the event of one lane access.

.9 Where unknown services are encountered, immediately advise Departmental Representative and confirm findings in writing.

.10 Protect, relocate or maintain existing active services. When inactive services are encountered, cap off in manner approved by authorities having jurisdiction.

.11 Record locations of maintained, re-routed and abandoned service lines.

.12 Construct barriers in accordance with Section 01 56 00.

.13 Provide and maintain for purposes of the Work access road within construction area for Construction Manager's own construction vehicles, equipment and material access.

1.2.6 DOCUMENTS REQUIRED

.1 Maintain at job site, one copy each document as follows:

- .1 Contract Drawings.
- .2 Specifications.
- .3 Addenda.
- .4 Reviewed Shop Drawings.
- .5 List of Outstanding Shop Drawings.
- .6 Change Orders.
- .7 Other Modifications to Contract.
- .8 Field Test Reports.
- .9 Copy of Approved Work Schedule.
- .10 Health and Safety Plan and Other Safety Related Documents.
- .11 Material and Safety Data Sheets.
- .12 Labour conditions and Wage Schedules.
- .13 Material and Labour Bonds.
- .14 Manufacturers' applicable instructions.
- .15 Municipal and Provincial Permits.
- .16 Other documents as specified.

1.3 01 14 00 – WORK RESTRICTIONS

1.3.1 ACCESS AND EGRESS

.1 Design, construct and maintain temporary "access to" and "egress from" work areas, including stairs, ramps or ladders and scaffolding, independent of finished surfaces and in accordance with relevant municipal, provincial and other regulations.

1.3.2 SPECIAL REQUIREMENTS

.1 Check in at indicated Check Point at all times of entry and exit from the Work Site and Laydown areas.

.2 Perform work during normal working hours from 07:30 to 16:00 hours Monday to Friday.

.3 Deliver materials from 07:30 hours to 16:30 hours unless otherwise approved by Departmental Representative.

.4 Submit schedule in accordance with Section 01 32 15.

.5 Ensure that Construction Manager personnel employed on site become familiar with and abide by regulations including safety, fire, traffic and security regulations.

.6 Keep within Limits of Work and ingress and egress access.

.7 Keep within Limits of Site.

1.3.3 SECURITY CLEARANCES

.1 Personnel employed on this project will be subject to security checks.

1.3.4 BUILDING SMOKING RESTRICTIONS

.1 Comply with smoking restrictions. Smoking is not permitted.

1.4 01 29 00 – PAYMENT PROCEDURES

1.4.1 APPLICATION FOR PROGRESS PAYMENT

.1 Submit to Department Representative, at least 14 days before first application for payment, Cost Breakdown, in detail as directed by Department Representative, for parts of Work, aggregating total amount of each Contract Amount, so as to facilitate evaluation of applications for payment. After approval by Department Representative, Cost Breakdown will be used as basis for progress payments.

.2 Support claims for products delivered to Place of Work but not yet incorporated into Work by such evidence as Department Representative may reasonably require to establish value and delivery of products.

1.5 01 29 83 – PAYMENT PROCEDURES: TESTING LABORATORY SERVICES

1.5.1 APPOINTMENT AND PAYMENT

.1 Obtain and pay for services of an accredited inspection/testing laboratory for:

.1 Inspection and testing required by laws, ordinances, rules, regulations or orders of public authorities.

.2 Inspection and testing performed exclusively for the Construction Manager's convenience.

.3 Testing, adjustment and balancing of conveying systems, mechanical and electrical equipment and systems.

.4 Commissioning performance testing and verification.

.5 Mill tests and certificates of compliance.

.6 Tests specified to be carried out by the Construction Manager.

.2 Where tests or inspections by an accredited testing laboratory reveal Work not in accordance with contract requirements, pay costs for additional tests or inspections as required by Departmental Representative to verify acceptability of corrected work.

.3 Inspection/testing agencies engaged by the Construction Manager shall be reviewed by and be acceptable to the Departmental Representative.

.4 The Departmental Representative, at the Departmental Representative's expense, may also engage inspection/testing agencies as may be deemed required.

1.5.2 CONSTRUCTION MANAGER'S RESPONSIBILITIES

.1 Provide, for Construction Manager's and Departmental Representative's inspection/testing agencies, labour, equipment and facilities to:

.1 Provide access to Work to be inspected and tested.

.2 Facilitate inspections and tests.

.3 Make good Work disturbed by inspection and test.

.4 Provide storage on site for laboratory's exclusive use to store equipment and cure test samples.

.5 Notify the Departmental Representative sufficiently in advance of operations to allow for assignment of laboratory personnel and

scheduling of test.

.6 Where materials are specified to be tested, deliver representative samples in required quantity to testing laboratory.

.7 Pay costs for uncovering and making good Work that is covered before required inspection or testing is completed and approved by the Departmental Representative.

1.6 01 31 19 – PROJECT MEETINGS

1.6.1 ADMINISTRATIVE

.1 Schedule and administer project meetings throughout the progress of the work.

.2 Prepare agenda for meetings.

.3 Distribute written notice of each meeting four days in advance of meeting date to the Departmental Representative.

.4 Provide physical space and make arrangements for meetings.

.5 Preside at meetings.

.6 Record the meeting minutes. Include significant proceedings and decisions. Identify actions by parties.

.7 Reproduce and distribute copies of minutes within three days after meetings and transmit to meeting participants and, affected parties not in attendance and Departmental Representative.

.8 Representative of Construction Manager, Subcontractor and suppliers attending meetings will be qualified and authorized to act on behalf of party each represents.

1.6.2 PRECONSTRUCTION MEETING

.1 Within 7 days after each Contract award, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.

.2 Departmental Representative, Construction Manager, major Subcontractors, field inspectors and supervisors will be in attendance.

.3 Establish time and location of meeting and notify parties concerned minimum 5 days before meeting.

.4 Incorporate mutually agreed variations to Contract Documents into Agreement, prior to signing.

.5 Agenda to include:

.1 Appointment of official representative of participants in the Work.

.2 Schedule of Work: in accordance with Section 01 32 15.

.3 Schedule of submission of shop drawings, samples, colour chips, product data. Submit submittals in accordance with Section 01 33 00.

.4 Commissioning

.5 Requirements for temporary facilities, site sign, offices, storage sheds, utilities, fences in accordance with Section 01 52 00.

.6 Delivery schedule of specified equipment in accordance with Section.

.7 Site security in accordance with Section 01 56 00.

.8 Proposed changes, change orders, procedures, approvals required,

mark-up percentages permitted, time extensions, overtime, administrative requirements.

.9 Departmental Representative provided products.

.10 Record drawings in accordance with Section 01 33 00.

.11 Maintenance manuals in accordance with Section 01 78 00.

.12 Take-over procedures, acceptance, warranties in accordance with Section 01 78 00.

.13 Monthly progress claims, administrative procedures, photographs, hold backs.

.14 Appointment of inspection and testing agencies or firms.

.15 Insurances, transcript of policies.

1.6.3 PROGRESS MEETINGS

.1 During course of Work schedule separate construction and commissioning progress meetings every two weeks.

.2 Construction Manager, major Subcontractors involved in Work and Departmental Representative are to be in attendance.

.3 Notify parties minimum 5 days prior to meetings.

.4 Record minutes of meetings and circulate to attending parties and affected parties not in attendance within 2 days after meeting.

.5 Agenda to include the following items such as:

.1 Review, approval of minutes of previous meeting.

.2 Review of Work progress since previous meeting.

.3 Field observations, problems, conflicts.

.4 Problems which impede construction schedule.

.5 Review of off-site fabrication delivery schedules.

.6 Corrective measures and procedures to regain projected schedule.

.7 Revision to construction schedule.

.8 Progress schedule, during succeeding work period.

.9 Review submittal schedules: expedite as required.

.10 Commissioning.

.11 Maintenance of quality standards.

.12 Review proposed changes for effect on construction schedule and on completion date.

.13 Health and Safety

.14 Other business.

1.7 01 32 15 – CONSTRUCTION PROGRESS SCHEDULES

1.7.1 GENERAL

.1 Use a project management control system based on Critical Path Method (CPM) and Bar (GANTT) Chart techniques as may be required and agreed upon by Departmental Representative to achieve project Work demands.

.2 Schedule reviews by Departmental Representative shall not mean approval of detail inherent in schedule, responsibility for which lies with Construction Manager.

1.7.2 DEFINITIONS

.1 Master Plan: summary-level schedule that identifies major activities and key milestones.

.2 Project Plan: formal, approved document used to guide both Project execution and Project control. Primary uses of Project plan are to document planning assumptions and decisions, facilitate communication among stakeholders, and document approved scope, cost, and schedule baselines. Project plan may be summary or detailed.

.3 Project Schedule: planned dates for performing activities and planned dates for meeting milestones.

.4 Risk: uncertain event or condition that, if it occurs, has positive or negative effect on Project's objectives.

.5 Work Breakdown Structure (WBS): deliverable-oriented grouping of project elements that organizes and defines total Work scope of Project. Each descending level represents increasingly detailed definition of Project Work.

1.7.3 SYSTEM DESCRIPTION

.1 Construction Progress Schedule (Project Time Management): describes processes required to ensure timely completion of Project. These processes ensure that various elements of Project are properly coordinated. It consists of planning, time estimating, scheduling, progress monitoring and control.

.2 Project monitoring and reporting: as Project progresses, keep team aware of changes to schedule, and possible consequences. In addition to Bar Charts and CPM networks, use narrative reports to provide advice on seriousness of difficulties and measures to overcome them.

.3 Narrative reporting begins with statement on general status of Project followed by summarization of delays, potential problems, corrective measures and Project status criticality.

1.7.4 SCHEDULE REQUIREMENTS

.1 Ensure Master Plan and Detail Schedule are practical and remain within specified Contract duration.

.2 Acceptance of Master Plan and Detail Schedule showing scheduled Contract duration shorter than specified Contract duration does not constitute change to Contract. Duration of Contract may only be changed through bilateral Agreement.

.3 Consider Master Plan and Detail Schedule showing Work completed in less than specified Contract duration, to have float.

.4 Calculate dates for completion milestones from Plan and Schedule.

.5 Delays to non-critical activities, those with float may not be basis for time extension.

.6 Allow for and show Master Plan and Detail Schedule adverse weather conditions normally anticipated. Specified Contract duration has been predicated assuming normal amount of adverse weather conditions.

.7 Provide necessary crews and manpower to meet schedule requirements for performing Work within specified Contract duration. Simultaneous use of multiple crews on multiple fronts on multiple critical paths may be

required.

.8 Arrange participation on and off site of Construction Manager's Contractors, Own Forces and suppliers, as required by Departmental Representative for purpose of network planning, scheduling, updating and progress monitoring. Approvals by Departmental Representative of original networks and revisions do not relieve Construction Manager from duties and responsibilities required by Contract.

.9 Substantial Completion Certificate and Final Certificate as defined times of completion are of essence of this contract.

1.7.5 SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00.

.2 Submit preliminary construction progress schedule and Commissioning Schedule within 14 days of contract award to Departmental Representative for review.

.3 Coordinate with Departmental Representative's project schedule.

.4 After review, revise and resubmit schedule to comply with revised project schedule.

.5 During progress of Work revise and resubmit as directed by Departmental Representative.

.6 Submit to Departmental Representative Project Control System for planning, scheduling, monitoring and reporting of project progress.

.7 Submit Project Control System to Departmental Representative for approval; failure to comply with each required submission, may result in progress payment being withheld in accordance with Federal Government's Terms of Payment.

.8 Refer to article "Progress monitoring and reporting" of this specification Section for frequency of Project control system submittals.

.9 Submit Project planning, monitoring and control system data as required by Departmental Representative in following form.

.1 CD files in specified here in original scheduling software containing schedule and cash flow information, labelled with data date, specific update, and person responsible for update.

.2 Master Plan Bar Chart.

.3 Construction Detail schedule Bar Chart.

.4 Listing of project activities and tender packages including milestones and logical connectors, networks from Project start to end. Sort activities by activity identifier and accompany with descriptions. List early and late start and finish dates together with durations, codes and float time.

.5 Criticality report listing activities and milestones with days total float.

.6 Progress report in early start sequence, listing for each trade or tender package, activities due to start, underway, or finished within two months from monthly update date. List activity identifiers, description and duration.

1.7.6 QUALITY ASSURANCE

.1 Use experienced personnel, fully qualified in planning and scheduling to

provide services from start of construction to Final Certificate, including Commissioning.

1.7.7 PROJECT MEETING

.1 Meet with Departmental Representative within 5 working days of each Award of Sub-Contract or Own Forces date, to establish Work requirements and approach to project construction operations.

1.7.8 WORK BREAKDOWN STRUCTURE (WBS)

.1 Prepare construction Work Breakdown Structure (WBS) within 5 working days of Award of Sub-Contract or Own Forces date.

1.7.9 PROJECT MILESTONES

.1 Project milestones include:

- .1 Award.
- .2 Submissions such as shop drawings and samples.
- .3 Mock-ups.
- .4 Permits.
- .5 Mobilization and demobilization.
- .6 Demolition.
- .7 Tender Packages/Own Forces Work.
- .8 Excavation.
- .9 Backfill.
- .10 Substructure.
- .11 Superstructure such as steel.
- .12 Concrete Work.
- .13 Building closed-in.
- .14 Interior finishing including fitting and millwork.
- .15 Fire Suppression.
- .16 Plumbing.
- .17 HVAC.
- .18 Electrical.
- .19 Communications.
- .20 Electronic safety and security.
- .21 Earthwork.
- .22 Exterior improvements.
- .23 Commissioning
  - .1 Components
  - .2 Systems
  - .3 Integrated Systems
  - .4 Final Commissioning Report
- .24 Training
- .25 Partial Interim and Interim Certificate(s) of Completion.
- .26 Final Certificate Completion.

