



**RETURN BIDS TO:  
RETOURNER LES SOUMISSIONS À:**

**Bid Receiving - PWGSC / Réception des  
soumissions - TPSGC**  
**11 Laurier St./11 rue Laurier**  
**Place du Portage, Phase III**  
**Core 0B2 / Noyau 0B2**  
**Gatineau, Québec K1A 0S5**

**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**

THIS DOCUMENT CONTAINS A SECURITY  
REQUIREMENT/ CE DOCUMENT COMPORTE  
UNE EXIGENCE EN MATIÈRE DE SÉCURITÉ

**Vendor/Firm Name and Address**

**Raison sociale et adresse du  
fournisseur/de l'entrepreneur**

**Issuing Office - Bureau de distribution**

Construction Services Division/Division des services de  
construction  
11 Laurier St./11 Rue Laurier  
3C2, Place du Portage  
Phase III  
Gatineau, Québec K1A 0S5

<b>Title - Sujet</b> Construction Management Services	
<b>Solicitation No. - N° de l'invitation</b> EP775-150701/B	<b>Date</b> 2015-07-10
<b>Client Reference No. - N° de référence du client</b> 20150701	
<b>GETS Reference No. - N° de référence de SEAG</b> PW-\$\$FG-353-67647	
<b>File No. - N° de dossier</b> fg353.EP775-150701	<b>CCC No./N° CCC - FMS No./N° VME</b>
<b>Solicitation Closes - L'invitation prend fin</b> <b>at - à 02:00 PM</b> <b>on - le 2015-09-02</b>	<b>Time Zone</b> <b>Fuseau horaire</b> Eastern Daylight Saving Time EDT
<b>F.O.B. - F.A.B.</b> <b>Plant-Usine:</b> <input type="checkbox"/> <b>Destination:</b> <input type="checkbox"/> <b>Other-Autre:</b> <input type="checkbox"/>	
<b>Address Enquiries to: - Adresser toutes questions à:</b> Searchwell, Suzette	<b>Buyer Id - Id de l'acheteur</b> fg353
<b>Telephone No. - N° de téléphone</b> (819) 956-6645 ( )	<b>FAX No. - N° de FAX</b> ( ) -
<b>Destination - of Goods, Services, and Construction:</b> <b>Destination - des biens, services et construction:</b> Department of Public Works and Government Services Postal Station "B" Building 59 Sparks Street Ottawa, Ontario K1P 6E4	

**Instructions: See Herein**

**Instructions: Voir aux présentes**

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

**SI03 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, services or both. It does not include the parent, subsidiaries or other affiliates of the Bidder, or its subcontractors.

**SI04 ENQUIRIES DURING THE SOLICITATION PERIOD**

1. Enquiries regarding this bid must be submitted in writing to the Contracting Officer named on the Request for Proposal (RFP)- Page 1 as early as possible within the solicitation period. Enquiries should be received no later than ten **(10) working 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 bid sent throughout the solicitation period are to be directed **ONLY** to the Contracting Officer named on the Request for Proposal - Page 1. Failure to comply with this requirement may result in the bid being declared non-responsive.

**SI05 OPTIONAL SITE VISIT**

**Pre-qualified Bidders are invited to a site visit on August 6, 2015. Attendees are invited to meet at 11 Metcalfe Street, Ottawa, Ontario, Main Entrance.** Due to the stringent security requirement for this project; the following is to be noted:

- It is anticipated that several site visits will be scheduled for the day
- All attendees must be SECRET cleared
- Only two participants from each pre-qualified firm will be allowed to attend the site visit
- The names and date of birth for each attendee must be submitted to the contracting officer by end of business day **July 28, 2015** to allow sufficient time for the security verification process
- No electronic devices will be permitted on site
- Attendees must present government issued photo ID
- Time notifications for scheduled visit will be sent to each proponent by end of Business day **July 31, 2015**
- Questions will not be addressed during the site visits
- NO personnel/ individuals will be permitted to access the site without the required clearance.

**SI06 BID VALIDITY PERIOD**

1. Canada reserves the right to seek an extension to the bid validity period prescribed in BA04 of Appendix A- Bid and Acceptance 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 SI06 is accepted, in writing, by all those who submitted bids, then Canada shall continue immediately with the evaluation of the bids and its approvals processes.
3. If the extension referred to in paragraph 1) of SI06 is not accepted in writing by all those who submitted bids then Canada shall, at its sole discretion, either
  - a. continue to evaluate the bids of those who have accepted the proposed extension and seek the necessary approvals; or
  - b. cancel the Request for Proposal.
4. The provisions expressed herein do not in any manner limit Canada's rights in law or under GI10 Rejection of Bid.

## **SI07 RIGHTS OF CANADA**

Canada reserves the right to:

- a. reject any or all bids received in response to the bid solicitation;
- b. enter into negotiations with bidders on any or all aspects of their bids;
- c. accept any bid in whole or in part without negotiations;
- d. cancel the bid solicitation at any time;
- e. reissue the bid solicitation;
- f. if no responsive bids are received and the requirement is not substantially modified, reissue the bid solicitation by inviting only the bidders who bid to resubmit bids within a period designated by Canada; and
- g. negotiate with the sole responsive Bidder to ensure best value to Canada.

## **SI08 CONDUCT OF EVALUATION**

1. In conducting its evaluation of the proposals, 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 RFP;
  - 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 RFP;
  - e. correct any error in the total bid amount by using unit pricing and any error in quantities in bids to reflect the quantities stated in the bid solicitation; in case of error in the estimated amount 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; and
  - 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 RFP.
2. Bidders will have the number of days specified in the request by the Contracting Officer to comply with any request related to any of the above items. Failure to comply with the request may result in the proposal being declared non-responsive.

Solicitation No. - N° de l'invitation

EP775-150701/B

Amd. No. - N° de la modif.

Buyer ID - Id de l'acheteur

fg353

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

20150701

File No. - N° du dossier

fg353EP775-150701

CCC No./N° CCC - FMS No/ N° VME

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## **SI09 ENTIRE REQUIREMENT**

The bid solicitation documents contain all the requirements relating to the bid solicitation issued on the Government of Canada Electronic Tendering System, [buyandsell.gc.ca](http://buyandsell.gc.ca) . Any other information or documentation provided to or obtained by a bidder from any source are not relevant. Bidders should not assume that practices used under previous contracts will continue, unless they are described in the bid solicitation. Bidders should also not assume that their existing capabilities meet the requirements of the bid solicitation simply because they have met previous requirements.

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**SI10 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)

<Http://buyandsell.gc.ca/>

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 PWGSC-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

<http://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual/5/R>

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>

PWGSC Consent to a Criminal Record Verification (PWGSC-TPSGC 229)

<http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/229.pdf>

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## SI11 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.

## SI12 PREQUALIFICATION

All the prequalification requirements in Phase One (Prequalification) are carried over to this Phase Two (RFP). Only those Bidders who have been prequalified by PWGSC in Phase One will be eligible to submit a bid in response to this RFP.

## SI13 SECURITY CLEARANCE

**This document contains a mandatory security requirement for the performance of the subsequent contract (refer to clause SC03 of the Supplementary Conditions included herein).**

- 1. At bid closing, the Bidder (or in the case of a Joint Venture, each member of the Joint Venture) must hold a valid Security Clearance** as indicated in section SC03 of the Supplementary Conditions. Failure to comply with this requirement will render the Bid non-compliant and no further consideration will be given to the Bid.
- The Successful Bidder's personnel, as well as any subcontractor and its personnel, who are required to perform any part of the work pursuant to the subsequent Contract must meet the mandatory security requirement as indicated in Section SC03 of the Supplementary Conditions. **Individuals who do not have the required level of security will not be allowed on site.** It is the responsibility of the successful Bidder to ensure that the security requirements are met throughout the performance of the Contract. Canada will not be held liable or accountable for any delays or additional costs associated with the successful bidder's non-compliance with the mandatory security requirement.
- The Bidder's proposed location of work performance or document safeguarding must meet the security requirement as indicated in Supplementary Clauses (SC03);
- The Bidder must provide the address(es) of proposed location(s) of work performance or document safeguarding as indicated in Supplementary Clauses (SC03).
- For additional information on security requirements, bidders should consult the "Security Requirements for PWGSC Bid Solicitations - Instructions for Bidders" on the Standard Procurement Documents Web site [Industrial Security Program](#)

#### SI14 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](http://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 (Annex E) 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 Annex E.

If you accept fill out and sign Annex E.

*\* The journeyman-apprentice ratio is defined as the number of qualified/certified journeymen 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.*

## GENERAL INSTRUCTIONS TO BIDDERS

- GI01 Applicable Taxes
- GI02 Overview of Selection Procedure
- GI03 Responsive Bids
- GI04 Completion of Bid
- GI05 Bid Price
- GI06 Bid Security Requirements
- GI07 Submission of Bid
- GI08 Late Submissions
- GI09 Revisions of Bids
- GI10 Rejection of Bid
- GI11 Bid Costs and Limitation of Liability
- GI12 Procurement Business Number
- GI13 Legal Capacity
- GI14 Joint Ventures
- GI15 Capital Development and Redevelopment Charges
- GI16 Compliance With Applicable Laws
- GI17 Performance Evaluation
- GI18 Conflict of Interest- Unfair Advantage
- GI19 Code of Conduct and Certifications
- GI20 Debriefing

### GI01 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 the date of bid submission by the Bidder or the date of submission of the last revision whichever is later.

### GI02 OVERVIEW OF SELECTION PROCEDURE

#### 1. Bid

- a. Bids are submitted following a "two-envelope" procedure, in which Bidders submit the "technical" component of their Bid in one sealed envelope and the proposed price of the services (Bid Price) in a second sealed envelope.
- b. The information that Bidders are required to provide is set out in detail elsewhere in the RFP.

#### 2. Bid Evaluation and Rating

- a. Technical components of all eligible Bids are reviewed, evaluated and rated by a Public Works and Government Services Canada (PWGSC) Evaluation Board in accordance with the criteria, components and weight factors set out in the Submission Requirements and Evaluation (SRE). Upon completion of the evaluation, technical scores are established.
- b. Technical Bids achieving the minimum technical score specified in the Submission Requirements and Evaluation section of the RFP are further considered.
- c. The price envelopes of all responsive technical Bids are opened upon completion of the



technical evaluation.

### 3. Notification

PWGSC normally expects to advise unsuccessful Bidders, in writing, within one week after PWGSC has entered into a contractual arrangement with the successful Bidder.

#### GI03 RESPONSIVE BIDS

Refer to SRE 4 of Submission Requirements and Evaluation.

#### GI04 COMPLETION OF BID

The Bidder shall base the bid on the applicable bid documents listed in the Special Instructions to Bidders. It is the responsibility of the Bidder to obtain clarification of any terms, conditions or technical requirements contained in the RFP.

#### GI05 BID PRICE

Unless specified otherwise in the bid documents:

- a. the price shall be in Canadian currency; and
- b. the price bid shall not include any amount for Applicable Taxes, and
- c. exchange rate fluctuation protection is not offered; and
- d. any request for exchange rate fluctuation protection will not be considered, and may render the bid non-responsive.

#### GI06 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 total 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 GI06
  - 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 GI06, 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 GI06 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 GI06 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 GI06 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.

## **GI07 SUBMISSION OF BID**

1. Canada requires that the Bid and Acceptance Form (Appendix A), be signed by the Bidder or by \_\_\_\_\_ an authorized representative of the Bidder. If a bid is submitted by a joint venture, it must be in \_\_\_\_\_ accordance with section GI14.
2. It is the Bidder's responsibility to:
  - a. submit a bid, duly completed, IN THE FORMAT REQUESTED, on or before the closing date and time set;
  - b. send its bid ONLY to Public Works and Government Services Canada (PWGSC) Bid Receiving Unit specified on page 1 of the RFP;
  - c. ensure that the Bidder's name, return address, the solicitation number and description, and solicitation closing date and time are clearly visible on the envelope or the parcel(s) containing the bid; and
  - d. provide a comprehensive and sufficiently detailed bid that will permit a complete evaluation in accordance with the criteria set out in this RFP.
3. Bidders are requested to submit the technical and price components of the bid in separate, easily identified envelopes in accordance with the instructions contained in the bid documents. Bidders are requested to submit both envelopes as one package which clearly and

conspicuously display and indicate on the outside of the package the information identified in subsection 1.(c) above.

4. Timely and correct delivery of bids to the office designated for receipt of bids is the sole responsibility of the Bidder. PWGSC will not assume or have transferred to it those responsibilities. All risks and consequences of incorrect delivery of bids are the responsibility of the Bidder.
5. Bids and supporting information may be submitted in either English or French.

#### **GI08 LATE SUBMISSIONS**

Submissions delivered after the stipulated closing date and time will be returned unopened.