1.7.10 MASTER PLAN

.1 Structure and base construction progress/ networks system on WBS coding.

.2 Prepare comprehensive construction Master Plan and dependent Cash Flow Projection within 5 working days of finalizing agreement proceed with construction.

.1 Master Plan will be used as baseline.

.1 Departmental Representative will review and return revised baseline within 10 working days.

.3 Reconcile revisions to Master Plan and Cash Flow Projections with previous baseline to provide continuous audit trail.

.4 Initial and subsequent Master Plans will include:

.1 CD containing schedule and cash flow information, clearly labeled with data date, specific update, and Construction Manager's person responsible for update.

.2 Bar chart identifying coding, activity durations, early/late and start/finish dates, total float, completion as percentile, current status and budget amounts.

.3 Network diagram showing, activity sequencing (logic), total float, early/late dates, current status and durations.

.4 Actual/projected monthly cash flow: expressed annually and monthly and shown in both graphical and numerical form.

1.7.11 DETAIL SCHEDULE

.1 Provide detailed project schedules within 5 working days of agreement to proceed with construction, showing activity sequencing, interdependencies and duration estimates. Include listed activities as follows:

.1 Shop drawings.

.2 Samples.

.3 Approvals.

.4 Procurement.

.5 Construction.

.6 Installation.

.7 Site works.

.8 Testing.

.9 Commissioning and acceptance.

.2 Relate Detail Schedule activities to basic activities and milestones developed and approved in Master Plan.

.3 Insert Change Orders in appropriate and logical location of Detail Schedule. After analysis, clearly state and report to Departmental Representative for review effects created by insertion of new Change Order.

1.7.12 REVIEW OF THE CONSTRUCTION DETAIL SCHEDULE

.1 Allow 10 workdays for review by Departmental Representative of proposed construction Detail Schedule.

.2 Upon receipt of reviewed Detail Schedule make necessary revisions and

resubmit to Departmental Representative for review within 5 workdays.

.3 Promptly provide additional information to validate practicability of Detail Schedule as required by Departmental Representative.

.4 Submittal of Detail Schedule indicates that it meets Contract requirements and will be executed generally in sequence.

1.7.13 COMPLIANCE WITH DETAIL SCHEDULE

.1 Comply with reviewed Detail Schedule.

.2 Proceed with significant changes and deviations from scheduled sequence of activities that cause delay, when agreed by Departmental Representative.

.3 Identify activities that are behind schedule and causing delay. Provide measures to regain slippage.

.1 Construction delays affecting project schedule will not constitute justification for extension of contract completion date.

.4 In the event of a request for Contract extension, submit as per a pre-agreed upon scheduled review periods to Departmental Representative, justification, project schedule data and supporting evidence for extension to Construction Manager's Contract or Construction Manager's Contractors' completion date, or partial or interim acceptance milestone date when required. Include as part of supporting evidence:

.1 Written submission of proof of delay based on revised activity logic, duration and costs, showing time impact analysis illustrating influence of each change or delay relative to approved contract schedule.

.2 Prepared schedule indicating how change will be incorporated. Demonstrate perceived impact based on date of occurrence of change and include status of construction at that time.

.3 Other supporting evidence requested by Departmental Representative.

1.7.14 PROGRESS MONITORING AND REPORTING

.1 On ongoing basis, Detail Schedule on job site must show "Progress to Date". Arrange participation on and off site of Construction Manager's Own Forces, Contractors and suppliers, as, and when necessary, for purpose of network planning, scheduling, updating and progress monitoring. Inspect Work with Departmental Representative at least once monthly to establish progress on each current activity shown on applicable networks.

.2 Update and reissue project Work Breakdown Structure and relevant coding structures as project develops and changes.

.3 Perform Detail Schedule update monthly with status dated (Data Date) on last working day of month. Update to reflect activities completed to date, activities in progress, logic and duration changes.

.4 Submit to Departmental Representative copies of updated Detail Schedule.

.5 Requirements for monthly progress monitoring and reporting are basis for progress payment request.

.6 Submit monthly written report based on Detail Schedule, showing Work to date performed, comparing Work progress to planned, and presenting current forecasts. Report must summarize progress, defining problem areas and anticipated delays with respect to Work schedule, and critical

paths. Explain alternatives for possible schedule recovery to mitigate any potential delay. Include in report:

.1 Description of progress made.

.2 Pending items and status of: permits, shop drawings, Change Orders, possible time extensions.

.3 Status of Construction Manager's Contractors' completion date and milestones.

.4 Risk review including current and anticipated problem areas, potential areas of delays and gains and corrective measures and opportunities with gains in time.

.5 Review of progress and status of critical activities.

1.8 01 33 00 – SUBMITTAL PROCEDURES

1.8.1 ADMINISTRATIVE

.1 Submit to Departmental Representative submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.

.2 Do not proceed with Work affected by submittal until review is complete.

.3 Present shop drawings, product data, samples and mock-ups in SI Metric units.

.4 Where items or information is not produced in SI Metric units converted values are acceptable.

.5 Review submittals prior to submission to Departmental Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and coordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.

.6 Notify Departmental Representative in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.

.7 Verify field measurements and affected adjacent Work are coordinated.

.8 Construction Manager's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.

.9 Construction Manager's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.

.10 Keep one reviewed copy of each submission on site.

.11 Unless otherwise stated, ensure 4 reviewed copies of all submissions are available to be retained by the Departmental Representative.

1.8.2 SHOP DRAWINGS AND PRODUCT DATA

.1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other product data which

are to be provided by Construction Manager to illustrate details of a portion of Work.

.2 Submit shop drawings bearing stamp and signature of qualified professional registered or licensed in Alberta.

.1 Submit in addition to specified number of hard copies in electronic pdf version.

.3 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.

.4 Allow 10 working days for Departmental Representative's review of each submission.

.5 Adjustments made on shop drawings by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.

.6 Make changes in shop drawings as Departmental Representative may require, consistent with Contract Documents. When resubmitting, notify Departmental Representative in writing of revisions other than those requested.

.7 Accompany submissions with transmittal letter, containing:

.1 Date.

.2 Project title and number.

.3 Construction Manager's name and address.

.4 Identification and quantity of each shop drawing, product data and sample.

.5 Other pertinent data.

.8 Submissions include:

.1 Date and revision dates.

.2 Project title and number.

.3 Name and address of:

.1 Construction Manager.

.2 Supplier.

.3 Manufacturer.

.4 Construction Manager's stamp, signed by Construction Manager's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.

.5 Details of appropriate portions of Work as applicable:

.1 Fabrication.

.2 Layout, showing dimensions, including identified field dimensions, and clearances.

.3 Setting or erection details.

.4 Capacities.
.5 Performance characteristics.
.6 Standards.
.7 Operating weight.
.8 Wiring diagrams.
.9 Single line and schematic diagrams.
.10 Relationship to adjacent work.

.9 After Departmental Representative's review, distribute copies.

.10 Submit 6 prints of shop drawings for each requirement requested in specification Sections and as Departmental Representative may reasonably request.

.11 Submit 6 copies of product data sheets or brochures for requirements requested in specification Sections and as requested by Departmental Representative where shop drawings will not be prepared due to standardized manufacture of product.

.12 Submit 6 copies of test reports for requirements requested in specification Sections and as Departmental Representative may reasonably request.

.1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.

.13 Submit 6 copies of certificates for requirements requested in specification Sections and as Departmental Representative may reasonably request.

.1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.

.2 Certificates must be dated after award of project contract complete with project name.

.14 Submit 6 copies of manufacturer’s instructions for requirements requested in specification Sections and as Departmental Representative may reasonably request.

.1 Pre-printed material describing installation of product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.

.15 Submit 6 copies of Manufacturer's Field Reports for requirements requested in specification Sections and as Departmental Representative may reasonably request.

.1 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.

.16 Submit 6 copies of Operation and Maintenance Data for requirements requested in specification Sections and as Departmental Representative may reasonably request.

.17 Delete information not applicable to project.

.18 Supplement standard information to provide details applicable to project.

.19 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, copies will be returned

and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.

.20 The review of shop drawings by Departmental Representative is for sole purpose of ascertaining conformance with general concept.

.1 This review shall not mean that Departmental Representative approves detail design inherent in shop drawings, responsibility for which shall remain with Construction Manager submitting same, and such review shall not relieve Construction Manager of responsibility for errors or omissions in shop drawings or of responsibility for meeting requirements of construction and Contract Documents.

.2 Without restricting generality of foregoing, Construction Manager is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of sub-trades.

1.8.3 SAMPLES

.1 Submit for review samples in triplicate as requested in respective specification Sections. Label samples with origin and intended use.

.2 Deliver samples prepaid to Departmental Representative's site office.

.3 Notify Departmental Representative in writing, at time of submission of deviations in samples from requirements of the Construction Manager's specifications.

.4 Where colour, pattern or texture is criterion, submit manufacturer's full range of samples.

.5 Adjustments made on samples by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.

.6 Make changes in samples which Departmental Representative may require, consistent with Construction Manager's drawings and specifications.

.7 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

1.8.4 MOCK-UPS

.1 Erect mock-ups in accordance with 01 45 00.

1.8.5 PROGRESS PHOTOGRAPHS

.1 Submit labeled progress photographs.

.2 Each submission

.1 Prints sizes from electronic format, 200 x 300 mm.

.2 Electronic format on CD.

.3 Print Type: semi-matt colour with binding margin at one end.

.4 Paper: single weight, not mounted.

.5 Number of prints required: 3 sets.

.6 Identification, print copy and electronic format: name and project number,

viewpoint and date of photograph.

.7 Viewpoints: interior and exterior locations: viewpoints determined by Departmental Representative.

.8 Frequency: twice monthly and with each progress statement.

1.9 01 35 43 – ENVIRONMENTAL PROCEDURES

1.9.1 DEFINITIONS

.1 Environmental Pollution and Damage: presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavourably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade environment aesthetically, culturally and/or historically.

.2 Environmental Protection: prevention/control of pollution and habitat or environment disruption during construction. Control of environmental pollution and damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants.

1.9.2 SUBMITTALS

.1 Submittals: in accordance with Section 01 33 00.

.2 Prior to commencing construction activities or delivery of materials to site, submit Environmental Protection Plan for review and approval by Departmental Representative. Environmental Protection Plan is to present comprehensive overview of known or potential environmental issues which must be addressed during construction.

.3 Address topics at level of detail commensurate with environmental issue and required construction tasks.

.4 Environmental protection plan: include:

.1 Name of person responsible for ensuring adherence to Environmental Protection Plan.

.2 Name and qualifications of person responsible for manifesting hazardous waste to be removed from site.

.3 Name and qualifications of person responsible for training site personnel.

.4 Descriptions of environmental protection personnel training program.

.5 Erosion control plan which identifies type and location of erosion controls to be provided including monitoring and reporting requirements to assure that control measures are in compliance with erosion control plan, Federal, Provincial, and Municipal laws and regulations.

.6 Drawings showing locations of proposed temporary excavations or embankments for haul roads, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials including methods to control runoff and to contain materials on site.

.7 Traffic control plans including measures to reduce erosion of temporary roadbeds by construction traffic, especially during wet weather. Plans include measures to minimize amount of mud

transported onto paved public roads by vehicles or runoff.

.8 Work area plan showing proposed activity in each portion of area and identifying areas of limited use or non-use. Plan to include measures for marking limits of use areas including methods for protection of features to be preserved within authorized work areas.

.9 Spill Control Plan: including procedures, instructions, and reports to be used in event of unforeseen spill of regulated substance.

.10 Non-Hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris.

.11 Air pollution control plan detailing provisions to assure that dust, debris, materials, and trash, do not become air borne and travel off project site.

.12 Contaminant prevention plan that: identifies potentially hazardous substances to be used on job site; identifies intended actions to prevent introduction of such materials into air, water, or ground; and details provisions for compliance with Federal, Provincial, and Municipal laws and regulations for storage and handling of these materials.

.13 Waste water management plan that identifies methods and procedures for management and/or discharge of waste waters which are directly derived from construction activities, such as concrete curing water, clean-up water, dewatering of ground water, disinfection water, hydrostatic test water, and water used in flushing of lines.

.14 Historical, archaeological, cultural resources biological resources and wetlands plan that defines procedures for identifying and protecting historical, archaeological, cultural resources, biological resources and wetlands.

.15 Pesticide treatment plan: to be included and updated, as required.

1.9.3 FIRES

.1 Fires and burning of rubbish on site not permitted.

1.9.4 DISPOSAL OF WASTES

.1 Do not bury rubbish and waste materials on site.

.2 Do not dispose of waste or volatile materials, such as mineral spirits, oil or paint thinner into waterways, storm or sanitary sewers.

1.9.5 DRAINAGE

.1 Provide erosion and sediment control plan that identifies type and location of erosion and sediment controls to be provided. Plan: include monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan, Federal, Provincial, and Municipal laws and regulations.

.2 Storm Water Pollution Prevention Plan (SWPPP) to be substituted for erosion and sedimentations control plan.

.3 Provide temporary drainage and pumping as necessary to keep excavations and site free from water.

.4 Do not pump water containing suspended materials into waterways, sewer or drainage systems.

.5 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.

1.9.6 SITE CLEARING AND PLANT PROTECTION

.1 Protect trees and plants on site and adjacent properties.

.2 Wrap in burlap, trees and shrubs adjacent to construction work, storage areas and trucking lanes, and encase with protective wood framework from grade level to height of 2 m.

.3 Protect roots of designated trees to drip line during excavation and site grading to prevent disturbance or damage. Avoid unnecessary traffic, dumping and storage of materials over root zones.

.4 Minimize stripping of topsoil and vegetation.

.5 Restrict tree removal to areas indicated or designated by Departmental Representative.

1.9.7 POLLUTION CONTROL

.1 Maintain temporary erosion and pollution control features installed under this contract.

.2 Control emissions from equipment and plant to local authorities' emission requirements.

.3 Prevent sandblasting and other extraneous materials from contaminating air and waterways beyond application area, by providing temporary enclosures.

.4 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.

1.9.8 HISTORICAL / ARCHAEOLOGICAL CONTROL

.1 Provide historical, archaeological, cultural resources biological resources and wetlands plan that defines procedures for identifying and protecting historical, archaeological, cultural resources, biological resources and wetlands known to be on project site: and/or identifies procedures to be followed if historical archaeological, cultural resources, biological resources and wetlands not previously known to be onsite or in area are discovered during construction.

.2 Plan: include methods to assure protection of known or discovered resources and identify lines of communication between Construction Manager and Departmental Representative.

1.9.9 NOTIFICATION

.1 Departmental Representative will notify Construction Manager in writing of observed noncompliance with Federal, Provincial or Municipal environmental laws or regulations, permits, and other elements of Construction Manager's Environmental Protection plan.

.2 Construction Manager: after receipt of such notice, inform Departmental Representative of proposed corrective action and take such action for approval by Departmental Representative.

.3 Departmental Representative will issue stop order of work until satisfactory corrective action has been taken.

.4 No time extensions granted or equitable adjustments allowed to Construction Manager for such suspensions.

1.10 01 41 00 – REGULATORY REQUIREMENTS

1.10.1 REFERENCES AND CODES

.1 Perform Work in accordance with National Building Code of Canada (NBC) including amendments up to tender closing date and other codes of provincial or local application provided that in case of conflict or discrepancy, more stringent requirements apply.

.2 Meet or exceed requirements of:

.1 Contract documents.

.2 Specified standards, codes and referenced documents.

1.10.2 HAZARDOUS MATERIAL DISCOVERY

.1 Asbestos: demolition of spray or trowel-applied asbestos is hazardous to health. Stop work immediately when material resembling spray or trowel-applied asbestos is encountered during demolition work. Notify Departmental Representative.

.2 PCB: Polychlorinated Biphenyl: stop work immediately when material resembling Polychlorinated Biphenyl is encountered during demolition work. Notify Departmental Representative.

.3 Mould: stop work immediately when material resembling mould is encountered during demolition work. Notify Departmental Representative.

1.10.3 BUILDING SMOKING ENVIRONMENT

.1 Comply with smoking restrictions and municipal by-laws.

1.11 01 45 00 – QUALITY CONTROL

1.11.1 INSPECTION

.1 Allow Departmental Representative access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.

.2 Give at minimum, 3 working days' notice requesting inspection if Work is designated for special tests, inspections or approvals by Departmental Representative instructions, or law of Place of Work.

.3 If Construction Manager covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.

.4 Departmental Representative will order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction. If such Work is found in accordance with Contract Documents, Departmental Representative shall pay cost of examination and replacement.

1.11.2 INDEPENDENT INSPECTION AGENCIES

.1 Notwithstanding the testing responsibilities of the Construction Manager, the Departmental Representative will conduct re-testing where deemed necessary;

.1 Independent Inspection/Testing Agencies will be engaged by

Departmental Representative for purpose of inspecting and/or testing portions of Work.

.2 Cost of such services will be borne by Departmental Representative.

.2 Provide equipment required for executing inspection and testing by appointed agencies.

.3 Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.

.4 If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Departmental Representative at no cost to Departmental Representative. Pay costs for retesting and re-inspection.

1.11.3 ACCESS TO WORK

.1 Allow inspection/testing agencies access to Work, off site manufacturing and fabrication plants.

.2 Co-operate to provide reasonable facilities for such access.

1.11.4 PROCEDURES

.1 Notify appropriate agency and Departmental Representative in advance of requirement for tests, in order that attendance arrangements can be made.

.2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in Work.

.3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

1.11.5 REJECTED WORK

.1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Departmental Representative as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.

.2 Make good other Work damaged by such removals or replacements promptly.

.3 If in opinion of Departmental Representative it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Departmental Representative will deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which will be determined by Departmental Representative

1.11.6 REPORTS

.1 Submit 4 copies of inspection and test reports to Departmental Representative.

.2 Provide copies to subcontractor of work being inspected or tested and manufacturer or fabricator of material being inspected or tested.

1.11.7 TEST AND MIX DESIGNS

.1 Furnish test results and mix designs as requested by Departmental Representative.

.2 Include for tests and mix designs as specified.

.3 Cost of tests and mix designs beyond those called for in Contract Documents or beyond those required by law of Place of Work will be appraised by Departmental Representative and may be authorized as recoverable.

1.11.8 MOCK-UPS

.1 Prepare mock-ups for Work specifically requested in specifications.

.2 Construct in locations acceptable to Departmental Representative.

.3 Prepare mock-ups for Departmental Representative review with reasonable promptness and in orderly sequence, to not cause delays in Work.

.4 Failure to prepare mock-ups in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.

.5 If requested, Departmental Representative will assist in preparing schedule fixing dates for preparation.

.6 Mock-ups may remain as part of Work.

1.11.9 MILL TESTS

.1 Submit mill test certificates as requested by Departmental Representative.

1.11.10 EQUIPMENT AND SYSTEMS

.1 Submit adjustment and balancing reports for mechanical, electrical and building equipment and systems.

1.12 01 51 00 – TEMPORARY UTILITIES

1.12.1 INSTALLATION AND REMOVAL

.1 Provide temporary utilities controls in order to execute work expeditiously.

.2 Remove from site all such work after use.

1.12.2 DEWATERING

.1 Provide temporary drainage and pumping facilities to keep excavations and site free from standing water.

1.12.3 WATER SUPPLY

.1 Arrange for connection with appropriate utility company and pay costs for installation, maintenance and removal.

1.12.4 TEMPORARY HEATING AND VENTILATION

.1 Provide temporary heating required during construction period, including attendance, maintenance and fuel.

.2 Construction heaters used inside building must be vented to outside or be non-flameless type. Solid fuel salamanders are not permitted.

.3 Provide temporary heat and ventilation in enclosed areas as required to:

.4 Facilitate progress of Work.

.5 Protect Work and products against dampness and cold.

.6 Prevent moisture condensation on surfaces.

.7 Provide ambient temperatures and humidity levels for storage, installation and curing of materials.

.8 Provide adequate ventilation to meet health regulations for safe working environment.

.9 Maintain temperatures of minimum 10 degrees C in areas where construction is in progress.

.10 Ventilating:

.1 Prevent accumulations of dust, fumes, mists, vapours or gases in areas occupied during construction.

.2 Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas.

.3 Dispose of exhaust materials in manner that will not result in harmful exposure to persons.

.4 Ventilate storage spaces containing hazardous or volatile materials.

.5 Ventilate temporary sanitary facilities.

.6 Continue operation of ventilation and exhaust system for time after cessation of work process to assure removal of harmful contaminants.

.11 Permanent building heating system not to be used when available. Be responsible for damage to heating system if use is permitted.

.12 Maintain strict supervision of operation of temporary heating and ventilating equipment to:

.1 Conform to applicable codes and standards.

.2 Enforce safe practices.

.3 Prevent abuse of services.

.4 Prevent damage to finishes.

.5 Vent direct-fired combustion units to outside.

.13 Be responsible for damage to Work due to failure in providing adequate heat and protection during construction.

1.12.5 TEMPORARY POWER AND LIGHT

.1 Arrange for connection with appropriate utility company. Pay costs for installation, maintenance and removal.

.2 Provide temporary power for electric cranes and other equipment as required.

.3 Provide and maintain temporary lighting throughout project. Ensure level of illumination on all floors and stairs is not less than 162 lux.

.4 Electrical power and lighting systems installed under this Contract may be used for construction requirements only with prior approval of Departmental Representative provided that guarantees are not affected. Make good damage to electrical system caused by use under this Contract. Replace lamps which have been used for more than 3 months.

1.12.6 TEMPORARY COMMUNICATION FACILITIES

.1 Provide and pay for temporary telephone, fax, data, e-mail, internet access hook up, lines, equipment necessary for own use.

1.12.7 FIRE PROTECTION

.1 Provide and maintain temporary fire protection equipment during performance of Work required by insurance companies having jurisdiction and governing codes, regulations and bylaws.

.2 Burning rubbish and construction waste materials is not permitted on site.

1.13 01 52 00 – CONSTRUCTION FACILITIES

1.13.1 REFERENCES

.1 Canadian Standards Association (CSA International)

.1 CSA-A23.1/A23.2-04, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.

.2 CSA-0121-M1978 (R2003), Douglas Fir Plywood.

.3 CAN/CSA-S269.2-M1987 (R2003), Access Scaffolding for Construction Purposes.

.4 CAN/CSA-Z321-96(R2001), Signs and Symbols for the Occupational Environment.

.2 Master Painters Institute (MPI)

1.13.2 SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00.

1.13.3 INSTALLATION AND REMOVAL

.1 Prepare site plan indicating proposed location and dimensions of area to be fenced and used by Construction Manager, number of trailers to be used, avenues of ingress/egress to fenced area and details of fence installation.

.2 Identify areas which have to be graveled to prevent tracking of mud.

.3 Indicate use of supplemental or other staging area.

.4 Provide construction facilities in order to execute work expeditiously.

.5 Remove from site all such work after use.

1.13.4 SCAFFOLDING

.1 Scaffolding in accordance with CAN/CSA-S269.2.

.2 Provide and maintain scaffolding, ramps, ladders, swing staging, platforms, and temporary stairs.

1.13.5 HOISTING

.1 Provide, operate and maintain hoists and cranes required for moving of workers, materials and equipment. Make financial arrangements with Subcontractors for their use of hoists.

.2 Hoists cranes to be operated by qualified operator.

1.13.6 ELEVATORS

.1 Permanent elevators not to be used by construction personnel and transporting of materials.

1.13.7 SITE STORAGE / LOADING

.1 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.

.2 Do not load or permit to load any part of Work with weight or force that will endanger Work.

1.13.8 CONSTRUCTION PARKING

.1 Parking is restricted to indicated Laydown Area.

.2 Make good damage to roads used for project site access.

.3 Provide and maintain adequate access to project site.

.4 Clean site access areas/routes where used by Construction Manager's equipment.

1.13.9 OFFICES

.1 Provide a separate site office for the Departmental Representative's use, lockable, complete with keys, furnishings and equipment.

.2 Provide site office heated to 22 degrees C, lighted 750 lux and ventilated and air conditioned,

.1 Site office, 24/7/365 occupancy, of sufficient size to at the minimum accommodate site meetings for 12 people, a furnished drawing laydown table and a serviced kitchenette.

.2 Provide at the minimum 3 serviced and operational voice/data outlets;

.3 One outlet in each enclosed office and,

.4 One outlet in the meeting area.

.5 Provide data line speed as best locally available.

.6 Provide and maintain operational a site office scanner/fax machine.

.7 Scanner capacity/bed to accommodate at the minimum a 279mm x 430mm page size.

.3 Provide additional site offices as required to accommodate Construction Manager's operation

.4 Subcontractors to provide their own offices as necessary. Direct location of these offices.

.5 Provide in each site office facility, marked and fully stocked first-aid cases in readily available locations.

.6 Locate all site office facilities in indicated Laydown Area.

.7 Make site good after decommissioning facilities.

1.13.10 EQUIPMENT, TOOL AND MATERIALS STORAGE

.1 Provide and maintain, in clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.

.2 Locate materials not required to be stored in weatherproof sheds on site in manner to cause least interference with work activities.

1.13.11 SANITARY FACILITIES

.1 Provide sanitary facilities for work force and Departmental Representative in accordance with governing regulations and ordinances.

.2 Post notices and take precautions as required by local health authorities. Keep area and premises in sanitary condition.

1.13.12 CONSTRUCTION SIGNAGE

.1 No construction advertisement signs, other than health and safety, warning and instructional signs, are permitted on site.

.2 Maintain approved signs and notices in good condition for duration of project, and dispose of offsite on completion of project or earlier if directed

by Departmental Representative.

1.13.13 PROTECTION AND MAINTENANCE OF TRAFFIC

.1 Provide access and temporary relocated roads as necessary to maintain traffic.

.2 Maintain and protect traffic on affected roads during construction period except as otherwise specifically directed by Departmental Representative.

.3 Provide measures for protection and diversion of traffic, including provision of watch-persons and flag-persons, erection of barricades, placing of lights around and in front of equipment and work, and erection and maintenance of adequate warning, danger, and direction signs

.4 Protect traveling public from damage to person and property.

.5 Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with public traffic.

.6 Verify adequacy of existing roads and allowable load limit on these roads. Construction Manager: responsible for repair of damage to roads caused by construction operations.

.7 Construct access and haul roads necessary.

.8 Haul roads: constructed with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic shall be avoided.

.9 Provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic.

.10 Dust control: adequate to ensure safe operation at all times.

.11 Location, grade, width, and alignment of construction and hauling roads: subject to approval by Departmental Representative.

.12 Lighting: to assure full and clear visibility for full width of haul road and work areas during night work operations.

.13 Provide snow removal during period of Work.

.14 Remove, upon completion of work, haul roads designated by Departmental Representative.

1.13.14 CLEAN-UP

.1 Remove construction debris, waste materials, packaging material from work site daily.

.2 Clean dirt or mud tracked onto paved or surfaced roadways.

.3 Store materials resulting from demolition activities that are salvageable.

.4 Stack stored new or salvaged material not in construction facilities.

1.14 01 56 00 – TEMPORARY BARRIERS AND ENCLOSURES

1.14.1 INSTALLATION AND REMOVAL

.1 Provide temporary controls in order to execute Work expeditiously.