#### **GI09 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).

#### **GI10 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 GI10, 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 conduct 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 remedy 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)(f)(ii) of GI10, 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 GI10, 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 GI11, other than subparagraph 2)(a) of GI10, 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.

## **GI11 BID COSTS AND LIMITATION OF LIABILITY**

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.

Except as expressly and specifically permitted in this RFP, no Bidder or Potential Bidder shall have any claim for any compensation of any kind whatsoever in relation to this RFP, or any aspect of the procurement process, and by submitting a bid each Bidder shall be deemed to have agreed that it has no claim.

## **GI12 PROCUREMENT BUSINESS NUMBER**

Bidders are required to have a Procurement Business Number (PBN) before contract award. Bidders may register for a PBN online at Supplier Registration Information. For non-Internet registration, Bidders may contact the InfoLine at 1-800-811-1148 to obtain the telephone number of the nearest Supplier Registration Agent.

## **GI13 LEGAL CAPACITY**

The Bidder must have the legal capacity to contract. If the Bidder is a sole proprietorship, a partnership or a corporate body, the Bidder must provide, if requested by the Contracting Officer, a statement and any requested supporting documentation indicating the laws under which it is registered or incorporated together with the registered or corporate name and place of business. This also applies to bidders submitting a bid as a joint venture.

## **GI14 JOINT VENTURE**

1. A joint venture is an association of two or more parties who combine their money, property, knowledge, expertise or other resources in a single joint business enterprise, sometimes referred to as a consortium, in order to submit together a response to the Request for Proposal. Bidders who submit a response to the Request for Proposal, as a joint venture must indicate clearly that it is a joint venture and provide the following information:
  - i. the name of each member of the joint venture;
  - ii. the name of the representative of the joint venture, i.e. the member chosen by the other members to act on their behalf, if applicable;
  - iii. the name of the joint venture, if applicable.
2. The response to the Request for Proposal must be signed by all the members of the joint venture unless one member has been appointed to act on behalf of all members of the joint venture. Canada may, at any time, require each member of the joint venture to prove that the representative has been appointed with full authority to act as its representative for the purposes of submitting a response to the Request for Proposal.
3. All of the members of the joint venture are jointly and severally responsible for the obligations entered into by the Bidder in accordance with the Contract Documents.

**GI15 CAPITAL DEVELOPMENT AND REDEVELOPMENT CHARGES**

For the purposes of GC1.8, of R2810D "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.

**GI16 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 licenses, 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 GI17, a Bidder shall, if requested, provide a copy of every valid license, 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 GI17 shall result in disqualification of the bid.

**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, its Affiliates, 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, its Affiliates, 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, or its Affiliates, 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, or its Affiliates, remains however subject to the criteria established above.

3. Where Canada intends to reject a bid under this section, the Contracting Officer 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 Officer 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.

## G119 CODE OF CONDUCT AND CERTIFICATIONS

### 1. Statement

- a) The Contractor must comply with the [Code of Conduct for Procurement](#) and must comply with the terms set out in these Integrity Provisions.
- b) The Contractor confirms that it understands that convictions of certain offences, a false declaration in its bid, a false declaration under the Contract or failing to maintain up-to-date information requested may lead to a termination for default. If the Contractor or any of its Affiliates fail to remain free and clear of any convictions and any conditional or absolute discharges specified in these Integrity Provisions during the contract period, Canada may, following a notice period, terminate for default. The Contractor understands that a termination for default will not restrict Canada's right to exercise any other remedies that may be available against the Contractor and agrees to immediately return any advance payments.

### 2. List of Names

The Contractor must immediately inform Canada in writing of any changes affecting the list of names of directors and owners during the contract period.

### 3. Information Verification

The Contractor certifies that it is aware, and its Affiliates are aware, that Canada may verify at any time during the contract period, the information provided by the Contractor, including the information relating to the acts or convictions and any conditional or absolute discharges specified in these Integrity Provisions. Canada may request additional information, validations from a qualified third party, consent forms and other evidentiary elements proving identity and eligibility to contract with Canada.

### 4. Lobbying Act

The Contractor certifies that neither it nor 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](#).

5. Canadian Offences Resulting in Legal Incapacity

- a) The Contractor has certified that neither it nor any of its Affiliates have been convicted of or have pleaded guilty to an offence under any of the following provisions, which result in 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 Contractor has not been convicted of or pleaded guilty to the offences described in paragraph (a) and has certified 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 under (a).

6. Canadian Offences

The Contractor has certified that:

- a) it and its Affiliates have not, in the last three years, from the date of contract award, been convicted of or pleaded guilty to an offence under any of the following provisions for which it 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 (*Laundrying 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 Contractor has not been convicted of or pleaded guilty to the offences described in paragraph (a) and has certified 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 make that Affiliate ineligible for contract award.

## 7. Foreign Offences

The Contractor has certified that:

- a) it and its Affiliates have not, in the last three years, from the date of contract award, been convicted of or pleaded guilty to an offence in a jurisdiction other than Canada of having committed an act or omission 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 or received a record of discharge under the Foreign Pardons subsection:
  - i. the court before which the Contractor or the Affiliate of the Contractor appeared acted within the court's jurisdiction;
  - ii. the Contractor or the Affiliate of the Contractor 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 Contractor or the Affiliate of the Contractor was entitled to present to the court every defence that the Contractor or the Affiliate of the Contractor 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 has certified 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 under (a).

## 8. Ineligibility to Contract with Canada

- a) The Contractor confirms that it understands that if after contract award they have been convicted of certain offences, as described in the Canadian Offences Resulting in Legal Incapacity, the Canadian Offences and the Foreign Offences subsections, they will be ineligible to contract with Canada. If, after contract award, a Contractor becomes ineligible for contract award, Canada may, following a notice period, declare the Contractor to be ineligible and, to the extent that a contract has been awarded:
  - i. terminate the contract for default; or
  - ii. require the Contractor to enter into an Administrative Agreement with the Minister of PWGS on such terms and conditions as are necessary to safeguard the integrity of the procurement process.
- b) The Contractor confirms that it understands that where its Affiliate has been convicted of certain offences, as described in the Canadian Offences Resulting in Legal Incapacity, the Canadian Offences and the Foreign Offences subsections, the Affiliate is ineligible to contract with Canada. If, after contract award, an Affiliate of a Contractor becomes ineligible to contract with Canada, Canada may, following a notice period, declare the Contractor to be ineligible and, to the extent that a contract has been concluded:
  - i. terminate the contract for default if, in the opinion of Canada, there is evidence that the Contractor directed, influenced, authorized, assented to, acquiesced in or participated in the commission or omission of certain acts or offences that make that Affiliate ineligible; or

- ii. require the Contractor to enter into an Administrative Agreement with the Minister of PWGS on such terms and conditions as are necessary to safeguard the integrity of the procurement process.
- c) The Contractor confirms that it understands that where it has been declared to be ineligible to contract with Canada under the [Ineligibility and Suspension Policy](#), it is also ineligible to contract with Canada under these Integrity Provisions for the duration of the period that has been determined by the Minister of PWGS. Where the Contractor has been declared to be ineligible under the [Ineligibility and Suspension Policy](#) after contract award, Canada may, following a notice period:
- i. terminate the contract for default; or
  - ii. require the Contractor to enter into an Administrative Agreement with the Minister of PWGS on such terms and conditions as are necessary to safeguard the integrity of the procurement process.
- d) The Contractor confirms that it understands that where it or its Affiliates have been held responsible for breaches under the Lobbying Act subsection, it is ineligible to contract with Canada under these Integrity Provisions for the duration of the period that has been determined by the Minister of PWGS. Where the Contractor has been declared to be ineligible under the [Ineligibility and Suspension Policy](#) after contract award, Canada may, following a notice period:
- i. terminate the contract for default; or
  - ii. require the Contractor to enter into an Administrative Agreement with the Minister of PWGS on such terms and conditions as are necessary to safeguard the integrity of the procurement process.

#### 9. Declaration of Offences Committed

The Contractor understands that it has a continuing obligation to immediately declare all convictions to Canada under the Canadian Offences Resulting in Legal Incapacity, the Canadian Offences and the Foreign Offences subsections.

#### 10. Period of Ineligibility

The following rules determine the period for which a Contractor or its Affiliate that has been convicted of certain offences is, ineligible to contract with Canada:

- a) for all offences referenced under the Canadian Offences Resulting in Legal Incapacity subsection for which a Contractor or its Affiliate has pleaded guilty to or has been convicted of, the period of ineligibility to be awarded a contract is indefinite, Canadian Pardons subsection;
- b) subject to an Administrative Agreement, for all offences referenced under the Canadian Offences and Foreign Offences subsections for which a Contractor or its Affiliate has pleaded guilty to or been convicted of, as the case may be, in the last three years, the period of ineligibility to contract with Canada is ten years from the date of determination the Minister of PWGS, subject to the Canadian Pardons and Foreign Pardons subsections;
- c) subject to an Administrative Agreement, for all breaches under the Lobbying Act subsection for which a Contractor or its Affiliate has been found responsible, in the last three years, the period of ineligibility to contract with Canada is ten years from the date of determination by the Minister of PWGS.

#### 11. Canadian Pardons

A determination of ineligibility to contract with Canada 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 Contractor 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.

## 12. Foreign Pardons

A determination of ineligibility to contract with Canada 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 Contractor or its Affiliate, has at any time, benefited from foreign measures that are similar to Canadian pardons at the sole discretion of Canada, conditional discharges, absolute discharges, record of suspensions, or restoration of legal capacities by the Governor in Council.

## 13. Period of Ineligibility for Breaching Administrative Agreements

The Contractor 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.

## 14. Obligations on Subcontractors

The Contractor confirms that it understands that to the extent that it relies on a subcontractor(s) to perform the Contract, the Contractor will not enter into a subcontract with a company that has been convicted of or pleaded guilty or an Affiliate of the company has been convicted of or pleaded guilty, as the case may be, to any of the offences referenced in the Canadian Offences Resulting in Legal Incapacity, the Canadian Offences and the Foreign Offences subsections for which no pardon or equivalent has been received under the Canadian Pardons and Foreign Pardons subsections, without the prior written approval of the Minister of PWGS. Where the Contractor has entered into a contract with an ineligible subcontractor and for which no prior written approval has been received by Canada, the Minister of PWGS will declare the Contractor to be ineligible to contract with Canada for a period of five years.

## GI20 DEBRIEFING

After contract award, Bidders may request a debriefing on the results of the bid solicitation process. Bidders should make the request to the Contracting Officer named on the Request for Proposal - Page 1 within 15 working days of receipt of the results of the bid solicitation process. The confidentiality of information relating to other submissions will be protected. The debriefing may be in writing, by telephone or in person.

## SUBMISSION REQUIREMENTS AND EVALUATION

- SRE 1 General Information
- SRE 2 Technical Bid 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 Bids

- 1.1.1 Bids are to be submitted following a "two-envelope" procedure in which Bidders submit technical aspects of their bid in one envelope and the proposed price and bid security in a second envelope failure to do so may result in non-compliance.
- 1.1.2 Submit one (1) signed original and four (4) copies of the technical bid in a sealed envelope (envelope one).
- 1.1.3 Submit one (1) original price bid in a sealed envelope (envelope two) which must include the signed Bid and Acceptance Form (Appendix A) plus bid security.

#### 1.2 Format of Bids

##### 1.2.1 Technical Bid

In their technical bid, bidders should demonstrate their understanding of the requirements contained herein and explain how they meet these requirements. Bidders should demonstrate their capability in a thorough, clear and concise manner for carrying out the work.

The technical bid should address clearly and in sufficient depth the points that are subject to the evaluation criteria against which the bid will be evaluated. Simply repeating the statement contained in the bid solicitation is not sufficient. In order to facilitate the evaluation of the bid, Canada requests that the bidders address and present topics in the order of the evaluation criteria under the same headings. To avoid duplication, bidders may refer to different sections of their bids by identifying the specific paragraph and page number where the subject topic has already been addressed. Information is subject to verification by Canada. Incorrect information will be excluded from the evaluation.

The following bid format information should be implemented when preparing the bid, failure to do so may result in non-compliance:

- Paper size should be - 216mm x 279mm (8.5" x 11");
- Smallest font size should be 11 point Times or equal;
- Margins should be 12 mm left, right, top, and bottom;
- Double-sided submissions are preferred.

- 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.

The order of the technical bid should follow the order established in the Submission Requirements Section of the RFP. The maximum number of pages (including text and graphics) to be submitted is thirty (30). The following are not part of this page limitation:

- Covering Letter;
- Front Page of the Proposal;
- Price Bid (Appendix A);
- Client Reference Forms (Appendix B)
- Health and Safety documentation. Refer to SRE 2.2.3 c);
- Resumes (limit 2 pages each);
- Sample Project reports. Refer to SRE 2.2.1 c).