.2 Remove from site all such work after use.

1.14.2 HOARDING FENCE

.1 Erect temporary site enclosures using purpose made, 1.8m high, modular, prefinished metal mesh, self-supporting, interlocking fencing.

.2 Provide lockable truck entrance gate(s) and pedestrian door(s) as required

and conforming to applicable traffic restrictions on adjacent streets and sites roadways. Equip gates with locks and keys.

.1 Provide keys to Departmental Representative's Commissionaire for surveillance and inspection as it may related to Institutional operations.

.3 Erect and maintain pedestrian walkways including roof and side covers, complete with signs and electrical lighting as required by law and directed by Departmental Representative.

.4 Maintain enclosure in clean condition.

.5 Provide barriers around trees and plants designated to remain. Protect from damage by equipment and construction procedures.

.6 Ensure construction areas inside and outside Institution's fenced area are secure.

.7 Fence and secure separately the Lay down and Work site areas.

1.14.3 GUARD RAILS AND BARRICADES

.1 Provide secure, rigid guard rails and barricades around deep excavations, open shafts, open stair wells, open edges of floors and roofs.

.2 Provide as required by governing authorities.

1.14.4 WEATHER ENCLOSURES

.1 Provide weather tight closures to unfinished door and window openings, tops of shafts and other openings in floors and roofs.

.2 Close off floor areas where walls are not finished; seal off other openings; enclose building interior work for temporary heat.

.3 Design enclosures to withstand wind pressure and snow loading.

1.14.5 DUST TIGHT SCREENS

.1 Provide dust tight screens or insulated partitions to localize dust generating activities, and for protection of workers, finished areas of Work and public.

.2 Maintain and relocate protection until such work is complete.

1.14.6 ACCESS TO SITE

.1 Provide and maintain access roads, sidewalk crossings, ramps and construction runways as may be required for access to Work.

.2 Maintain access in broom clean condition.

.3 Maintain operable and paved roads to the Medium and Minimum Institution throughout the duration of the project, for un-interrupted full use.

1.14.7 PUBLIC TRAFFIC FLOW

.1 Provide and maintain competent signal flag operators, traffic signals, barricades and flares, lights, or lanterns as required to perform Work and protect public.

1.14.8 FIRE ROUTES

.1 Maintain access to property including overhead clearances for use by emergency response vehicles.

1.14.9 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

.1 Protect surrounding private and public property including laydown, site office facilities and parking areas from damage during performance of

Work.

.2 Be responsible for damage incurred.

1.14.10 PROTECTION OF BUILDING FINISHES

.1 Provide protection for finished and partially finished building finishes and equipment during performance of Work.

.2 Provide necessary screens, covers, and hoardings.

.3 Confirm with Departmental Representative locations and installation schedule 3 working days prior to installation.

.4 Be responsible for damage incurred due to lack of or improper protection.

1.15 01 61 00 – COMMON PRODUCT REQUIREMENTS

1.15.1 QUALITY

.1 Products, materials, equipment and articles incorporated in Work shall be new, not damaged or defective, and of best quality for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.

.2 Procurement policy is to acquire, in cost effective manner, items containing highest percentage of recycled and recovered materials practicable consistent with maintaining satisfactory levels of competition.

.3 Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.

.4 Should disputes arise as to quality or fitness of products, decision rests strictly with Departmental Representative based upon requirements of Contract Documents.

.5 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.

.6 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

1.15.2 AVAILABILITY

.1 Immediately upon signing Contract(s), review product delivery requirements and anticipate foreseeable supply delays for items. If delays in supply of products are foreseeable, notify Departmental Representative of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.

.2 In event of failure to notify Departmental Representative at commencement of Work and should it subsequently appear that Work may be delayed for such reason, Departmental Representative reserves right to substitute more readily available products of similar character, at no increase in Contract Price or Contract Time.

1.15.3 STORAGE HANDLING AND PROTECTION

.1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's

instructions when applicable.

.2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.

.3 Store products subject to damage from weather in weatherproof enclosures.

.4 Store cementitious products clear of earth or concrete floors, and away from walls.

.5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.

.6 Store sheet materials, lumber and on flat, solid supports and keep clear of ground. Slope to shed moisture.

.7 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.

.8 Remove and replace damaged products at own expense and to satisfaction of Departmental Representative.

.9 Touch-up damaged factory finished surfaces to Departmental Representative's satisfaction. Use touch-up materials to match original. Do not paint over name plates.

1.15.4 TRANSPORTATION

.1 Pay costs of transportation of products required in performance of Work.

.2 Departmental Representative will pay for transportation cost of products supplied by Departmental Representative. Unload, handle and store such products.

1.15.5 MANUFACTURER'S INSTRUCTIONS

.1 Unless otherwise indicated in specifications, install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.

.2 Notify Departmental Representative in writing, of conflicts between specifications and manufacturer's instructions, to allow for Departmental Representative's review of the next course of action.

.3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes Departmental Representative to require removal and re-installation at no increase in Contract Price or Contract Time.

1.15.6 QUALITY OF WORK

.1 Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify Departmental Representative if required Work is such as to make it impractical to produce required results.

.2 Do not employ anyone unskilled in their required duties. Departmental Representative reserves right to require dismissal from site, workers deemed incompetent or careless.

.3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Departmental Representative whose decision is final.

1.15.7 CO-ORDINATION

.1 Ensure co-operation of workers in laying out Work. Maintain efficient and continuous supervision.

.2 Be responsible for coordination and placement of openings, sleeves and accessories.

1.15.8 CONCEALMENT

.1 In finished areas conceal pipes, ducts and wiring in floors, walls and ceilings, except where indicated otherwise.

.2 Before installation inform Departmental Representative if there is interference. Install as directed by Departmental Representative.

1.15.9 REMEDIAL WORK

.1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Co-ordinate adjacent affected Work as required.

.2 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.

1.15.10 LOCATION OF FIXTURES

.1 Consider location of fixtures, outlets, and mechanical and electrical items indicated as approximate.

.2 Inform Departmental Representative of conflicting installation. Install as directed.

1.15.11 FASTENINGS

.1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.

.2 Prevent electrolytic action between dissimilar metals and materials.

.3 Use non-corrosive hot dip galvanized steel fasteners and anchors for securing exterior work, unless stainless steel or other material is specifically requested in affected specification Section.

.4 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wood, or any other organic material plugs are not acceptable.

.5 Keep exposed fastenings to a minimum, space evenly and install neatly.

.6 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

1.15.12 FASTENINGS – EQUIPMENT

.1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.

.2 Use heavy hexagon heads, semi-finished unless otherwise specified. Use No. 304 stainless steel for exterior areas.

.3 Bolts may not project more than one diameter beyond nuts.

.4 Use plain type washers on equipment, sheet metal and soft gasket lock

type washers where vibrations occur. Use resilient washers with stainless steel.

1.15.13 PROTECTION OF WORK IN PROGRESS

.1 Prevent overloading of parts of building. Do not cut, drill or sleeve load bearing structural member, unless specifically indicated without written approval of Departmental Representative.

1.15.14 EXISTING UTILITIES

.1 When breaking into or connecting to existing services or utilities, execute Work at times directed by local governing authorities, with minimum of disturbance to Work, and/or building occupants and pedestrian and vehicular traffic.

.2 Protect, relocate or maintain existing active services. When services are encountered, cap off in manner approved by authority having jurisdiction. Stake and record location of capped service.

1.16 01 71 00 – EXAMINATION AND PREPARATION

1.16.1 QUALIFICATIONS OF SURVEYOR

.1 Qualified registered land surveyor, licensed to practice in Place of Work, acceptable to Departmental Representative.

1.16.2 SURVEY REFERENCE POINTS

.1 Existing base horizontal and vertical control points are designated on drawings.

.2 Locate, confirm and protect control points prior to starting site work. Preserve permanent reference points during construction.

.3 Make no changes or relocations without prior written notice to Departmental Representative.

.4 Report to Departmental Representative when reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.

.5 Require surveyor to replace control points in accordance with original survey control.

1.16.3 SURVEY REQUIREMENTS

.1 Establish two permanent bench marks on site, referenced to established bench marks by survey control points. Record locations, with horizontal and vertical data in Project Record Documents.

.2 Establish lines and levels, locate and lay out, by instrumentation.

.3 Stake for grading, fill, topsoil placement and landscaping features.

.4 Stake slopes and berms.

.5 Establish pipe invert elevations.

.6 Stake batter boards for foundations.

.7 Establish foundation column locations and floor elevations.

.8 Establish lines and levels for mechanical and electrical work.

1.16.4 EXISTING SERVICES

.1 Before commencing work, establish location and extent of service lines in area of Work and notify Departmental Representative of findings.

.2 Remove abandoned service lines within 2 m of structures. Cap or otherwise seal lines at cut-off points as directed by Departmental Representative.

1.16.5 LOCATION OF EQUIPMENT AND FIXTURES

.1 Location of equipment, fixtures and outlets indicated or specified are to be considered as approximate.

.2 Locate equipment, fixtures and distribution systems to provide minimum interference and maximum usable space and in accordance with manufacturer's recommendations for safety, access and maintenance.

.3 Inform Departmental Representative of impending installation and obtain approval for actual location.

.4 Submit field drawings to indicate relative position of various services and equipment when required by Departmental Representative.

1.16.6 RECORDS

.1 Maintain a complete, accurate log of control and survey work as it progresses.

.2 On completion of foundations and major site improvements, prepare a certified survey showing dimensions, locations, angles and elevations of Work.

.3 Record locations of maintained, re-routed and abandoned service lines.

1.16.7 SUBMITTALS

.1 Submit name and address of Surveyor to Departmental Representative.

.2 On request of Departmental Representative, submit documentation to verify accuracy of field engineering work.

.3 Submit certificate signed by surveyor certifying those elevations and locations of completed Work that conform and do not conform to Contract Documents.

1.17 01 73 03 – EXECUTION REQUIREMENTS

1.17.1 SUBMITTALS

.1 Submittals: in accordance with Section 01 33 00.

.2 Submit written request in advance of cutting or alteration which affects:

- .1 Structural integrity of elements of project.
- .2 Integrity of weather-exposed or moisture-resistant elements.
- .3 Efficiency, maintenance, or safety of operational elements.
- .4 Visual qualities of sight-exposed elements.
- .5 Work of Departmental Representative or separate Construction Manager.

.3 Include in request:

- .1 Identification of project.
- .2 Location and description of affected Work.
- .3 Statement on necessity for cutting or alteration.
- .4 Description of proposed Work, and products to be used.
- .5 Alternatives to cutting and patching.
- .6 Effect on Work of Owner or separate Construction Manager.

.7 Written permission of affected separate Construction Manager.

.8 Date and time work will be executed.

1.17.2 MATERIALS

.1 Required for original installation.

.2 Change in Materials: Submit request for substitution in accordance with Section 01 33 00.

1.17.3 PREPARATION

.1 Inspect existing conditions, including elements subject to damage or movement during cutting and patching.

.2 After uncovering, inspect conditions affecting performance of Work.

.3 Beginning of cutting or patching means acceptance of existing conditions.

.4 Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of project from damage.

.5 Provide protection from elements for areas which are to be exposed by uncovering work; maintain excavations free of water.

1.17.4 EXECUTION

.1 Execute cutting, fitting, and patching including excavation and fill to complete Work.

.2 Fit several parts together, to integrate with other Work.

.3 Uncover Work to install ill-timed Work.

.4 Remove and replace defective and non-conforming Work.

.5 Remove samples of installed Work for testing.

.6 Provide openings in non-structural elements of Work for penetrations of mechanical and electrical Work.

.7 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.

.8 Employ original installer to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.

.9 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed on masonry work without prior approval.

.10 Restore work with new products in accordance with requirements of Contract Documents.

.11 Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

.12 At penetration of fire rated wall, ceiling, or floor construction, completely seal voids with firestopping material, full thickness of the construction element.

.13 Refinish surfaces to match adjacent finishes: Refinish continuous surfaces to nearest intersection. Refinish assemblies by refinishing entire unit.

.14 Conceal pipes, ducts and wiring in floor, wall and ceiling construction of finished areas except where indicated otherwise.

.1 Remove all excess excavation and fill and all other material to off-site.

1.18 01 74 11 – CLEANING

1.18.1 PROJECT CLEANLINESS

.1 Maintain Work in tidy condition, free from accumulation of waste products and debris, other than that caused by Owner or other Construction Managers.

.2 Remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site.

.3 Clear snow and ice from access to building, bank/pile snow in designated areas only.

.4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

.5 Provide on-site containers for collection of waste materials and debris.

.6 Provide and use marked separate bins for recycling. Refer to Section 01 74 21.

.7 Dispose of waste materials and debris off site.

.8 Clean interior areas prior to start of finishing work, and maintain areas free of dust and other contaminants during finishing operations.

.9 Store volatile waste in covered metal containers, and remove from premises at end of each working day.

.10 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.

.11 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.

.12 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

1.18.2 FINAL CLEANING

.1 When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.

.2 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.

.3 Prior to final review remove surplus products, tools, construction machinery and equipment.

.4 Remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site.

.5 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

.6 Clean and polish glass, mirrors, hardware, wall tile, stainless steel, chrome, porcelain enamel, baked enamel, plastic laminate, and mechanical and electrical fixtures. Replace broken, scratched or disfigured glass.

.7 Remove stains, spots, marks and dirt from decorative work, electrical and mechanical fixtures, furniture fitments, walls and floors.

.8 Clean lighting reflectors, lenses, and other lighting surfaces.

.9 Vacuum clean and dust building interiors, behind grilles, louvers and screens.

.10 Wax, seal, shampoo or prepare floor finishes, as recommended by manufacturer.

.11 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.

.12 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.

.13 Remove dirt and other disfiguration from exterior surfaces.

.14 Clean and sweep roofs, gutters, areaways, and sunken wells.

.15 Sweep and wash clean paved areas.

.16 Clean equipment and fixtures to sanitary condition; clean or replace filters of mechanical equipment.

.17 Clean roofs, downspouts, and drainage systems.

.18 Remove debris and surplus materials from crawl areas and other accessible concealed spaces.

.19 Remove snow and ice from access to building.

.20 Complete cleaning prior to start-up and commissioning of systems and integrated systems.

1.19 01 74 21 – CONSTRUCTION DEMOLITION WASTE MANAGEMENT AND DISPOSAL

1.19.1 WASTE MANAGEMENT GOALS

.1 Prior to start of Work conduct meeting with Departmental Representative to review and discuss PWGSC's waste management goals.

.2 PWGSC's waste management goal 75 percent of total project waste to be diverted from landfill sites. Provide Departmental Representative documentation certifying that waste management, recycling, reuse of recyclable and reusable materials have been extensively practiced.

.3 Accomplish maximum control of solid construction waste.

.4 Preserve environment and prevent pollution and environment damage.

1.19.2 DEFINITIONS

.1 Demolition Waste Audit (DWA): relates to actual waste generated from project.

.2 Inert Fill: inert waste - exclusively asphalt and concrete.

.3 Materials Source Separation Program (MSSP): consists of series of ongoing activities to separate reusable and recyclable waste material into material categories from other types of waste at point of generation.

.4 Recyclable: ability of product or material to be recovered at end of its life cycle and re-manufactured into new product for reuse.

.5 Recycle: process by which waste and recyclable materials are transformed or collected for purpose of being transferred into new products.

.6 Recycling: process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for purpose of using in altered form.

Recycling does not include burning, incinerating, or thermally destroying waste.

.7 Reuse: repeated use of product in same form but not necessarily for same purpose. Reuse includes:

.1 Salvaging reusable materials from re-modelling projects, before demolition stage, for resale, reuse on current project or for storage for use on future projects.

.2 Returning reusable items including pallets or unused products to vendors.

.8 Salvage: removal of structural and non-structural materials from deconstruction/disassembly projects for purpose of reuse or recycling.

.9 Separate Condition: refers to waste sorted into individual types.

.10 Source Separation: acts of keeping different types of waste materials separate beginning from first time they became waste.

.11 Waste Audit (WA): detailed inventory of materials in building. Involves quantifying by volume/weight amounts of materials and wastes generated during construction, demolition, deconstruction, or renovation project. Indicates quantities of reuse, recycling and landfill. Refer to Schedule A.

.12 Waste Management Co-ordinator (WMC): Construction Manager representative responsible for supervising waste management activities as well as coordinating related, required submittal and reporting requirements.

.13 Waste Reduction Workplan (WRW): written report which addresses opportunities for reduction, reuse, or recycling of materials. Refer to Schedule B. WRW is based on information acquired from WA (Schedule A).

1.19.3 DOCUMENTS

.1 Maintain at job site, one copy of following documents:

.1 Waste Audit.

.2 Waste Reduction Workplan.

.3 Material Source Separation Plan.

.4 Schedules completed for project.

1.19.4 SUBMITTALS

.1 Submittals in accordance with Section 01 33 00.

.2 Prepare and submit following prior to project start-up:

.1 Submit 2copies of completed Waste Audit (WA): Schedule A.

.2 Submit 2 copies of completed Waste Reduction Workplan (WRW): Schedule B.

.3 Submit 2 copies of completed Demolition Waste Audit (DWA): Schedule C.

.4 Submit 2 copies of Materials Source Separation Program (MSSP) description.

.3 Submit before final payment summary of waste materials salvaged for reuse, recycling or disposal by project using deconstruction/disassembly material audit form.

.1 Provide receipts, scale tickets, waybills, and show quantities and types

of materials reused, recycled or disposed of.

.2 For each material reused, sold or recycled from project, include amount in tones or quantities by number, type and size of items and the destination.

.3 For each material land filled or incinerated from project, include amount of material and identity of landfill, incinerator or transfer station.

1.19.5 WASTE AUDIT (WA)

.1 Conduct WA prior to project start-up.

.2 Prepare WA: Schedule A.

.3 Record, on WA - Schedule A, extent to which materials or products used consist of recycled or reused materials or products.

1.19.6 WASTE REDUCTION WORKPLAN (WRW)

.1 Prepare WRW prior to project start-up.

.2 WRW should include but not limited to:

.1 Destination of materials listed.

.2 Deconstruction/disassembly techniques and sequencing.

.3 Schedule for deconstruction/disassembly.

.4 Location.

.5 Security.

.6 Protection.

.7 Clear labeling of storage areas.

.8 Details on materials handling and removal procedures.

.9 Quantities for materials to be salvaged for reuse or recycled and materials sent to landfill.

.3 Structure WRW to prioritize actions and follow 3R's hierarchy, with Reduction as first priority, followed by Reuse, then Recycle.

.4 Describe management of waste.

.5 Identify opportunities for reduction, reuse, and recycling of materials. Based on information acquired from WA.

.6 Post WRW or summary where workers at site are able to review content.

.7 Set realistic goals for waste reduction, recognize existing barriers and develop strategies to overcome these barriers.

.8 Monitor and report on waste reduction by documenting total volume and cost of actual waste removed from project.

1.19.7 DEMOLITION WASTE AUDIT (DWA)

.1 Prepare DWA prior to project start-up.

.2 Complete DWA: Schedule C.

.3 Provide inventory of quantities of materials to be salvaged for reuse, recycling, or disposal.

1.19.8 COST REVENUE ANALYSIS WORKPLAN (CRAW)

.1 Prepare CRAW: Schedule D.

1.19.9 MATERIALS SOURCE SEPARATION PROGRAM (MSSP)

.1 Prepare MSSP and have ready for use prior to project start-up.

.2 Implement MSSP for waste generated on project in compliance with approved methods and as reviewed by Departmental Representative.

.3 Provide on-site facilities for collection, handling, and storage of anticipated quantities of reusable and recyclable materials.

.4 Provide containers to deposit reusable and recyclable materials.

.5 Locate containers in locations, to facilitate deposit of materials without hindering daily operations.

.6 Locate separated materials in areas which minimize material damage.

.7 Collect, handle, store on-site, and transport off-site, salvaged materials in separate condition.

.1 Transport to approved and authorized recycling facility or to users of material for recycling.

1.19.10 STORAGE HANDLING AND PROTECTION

.1 Store, materials to be reused, recycled and salvaged in locations as directed by Departmental Representative.

.2 Unless specified otherwise, materials for removal become Construction Manager's property.

.3 Separate non-salvageable materials from salvaged items. Transport and deliver non-salvageable items to licensed disposal facility.

.4 Protect structural components not removed for demolition from movement or damage.

.5 Support affected structures. If safety of building is endangered, cease operations and immediately notify Departmental Representative.

.6 Protect surface drainage, mechanical and electrical from damage and blockage.

.7 Separate and store materials produced during dismantling of structures in designated areas.

.8 Prevent contamination of materials to be salvaged and recycled and handle materials in accordance with requirements for acceptance by designated facilities.

.1 On-site source separation is recommended.

.2 Remove co-mingled materials to off-site processing facility for separation.

.3 Provide waybills for separated materials.

1.19.11 DISPOSAL OF WASTES

.1 Do not bury rubbish or waste materials.

.2 Do not dispose of waste, volatile materials, mineral spirits, oil, paint thinner into waterways, storm, or sanitary sewers.

.3 Keep records of construction waste including:

.1 Number and size of bins.

.2 Waste type of each bin.

.3 Total tonnage generated.

.4 Tonnage reused or recycled.

.5 Reused or recycled waste destination.

.4 Remove materials from deconstruction as deconstruction/disassembly Work progresses.

.5 Prepare project summary to verify destination and quantities on a material-by-material basis as identified in pre-demolition material audit.

1.19.12 USE OF SITE AND FACILITIES

.1 Execute work with least possible interference or disturbance to normal use of premises.

1.19.13 SCHEDULING

.1 Co-ordinate Work with other activities at site to ensure timely and orderly progress of Work.

1.19.14 APPLICATION

.1 Do Work in compliance with WRW.

.2 Handle waste materials not reused, salvaged, or recycled in accordance with appropriate regulations and codes.

1.19.15 CLEANING

.1 Remove tools and waste materials on completion of Work, and leave work area in clean and orderly condition.

.2 Clean-up work area as work progresses.

.3 Source separate materials to be reused/recycled into specified sort areas.

1.19.16 DIVERSION OF MATERIALS

.1 From following list, separate materials from general waste stream and stockpile in separate piles or containers, as reviewed by Departmental Representative and consistent with applicable fire regulations.

.1 Mark containers or stockpile areas.

.2 Provide instruction on disposal practices.

.2 On-site sale of salvaged, recovered, reusable, recyclable materials is not permitted.

.3 Demolition Waste:

Material Type	Recommended Diversion %	Actual Diversion %
Acoustic Tile	50	[_____]
Acoustical Insulation	100	[_____]
Carpet	100	[_____]
De-mountable Partitions	80	[_____]
Doors and Frames	100	[_____]
Electrical Equipment	80	[_____]
Furnishings	80	[_____]
Marble Base	100	[_____]
Mechanical Equipment	100	[_____]
Metals	100	[_____]
Rubble	100	[_____]

Wood (uncontaminated)	100	[_____]
Other		

.4 Construction Waste

Material Type	Recommended Diversion %	Actual Diversion %
Cardboard	100	[_____]
Plastic Packaging	100	[_____]
Rubble	100	[_____]
Steel	100	[_____]
Wood (uncontaminated)	100	[_____]
Other		[_____]

1.19.17 WASTE AUDIT (WA)

.1 Schedule A - Waste Audit (WA):

1 Material Category	2 Material Quantity Unit	3 Estimated Waste %	4 Total Quantity of Waste (unit)	5 Generation Point	6 % Recycled	7 % Reused
Wood and Plastics Material Description						
Off-cuts						
Warped Pallet						
Forms						
Plastic Packaging						
Cardboard Packaging						
Other						
Doors and Windows Material Description						
Painted Frames						
Glass						

Wood
Metal
Other _____

1.19.18 WASTE REDUCTION WORKPLAN (WRW)

.1 Schedule B:

1 Material Category	2 Person(s) Responsible	3 Total Quantity of Waste	4 Reused Amount (units) Project Actuals	5 Recycled Amount (units) Actuals	6 Material(s) Destination
Wood and Plastics					
Material Description					
Chutes					
Warped Pallet					
Forms					
Plastic Packaging					
Cardboard Packaging					
Other:					
Doors and Windows					
Material Description					
Painted Frames					
Glass					
Wood					
Metal					
Other					

.1

1.19.19 DEMOLITION WASTE AUDIT (DWA)

.1 Schedule C - Demolition Waste Audit (DWA):

1	2	3	4	5	6	7

Material Category/ Description	Quantity	Unit	Total	Volume (cum)	Weight (cum)	Remarks and Assumptions
Assumptions						
Wood						
Wood Stud						
Plywood						
Baseboard						
Wood Door						
Trim -						
Wood						
Cabinet						
Doors and						
Windows						
Panel						
Regular Slab						

1.20 01 77 00 – CLOSEOUT PROCEDURES

1.20.1 INSPECTION AND DECLARATION

.1 Construction Manager's Inspection: Construction Manager and Sub Contractor: conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.

.1 Notify Departmental Representative in writing of satisfactory completion of Construction Manager's Inspection and that corrections have been made.

.2 Request Departmental Representative Inspection.

.2 Completion: submit written certificate that following have been performed:

.1 Work has been completed and inspected for compliance with

.1 Contract Documents.

.2 Local authorities having jurisdiction.

.3 Local services/utility providers.

.2 Defects have been corrected and deficiencies have been completed.

.3 Equipment and systems have been tested, adjusted and balanced and are fully operational.

.4 Certificates required by Authorities Having Jurisdiction and by Utilities have been submitted.

.5 Operation of systems have been demonstrated to Departmental Representative's and Institution's personnel.

.6 Work is complete and ready for final inspection.

.3 Final Inspection: when items noted above are completed, request final inspection of Work by Departmental Representative and Construction Manager. If Work is deemed incomplete by Departmental Representative, complete outstanding items and request re-inspection.

1.20.2 WARRANTY INSPECTION

.1 In the case of one year warranty, conduct joint inspections six (6) and ten (10) months after Interim Certificate of Completion. In the case of each extended warranty, conduct joint inspections in four (4) periods as agreed by Departmental Representative.

.2 Immediately prior to end of warranty period(s) Departmental Representative and Construction Manager shall make a joint final inspection of the remedial Work noted two (2) months prior to end of warranty(s) and reported within the two (2) during remedial work.

1.21 01 78 00 – CLOSEOUT SUBMITTALS

1.21.1 SUBMITTALS

.1 Submittals: in accordance with Section 01 33 00.

.2 Prepare instructions and data using personnel experienced in maintenance and operation of described products.

.3 Copy will be returned after final inspection, with Departmental Representative's comments.

.4 Revise content of documents as required prior to final submittal.

.5 Two weeks prior to Substantial Performance of the Work, submit to the Departmental Representative;

.1 Four final copies plus electronic copies of operating and maintenance manuals in English.

.2 Four copies plus electronic copies of final Commissioning Report.

.6 Ensure spare parts, maintenance materials and special tools provided are new, undamaged or defective, and of same quality and manufacture as products provided in Work.

.7 Furnish evidence, if requested, for type, source and quality of products provided.

.8 Defective products will be rejected, regardless of previous inspections. Replace products at own expense.