The consequence of exceeding the maximum 30 page limitation is that all pages that extend beyond the 30 page limitation will be removed from the technical proposal submission and will not be forwarded to the PWGSC Evaluation Committee for evaluation.

#### 1.2.2 Price Bid

Bidders must submit their price bid in accordance with Appendix A - Bid and Acceptance Form and GI06 Bid Security Requirements of the General Instructions to Bidders.

## SRE 2 TECHNICAL BID SUBMISSION REQUIREMENTS AND EVALUATION

### 2.1 Definitions

**Note:** For the purposes of the Submissions Requirements and Evaluation (SREs) the definition of Construction Manager provided below will apply. The resulting contract between the successful Bidder and Canada the definition of Construction Manager at GC1.1.2 will apply.

**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, services or both. It does not include the parent, subsidiaries or other affiliates of the Bidder, or its subcontractors.

**Completed:** means a project where all the terms and conditions of the contract were met and where a final certificate of completion has been issued or a final invoice paid and where the date on the certificate or payment instrument indicates the date of completion.

**Construction Manager:** means a construction firm responsible for providing construction management advice and services during the design phase and also is responsible for the construction work in accordance with the drawings and specifications. The Construction Manager acts as Constructor (as defined by Occupational Health and Safety Act) in charge of a single integrated construction site.

**Construction Value:** means the value of construction put in place being a measure of the value of construction installed or erected at the site during a given period. For an individual project, this includes:

1. Cost of materials installed or erected.
2. Cost of labor (both by contractors and force account) and a proportionate share of the cost of construction equipment rental.
3. Contractor's profit.
4. Cost of architectural and engineering work (in the case of design-build).
5. Miscellaneous overhead and office costs chargeable to the project.
6. Interest, levies, permits and taxes chargeable to the project.

**Pre-construction Services:** Category of services provided by the Construction Manager as described in the Terms of Reference for this contract.

**Construction Services:** Category of services provided by the Construction Manager as described in the Terms of Reference for this contract.

**Post-construction Services:** Category of services provided by the Construction Manager as described in the Terms of Reference for this contract.

## **2.2 Point Rated Requirements**

### **2.2.1 Experience of the Bidder (Construction Management): (Maximum Points: 250 points)**

Describe the accomplishments and achievements of the Bidder for work related to the identified project.  
Information to be supplied:

Description of two (2) representative projects, at least one of which, the Bidder has delivered as a Construction Manager. Any proposal presenting more than two projects will result in the evaluation of the first two projects and any other projects after the first two will not be evaluated. Both projects submitted shall have been Completed after January 1, 2005.

The representative projects should be relevant to the scope of services required, and the scale and scope of the project described in this RFP. The following information is to be included for each representative project:

- a) Representative project relevance:
  - A brief project description and intention of the project including total Construction Value and contracts managed as well as start and completion dates. Include a breakdown of the Construction Values for major work packages such as: demolition, asbestos abatement, electrical work, HVAC, fire protection, structural, security systems, building envelope restoration, heritage protection.;
  - Clearly indicate how and why each referenced project is comparable to the subject Project of this RFP against the following criteria: Size of project, extent of rehabilitation and renovations, type and protection of heritage components, complexity, work in an occupied building, asbestos abatement in occupied building, phased floor-by-floor work, and other criteria that bidders identify based on their understanding of the project; and
  - Bidders must complete and submit Appendix B "CLIENT REFERENCE FORM FOR REPRESENTATIVE PROJECT" for each project as validation of the Bidder's representative projects. If any of the information requested in Appendix B is not provided

in the Bidders submission, Canada will provide a timeframe by which it must be provided. Failure to provide the requested information may render the Bidder non-responsive.

- b) Management of representative projects:
- 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, including a brief description of their roles and responsibilities; and
- c) Project reporting:
- How project reporting was undertaken for either of the two (2) referenced projects. Submit a sample of monthly project report along with a sample field daily report of one of the referenced projects or from another project;

Bidders are hereby advised; the referenced projects provided under SRE 2.2.1 shall also be separately assessed for Health and Safety performance under SRE 2.2.3 below.

## **2.2.2 Experience of Key Personnel of the Bidder: (Maximum Points: 200 points)**

Identify the key personnel proposed for the required services including Pre-Construction Services, Construction Services and Post-Construction Services. Key personnel should include, at a minimum: Project Management staff, Site Superintendent(s), Assistant Site Superintendent(s), Quality Management staff, Site Safety Officers, Cost Estimator(s), Scheduler(s), Commissioning Agent, and Interference Drawing Specialist.

The following minimum requirements should be met:

- Cost estimator with minimum 10 years experience and completely conversant with construction economy and market conditions relevant to the project requirements;
- Scheduler with minimum 10 years experience in construction scheduling and experience using Microsoft Project or Oracle Primavera scheduling software;
- At least one Site Safety Officer to be one of the following: a Canadian Registered Safety Professional (CRSP), certified Health & Safety Consultant (CHSC), Gold Seal certified or Construction Health & Safety Officer (CHSO); and
- Commissioning Agent with minimum 10 years experience.

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

- a) Experience of the Project Management Team:
- Academic and other relevant qualifications such as PMP, Gold Seal, etc.; include accomplishments and achievements;
  - Pertinent experience/qualifications as it relates to the Postal B requirements as presented in the Terms of Reference;
  - Relevant experience in the proposed position and number of years 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 SRE2.2.1); A higher score will be given to key personnel who had a significant role in projects identified in SRE2.2.1).

b) Experience of Site Superintendents:

- Supply the same information for this category of resource as identified in SRE 2.2.2 a) above.

c) Experience of Remaining Support Members:

- Supply the same information for this category of resource as identified in SRE 2.2.2 a) above.

### 2.2.3 Management of Services: (Maximum Points: 350 points)

The Bidder should demonstrate their firm's capability to manage the services to meet Project challenges and ensure consistent control throughout the project. The Bidder should demonstrate how the team will be organized and managed.

Information to be supplied:

a) Organization Chart & Resource Allocation Matrices

Provide your Team's organization chart with all proposed key personnel in accordance with the response to evaluation criteria 2.2.2 above, as well as other proposed position titles and names of the Bidder's team which will be used to deliver the project. Describe, in detail, roles and responsibilities of the personnel selected and provide a narrative clearly explaining the rationale for the proposed project resourcing against the project objectives, including the category of resource, quantity of resource, and the individuals proposed.

Include resource allocation matrices for Pre-Construction Services, Construction Services and Post-Construction Services respectively, in accordance with the following templates. The resource allocation matrix for each required Services of the project should identify the individuals' names, their proposed positions and percent of utilization.

<b>Pre-Construction Services (estimated duration 31 months)</b>		
<b>Category of Personnel</b>	<b>Individual Names</b>	<b>Percentage of Utilization</b>

<b>Construction Services (estimated duration 26 months)</b>
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Category of Personnel	Individual Names	Percentage of Utilization

Post-Construction Services (estimated duration 26 months)		
Category of Personnel	Individual Names	Percentage of Utilization

## b) Work Plan and Methodologies

- Describe how advisory services will be provided during the implementation stages;
- Provide a description of the proposed time services and explain how schedule control will be applied throughout the delivery of the Project;
- Provide a description of the proposed cost services and explain how cost control will be applied throughout the delivery of the Project;
- Describe the Change Management Methodology: Approach to foreseeing, minimizing, and mitigating changes in the Work;
- Describe the proposed quality control methodology, explain how quality control will be applied throughout the delivery of the Project;
- Describe the reporting relationships within the Bidder's organization and with PWGSC;
- Describe the proposed communication strategy, including a description of the communication management approach that addresses the needs of the various stakeholders;
- Provide a Work Plan with a breakdown of Work tasks and deliverables. Include a narrative describing the Work Plan. In the narrative, indicate how the Bidder will address any adjustments to the Work Plan for changes in the duration of Work shifts, or for additional Work shifts when required to maintain schedule, including how provision of the Bidders key project resourcing will be addressed.
- Describe the proposed commissioning methodology;
- Describe how the Bidder will contribute to the process of aligning the design to meet both cost and schedule constraints, which are critical to the success of the project.
- Risk management: Mitigating risk and doing regular constructability reviews will reduce cost of construction. Describe how the Bidder will support and contribute to the design and construction phases with respect to risk management.
- Cost estimating: Following the Schematic Design and Design Development stages, responsibility for cost estimating services for the remainder of the project will be transferred over to the Construction Manager. Describe how the Bidder will review and reconcile the final cost estimate produced by the Consultant at the end of Design Development, and the estimating process the Bidder will use to produce updated cost estimates during the Construction Documents stage. Describe the estimating process the Bidder will use to document the cost of each bid package, and explain how costs will be compared to market conditions.
- Design and Construction Document Review: Describe how the Bidder will perform document reviews and communicate assumptions, risks and constructability review comments to the consultant team and PWGSC.

c) Health & Safety (H&S) Plan and Record

- Describe the Bidder's Company Health and Safety philosophy and provide a copy of any Corporate Health and Safety Policy, Process and Procedural documentation.
- Based on the Bidder's understanding of the project from the information provided in this RFP, provide a narrative describing how the Bidder will implement a Site Specific Health & Safety Plan for this project.
- Provide a description of how the Bidder intends to provide ongoing health and safety staffing and services throughout the duration of the project, including shift work when required.
- Consideration in awarding points will be given to how well the Health and Safety information provided aligns with the requirements of this project.

#### 2.2.4 Management of Challenges and Issues: Schedule (Maximum Points: 200)

Provide a detailed construction schedule based on the information disclosed in the RFP and additional reasonable assumptions that anticipates the various issues that may be faced by the Bidder in undertaking the Work.

Information to be supplied:

a) Project Schedule

- A detailed schedule indicating the required Services including Pre-Construction Services, Construction Services and Post-Construction Services. The schedule shall outline activities, sequencing and interdependence of construction activities and work packages backed up with a detailed narrative report describing;

b) Management of Challenges and Issues

- Challenges and issues;
- Work restrictions;
- The project goals with highlights of those that are particularly significant to the Project;
- The detailed commentary on the proposed schedule and describe the methodology as to how the Bidder will maintain the schedule;
- Brief description of Work packaging.
- Any assumptions made.

**What will be evaluated:**

<b>SRE</b>	<b>Maximum Score:1000 Points Mandatory Minimum Points:600</b>	<b>Rating</b>	<b>Weight Factor</b>	<b>Weighted Rating</b>
<b>2.2.1</b>	<b>Experience of Bidder: Maximum Points 250</b>			
a)	Representative project relevance	0-10	12	0-120
b)	Management of representative projects	0-10	8	0-80
c)	Project reporting	0-10	5	0-50
<b>2.2.2</b>	<b>Experience of Key Personnel of the Bidder: Maximum Points 200</b>			
a)	Experience of the Project Management Team (Senior Project Manager and Project Manager)	0-10	8	0-80
b)	Experience of the Site Superintendents Team (Senior and Assistants)	0-10	7	0-70
c)	Experience of the remaining support members	0-10	5	0-50
<b>2.2.3</b>	<b>Management of the Project: Maximum Points 350</b>			
a)	Organization Chart & Resources Allocation Matrices	0-10	8	0-80
b)	Work Plan and Methodologies	0-10	20	0-200
c)	Health & Safety Plan and Record	0-10	7	0-70
<b>2.2.4</b>	<b>Management of Challenges and Issues: Schedule : Maximum Points 200</b>			
a)	Project Schedule	0-10	5	0-50
b)	Management of Challenges and Issues	0-10	15	0-150

## EVALUATION GRID

The evaluation will be conduct in accordance with the table provided below.

<b>Non Responsive</b>	<b>Inadequate</b>	<b>Weak</b>	<b>Adequate</b>	<b>Fully Satisfactory</b>	<b>Strong</b>
<b>0 Point</b>	<b>2 Points</b>	<b>4 points</b>	<b>6 points</b>	<b>8 points</b>	<b>10 points</b>
Did not submit information which could be evaluated	Substantially below the desirable minimum	Just fails to meet the desirable minimum	Meets the desirable minimum	Exceeds the desirable minimum	Exceptionally strong proposal
	<u>For example:</u> -Bidder lacks qualifications and experience	<u>For example:</u> -Bidder does not have minimum qualifications and experience	<u>For example:</u> -Bidder has minimum qualifications and experience	<u>For example:</u> -Bidder is well qualified and experienced	<u>For example:</u> -Bidder is highly qualified and experienced
	-Team proposed is not likely able to meet requirements	-Team does not cover all components or overall experience is weak	- Team capable of just fulfilling requirements	-Good team -some members have previously worked together	-Strong team -has worked well together before on comparable work
	-Sample projects generally not related to this project's needs	-Sample projects only marginally related to this project's needs	-Sample projects generally related to this project's needs	-Sample projects are closely related to this project's needs	-Sample projects are almost identical to this
	- Little capability to meet performance requirements	- Just below acceptable capability	-Minimum acceptable capability, should meet minimum performance	- Satisfactory capability, should ensure effective results	- Superior capability, should ensure effective results

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### SRE 3 PRICE BID EVALUATION

The price envelopes of all responsive bids will be opened upon completion of the evaluation of technical submissions (refer to GI02- Overview of Selection Procedure).