.9 Pay costs of transportation.

1.21.2 ELECTRONIC SUBMITTALS

.1 Submit number of hard copies specified for each type and format of submittal and in also submit in electronic format as pdf files and also in MS Word, Excel, Project as may be appropriate and in AutoCAD dwg files all on CD R/W or USB.

.2 Departmental Representative will provide one electronic set of drawings, schedules and specifications for as-built drawing and specification purposes.

.1 Drawings are in AutoCAD.

.2 Specifications are in MS Word

.3 Amendments are in MS Word.

.3 Transfer as-built information from marked up set of documents to electronic format.

.1 Provide plotted or printed as specified.

.4 As-built topographical and site surveys in AutoCAD and pdf format.

1.21.3 FORMAT

.1 Organize data as instructional manual.

.2 Binders: vinyl, hard covered, 3 'D' ring, loose leaf 219 x 279 mm with spine and face pockets.

.3 When multiple binders are used correlate data into related consistent groupings. Identify contents of each binder on spine.

.4 Cover: identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.

.5 Arrange content by components, systems, integrated systems, process flow, under Section numbers and sequence of Table of Contents.

.6 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.

.7 Text: manufacturer's printed data, or typewritten data.

.8 Drawings: provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

.9 Provide 1:1 scaled CAD files in pdf and dwg format.

.10 On project completion submit to Departmental Representative 4 electronic pdf copies on CD R/W and 4 paper copies in binders of Operations and Maintenance and Systems Descriptions Manual.

.1 Organize manuals into industry standard maintenance manual tabs with links in index to each descriptive section describing the component or maintenance procedure.

.2 Organize files into MasterFormat 2010 numbering system.

.3 Label disk “Operational and Maintenance Data”, project name, date, names of Construction Manager, subcontractors, consultants and sub consultants.

.4 Include scanned guarantees, bonds, diagrams and drawings.

.5 Organize contents into applicable sections of work to parallel specification break-down. Mark each section by labeled tabs (navigation buttons).

.6 Ensure all content is legible.

1.21.4 CONTENTS – EACH VOLUME

.1 Table of Contents: provide title of project;

.1 Date of submission; names.

.2 . Addresses, and telephone numbers of Department Representative and Construction Manager with name of responsible parties.

.3 Schedule of products and systems, indexed to content of volume.

.2 For each product or system:

.1 List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.

.3 Product Data: mark each sheet to identify specific products and component parts, and data applicable to installation; delete inapplicable information.

.4 Drawings: supplement product data to illustrate relations of component

parts of equipment and systems, to show control and flow diagrams.

.5 Typewritten Text: as required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01 45 00.

.6 Demonstration and Training: refer to Section 01 79 00.

.1 Submit to Departmental Representative 4 electronic copies on DVD R/W of demonstration and training sessions.

1.21.5 AS-BUILT SPECIFICATIONS AND SAMPLES

.1 Maintain, in addition to requirements in General Conditions, at site for Departmental Representative one record copy of:

.1 Contract Drawings.

.2 Specifications.

.3 Addenda.

.4 Change Orders and other modifications to Contract.

.5 Reviewed shop drawings, product data, and samples.

.6 Field test records.

.7 Inspection certificates.

.8 Manufacturer's certificates.

.2 Store record documents and samples in field office apart from documents used for construction. Provide files, racks, and secure storage.

.3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual. Label each document "PROJECT RECORD" in neat, large, printed letters.

.4 Maintain record documents in clean, dry and legible condition. Do not use record documents for construction purposes.

.5 Keep record documents and samples available for inspection by Departmental Representative.

.6 Departmental Representative may furnish additional drawings and specifications to clarify Work.

.1 Such documents become part of Contract Document.

.2 Include such documents in As Built submission.

.7 Turn over, at completion, with all as-built information:

.1 Drawings;

.1 4 electronic copies of drawings in AutoCAD file format 2010.

.2 4 sets of printed as-built drawings.

.3 1 pdf copy.

.2 Specifications in Master format 2010;

.1 4 electronic copies of specifications in MS Word 2007.

.2 4 sets of printed as-built specifications.

.3 1 pdf copy.

.8 Submit to Departmental Representative one copy of drawings and specifications for review prior to final submission.

1.21.6 RECORDING ACTUAL SITE CONDITIONS

.1 Record information on set of black line opaque drawings, and in copy of

Specifications Documents.

.2 Provide felt tip marking pens, maintaining separate colours for each major system, for recording information.

.3 Record information concurrently with construction progress. Do not conceal Work until required information is recorded.

.4 Contract Drawings and shop drawings: mark each item to record actual construction, including:

.1 Measured depths of elements of foundation in relation to finish first floor datum.

.2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.

.3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.

.4 Field changes of dimension and detail.

.5 Changes made by change orders.

.6 Details not on original Contract Drawings.

.7 References to related shop drawings and modifications.

.5 Specifications: mark each item to record actual construction, including:

.1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.

.2 Changes made by Addenda and change orders.

.6 Other Documents: maintain manufacturer's certifications, guarantees, inspection certifications, field test records, required by individual specifications sections.

1.21.7 FINAL SURVEY

.1 Submit final site survey certificate in accordance with Section 01 71 00 certifying that elevations and locations of completed Work are in conformance, or non-conformance with Contract Documents.

1.21.8 EQUIPMENT AND SYSTEMS

.1 Each Item of Equipment and Each System: include description of unit or system, and component parts. Give function, normal operation characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.

.2 Panel board circuit directories: provide electrical service characteristics, controls, and communications.

.3 Include installed colour coded wiring diagrams.

.4 Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.

.5 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

.6 Provide servicing and lubrication schedule, and list of lubricants required.

.7 Include manufacturer's printed operation and maintenance instructions.

.8 Include sequence of operation by controls manufacturer.

.9 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

.10 Provide installed control diagrams by controls manufacturer.

.11 Provide Construction Manager's co-ordination drawings, with installed colour coded piping diagrams.

.12 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.

.13 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

.14 Include test and balancing reports as specified in Section 01 45 00 and 01 91 13.

.15 Additional requirements: as specified in individual specification sections and Terms of Reference (TOR).

1.21.9 MATERIALS AND FINISHES

.1 Building Products, Applied Materials, and Finishes: include product data, with catalogue number, size, composition, and colour and texture designations. Provide information for re-ordering custom manufactured products.

.2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

.3 Moisture-Protection and Weather-Exposed Products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

.4 Additional Requirements: as specified in individual specifications sections.

1.21.10 SPARE PARTS

.1 Provide spare parts.

.2 Provide items of same manufacture and quality as items in Work.

.3 Deliver to site as directed; place and store.

.4 Receive and catalogue items. Submit inventory listing to Departmental Representative. Include approved listings in Maintenance Manual.

.5 Obtain receipt for delivered products and submit prior to final payment.

1.21.11 MAINTENANCE MATERIALS

.1 Provide maintenance and extra materials.

.2 Provide items of same manufacture and quality as items in Work.

.3 Deliver to site as directed; place and store.

.4 Receive and catalogue items. Submit inventory listing to Departmental Representative. Include approved listings in Maintenance Manual.

.5 Obtain receipt for delivered products and submit prior to final payment.

1.21.12 SPECIAL TOOLS

.1 Provide special tools.

.2 Provide items with tags identifying their associated function and equipment.

.3 Deliver to site as directed; place and store.

.4 Receive and catalogue items. Submit inventory listing to Departmental Representative. Include approved listings in Maintenance Manual.

1.21.13 STORAGE, HANDLING AND PROTECTION

.1 Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.

.2 Store in original and undamaged condition with manufacturer's seal and labels intact.

.3 Store components subject to damage from weather in weatherproof enclosures.

.4 Store paints and freezable materials in a heated and ventilated room.

.5 Remove and replace damaged products at own expense and to satisfaction of Departmental Representative.

1.21.14 WARRANTIES AND BONDS

.1 Develop warranty management plan to contain information relevant to Warranties.

.2 Submit warranty management plan, 60 days before planned pre-warranty conference, to Departmental Representative approval.

.3 Warranty management plan to include required actions and documents to assure that Departmental Representative receives warranties to which it is entitled.

.4 Provide plan in narrative form and contain sufficient detail to make it suitable for use by future maintenance and repair personnel.

.5 Submit, warranty information made available during construction phase, to Departmental Representative for approval prior to each monthly pay estimate.

.6 Assemble approved information in binder and submit upon acceptance of work. Organize binder as follows:

.1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.

.2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

.3 Obtain warranties, manufacturers' guarantees and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten days after completion of applicable item of work.

.4 Verify that documents are in proper form, contain full information, and are notarized.

.5 Co-execute submittals when required.

.6 Retain warranties and bonds until time specified for submittal.

.7 Except for items put into use with Departmental Representative permission, leave date of beginning of time of warranty until Date of Substantial Performance is determined.

.8 Include information contained in warranty management plan as follows:

.1 Roles and responsibilities of personnel associated with warranty process, including points of contact and telephone numbers within the organizations of Construction Managers, subcontractors, manufacturers or suppliers involved.

.2 Listing and status of delivery of Certificates of Warranty for extended warranty items, to include roofs, HVAC balancing, pumps, motors, transformers, and commissioned systems and integrated systems.

.3 Provide list for each warranted equipment, item, feature of construction or system indicating:

.1 Name of item.

.2 Model and serial numbers.

.3 Location where installed.

.4 Name and phone numbers of manufacturers or suppliers.

.5 Names, addresses and telephone numbers of sources of spare parts.

.6 Warranties and terms of warranty: include one-year overall warranty of construction. Indicate items that have extended warranties and show separate warranty expiration dates.

.7 Cross-reference to warranty certificates as applicable.

.8 Starting point and duration of warranty period.

.9 Summary of maintenance procedures required to continue warranty in force.

.10 Cross-Reference to specific pertinent Operation and Maintenance manuals.

.11 Organization, names and phone numbers of persons to call for warranty service.

.12 Typical response time and repair time expected for various warranted equipment.

.4 Construction Manager's plans for attendance of the various required post-construction warranty inspections.

.5 Procedure and status of tagging of equipment covered by extended warranties.

.6 Post copies of instructions near selected pieces of equipment where operation is critical for warranty and/or safety reasons.

.9 Respond in a timely manner to oral or written notification of required construction warranty repair work.

.10 Written verification will follow oral instructions. Failure to respond will be cause for the Departmental Representative to proceed with action against Construction Manager.

1.21.15 PRE-WARRANTY CONFERENCE

.1 Meet with Departmental Representative, to develop understanding of requirements of this section. Schedule meeting prior to contract completion, and at time designated by Departmental Representative.

.2 Departmental Representative will establish communication procedures for:

.1 Notification of construction warranty defects.

.2 Determine priorities for type of defect.

.3 Determine reasonable time for response.

.3 Provide name, telephone number and address of licensed and bonded company that is authorized to initiate and pursue construction warranty work action.

.4 Ensure contact is located within local service area of warranted construction, is continuously available, and is responsive to inquiries for warranty work action.

1.21.16 WARRANTY TAGS

.1 Tag, at time of installation, each warranted item. Provide durable, oil and water resistant tag approved by Departmental Representative.

.2 Attach tags with copper wire and spray with waterproof silicone coating.

.3 Leave date of acceptance until project is accepted for occupancy.

.4 Indicate following information on tag:

.1 Type of product/material.

.2 Model number.

.3 Serial number.

.4 Contract number.

.5 Warranty period.

.6 Inspector's signature.

.7 Construction Manager.

---------- END----------

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

Canada

Respect ◆ Integrity ◆ Excellence ◆ Leadership

Serving GOVERNMENT, Serving CANADIANS.

Construction Management (CM) Services

- For Advisory Services (CMa) and Construction Services (CMc)

GENERAL PROCEDURES & STANDARDS

Lethbridge Research and Development Centre

Laboratory Annex Exterior Envelope Replacement

Lethbridge, Alberta

FOR:

Agriculture and Agri-Food Canada (AAFC)

October 12, 2016

www.pwgsc-tpsgc.gc.ca

Table of Contents:

1. INTRODUCTION

1.1 GENERAL PROCEDURES AND STANDARDS (GP&S)

1.1.1 GENERAL

.1 GP&S for Construction Management (CM) have been developed to:

.1 Facilitate the development of a consistent, well-documented CM process reflecting industry best practices and performance standards; and

.2 Ensure compliance with federal government standards, PWGSC Policies and Treasury Board directives.

1.1.2 DOCUMENT HARMONIZATION AND ORDER OF PRECEDENCE

.1 GP&S, TOR, Division 01-General Requirements and Definitions documents are complementary and to be used together.

.1 TOR takes precedence.

.2 TOR describes project-specific requirements, services and deliverables while the

.3 GP&S outlines with minimum standards, procedures and performance common to all projects.

1.1.3 KEY LINKS

.1 National Project Management System (NMPS)

.1 http://www.tpsgc-pwgsc.gc.ca/biens-property/sngp-npms/index-eng.html

.2 PWGSC project delivery and terminology is defined in the NPMS.

.2 National Master Specifications (NMS)

.1 http://www.nrc-cnrc.gc.ca/eng

.2 Develop specifications to the latest version of the NMS data base.

.3 Code of Conduct for Procurement - Context and purpose of the Code

.1 http://www.tpsgc-pwgsc.gc.ca/app-acq/cndt-cndct/contexte-context-eng.html

.2 Provide Work in an honest, fair and comprehensive manner.

1.2 PROJECT DELIVERY

1.2.1 GENERAL REQUIREMENTS

.1 Obtain written authorization from the Departmental Representative before proceeding to the next milestone or phase of work.

.2 Coordinate all services with the Departmental Representative.

.3 Deliver project utilizing best practices in support of User Department needs, respecting the approved financial budget, schedule, scope and quality.