### SRE 4 BASIS OF SELECTION

1. To be declared responsive, a bid must:
  - (a) comply with all the requirements of the bid solicitation; and
  - (b) obtain the required minimum points (600 out of 1000 points) for the total of the technical bid evaluation criteria which are subject to point rating; and
  - (c) the price bid must consist of the Bid and Acceptance Form, duly completed and accompanied by the required bid security.
2. Bids not meeting (a), or (b), or (c) above will be declared non-responsive.
3. Neither the responsive bid that receives the highest number of points nor the one that proposed the lowest price will necessarily be accepted. The responsive bid with the lowest evaluated price per point will be recommended for award of a contract. In the case of a tie, the Bidder submitting the lowest bid amount will be selected.

Evaluated Price per Point = Total Bid Amount / Technical Score

**CONTRACT DOCUMENTS (CD)**

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. Request for Proposal and all Annexes, Appendices and Amendments thereto;
- d. Drawings and Specifications;
- e. General Conditions and clauses

GC1	General Provisions	R2810D	(2015-07-03);
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	R2882D	(2015-02-25);
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		
f	Any amendment issued or any allowable bid revision received before the date and time set for solicitation closing;		
g.	Any amendment incorporated by mutual agreement between Canada and the Contractor before acceptance of the bid; and		
h.	Any amendment or variation of the contract documents that is made in accordance with the General Conditions.		
i.	The Contractor's technical bid.		

2. The documents identified by title, number and date in 1) (e) 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:

<http://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual/5/R>

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

**SUPPLEMENTARY CONDITIONS (SC)**

- SC01 Changes to Contract Documents
- SC02 Insurance Terms
- SC03 Security Access Requirements for Canadian Contractors
- SC04 Determination of Construction Cost
- SC05 Determination of Price for Subcontract Changes
- SC06 Increase in Contract Security
- SC07 Accounts and Audit
- SC08 Replacement of Specific Individuals
- SC09 Separate Contracts with Other contractors
- SC10 Price Escalation Clause based on Consumer Price Index

**SC01 CHANGES TO CONTRACT DOCUMENTS**

## 1. R2810D:

- a. In GC1.1.2, delete:  
"Contractor" means the person contracting with Canada to provide or furnish all labour, Material and Plant for the execution of the Work under the Contract, and includes the Contractor's superintendent as designated in writing to Canada.
- b. In GC1.1.2 add:  
"Contractor" and "Construction Manager" means the person contracting with Canada to provide or furnish all labour, Material and Plant and construction management services for the execution of the Work under the Contract, and includes the Contractor's superintendent as designated in writing to Canada.
- c. Add the following subparagraph 1) (g) under GC1.2.2:  
(g) Terms of Reference

## 2. R2850D:

- a. The following paragraph is added to GC5.4:  
  
6) The portion of the Work done under the Fixed Monthly Fee shall be invoiced in fixed monthly installments over the duration of the Contract.
- b. The following paragraph is added to GC5.5  
  
5) If, at any time before the issuance of a Certificate of Completion, Canada determines that a Work Package has reached Substantial Performance as described in subparagraph 1) (b) of GC 1.1.4, "Substantial Performance", paragraphs 1) through 4) of GC 5.5 may be applied with respect to the specific Work Package.

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

- 1. Any adjustment to the price of the Work 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' fees, is not within 75 and 125 percent of the total Estimated Construction Cost, the value of which includes the total of the original Estimated Construction Costs and the Estimated Construction Costs of the optional services, either party to the Contract may request to negotiate a change in the Contractor' 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' 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 Monthly Fees, the actual Construction Cost, the Percentage Fee and any adjustments that are made in accordance with the Contract.

4. GC1.6 of R2810D is deleted and replaced with the following LIMITATION OF LIABILITY:

#### GC1.6 Indemnification by the Contractor

1. The Contractor shall indemnify and save Canada harmless from and against all claims, demands, losses, costs, damages, actions, suits, or proceedings whether in respect to losses suffered by Canada or in respect of claims by any third party, brought or prosecuted and in any manner based upon, arising out of, related to, occasioned by, or attributable to the activities of the Contractor in performing the Work, provided such claims are caused by the negligent or deliberate acts or omissions of the Contractor, or those for whom it is responsible at law.

2. The Contractor's obligation to indemnify Canada for losses related to first party liability shall be limited to:

a. In respect to each loss for which insurance is to be provided pursuant to GC10.1 "Insurance Contracts" of R2900D, the general liability insurance limits for one occurrence as referred to in the "Insurance Terms". It is limited to the ceiling per loss, civil responsibility insurance, as stated in the R2910D "Insurance Conditions";

b. In respect to losses for which insurance is not required to be provided in accordance with GC10.1 "Insurance Contracts" of R2900D, the greater of the Contract Amount or \$5,000,000, but in no event shall the sum be greater than \$20,000,000.

The limitation of this obligation shall be exclusive of interest and all legal costs and shall not apply to any infringement of intellectual property rights or any breach of warranty obligations.

3. The Contractor's obligation to indemnify Canada for losses related to third party liability shall have no limitation and shall include the complete costs of defending any legal action by a third party. If requested by Canada, the Contractor shall defend Canada against any third party claims.

4. The Contractor shall pay all royalties and patent fees required for the performance of the Contract and, at the Contractor's expense, shall defend all claims, actions or proceedings against

Canada charging or claiming that the Work or any part thereof provided or furnished by the Contractor to Canada infringes any patent, industrial design, copyright trademark, trade secret or other proprietary right enforceable in Canada.

5. Notice in writing of a claim shall be given within a reasonable time after the facts, upon which such claim is based, became known.

## SC02 INSURANCE TERMS

In addition to the Insurance terms indicated below, see Annex "D" (completed certificate is not required at bid closing).

- IT1 General
  - IT1.1 Proof of Insurance
  - IT1.2 Payment of Deductible
- IT2 Commercial General Liability
  - IT2.1 Scope of Policy
  - IT2.2 Insured
  - IT2.3 Period of Insurance
- IT3 Wrap-up General Liability
  - IT3.1 Scope of Policy
  - IT3.2 Amount of Insurance
  - IT3.3 Insured
  - IT3.4 Period of Insurance
- IT4 Builder's Risk
  - IT4.1 Scope of Policy
  - IT4.2 Amount of Insurance
  - IT4.3 Insured
  - IT4.4 Period of Insurance
  - IT4.5 Insurance Proceeds
- IT5 All Risk in Transit Insurance
- IT6 Environmental Impairment Liability Insurance

### IT1 General

#### IT1.1 Proof of Insurance

1. Before commencement of the Work, and within thirty (30) days after acceptance of its bid, the Contractor must deposit with Canada a Certificate of Insurance.

2. 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 provisions contained herein.

any 3. The insurance policies must be endorsed to provide Canada and any additional insured with not less than thirty (30) days notice in writing in advance of a cancellation of insurance or reduction in coverage.

#### IT1.2 Payment of Deductible

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

## **IT2 Commercial General Liability**

### **IT2.1 Scope of Policy**

1. The insurance coverage provided must not be less than that provided by IBC Form 2100, as amended from time to time, and must have:

- a. an Each Occurrence Limit of not less than \$5,000,000; and
- b. a Completed Operations Aggregate Limit of not less than \$5,000,000.

### **IT2.2 Insured**

The policy must insure the Contractor and must include Canada, represented by Public Works and Government Services Canada as an additional Insured, with respect to liability arising out of the operations of the contractor with regard to the work.

### **IT2.3 Period of Insurance**

1. Unless otherwise directed in writing by Canada, or, otherwise stipulated elsewhere herein, the policy required herein must be in force and be maintained from the date of contract award until the day of issue of the Certificate of Completion.

2. The Contractor must be responsible to provide and maintain coverage for Completed Operations Liability for a period of four (4) years, starting two (2) years after the date of the Certificate of Substantial Performance.

## **IT3 Wrap-up General Liability**

### **IT3.1 Scope of Policy**

1. The insurance coverage provided must be primary to all other insurance policies and must not be substantially less than that provided by IBC Form 2100, as amended from time to time, except for liability arising from damage to the Work during construction, which must be limited to the completed operations period.

2. The policy must include an extension for a standard provincial and territorial form of non-owned automobile liability policy.

3. The policy must either include or be endorsed to include coverage for the following exposures or hazards if the Work is subject thereto:

- a. Blasting;
- b. Pile driving and caisson work;
- c. Underpinning;

- d. Removal or weakening of support of any building or land whether such support be natural or otherwise if the work is performed by the insured contractor.
- e. Damage to existing structure

### **IT3.2 Amount of Insurance**

1. The policy must have:
  - a. an Each Occurrence Limit of not less than \$25,000,000; and
  - b. a Completed Operations Aggregate Limit of not less than \$25,000,000.
2. Umbrella or excess liability insurance may be used to achieve the required limits.

### **IT3.3 Insured**

1. The policy must insure the Contractor and must include, as additional insured:
  - a. Canada, represented by Public Works and Government Services Canada;
  - b. All consultant; and
  - c. Any Subcontractor at any tier performing any part of the Work.
2. The Insurer must provide a waiver of subrogation against any named or additional insured.

### **IT3.4 Period of Insurance**

Unless otherwise directed in writing by Canada, or, otherwise stipulated elsewhere herein, the policy required herein must be in force and be maintained from the date of contract award until the day of issue of the Certificate of Completion except that the coverage for completed operations hazards must, in any event, be maintained for a period of at least two (2) years beyond the date of the Certificate of Substantial Performance.

## **IT4 Builder's Risk**

### **IT4.1 Scope of Policy**

1. The insurance coverage provided by a Builder's Risk policy must not be less than that provided by IBC Forms 4042 and 4047, as amended from time to time.
2. The policy must permit use and occupancy of the project, or any part thereof, where such use and occupancy is for the purposes for which the project is intended upon completion.
3. The policy may exclude or be endorsed to exclude coverage for loss or damage caused by any of the following:
  - a. Asbestos;
  - b. Fungi or spores;
  - c. Cyber;
  - d. Terrorism.

### **IT4.2 Amount of Insurance**

The amount of insurance must not be less than the sum of the contract value plus the declared value (if any) set forth in the contract documents of all material and equipment supplied by Canada at the site of the project to be incorporated into and form part of the finished Work. If the value of the Work is changed, the policy must be changed to reflect the revised contract value.

#### **IT4.3 Insured**

The policy must insure the Contractor and must include, as an additional Insured, Canada, represented by Public Works and Government Services Canada.

#### **IT4.4 Period of Insurance**

Unless otherwise directed in writing by Canada, or, stipulated elsewhere herein, the policy required herein must be in force and be maintained from prior to the commencement of work until the day of issue of the Certificate of Substantial Performance.

#### **IT4.5 Insurance Proceeds**

1. The policy must provide that the proceeds thereof are payable to Her Majesty or as Canada may direct in accordance with GC10.2, "Insurance Proceeds".
2. The Contractor must, without delay, do such things and execute such documents as are necessary to effect payment of the proceeds.

#### **IT5 All Risk in Transit Insurance**

The Contractor must obtain on the Government's Property, and maintain in force throughout the duration of the Contract, All Risk Property in Transit insurance coverage for all applicable conveyances while under its care, custody or control, in an amount of not less than \$750,000.00. The Government Property must be insured on replacement cost (new) basis.

1. Administration of Claims: The Contractor must notify Canada promptly about any losses or damages to Government Property and monitor, investigate and document losses of or damage to ensure that claims are properly made and paid.
2. The All Risk Property in Transit insurance must include the following:
  - a. Notice of Cancellation: The Insurer will endeavour to provide the Contracting Authority at least thirty (30) days written notice of any policy cancellation.
  - b. Loss Payee: Canada as its interest appears or as it may direct.
  - c. Waiver of Subrogation Rights: Contractor's Insurer to waive all rights of subrogation against Canada as represented by Public Works and Government Services Canada for any and all loss of or damage to the property however caused.

#### **IT6 Environmental Impairment Liability Insurance**

1. The Contractor must obtain Contractors Pollution Liability insurance, and maintain it in force throughout the duration of the Contract, in an amount usual for a contract of this nature, but for not less than \$10,000,000 per accident or occurrence and in the annual aggregate.
2. If the policy is written on a claims-made basis, coverage must be in place for a period of at least 12 months after the completion or termination of the Contract.

3. The Pollution Liability insurance policy must include the following: Additional Insured: Canada is added as an additional insured, but only with respect to liability arising out of the Contractor's performance of the Contract. The interest of Canada as additional insured should read as follows:
- a. Canada, represented by Public Works and Government Services Canada.
  - b. Notice of Cancellation: The Insurer will endeavour to provide the Contracting Officer thirty (30) days written notice of policy cancellation.
  - c. Separation of Insureds: The policy must apply to each Insured in the same manner and to the same extent as if a separate policy had been issued to each.
  - d. Contractual Liability: The policy must, on a blanket basis or by specific reference to the Contract, extend to assumed liabilities with respect to contractual provisions.
  - e. Incidental Transit Extension: The policy must extend to losses arising from any waste, products or materials transported, shipped, or delivered via any transportation mode to a location beyond the boundaries of a site at which the Contractor or any entity for which the Contractor is legally liable is performing or has performed the operations described in the contract.
  - f. Litigation Rights: Pursuant to subsection 5(d) of the Department of Justice Act, S.C. 1993, c. J-2, s.1, if a suit is instituted for or against Canada which the Insurer would, but for this clause, have the right to pursue or defend on behalf of Canada as an Additional Named Insured under the insurance policy, the Insurer must promptly contact the Attorney General of Canada to agree on the legal strategies by sending a letter, registered mail or by courier, with an acknowledgment of receipt.

For the province of Quebec, send to:  
 Director Business Law Directorate,  
 Quebec Regional Office (Ottawa),  
 Department of Justice,  
 284 Wellington Street, Room SAT-6042,  
 Ottawa, Ontario, K1A 0H8

For other provinces and territories, send to:  
 Senior General Counsel,  
 Civil Litigation Section,  
 Department of Justice  
 234 Wellington Street, East Tower  
 Ottawa, Ontario K1A 0H8

A copy of the letter must be sent to the Contracting Officer. Canada reserves the right to co-defend any action brought against Canada. All expenses incurred by Canada to co-defend such actions will be at Canada's expense. If Canada decides to co-defend any action brought against it, and Canada does not agree to a proposed settlement agreed to by the Contractor's insurer and the plaintiff(s) that would result in the settlement or dismissal of the action against Canada, then Canada will be responsible to the Contractor's insurer for any difference between the proposed settlement amount and the amount finally awarded or paid to the plaintiffs (inclusive of costs and interest) on behalf of Canada.

### SC03 SECURITY REQUIREMENT FOR CANADIAN CONTRACTORS PWGSC FILE # EP775150701 – Revised #1

1. The Contractor must, at all times during the performance of the Contract, hold a valid Facility Security Clearance at the level of **SECRET**, with approved Document safeguarding at the level of **SECRET**, issued by the Canadian Industrial Security Directorate (CISD), Public Works and Government Services Canada (PWGSC).
2. The Contractor personnel requiring access to CLASSIFIED information, assets or sensitive work site(s) must EACH hold a valid personnel security screening at the level of **SECRET** and all others must have a valid **SITE ACCESS** clearance required, granted or approved by the Canadian Industrial Security Directorate, Public Works and Government Services Canada.
3. Processing of CLASSIFIED information electronically at the Contractor's site is NOT permitted under this Contract.
4. Subcontracts which contain security requirements are NOT to be awarded without the prior written permission of CISD/PWGSC.
5. The Contractor must comply with the provisions of the:
  - (a) Security Requirements Check List and security guide attached at Annex "C";
  - (b) Industrial Security Manual (Latest Edition).

### SC04 DETERMINATION OF CONSTRUCTION COST

1. The Construction Cost, as defined in Annex B, item 3, initially will be determined based on the Estimated Construction Cost specified in the Request for Proposal. The Estimated Construction Cost will be adjusted periodically throughout the term of the contract to reflect the actual Construction Cost.
2. Any adjustment to the amount of a subcontract shall require Canada's approval in writing. The Contractor 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 for the subcontractor's overhead, administration and profit. 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 Schedule of Rates, of the Fair Wages and Hours of Labour Act. 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 said costs are to include all applicable discounts.
  - c. Allowances for the subcontractor's overhead, administration and profit shall be negotiated by the Contractor for each change, and shall represent a reasonable amount for the nature and complexity of each change. However, in no circumstance shall the subcontractor's allowance exceed 15%.
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.

## SC05 DETERMINATION OF PRICE FOR SUBCONTRACT CHANGES

### 1. Price Determination Prior to Undertaking Changes

- a. If a Lump Sum Arrangement applies to the Contract or a part thereof, the price of any change shall be the aggregate estimated cost of labour, Plant and Material that is required for the change as agreed upon in writing by the Contractor and Canada plus an allowance for supervision, co-ordination, administration, overhead, margin and the risk of undertaking the work within the stipulated amount, which allowance shall be in accordance with SC04 3)(c).
- b. If a Unit Price Arrangement applies to the Contract or a part thereof, the Contractor and Canada may, by agreement in writing, add items, units of measurement, estimated quantities and prices per unit to the Unit Price Table.
- c. A price per unit referred to in paragraph (b) of SC05 1), shall be determined on the basis of the aggregate estimated cost of labour, Plant and Material that is required for the additional item as agreed upon by the Contractor and Canada, plus an allowance determined in accordance with SC04 3)(c).
- d. To facilitate approval of the price of the change or the additional price per unit as applicable, the Contractor shall submit a cost estimate breakdown identifying, as a minimum, the estimated cost of labour, Plant, Material, each subcontract amount, and the amount of the allowance.
- e. If no agreement is reached as contemplated in paragraph (a) of SC05 1), the price shall be determined in accordance with SC05 3).

### 2. Allowable Costs under SC05 1)

#### a. General

- i. The Contractor shall submit a cost estimate breakdown for each contemplated change, in accordance with SC04 3). The breakdown shall itemize all labour, material, plant and equipment costs estimated by the Contractor and subcontractors, and the amount of allowance; It is the responsibility of the Contractor to ensure that all prices included in the Contractor's breakdown to Canada, including those of subcontractors, are fair and reasonable in view of the terms expressed herein;
- ii. The labour hours required for the contemplated change shall be based on the estimated number of hours to perform the work;
- iii. Time spent by a working foreman may be included in the number of labour hours, at a rate agreed to in writing by the Contractor and Canada;
- iv. Time attributable to material handling, productivity factors and approved rest periods is to be included in the number of hours required by the contemplated change and will not be paid as a separate item under hourly rates;
- v. Allowances referred to in paragraph (d) - Allowance to the Subcontractor below are not to be included in the hourly labour rates;
- vi. Credit for work deleted will only be for the work directly associated with the change;
- vii. When a change deletes work which has not yet been performed, Canada is entitled to an adjustment in the Contract Amount equal to the cost the Contractor would have incurred had the work not been deleted;



- 
- viii. Allowances referred to in paragraph (d) - Allowance to the Subcontractor below shall not be applied to any credit amounts for deleted work;
- ix. In those cases where the change involves additions and deletions to the work, the allowances referred to in paragraph (d) - Allowance to the Subcontractor below shall only when the cost of the additions minus the cost of the deletions would result in an increase in the Contract Amount. The percentage allowance shall only be applied to that portion of the costs of the additions that is in excess of the cost of the deletions;
- x. If the contemplated change in the work necessitates a change in the contract completion date, or has an impact on the work, the Contractor shall identify and include the resulting cost in the breakdown.

b. Hourly Labour Rates

- i. The hourly labour rates listed in the Contractor's breakdown shall be determined in accordance with the collective agreements that are applicable at the site of the work and shall include:
- a. the base rate of pay;
  - b. vacation pay;
  - c. benefits which includes:
    - i. welfare contributions;
    - ii. Pension contributions;
    - iii. union dues;
    - iv. training and industry funds contributions; and
    - v. other applicable benefits, if any, that can be substantiated by the Contractor.
  - d. statutory and legislated requirements, assessed and payable under statutory authority, which includes:
    - i. Employment Insurance contributions;
    - ii. Canada Pension Plan or Quebec Pension Plan contributions;
    - iii. Worker's Compensation Board or "Commission de la santé et de la sécurité du travail" premiums;
    - iv. Public Liability and Property Damage insurance premiums; and
    - v. health tax premiums.
- ii. In the case of nonunion labour, all rates claimed shall be in accordance with the terms of the Labour Conditions forming part of this contract and the Contractor must provide satisfactory proof of the rates actually paid.

c. Material, Plant and Equipment Costs

- i. The costs of all purchases and rentals must be based on the actual amount paid to the suppliers by the Contractor or subcontractor and said costs are to include all applicable Discounts.

d. Allowance to the Subcontractor

- i. The allowances determined in accordance with SC04 3)(c), shall be considered as full compensation for:

- a. supervision, coordination, administration, overhead, margin and the risk of undertaking the work within the stipulated amount; and
- b. miscellaneous additional costs related to
  - i. the purchase or rental of material, plant and equipment;
  - ii. the purchase of small tools and supplies;
  - iii. safety and protection measures; and
  - iv. permits, bonds, insurance, engineering, as built drawings, commissioning, and site office.

### 3. Price Determination Following Completion of Changes

- a. If it is not possible to predetermine, or if there is failure to agree upon the price of a change in the Work, the price of the change shall be equal to the aggregate of:
  - i. all reasonable and proper amounts actually expended or legally payable by the Contractor in respect of the labour, Plant and Material that fall within one of the classes of expenditure described in paragraph (b) of SC05 3), that are directly attributable to the performance of the Contract;
  - ii. an allowance for profit and all other expenditures or costs, including overhead, general administration costs, financing and interest charges, in an amount that is determined in accordance with SC04 3)(c); and
  - iii. interest on the amounts determined under subparagraphs (a)(i) and (a)(ii) of SC05 3) calculated in accordance with GC5.11, "Interest on Settled Claims";
- b. The cost of labour, Plant and Material referred to in subparagraph a)(i) of SC05 3) shall be limited to the following categories of expenditure:
  - i. payments to Subcontractors and Suppliers;
  - ii. wages, salaries bonuses and, if applicable, travel and lodging expenses of employees of the Contractor located at the site of the Work and that portion of wages, salaries, bonuses and, if applicable, travel and lodging expenses of personnel of the Contractor generally employed at the head office or at a general office of the Contractor provided they are actually and properly engaged on the Work under the Contract;
  - iii. 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 Applicable Taxes collection costs;
  - iv. 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;
  - v. 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 repairs to the Plant arising out of defects existing before its allocation to the Work;
  - vi. 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;
  - vii. 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
  - viii. 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.

#### 4. Price Determination - Variations in Tendered Quantities

- a. Except as provided in paragraphs (b), (c), (d) and (e) of SC05 4), if it appears that the final quantity of labour, Plant and Material under a price per unit item shall exceed or be less than the estimated tendered quantity, the Contractor shall perform the Work or supply the Plant and Material required to complete the item and payment shall be made for the actual Work performed or Plant and Material supplied at the price per unit set out in the Contract.
- b. If the final quantity of the price per unit item exceeds the estimated tendered quantity by more than 15 percent, either party to the Contract may make a written request to the party to negotiate an amended price per unit for that portion of the item which exceeds 115 percent of the estimated tendered quantity, and to facilitate approval of any amended price per unit, the Contractor shall, on request, provide Canada with:
  - i. detailed records of the actual cost to the Contractor of performing or supplying the tendered quantity for the price per unit item up to the time the negotiation requested; and
  - ii. the estimated unit cost of labour, Plant and Material required for the portion of item that is in excess of 115 percent of the tendered quantity.
- c. If agreement is not reached as contemplated in (b) of SC05 4), the price per unit shall be determined in accordance with SC05 3)
- d. If it appears that the final quantity of labour, Plant and Material under a price per unit item shall be less than 85 percent of the estimated tendered quantity, either party to the Contract may make a written request to the other party to negotiate a change to the price per unit for the item if:
  - i. there is a demonstrable difference between the unit cost to the Contractor of performing or supplying the estimated tendered quantity and the unit cost to the Contractor for performing or supplying the final quantity; and
  - ii. the difference in unit cost is due solely to the decrease in quantity and not to any other cause.
- e. For the purposes of the negotiation referred to in paragraph (d) of SC05 4):
  - i. the onus of establishing, justifying and quantifying a proposed change lies with the party making the request for negotiation; and
  - ii. in no event shall the total price for an item that has been amended as a result of a reduction in quantity pursuant to paragraph (d) of SC05 4) exceed the amount that would have been payable to the Contractor had 85 percent of the tendered quantity actually been performed or supplied.

#### SC06 INCREASE IN CONTRACT SECURITY

1. The Contractor shall, within 14 days after the date that Canada issues a contract amendment, pursuant to SC06, obtain and deliver to Canada revised Contract Security to include the increase in contract costs of the optional services. The additional contract security shall be provided in accordance with GC9 - Contract Security.

2. It is a condition precedent to the release of the first progress payment for the additional Work that the Contractor has provided the increased Contract Security as specified herein.