.4 Provide continuous and comprehensive documentation of the project at all stages of the project implementation.

.5 Ensure continuity of key personnel and a CM team with an in-depth understanding and collective “buy-in” of the project requirements for the life of the project.

1.2.2 SERVICE DELIVERY

.1 Submittals

.1 Submit various Reports, Sketches, Drawings, Specifications and Progress Schedules and Payment and Manuals at key project milestones.

.1 Content and level of detail shall be specific to the expectations relative to a milestone and not in advance of a milestone.

.2 Construction budget/estimate level of accuracy shall reflect the scope and accuracy consistent with the expectations relative to a milestone and not in advance of a milestone.

.3 All work submitted to the Departmental Representative will be reviewed for;

.1 Design and documentation performance quality;

.2 Conformance to Owner Project Requirements (OPR), and

.3 Constructability, biddability and claims avoidance.

.2 Provide written responses to review comments.

.2 Computer Aided Design (CAD)

.1 In the case BIM is not required or used, develop project drawings on a CAD drawing system acceptable to PWGSC standards;

.1 Web site, http://www.tpsgc-pwgsc.gc.ca/biens-property/cdao-cadd/index-eng.html

.2 Furnish digital files in addition to multiple sets of prints for all submissions. Additional prints and/or mylars are required when submitting Final Compliance Documents.

.3 Make provision for automatic take-offs to be derived directly from the CAD drawing files. These shall be used to prepare final estimates.

.3 Building Information Modeling (BIM)

.1 PWGSC may require the use of BIM to deliver projects. Any requirement to use BIM will be indicated in the TOR and other complementary documents.

.4 Specifications and Cost Estimates

.1 During the Schematic Design and Design Development milestones, development of outline specification and cost estimates are to be structured to Uniformat II detail Level 4.

.2 During Construction Documentation, Tender and Close Out milestones, development of specifications and cost estimate are to be are to be structured to National Research Council/ PWGSC/ National Master Specifications, MasterFormat.

.3 National Master Specification (NMS)

.1 The National Research Council of Canada (NRC) has assumed ownership of the National Master Specification (NMS) from Public Works and Government Services Canada (PWGSC).

.2 NMS is intended for use by the federal government, other public organizations and the private sector in the preparation of construction and renovation contract documents.

.3 Contact NRC for the re-branded latest version of PWGSC NMS

User Guide and specification development framework.

.1 The Guide reflects honest, fair and comprehensive conduct for both public and private sectors.

1.2.3 PROCUREMENT OF GOODS AND SERVICES

.1 PWGSC contracting requirements

.1 Code of Conduct for Procurement applies to all goods and services tenders issued by the CM in compliance to the TOR.

1.2.4 INDUSTRY STANDARD PRACTICES

.1 Review the tender work packages to confirm completeness and that the procurement method will achieve value for money and meet the schedule.

.2 Use standard Construction Association practices for tendering for the project area. Include the use of;

.1 CCDC standard contracting documents.

.2 Public advertisement to the industry using provincially/territorially acceptable advertisement methods or where;

.1 Justified for value for money, an invitation to three to five bidders experienced in the work.

.2 Limited trades or suppliers are proven, the Departmental Representative with the approval of the Contracting Authority, may authorize pre-qualified or sole source tenders.

2. PROJECT ADMINISTRATION

2.1 GENERAL

.1 Project Administration provides background information and expectations associated with the design process and deliverables.

2.1.2 PROJECT MANAGEMENT

.1 PWGSC administers the project on behalf of Canada and exercises control over the Design, Implementation and Close Out phases of Project Delivery.

.2 This project is to be organized, managed and delivered in a collaborative manner.

.3 The PWGSC Project Team, the Consultant, the CM and the User Department teams will be required to work together during the Design, Implementation and Close Out phases of Project Delivery.

2.2 LANGUAGE

.1 Construction documents must be prepared in English.

2.3 MEDIA

.1 The CM shall not respond to any media inquiry.

.2 Direct all media requests to the Departmental Representative.

2.4 PROJECT MANAGEMENT

2.4.1 NATIONAL PROJECT MANAGEMENT SYSTEM

.1 PWGSC uses the National Project Management System (NPMS) for management and delivery of its real property projects to align with the Federal Government review and approvals processes. Refer to the PWGSC NPMS web site for more details.

.1 Web site, http://www.tpsgc-pwgsc.gc.ca/biens-property/sngp-npms/index-eng.html

2.4.2 DESIGN STAGE

.1 Pre-design Process.

.1 The purpose of this process is to analyze project requirements including codes, regulations, programming, sustainability, cost, time management and risk to demonstrate a full understanding of the project.

.2 The Pre-Design documents become guiding documents utilized throughout the project to guide the delivery.

.2 Schematic Design Process.

.1 The purpose of this process is to explore different design options and to analyze them against the project requirements.

.2 Typically, the Schematic Design will be in sufficient detail to illustrate and communicate the project characteristics, and would provide a detailed review and analysis of the project requirements including all updates and amendments to ensure all requirements are fully integrated into the Schematic Design.

.3 Out of this process the Schematic Design is accepted and authorization to proceed to Design Development is based on the accepted Schematic

Design.

.4 The *Departmental Representative*, in concert with others choose a preferred option to be further developed.

.5 The approved Schematic Design become guiding documents and will be utilized throughout the project to guide the delivery.

.3 Design Development Process.

.1 The purpose of this process is to further develop the design option selected for refinement during the Schematic Design process.

.2 Typically, the Design Development documents consist of drawings and other documents to describe the scope, quality and cost of the project in sufficient detail to facilitate design approval, confirmation of code compliance, detailed planning of construction and project approval.

.3 This design is used as the basis for preparation of construction documents.

.4 The approved Design Development documents become guiding documents and are utilized throughout the project to guide the delivery.

.4 Construction Document Process.

.1 The purpose of this process is to translate design development documents into construction drawings and specifications, for use by the contractor to determine a cost for the work.

.2 Refer to TOR for Construction Documents QA Review submission milestones.

2.4.3 IMPLEMENTATION PHASE

.1 Commissioning Process.

.1 Commissioning Process: refer to CAN/CSA Z320-11

.2 Commissioning is a quality assurance process, in which the functional requirements and the operational requirements (Owner Project Requirements – OPR) of the project are tested, verified and proven to function as intended.

.3 Commissioning Process deliverables occur progressively throughout the project life cycle as per milestones detailed in TOR Part 2 Required Services.

.2 Construction Contract Procurement Process.

.1 The purpose of this process is to obtain and evaluate bids/proposals from qualified contractors to construct the work, as per the Construction Contract Documents and to award the construction contract according to government regulations.

.3 Construction Contract Administration Process.

.1 The purpose of this process is to construct the work in compliance with the Construction Contract Documents and to direct and monitor all necessary or requested changes to the scope of work during construction, commissioning and closeout.

2.4.4 CLOSEOUT PHASE

.1 Post Construction Process.

.1 The purpose of this process is to ensure the orderly completion and recording of project and contract required documents and deliverables and to liaise with Public Works and Government Services Canada and other agencies as appropriate to close out the project.

2.5 COST MANAGEMENT

2.5.1 GENERAL

.1 Construction cost estimates are prepared and submitted to PWGSC by the Consultant Team Quantity Surveyor at various times during the Design and Implementation phases.

.2 In addition to the Consultants' estimate, PWGSC may have independent estimates performed to compare with the Consultant estimate.

.3 The CM provides cost confirmation using same format as well as by trade division breakouts.

.1 Schematic Design and Design Development;

.1 Cost estimates, similar to specifications, structured to Uniformat II detail Level 4/5.

.2 Construction Documentation and Construction/Implantation/Close-Out

.1 Cost estimates, similar to specifications, structured to National Research Council/ PWGSC/ National Master Specifications, MasterFormat.

.4 The level of accuracy of a class D cost estimate is such that no more than a 20% design contingency allowance is required.

.5 The level of accuracy of a class C cost estimate is be such that no more than a 15% design contingency allowance is required.

.6 The level of accuracy of a class 'B' cost estimate is such that no more than a 10% design contingency allowance is required.

.7 The level of accuracy of a class 'A' cost estimate is such that no more than a 5% design contingency allowance is required.

2.6 ROLES AND RESPONSIBILITIES

2.6.1 CONSTRUCTION MANAGER (CM)

.1 The CM shall:

.1 Assign staff or engage the services of Specialist Consultants to provide the required services outlined in TOR Part 2, Advisory and Support Services;

.2 Complete the Work outlined in TOR Part 3 General Contractor Work using the CM's Own Forces and the CM's contracted Sub-Trades;

.3 Ensure continuity of key personnel and dedicate a working team for the life of this project;

.4 Submit in writing, to the Departmental Representative for review and acceptance;

.1 The respective names, addresses and confirmation of qualifications of individuals and/or firms engaged to provide Services for this Project, who were not identified in the CM's response to the RFP, and

.2 Proposed changes to the roles of persons to be employed by the

CM or firms to be contracted by the CM to provide the Services and Work for the Project and shall include the names, addresses, qualifications and experience of the proposed individual(s) or firm(s).

2.6.2 THE CM TEAM

.1 The CM's Key Personnel shall be located in Lethbridge, Alberta or in the immediate surrounding area, for the period of their involvement in the Project.

.2 The CM team shall:

.1 Have complete and collective understanding of the project requirements, including scope, budget and scheduling objectives; and

.2 Work to ensure a collaborative and cooperative team approach with knowledgeable and timely input and contribution by all project team members.

2.6.3 PWGSC

.1 PWGSC will:

.1 Be responsible to deliver the project;

.2 Manage the internal stakeholders of PWGSC and the Used Department;

.3 Manage internal resources to Quality Assure the project deliverables;

.4 Provide authorizations to the CM and Consultant on various tasking

.5 Ensure Integrated Design Review Sessions are organized at various stages of the project, as required;

.1 Smaller sub-projects may only require reviews at 50% and 100%.

.6 Manage the project and contracts with the Consultant and the CM.

2.6.4 THE PWGSC TEAM

.1 The PWGSC Departmental Representative:

.1 Is the PWGSC Project Manager or delegated Deputy Project Manager assigned to administer the Project;

.2 Is responsible for the day-to-day management of the project and for overseeing its progress and delivery, on behalf of PWGSC;

.3 Is the representative for all project contract services and, as such, will be the CM's single point of contact for all project direction;

.4 Is the liaison amongst and between the Construction Manager, the Consultant, Public Works and Government Services Canada and the User Departments; and

.5 Is responsible for conveying all requirements of the User Department to the CM and Consultant Team.

.2 The PWGSC Architecture and Engineering Centre of Expertise (AECoE) Team:

.1 Provides expert advice and quality assurance for architectural and engineering disciplines and specialities;

.2 Participates in pre-design, design and reviews construction documents.

.3 Attends construction meetings and conduct field reviews on behalf of

the Departmental Representative, as required;

.4 Uses PWGSC Design Manager to coordinate its services;

.5 Offers technical advice, risk advice, reviews CM deliverables and tracks compliance and recommends design approaches;

.6 The PWGSC Architecture and Engineering Centre of Expertise (AECoE) Team will be represented by the following disciplines;

.1 Architecture & Interior Design,

.2 Structural Engineering,

.3 Civil Engineering,

.4 Mechanical Engineering,

.5 Electrical Engineering,

.6 Commissioning Advisor.

.3 The PWGSC Commissioning Advisor:

.1 Represents the Crown's interests in the commissioning process;

.2 Provides technical advice and quality assurance on the commissioning process throughout delivery;

.3 Reviews documentation and reported results throughout the project delivery;

.4 Witnesses verification of Systems and Integrated Systems Testing as demonstrated by CM; and

.5 Participates in warranty reviews.

2.6.5 USER DEPARTMENT

.1 The User Department Project Leader:

.1 Is accountable for the expenditure of public funds and delivery of the project in accordance with terms accepted by the Treasury Board;

.2 Reports to User Department senior executive management;

.3 Will play several roles in the delivery of the project, as follows;

.1 Coordinate the quality, timing and completeness of information and decisions related to the functional performance of the facility,

.2 Ensure User Department program requirements are understood by all, and

.3 Facilitate and provide User Department sign-offs and approvals, as required.

2.6.6 THE CONSULTANT TEAM

.1 The consultant team includes the prime consultant, qualified professionals, sub-consultants and specialists with relevant experience, capable of providing required professional services for the Project.

.2 The Consultant Team is responsible for:

.1 Completing the design for the built works and for coordinating and directing the work of sub-consultants and specialists;

.2 Preparing and assembling the tender documents for each identified tender package;

.3 Providing input into the Departmental Representative's Risk Management Plan; and

.4 Providing to the Departmental Representative contract administration

services during design and construction.

2.6.7 PROVINCIAL AND MUNICIPAL AUTHORITIES

.1 The federal government generally defers to provincial/territorial and municipal authorities for specific regulations, standards and inspections but in areas of conflict, the more stringent authority prevails.

.2 Municipal authority review.

.1 Submissions will be reviewed as required by the authority.

.3 Permits.

.1 The Consultant will support the Contractor in applying for permits by providing documentation.

.1 The Consultant will negotiate and resolve building permit related issues.

.2 The Consultant shall support the Contractor in its application for an occupancy permit and coordinate the resolution of all outstanding issues relating to the permit.

.3 The CM Contractor shall pay for the permits on behalf of PWGSC.

2.7 COMMUNICATIONS AND MEETINGS

2.7.1 COMMUNICATION

.1 Unless otherwise directed by the Departmental Representative, the CM shall conduct all project communication through the Departmental Representative only.

.2 If any communication with the User Departments results in the need for change to the Project scope of work, quality, cost or schedule, the CM shall inform the Departmental Representative, and seek direction, before taking any action.