## SC07 ACCOUNTS AND AUDIT

1. The Contractor must keep proper accounts and records of the cost of performing the Work and of all expenditures or commitments made by the Contractor in connection with the Work, including all invoices, receipts and vouchers. The Contractor must retain records, including bills of lading and other evidence of transportation or delivery, for all deliveries made under the Contract.
2. If the Contract includes payment for time spent by the Contractor, its employees, representatives, agents or subcontractors performing the Work, the Contractor must keep a record of the actual time spent each day by each individual performing any part of the Work.
3. Unless Canada has consented in writing to its disposal, the Contractor must retain all the information described in this section for six (6) years after it receives the final payment under the Contract, or until the settlement of all outstanding claims and disputes, whichever is later. During this time, the Contractor must make this information available for audit, inspection and examination by the representatives of Canada, to may make copies and take extracts. The Contractor must provide all reasonably required facilities for any audit and inspection and must furnish all the information as the representatives of Canada may from time to time require to perform a complete audit of the Contract.
4. The amount claimed under the contract, calculated in accordance with the Basis of Payment provision in the Contract, is subject to government audit both before and after payment is made. If an audit is performed after payment, the Contractor agrees to repay any overpayment immediately on demand by Canada. Canada may hold back, deduct and set off any credits owing and unpaid under this section from any money that Canada owes to the Contractor at any time (including under other contracts). If Canada does not choose to exercise this right at any given time, Canada does not lose this right.

## SC08 REPLACEMENT OF SPECIFIC INDIVIDUALS

1. If specific individuals are identified in the Contract to perform the Work, the Contractor must provide the services of those individuals unless the Contractor is unable to do so for reasons beyond its control.
2. If the Contractor is unable to provide the services of any specific individual identified in the Contract, it must provide a replacement with the same level of qualifications and experience as the individual who is being replaced. The replacement must meet the criteria used in the selection of the Contractor and be acceptable to Canada. The Contractor must, as soon as possible, give notice to the Contracting Officer of the reason for replacing the individual and provide:
  - a. the name, qualifications and experience of the proposed replacement; and
  - b. proof that the proposed replacement has the required security clearance granted by Canada, if applicable.
3. The Contractor must not, in any event, allow performance of the Work by unauthorized replacement persons. The Departmental Representative may order that a replacement stop performing the Work. In such a case, the Contractor must immediately comply with the order and secure a further replacement in accordance with subsection 2. The fact that the Departmental Representative does

not order that a replacement stop performing the Work does not relieve the Contractor from its responsibility to meet the requirements of the Contract.

## SC09 SEPARATE CONTRACTS WITH OTHER CONTRACTORS

1. Canada reserves the right to award separate contracts for work in connection with Postal Station "B" Envelope Rehabilitation and Base Building Upgrade Project to other contractors. Where in the opinion of Canada, it is necessary for Canada to award separate contracts to other contractors, the Construction Manager shall:
  - a. coordinate and cooperate with the work of other contractors;
  - b. coordinate and schedule the Work with the work of other contractors and connect as specified or shown in the Contract Documents;
  - c. participate with other contractors and the Departmental Representative in reviewing their construction schedules when directed to do so;
  - d. coordinate and perform the Work with care and diligence so as to ensure that Canada and other contractors will be in a position to proceed according to schedule with the delivery, installation and testing of their work; and
  - e. allow other contractors or workers, together with their plant, equipment and Material, access to the Site and the opportunity to use their plant and equipment.
2. When separate contracts are awarded for other parts of Postal Station "B" Envelope Rehabilitation and Base Building Upgrade Project, Canada shall:
  - a. Ensure that insurance coverage is provided to the same requirements as are called for SC02 to the extent applicable. Such insurance shall be coordinated with the insurance coverage of the Construction Manager as it affects the Work; and
  - b. take all precautions reasonably possible to avoid labour or other disputes.
  - c. Ensure the separate contractors are required to adhere to the Construction Manager's Health & Safety policies and procedures when performing work at the location of the project under the Construction Manager's control as Constructor on the project.
3. The Construction Manager shall give the Departmental Representative prompt written notice of any defect in, or any conflict occasioned by, the work of Other contractors and prior to proceeding with any Work that is affected by or depends upon for its proper execution such work of other contractors. In the absence of such written report, the Construction Manager shall have no claim against Canada by reason of the conflict or defective work of the other contractors.
4. Notwithstanding the foregoing, it is understood and agreed that the Construction Manager shall be the "constructor" for the Project within the meaning of the applicable Health and Safety legislation, and shall perform or have performed, in addition to any other obligations it may have pursuant to the application legislation, all of the obligations of a "constructor" set out in the legislation for the Work. It is further understood and agreed that Canada appoints and the Construction Manager agrees to be appointed as the constructor to fully control, coordinate, oversee and be responsible for all other contractors.
5. If there is a change in the scope of the Work required for the planning and performance of this coordination and connection, there might be a Change in the Work.
6. If the Construction Manager has caused damage, delay, impact, or interference to the work of other contractors, the Construction Manager agrees upon due notice to settle with the other contractors in accordance with GC5.8 (6). If one or more of the other contractors makes a claim against Canada on account of damage, delay, impact, or interference alleged to have been so sustained, Canada shall

notify the Construction Manager and may require the Construction Manager to defend the action at the Construction Manager's expense and not as a Cost of the Work and without an adjustment in the Contract Fee. The Construction Manager shall satisfy a final order or judgment against Canada and pay the costs incurred by Canada arising from such action and not as a Cost of the Work and without an adjustment in the Contract Fee.

## SC10 PRICE ESCALATION CLAUSE BASED ON CPI

1. The Contractor's quoted Firm Per Diem rates (inclusive of overhead and profit) will be adjusted annually upon notification from the Contractor prior to the anniversary date of the contract commencing in 2015. The adjustment will be determined by the amount established based upon the average percentage change in the monthly change of the Consumer Price Index for Canada. All-items (Not Seasonally Adjusted), published in Statistics Canada Catalogue no.62-001-XPB, Table 5, for the 12-month period ending prior to the start of the 2nd year of the contract.

Example:

In Year 2 of a contract that started February 1, 2014, the Year 2 rates would be increase by .9% based upon the following information:

	% Change in Monthly CPI
January 2014	0.5
February 2014	1.2
March 2014	1.0
April 2014	0.4
May 2014	0.7
June 2014	1.2
July 2014	1.3
August 2014	1.1
September 2014	1.1
October 2014	0.7
November 2014	0.9
December 2014	1.2

Average % Change  $11.3/12 = .9\%$

The Year 3 rates would be adjusted using the same calculation but with the January 2015-December 2015 12-month period and the Year 2 rates as the base. The pattern would follow for calculating the rates for each of the subsequent years of the contract.

2. To gain access to the CPI adjustment, the Contractor is required to submit a request in writing to the Contracting Authority, no later than 1 month prior to the anniversary date of the contract in each calendar year, Authorization of the rate adjustments is subject to the approval of the Contracting Authority. If the contractor fails to request a CPI adjustment by the anniversary date of the contract, it should be noted that any adjustment requested at a later date is not retroactive.
3. The CPI may be viewed at the following Statistics Canada Internet address:  
<http://www.statcan.gc.ca/pub/62-001-x/2013009/t040-eng.htm>

Solicitation No. - N° de l'invitation

EP775-150701/B

Amd. No. - N° de la modif.

Buyer ID - Id de l'acheteur

fg353

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

20150701

File No. - N° du dossier

fg353EP775-150701

CCC No./N° CCC - FMS No/ N° VME

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## APPENDIX A

### BID AND ACCEPTANCE FORM (BA) (4 pages)

#### BA01 IDENTIFICATION

Construction Management Services  
Postal Station "B" Envelope Rehabilitation and Base Building Upgrade  
59 Sparks St., Ottawa, Ontario

Solicitation Number: EP775-150701/B

Project Number: R.037973.270

#### BA02 BUSINESS NAME AND ADDRESS OF BIDDER

Name: \_\_\_\_\_

In the case of a Joint Venture, also provide the name of each member of the Joint Venture \_\_\_\_\_

Address: \_\_\_\_\_

Contact Name: \_\_\_\_\_

Telephone: \_\_\_\_\_ Fax: \_\_\_\_\_ PBN: \_\_\_\_\_

#### BA03 THE OFFER

1) The Bidder offers to Canada to perform and complete the Work for the above named project in accordance with the Bid Documents for the **TOTAL BID AMOUNT** of

\$\_\_\_\_\_excluding applicable taxes  
(to be expressed in numbers)

The **TOTAL BID AMOUNT** represents the **sum of items (A) + (B) below**, all excluding applicable taxes:

**A) SERVICES AND CONSTRUCTION****(a) Pre-construction Services**

(Refer to Terms of Reference, section 4.4 and section 4.3 monthly fixed fee breakdown chart, MF#1)

A fixed monthly fee (Item 2A of Annex B) of \$ \_\_\_\_\_ x 5 month\* = \$ \_\_\_\_\_;

**(b) Pre-construction, Construction and Post-Construction Services**

(Refer to Terms of Reference, section 4.4, 4.5, 4.6 and section 4.3 (monthly fixed fee breakdown chart, MF#2)

A fixed monthly fee (Item 2A of Annex B) of \$ \_\_\_\_\_ x 26 months \* =  
\$ \_\_\_\_\_;**(c) Post- construction Services**

( Refer to Term of Reference, section 4.6 and section 4.3 monthly fixed fee breakdown chart, MF#3)

A fixed monthly fee (Item 2A of Annex B) of \$ \_\_\_\_\_ x 9 months\* = \$ \_\_\_\_\_;

**(d) Estimated construction cost \$27,970,000.00****(e) Percentage Fee on Construction (Item 2B of Annex B) of \_\_\_\_\_% x \$ 27,970,000.00 =**

\$ \_\_\_\_\_;

**(f) Bonding and Insurance (Refer to Item 4a, Annex B): \$ \_\_\_\_\_;****(g) Cash Allowance for Permits and Site Office (Refer to item 4b and 4c, Annex B) : \$ 600,000.00;**



**B) Firm Hourly Rates\*\*** Hourly Rates to be based on the Bidder's hourly rate for the Bidder's Personnel, (inclusive of payroll costs, overhead and profit) for Additional Personnel (Item 2D) of Annex B. Payment for any additional services or personnel will be based on the hourly rate and paid on the basis of actual hours worked. See table below:

Category of Personnel	Quantity (hours) (A)	Firm hourly Rate (B)	Extended Price (AxB)
Senior Project Manager	2,000	\$	\$
Intermediate Project Manager	2,000	\$	\$
Commissioning Manager	2,000	\$	\$
Senior Mech & Elec Coordinator	2,000	\$	\$
Intermediate Mech & Elec Coordinator	2,000	\$	\$
Senior Superintendent	2,000	\$	\$
Assistant Superintendent	2,000	\$	\$
Chief Estimator	2,000	\$	\$
Intermediate Estimator	2,000	\$	\$
Chief Scheduler	2,000	\$	\$
Intermediate Scheduler	2,000	\$	\$
Quality Control Field Staff	2,000	\$	\$
Site Safety Officer	2,000	\$	\$
Administrative Support	2,000	\$	
<b>Total Extended Prices</b>			

\* Number of months is based on an estimated award date. The total months shall be adjusted to reflect a completion date of March 2018 actual months.

\*\*The quantities and categories of personnel identified in (B) above are for evaluation purposes only and shall not be interpreted by the Bidder to be a commitment by Canada to request the services of any of the personnel for any quantity of weeks whatsoever.

- Canada may accept or reject any of the above hourly rates. Canada reserves the right to negotiate these hourly rates.
- Any errors in the addition or multiplication of the amounts in A) and B) above will be corrected by Canada to obtain the Total Bid Amount. In the case of error in the extension or addition of unit prices, the unit price will govern.
- In order to ensure that fair and competitive hourly rates are received for each of the category of personnel the following requirements must be adhered to:
  - the Bidder must provide an hourly rate for each category of personnel,
  - the hourly rates must reflect the level of experience for each of the listed category of personnel. For example, if an hourly rate for personnel at the intermediate level exceeds the hourly rate for personnel at the senior level in the same category both hourly rates will be deemed not to reflect the appropriate level of experience;
  - the hourly rate for any given listed category of personnel cannot be \$0.00 or nil value.

Failure to comply with a or b or c above may render the bid non-responsive.

4. The Bidder's fixed monthly fee, submitted in response to this RFP, shall apply for any delays or extensions of any services in any phase that would cumulatively affect the total duration of the phase by up to 4 months. The fixed monthly fee would be subject to negotiation for any phase which is delayed or extended beyond 4 months.

#### **BA04 BID VALIDITY PERIOD**

The bid shall not be withdrawn for a period of 120 days following the date of solicitation closing.

#### **BA05 ACCEPTANCE AND CONTRACT**

Upon acceptance of the Contractor's offer by Canada, a binding Contract shall be formed between Canada and the Contractor. The documents forming the Contract shall be the contract documents identified in Contract Documents.

The **Contract Value** will be determined in accordance with amounts bid for items **BA03 1. A) Services and Construction**. Section B) is for evaluation purposes only.

#### **BA06 CONSTRUCTION TIME**

The Contractor shall perform the services and achieve Substantial Completion of the Work by no later than December 2017 and completion by March 2018. (Note: These are the dates assuming full scope of work will be implemented).

#### **BA07 BID SECURITY**

The Bidder is enclosing bid security with its bid in accordance with GI06 - Bid Security Requirements of General Instructions to Bidders.

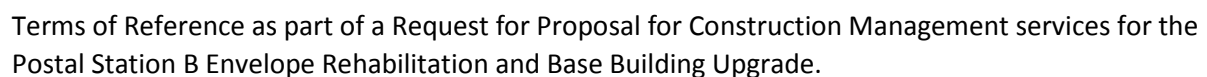
#### **BA08 SIGNATURE**

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

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

# Terms of Reference



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## **APPENDICES**

### **Appendix A – Summary of Previous Building Repairs/Renovations**

**ATTACHMENTS UNDER SEPARATE COVER – FORMING AN INTEGRAL PART OF THIS TOR**

**Attachment 1** – Prime Consultant Request for Proposal (available for viewing on Buy and Sell under Solicitation # EP775-142668/A

**Attachment 2** – Envelope Rehabilitation & Base Building Upgrade, Postal Station B, 47-59 Sparks Street, Watson MacEwen Teramura Architects, Jun 2013, PWGSC Project No. R.037973.001

**ATTACHMENT UNDER SEPARATE COVER – PROVIDED FOR INFORMATION PURPOSES IN THE LANGUAGE PRODUCED (available on CD upon request)**

**Attachment 3** – Structural Seismic Assessment of Postal Station “B” Building, Dessau, August 2014, PWGSC Project No. R. 037973.001

**Attachment 4** – Building Condition Report (Updated), Halsall Associates Ltd. for Watson MacEwen Teramura Architects, Mar 2013, PWGSC Project No. R.037973.001

**Attachment 5** – Designated Substances Report, PWGSC Environmental Services Directorate, June 4, 2014

## **TERMINOLOGY**

The following terms are used in this document. Note that the definitions specified in the prequalification document Part 3.2 Definitions apply to this RFP.

**Arm's Length** - A transaction in which the buyers and sellers of a product act independently and have no relationship to each other. The concept of an arm's length transaction is to ensure that both parties in the deal are acting in their own self interest and are not subject to any pressure or duress from the other party.

**Asbestos Containing Material (ACM)** - Means any material found to contain asbestos that is at or above the limit defined by provincial standards, as determined by the standard Polarized Light Microscopy (PLM) method for the analysis of bulk samples.

**Building Components and Connectivity (BCC)** - Including Information Technology (IT), Multi-Media (MM), Integrated Security Systems (ISS), furniture, built-in furniture and equipment.

**Canada Post Corporation (CPC)** - CPC is one of the primary users of PSB and is the crown corporation which functions as the country's primary postal operator. In 1981, the Canada Post Corporation Act came into force creating the crown corporation from a government department.

**Client/User** - The Privy Council Office (PCO) and Canada Post Corporation are the primary facility occupants.

**Contractor and Construction Manager**– means the person contracting with Canada to provide or furnish all labour, Material and Plant and construction management services for the execution of the Work under the Contract, and includes the Contractor's superintendent as designated in writing to Canada.

**Cost Specialist** - The firm in contract with PWGSC responsible for providing independent cost (planning, estimating and control), advisory and quality assurance services.

**Designated Substance Report (DSR)** – Is required under the Ontario Occupational Health and Safety Act in order to identify designated substances that may be present within the project areas. The DSR will be supplied by the Departmental Representative.

**Environmental Consultant** - The firm separately contracted by PWGSC engaged to provide environmental services.

**Federal Heritage Buildings Review Office (FHBRO)** - The primary objective of Parks Canada's FHBRO is to assist federal government departments in the protection of their heritage buildings, in accordance with the Treasury Board Policy on Management of Real Property.

**Federal Sustainable Development Strategy (FSDS)** - The document that sets out the sustainable development strategy objectives for the Federal Government of Canada on a three year cycle. Departments that must respond to the FSDS, including PWGSC, state their own objectives in response to the FSDA in the annual Report on Plans and Priorities (RPP) and their actual performance in the annual Departmental Performance Report (DPR).

**Geotechnical Consultant** - The firm separately contracted by PWGSC engaged to provide geotechnical services.

**Green Globes** - A points-based rating system used to assess the environmental performance of buildings.

**Heritage Conservation Directorate (HCD)** - PWGSC's Centre of Expertise for Heritage Conservation, that provides expert advice and quality assurance for key architectural, conservation, engineering and landscape architecture professional disciplines. For work on federal heritage buildings, HCD takes a lead design advisory role and assembles a team of professionals from with PWGSC to provide expert advice throughout the project. Members of the professional design advisory team come from National Capital Area Operations (NCA Ops) and APPS (PTSM) National Centre of Expertise for Urban Design and Landscape Architecture and cover specific disciplines such as functional programming, interior fit-up, master planning, mechanical, electrical and geotechnical.

**Leadership in Energy and Environmental Design (LEED)** – Is a voluntary, 3<sup>rd</sup> party certified, green building rating system that evaluates the environmental performance of whole buildings during the design, construction and operational stages of the building's life cycle.

**Life Cycle Analysis (LCA)** – a scientific method for measuring the environmental footprint of materials, products and services over their entire lifetime [Ref: Athena Sustainable Materials Institute, <http://www.athenasmi.org/> ]

**Life Cycle Cost (LCC)** – measures, in present-value terms, the sum of all relevant costs associated with owning and operating a building or building system over a specified time period [ Ref: ASTM E917-05 Standard Practice for Measuring Life-Cycle Costs of Buildings and Building Systems, available at <http://www.astm.org/Standard/standards-and-publications.html>]

**National Master Specification (NMS)** – A master construction specification available in both official languages, divided up into forty-eight (48) divisions and used as a template for this project (<http://www.tpsgc-pwgsc.gc.ca/biens-property/ddn-nms/index-eng.html>) .

**Parliamentary Precinct Branch (PPB)** – PPB is the branch of PWGSC responsible for all the buildings on Parliament Hill and the Sparks Street Mall in Ottawa. It manages day-to-day activities, as well as long-term maintenance and renovations of approximately



143,000 square metres of space.

**Postal Station B (PSB)** - The eight (8) storey Classified Heritage Building, of steel-frame and masonry construction, located at 47-59 Sparks Street, Ottawa, Ontario that is the subject of this project.

**Prime Consultant (PC)** – The consultant retained by PWGSC to provide detailed design and construction documents for this project.

**Privy Council Office (PCO)** - PCO is one of the primary users of PSB providing essential advice and support to the Prime Minister and Cabinet. The main roles of the PCO include provision of non-partisan policy advice and information, facilitation of the efficient and effective functioning of Cabinet, and ensuring that Canadians are served by a quality public service.

**Project Management Support Services (PMSS)** – Project management consultants hired under a separate contract by PWGSC to support all project management activities related to this project.

**Project Team** - The combined private and government sector team responsible for delivering the project including the PM Team, Consultant, Construction Manager, representatives from PWGSC, PCO and other government organizations.

**Security Services Consultant** - The firm separately contracted by PWGSC engaged to provide security-related services, including security design, threat and risk assessment and security support services to PCO.

**Time Specialist** - The firm in contract with PWGSC responsible for providing independent scheduling (planning, monitoring and control), advisory and quality assurance services.

**Value Engineering (VE)** - A creative, organized effort, which analyzes the requirements of a project for the purpose of achieving the essential functions at the lowest total costs (capital, staffing, energy, maintenance) over the life of the project or system. Through a group investigation, using experienced, multi-disciplinary teams, value and economy are improved through the study of alternate design concepts, materials, and methods without compromising the functional and value objectives of the client.

## DESCRIPTION OF PROJECT

### 1.1 SCOPE OF CONTRACT

Public Works and Government Services Canada (PWGSC) is rehabilitating the Postal Station B Building located at 47-59 Sparks Street on the southeast corner of Sparks and Elgin Streets in downtown Ottawa.

The services of a Construction Manager will be engaged in order to ensure the Project is delivered on schedule, within the construction estimate, and to the level of quality required for a building of this stature.

In general, the scope of this contract for Construction Management includes Services and Construction.

Services are defined as consisting of Pre-Construction Services, Construction Services, Building Components and Connectivity (BCC) and Post-construction Services. Services are described in sections RS4.1 to 4.6.

Construction is defined as the work required to deliver a complete project in a partially occupied building. Construction shall include major works, to rehabilitate the building envelope and base building systems of the Postal Station B Building as described in this RFP. This work shall be undertaken both outside and inside a partially occupied facility. Construction will be implemented one floor at a time as the floor occupants will need to be moved to a designated swing space. Other floors will remain occupied during construction on the designated floor. The ground floor which is occupied by the Canada Post Corporation (CPC) will remain fully occupied throughout the project.

With respect to Services and Construction related to BCC, it should be noted that the majority of the existing BCC Building Components are owned by the Privy Council Office (PCO), the main building tenant, and it is planned that these will be largely reused by PCO. Prior to the CM assuming control of a floor for construction, PCO will be fully responsible for the removal, moving and temporary storage of all existing Building Components owned by them. PCO will also be fully responsible for the purchase and installation of any new Building Components where required. After completion of construction work on each floor, the CM will turn over the space to allow PCO's contractors to install the required Building Components. The CM will be responsible for coordinating with PCO and PWGSC to ensure that PCO activities related to Building Components owned by PCO are properly coordinated and scheduled with the CM's activities.

In the case of BCC Building Connectivity, the CM will be fully responsible for the removal, moving and temporary storage of existing Building Connectivity components designated by PCO for reuse, as well as the purchase and installation of any new Building Connectivity components. Refer to Section 1.3.3.19 for additional information on BCC.

## 1.2 PROJECT INFORMATION

Location of the Project	47-59 Sparks Street Ottawa, ON, Canada
PWGSC Project Number	R.035163
Client	PWGSC, Parliamentary Precinct Branch
Departmental Representative	Senior Project Manager, Yvan Desmarais
Contracting Authority	Real Property Contracting, Suzette Searchwell

## 1.3 PROJECT DESCRIPTION

### 1.3.1 BACKGROUND INFORMATION

The Postal Station B Building is a “Classified” Federal Heritage Building (designated by FHBRO in 1986) that requires major rehabilitation. Currently, it serves a dual purpose by continuing to function as a postal facility on the ground floor, while providing secret and top secret office accommodations to the Privy Council Office (PCO) in the remainder of the building. The newly rehabilitated building will continue to serve this dual purpose for the foreseeable future.

The building has strong historical and architectural significance. Constructed in 1938-39 as Ottawa’s central post office along with offices for the Post Office Ministry, it was the only building constructed by the Federal government in accordance with the Greber Master Plan for the area, which envisioned Elgin Street being lined with consistently designed civic and federal buildings. It is also part of the Confederation Square National Historic Site.

The Parliamentary Precinct Branch (PPB) has identified the need for a comprehensive rehabilitation of the Postal Station B building envelope and base building systems.

The following provides a summary profile of Postal Station B:

Location:	59 Sparks Street, Ottawa, Ontario, Canada
Number of Stories:	8-storey plus full basement with 2-storey mechanical penthouse.
Inside Gross Area:	6,035.7 m <sup>2</sup>
Site Area:	971.2 m <sup>2</sup>
Current Occupancy:	Privy Council Office (PCO) and Canada Post Corporation (CPC)
Construction Date:	1938-1939
Architect:	W.E. Noffke
Custodian:	Public Works and Government Services Canada
Asset Type:	Class B heritage office building with ground floor retail.

FHBRO Designation:	"Classified" (1986)
Pedestrian Access:	Access to post office at two doors on Elgin St. and Elgin/Sparks streets. Access to post office and offices on Sparks St. Above-grade pedestrian link to the Langevin Block.
Loading:	Shared asphalt service lane at rear (north).
Parking:	None
Vertical Transportation:	2 passenger elevators and 1 service/passenger elevator.
Construction:	Steel and concrete frame with concrete slab floors and basement walls. Limestone cladding with brick and block west wall.
Major Renovations:	<ul style="list-style-type: none"><li>• 1975: Major retrofit including passenger elevator modernization, mechanical system upgrade, installation of basement sprinklers and re-construction of exterior walls;</li><li>• 1990-1995: Upgrades to the base building for accessibility compliance and a major retrofit of the base building elements;</li><li>• 1997: Electrical system upgrade.</li></ul>

Apart from the removal of the rooftop skylights, the exterior of the building remains relatively unchanged. The interior of the building has been significantly altered with the exception of the post office, the main entrance vestibules, the elevators and stairwells which have preserved original materials and finishes. A summary of the interventions of building repair and renovations along with recent reports is provided in Appendix A. Existing reports which may be of interest to the CM are provided as attachments under separate cover.