.3 The Departmental Representative will arrange for the CM to obtain access to the PWGSC secure shared document management site (Buzzsaw).

.4 Correspondence.

.1 All correspondence from the CM shall be distributed as directed by the Departmental Representative.

.2 There shall be no correspondence between occupants or users of the facility and the CM unless directed by the Departmental Representative.

.3 All correspondence must carry the Contract name/number, PWGSC Project title, PWGSC Project number and File number and a date (i.e. Year/Month/Day).

.4 Automatic date fields shall not be used except when preceded by the text “Printed on:”.

.5 The CM shall:

.1 Develop a communication and correspondence protocol, submit to the Departmental Representative for review and acceptance prior to undertaking the work and incorporate it into the Project Procedures Manual;

.1 Account for the involvement of all Stakeholders in this protocol.

.2 Direct communication and correspondence between members of the

PWGSC Project Team, the Consultant and the User Departments on routine matters as may be required to enable the project to proceed in a timely and efficient manner however;

.1 No communication shall alter the terms of the project scope, budget or schedules unless directed in writing by the Departmental Representative.

2.7.2 SUBMISSIONS TO PWGSC

.1 Where submissions to PWGSC include summaries, monitoring outcomes, reports, network diagrams, drawings, plans, specifications or finish schedules, submit one (1) original to the Departmental Representative in electronic format, unless otherwise directed in writing.

.2 Electronic format.

.1 The electronic deliverables shall be provided using Microsoft applications.

.2 Alternatively, as agreed upon by the Departmental representative, submit all work in Adobe Acrobat *.pdf format except for Network Diagrams which shall be submitted in their original electronic format.

2.7.3 PROJECT RESPONSE TIME

.1 It is a requirement of this project that the key personnel of the CM are personally available to attend meetings or respond to inquiries.

.2 During the project, the CM's key personnel shall be:

.1 Available to attend meetings and respond to inquiries within one (1) working day notice;

.2 Able to respond to emergencies within four (4) hours, including those occurring during off-hours and on weekends/ holidays; and

.3 On occasion, there may be urgent, problem-solving meetings.

.1 The CM shall be available to attend such meetings in location agreed upon within four (4) business hours.

2.7.4 MEETINGS DURING THE PRE-DESIGN, SCHEMATIC DESIGN, DESIGN DEVELOPMENT AND CONSTRUCTION DOCUMENTATION PROCESSES

.1 Meetings with PWGSC, the CM, the Consultant and User Department will be held in agreed upon location.

.2 The Departmental Representative will arrange meetings bi-weekly with representatives from:

.1 PWGSC;

.2 Consultant team;

.3 Construction Management Team; and

.4 User Department representatives.

.3 The Consultant Team will be responsible for:

.1 Preparing minutes of meetings;

.2 Forwarding minutes to the Departmental Representative and CM;

.3 These meetings are for the accurate exchange of information; and

.4 Requests and decisions taken shall follow the formal lines of communications.

.4 The CM shall:

.1 Attend meetings, prior to construction start;

.1 Respond to meeting minute action items as required prior to the next meeting

2.7.5 MEETINGS DURING CONSTRUCTION PERIOD

.1 The CM shall:

.1 Arrange and coordinate construction meetings on site;

.1 Regular meetings to be held bi-weekly through the duration of the project,

.2 Prepare and distribute minutes within two (2) working days of the meeting, and

.3 Endeavour to hold meetings as Green Meetings (i.e. Electronic copies of documents where possible or double sided hard copies).

.2 Establish a list of standing agenda items, including (as a minimum):

.1 Schedule and progress;

.2 Cost issues and changes;

.3 Risk issues;

.4 Quality issues;

.5 Scope of work;

.6 Site safety;

.7 Sustainable development; and

.8 Commissioning

2.8 REGULATORY REQUIREMENTS

2.8.1 FEDERAL GOVERNMENT

.1 The PWGSC Departmental Representative will review work in progress on a continuing basis.

.2 The following are authorities having Federal Government jurisdiction over the project:

.1 Treasury Board of Canada;

.2 Public Works and Government Services Canada;

.1 Contracting authority and project delivery.

.3 National Research Council Canada:

.1 Building Codes and Standards;

.1 National Building Code, and

.2 National Fire Code.

2.8.2 PROVINCIAL, MUNICIPAL AND OTHER AUTHORITIES HAVING JURISDICTION

.1 Although the Federal Government is not subject to jurisdictions at other levels of government, voluntary compliance with the Departmental Policy of these other Authorities is a requirement unless otherwise directed by the Departmental Representative.

.1 Codes, regulations, by-laws and decisions of authorities identified herein as having jurisdiction shall be observed.

.2 In areas of conflict between codes, standards and regulations, the most rigid requirements shall be adhered to.

.3 The CM shall identify other jurisdictions appropriate to the project.

.2 Provincial Acts, Regulations, Standards and Inspections

.1 Unless directed otherwise by the Departmental Representative, the CM will:

.1 Adhere to all applicable provincial Construction Health and Safety Acts and regulations, in addition to the related Canada Occupational Safety and Health Regulations.

.2 Adhere to the requirements of the Province/Territory appropriate to the project for:

.1 Employment Standards;

.2 Construction Safety;

.3 Designated Substance Management; and

.4 Workers Compensation

.3 Adhere to the requirements of the Provincial/Territorial Department of the Environment appropriate to the project for:

.1 Building Discharges into the air, water and ground; and

.2 Disposal of Designated Substances including Asbestos.

.4 Adhere to the requirements of the Province/Territory as per project location for:

.1 Construction Hoists; and

.2 Elevators, Escalators and Dumb Waiters.

.3 Local / Municipal By-laws, Regulations, Standards and Inspections

.1 Unless directed otherwise by the Departmental Representative, the CM will:

.1 Make preliminary municipal submissions at stages required by the AHJ;

.2 Provide all required supporting documentation for permit applications;

.3 Apply for and obtain all permits and approvals necessary for the work, including, but not limited to Building, Electrical and Plumbing Permits;

.4 Resolve all Building Permit related issues, with support from the Consultant as may be required;

.5 Provide fire safety equipment and access for fire-fighting services, as required by the city; and

.6 If required by the AHJ, apply for an Occupancy Permit and co-ordinate the resolution of all outstanding issues related to obtaining the permit.

.4 Provide Local / Municipal authorities with access to the site as required and arrange for inspections of the construction work by the AHJ or governing utility officials.

2.9 ACCEPTANCE OF PROJECT DELIVERABLES

2.9.1 ACCEPTANCE OF PROJECT DELIVERABLES

.1 While PWGSC acknowledges the CM's obligations to meet project requirements, the project delivery process entitles PWGSC to review all work.

.2 PWGSC reserves the right to reject undesirable or unsatisfactory work.

.3 The CM must obtain Departmental Representative acceptance of all required deliverables for the Project.

.1 Acceptance indicates that based on a general review of material for specific issues, the material is considered to comply with governmental and departmental objectives and practices and those overall project objectives appear to be satisfied.

.2 Acceptance does not relieve the CM of responsibility for the work and compliance with the contract.

.3 Acceptance does not prohibit rejection of work, which is determined to be unsatisfactory at later stages of review

3. PROJECT MONITORING AND REPORTING

3.1 GENERAL

.1 Use industry recognized and readily available software for project monitoring and reporting.

.1 Make available all deliverables electronically (in original software format and PDF) and hard copy.

.2 Notwithstanding more detailed Project Monitoring and Reporting requirements in the TOR, Definitions and Division 01 documents, provide a system for documentation and project monitoring and reporting through each milestone of project delivery, for review and acceptance by the Departmental Representative prior to proceeding with next milestone.

.1 The actual report outline shall be acceptable to the Departmental Representative.

.3 As a component of the Project Procedures Manual (PPM), prepare and submit, at the start of the project, sample outlines/formats for all reports, for review and acceptance by the Departmental Representative.

.1 Resubmit as may be required.

.2 Date(s) of issue of the CM Monthly Report shall be established.

.3 The Monthly Report formats shall be used for all subsequent project milestones.

.4 During the Design and Construction Documentation milestones, prepare and submit monthly progress reports.

.1 The purpose of the report shall be to review and monitor the progress of the Services by the CM. Reports shall provide:

.1 An executive summary of key points;

.2 Progress of Advisory Support and Construction Support Services;

.3 Progress Claims and Payments to date (including change orders) in a form that compares the original budgets for each Tender Package with the expected costs;

.4 Instances where the schedule is not being met and identify impact on scheduled completion date;

.5 Outline of remedial measures being taken or planned to be undertaken to ensure the scheduled completion date; and

.6 Anticipated or potential problems to be addressed.

.7 Progress in Commissioning Process development.

.5 During the Construction/Implementation milestone, notwithstanding Division 01, General Requirements document, specifying reporting requirements, prepare and submit monthly reports to address status and variances with respect to schedule, budget, quality, and scope:

.1 The actual report outline shall be acceptable to the Departmental Representative, and shall provide;

.1 An executive summary of key points,

.2 General progress of the Work and modifications to reflect changes in project parameters as may be identified throughout the project life,

.3 Construction Cost Plan Report including an overview of cost issues

as outlined in this TOR,

.4 Master Schedule Update and narrative report including an overview of schedule issues as outlined in this TOR,

.1 Monitor changes to the Master Schedule at least once a month and submit written reports to the Departmental Representative on any deviations or delays from the master schedule, and identify possible remediation measures required to maintain the Master Schedule Completion date.

.2 Monthly reports must identify not only reasons for delay but also offer suggestions, where possible, on how to bring the project back on track.

.5 Identification of risks and proposed strategies for mitigation, including scope creep as well as quality control outlined in this TOR,

.6 Health and Safety status Report, and

.7 Progress in Commissioning Plan updates and Commissioning Manual development.

3.2 EXECUTIVE SUMMARY ON KEY POINTS

.1 Per Report, provide general commentary/narrative on where the project is at, milestones achieved, upcoming milestones and estimation on how the project is progressing at a high level including;

.1 Assumptions, exclusions, risk assessments, opportunities and deviation from standards, major changes relative to previous report including market events.

3.3 GENERAL PROGRESS OF WORK

.1 Per report describe;

.1 Work Completed in the last reporting period

.2 Upcoming work that is anticipated to be completed in the next reporting period.

.3 Issues requiring resolutions.

4. MONTHLY REPORTING OUTLINE

4.1 GENERAL PROGRESS OF WORK

.1 Description of Work Completed in the last reporting period.

.2 Description of upcoming work that is anticipated to be completed in the next reporting period.

.3 Issues that need to resolved.

4.2 COMMISSIONING PLAN PROGRESS REPORT

.1 Component of Project Procedures Manual

.2 Update on Progress of Commissioning Plan

.3 Commentary on next steps

.4 Update Issues/Resolutions Log complete with highlighted pending resoluti0ons and associated narratives.

.5 Implementation/Construction and Project Close-Out, MS Project generated Cx Schedule of commissioning activities, to include up-dated:

- .1 Cx Team meetings;
- .2 Start and substantial/interim completion of each construction phase;
- .3 Systems and related assembly completion and testing;
- .4 Static Verification, Start-Up and Functional Performance Testing;
- .5 Training sessions;
- .6 Deferred Cx testing;
- .7 Warranty start date(s);
- .8 Occupancy dates for each construction phase;
- .9 Schedule, planned vs. actual; and
- .10 Final Acceptance.

4.3 HEALTH & SAFETY REPORT

.1 Narrative on the application or adjustment to the CM's Health and Safety Plans.

.2 Safety incidents identified and resulting actions

.3 Confirmation that Safety Tailgate Meetings are Occurring

.4 On site activities that warrant special safety consideration or awareness.

4.4 MASTER COST PLAN REPORT

.1 Component of Project Procedures Manual

.2 Basis of Estimate (BOD)

.3 Budgeted dollars per month.

.4 Expenditure Cash Flow per month.

.5 Forecasted Expenditures per month.

.6 Actual Expenditures per month.

.7 Authorized Plan Deviations.

- .1 Variances between actual costs and Estimated Construction Cost limits.

.8 Earned value of work done to end of reporting period, per fiscal year and project overall. Include;

.1 Progress Claims per Tender (work) Package.

.9 Actions Required to Maintain Estimated Construction Costs limit, if required.

4.5 MASTER SCHEDULE UPDATE (UPDATED SCHEDULE SHOWING PROGRESS TO DATE TO BE ATTACHED)

.1 Component of Project Procedures Manual.

.2 Identification of Critical Path tasks completed, Critical Path tasks upcoming

.3 Progress on Schedule.

.4 Authorized Deviations to Schedule to date

.1 Detail variances between actual and estimated dates for milestone deliverables.

.5 Work Packages;

.1 Design, Construction Documentation Tender, Award Construction/Implantation and Close-Out

.6 Actions Required to Maintain Schedule, if required.

4.6 MOVE PROGRESS REPORT

.1 Continued roles and responsibilities, critical milestones, estimate of move scope cost, logistics and coordination with the overall delivery.

.2 Move Plan and Move Process Protocols Narrative updates.

.3 Tender Package cost estimate updates and actual contract costs.

4.7 RISK MANAGEMENT REPORT

.1 Component of Project Procedures Manual.

.2 Identified risk; stating new or ongoing risk.

.3 Identified risk mitigation strategy.

.4 Report on the outcome of the mitigation strategy

5. QUARTERLY UP-DATE REPORTING OUTLINE

5.1 MILESTONE REPORTING

.1 Cost Estimating and Cost Planning;

.2 Master Schedule;

.3 Quality Management Plan (QMP) – QM planned/actual actions and results;

.4 Project Procedures Manual (PPM);

.5 Design and Construction documentation review summaries;

.6 Shop Drawings, per each tender package, schedule, log and issues/resolution log.