### 1.3.2 OVERVIEW

The project scope of work includes the following: envelope conservation, interior demolition and reinstatement (including asbestos abatement), heating system replacement, plumbing system upgrade, HVAC upgrade, sprinkler upgrade, electrical system upgrade, control system upgrade, seismic upgrade, and security system upgrades (as part of the Building Connectivity scope of work).

The scope of work on the interior of the building includes upgrades of base building systems on a floor by floor basis, with no changes to the tenant functional program. Other than for the abatement of ACM and upgrade of base building systems, the design and construction work shall be planned to minimize any disturbance to interior architecture to the extent possible.

Although the majority of the work will be confined to the boundaries of the Postal Station B site, some limited intervention may be required on the adjacent Hope Building and Langevin sites (e.g. seismic upgrading).

A more detailed description of the project scope is provided in Section PD 1.3.3 Program of Works. The Program of Works described herein will be reviewed and further developed by the Prime Consultant during the Schematic Design and Design

Development Stages of their mandate.

### 1.3.3 PROGRAM OF WORKS

#### **1.3.3.1 Long Term Planning**

The current occupancy level of Postal Station B is 168 people. Based on building code egress limitations, it is understood that the occupancy level could be increased to a maximum of 280 people. At present, there will be no change in the function of the building and the tenants who occupy the space.

#### **1.3.3.2 Abatement and Demolition (AD)**

PWGSC has engaged the services of an Environmental Consultant (EC) to complete a full-building Designated Substances Report (DSR) which will be made available to the Prime Consultant and Construction Manager for this project. This full-building DSR will include previous DSRs produced for specific projects completed in the past. Additional exploratory openings may be required to be made by the CM to confirm the existence of designated substances at the beginning of the project. The information from the DSR and these exploratory openings will be used by the Consultant and Environmental Consultant to develop the early tender packages such as abatement and selective demolition.

##### **1.3.3.3.1 Abatement**

Hazardous substances, such as asbestos, will be detailed in the Designated Substance Survey. The EC will be required to plan, design and develop tender packages in connection with the abatement. This will include the development of a program to remove hazardous substances during demolition as well as the field review related to abatement. The CM is required to provide input to the tendering strategy for the AD work in collaboration with the EC and Prime Consultant.

##### **1.3.3.3.2 Demolition**

The Prime Consultant will be responsible for: the demolition scope; for coordination with the EC for the purpose of developing their design and construction documents; and to ensure the delivery of coordinated AD tender packages. The Prime Consultant will take the lead to ensure the issuances are ready for the Construction Manager. A high level of co-operation, co-ordination and integration with the EC and Prime Consultant is required from the CM.

Demolition will follow a construction, renovation, demolition (CRD) waste management plan. The CM is responsible for implementing measures to maintain structural safety and building integrity during construction, including all requirements specified by the Prime Consultant and their structural engineer. As well, during this stage, the CM will install the temporary services designed by the Prime Consultant.

The Prime Consultant will be responsible for specifying requirements for building and heritage protection. Careful protection and on-going monitoring of the building elements

that will remain is required. Heritage protection requirements including vibration monitoring shall be specified in the Division 1 specification for implementation of the CM during construction. As well, guidelines shall be required regarding the protection of character-defining elements for any AD that happens. The FHBRO will need to be consulted on any demolition or removal of character-defining elements. Demolition involving character-defining elements (materials, assemblies, spaces) requires planning, documentation and storage. Salvaging guidelines shall be required. A Heritage Elements Inventory, Heritage Recording and Heritage Materials Database will be prepared by PWGSC and provided to the Prime Consultant, as the basis for managing heritage building elements throughout the project.

#### **1.3.3.3 Temporary Work**

The Prime Consultant, in consultation with the CM, will be required to identify and design temporary architectural, structural, mechanical, communication, electrical and fire protection requirements related to the abatement and demolition tender packages and for the transitional periods between tender packages. This aspect of the design program is critical as the provision of services must be maintained throughout the duration of the project in the occupied space. The CM will be responsible for implementing the temporary services program to ensure services are operational for the start of business each day. The temporary work includes:

- i. Temporary heat and ventilation of the interior;
- ii. Heritage protection measures;
- iii. Mechanical portion of temporary fire protection systems;
- iv. Mechanical ancillary systems required to maintain electrical systems supporting the generator and other life-safety equipment;
- v. Temporary structural supports if required; and
- vi. Temporary electrical requirements related to the construction site including scaffolding enclosures and interior work (while existing electrical systems are removed) such as:
  - a. Power, lighting, security and fire protection;
  - b. Emergency power to maintain heat, lighting and fire protection and supply to exterior services; and
  - c. Lightning protection as required.

Fire protection during construction shall be governed by:

- i. Treasury Board Fire Protection Standard ( <http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=17316&section=text>) coordinated and confirmed by the Departmental Representative responsible for the Fire Protection; and
- ii. National Fire Code and other applicable standards, regulations and Acts.

Fully coordinated and continuous follow-up and review for implementation compliance of this particular aspect of temporary work cannot be understated. The provision of this work will be critical to the successful completion of the project. The Prime Consultant will be taking a leading and proactive role in this matter throughout the entire design period; the CM will ensure that fire protection is maintained throughout the implementation period. This aspect will be particularly critical during the period of abatement and demolition work.

#### **1.3.3.4 Interior Architectural**

The rehabilitation of the building will include the following:

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- i. Removal of T-bar ceiling;
- ii. Removal of Asbestos Containing Materials (ACM) and plaster ceilings;
- iii. Removal of existing carpets;
- iv. Fireproofing of existing steel structure;
- v. Painting of all walls; and
- vi. Installation of new acoustical ceiling tile and carpet.

Note that it is intended to retain as much of the interior finish on all interior walls as possible.

#### **1.3.3.5 Building Envelope Conservation**

The rehabilitation of the building will include the following:

- i. Full repairs and rehabilitation of the copper roof including: repair of standing seams and batten edges, re-clad parapet walls, replace all flashing, insert deviators to direct water away from masonry walls, replace gutter system, repair any flat roof deficiencies, replace all anti-pigeon systems;
- ii. Masonry re-pointing and repairs. The extent of masonry re-pointing and repairs will be reviewed and updated by the Prime Consultant.;
- iii. Repair and restoration of character defining elements;
- iv. Full restoration of windows. PC to review feasibility of restoration in-situ and off-site and provide an options report with recommendation for implementation; and
- v. Restoration of vents, hardware, copper grills and the clock.

All of the elements that make up the building envelope are character-defining elements of the building. One of the project objectives is to retain as much original material as possible. The windows, although suffering from various pathologies, are largely intact and good candidates for preservation, which involves cleaning and refinishing the windows, as described in the report *Postal Station B Envelope and Mechanical System Investigation Report, DFS Architecture & Design, Mar 2011*.

The upper, office floors of the interior have been altered significantly over time, and are not considered character-defining. It should be noted, however, that the interior finishes in the post office and lobby spaces on each floor are character-defining.

#### **1.3.3.6 Heating System Replacement**

The rehabilitation of the building will include the following:

- i. Replacement of the complete piping, valve and mechanical system for the entire building; and
- ii. Replacement of the existing steam radiators with new hot water radiators and the installation of a new steam-to-hot water conversion station.

#### **1.3.3.7 HVAC Upgrade**

The rehabilitation of the building will include the following:

- i. Upgrading of the HVAC system to increase the air flow rate based on an occupancy level of 250-280 people (to be validated), including new supply of cooling to all LAN rooms and review of the air intake location and elevation;
- ii. Refurbishment of the central air handling unit including installation of a multiple fan array, and/or replacement of the entire unit, based on value engineering and life cycle cost analysis; and

- iii. Replacement of Variable Air Volume (VAV) units and the air distribution ductwork.

#### **1.3.3.8 Electrical Upgrade**

The rehabilitation of the building will include the following:

- i. Upgrading of the fire alarm system;
- ii. Review of the capacity of the sub feed service from the Langevin Building and upgrading as required to support the increased design occupancy level of 250 people, taking into consideration the upstream 750-kVA transformer capacity which feeds both the Langevin and Postal Station B buildings;
- iii. Replacement of the electrical distribution equipment and floor distribution system, including modification of the lighting system including provision for a modern control system, permitting day-light harvesting and energy savings, dimming or individual control of the light fixtures and interface with the building control system; and
- iv. Review of the requirement to provide dedicated transfer switches for the emergency power system, and upgrading as required.

#### **1.3.3.9 Control System Upgrade**

The rehabilitation of the building will include the following:

- i. The installation of a new Building Automation System (BAS) which includes local Direct Digital Control (DDC) type controllers and a new Central Management System, or selected upgrades to the BAS, as determined from the Value Engineering and Life Cycle Costing exercise described in PD1.3.3.16.

#### **1.3.3.10 Plumbing System Upgrade**

The rehabilitation of the building will include the following:

- i. Replacement of all below-ground sanitary and storm drainage piping and above-ground sanitary and storm drainage including vertical chases and sump-pumps, as identified in the Watson MacEwen Teramura 2013 report (*Envelope Rehabilitation & Base Building Upgrade, Postal Station B, 47-59 Sparks Street, Watson MacEwen Teramura Architects, Jun 2013*);
- ii. Replacement of domestic water piping distribution system and modification of the main water entry to meet current code requirements;
- iii. Replacement of all existing plumbing fixtures (excluding Women's Washrooms in common areas); and
- iv. Localized repairs to the foundation wall and drainage system exposed as a result of the plumbing system upgrades described above.

#### **1.3.3.11 Sprinkler System Upgrade**

The rehabilitation of the building will include the following:

- i. Installation of sprinklers on each floor, standpipes in stairwells and new fire protection pumps.; and
- ii. Installation of Siamese connections.

#### **1.3.3.12 Structural/Seismic**

The rehabilitation of the building will include the following:



- i. Evaluation of existing deficiencies in the connection of masonry to the structure and restoration of the integrity of this connection in conjunction with the building envelope conservation work;
- ii. Rehabilitation of the steel beams and columns at the penthouse level in conjunction with the building envelope conservation work. The scope of structural intervention, as identified by DFS in their 2011 report (*Postal Station B Envelope and Mechanical System Investigation Report, DFS Architecture & Design, Mar 2011*) includes: “the repairs of the corroded column and beams in the West staircase between the 6<sup>th</sup> and 7<sup>th</sup> floor levels and the rehabilitation of the corroded lintels above the penthouse windows and doors and along the North elevation at ground level. Furthermore new ties will be properly inserted during the rehabilitation of all corners of the penthouse so as to secure the envelope to the back-up walls.”
- iii. Repairs to corroded steel members exposed in conjunction with the envelope conservation work and the interior abatement and demolition work;
- iv. Repairs to corroded steel beams in the basement mechanical room; and
- v. Seismic upgrading to a minimum of 60% of the current NBCC 2010 seismic requirements. Intent is to achieve the maximum level that is reasonably practical within the project constraints, with a minimum of 60% reliability level.

#### **1.3.3.14 Functional Program**

There will be no changes to the functional program for the building.

#### **1.3.3.15 Accessibility**

Public Works and Government Services Canada is committed to making its facilities accessible to persons with disabilities. The Treasury Board Accessibility Standard for Real Property establishes minimum requirements for the accessibility of Crown-owned and leased real property (<http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=12044&section=text#cha3> ).

The rehabilitation of the building will include the following:

- i. The Prime Consultant is to review the accessibility of the washrooms to meet Treasury Board requirements, provide recommendations to PWGSC, and implement an upgrade option as approved by PWGSC DR.

#### **1.3.3.16 Heritage**

The *Treasury Board Guide to the Management of Real Property* ( <http://www.tbs-sct.gc.ca/rpm-gbi/doc/gmrp-ggbi/gmrp-ggbi06-eng.asp> ) places protection of the heritage character of federal buildings on an equal footing with other considerations related to real property management and it is within this policy that departmental obligations and responsibilities are defined.

Postal Station B is a ‘Classified’ federal heritage building, and as such, all work must be done in accordance with the *Standards and Guidelines for the Conservation of Historic Places in Canada*, ( <http://www.historicplaces.ca/media/18072/81468-parks-s+g-eng-web2.pdf> ) and the project must be submitted to the FHBRO for review. The FHBRO will undertake their review based on the S&G, the Heritage Character Statement for the building, and the Conservation Approach developed by the Project Team.

### Heritage Character Statement

The following Heritage Character Statement was developed by FHBRO ([http://www.pc.gc.ca/apps/dfhd/page\\_fhbros\\_eng.aspx?id=2549](http://www.pc.gc.ca/apps/dfhd/page_fhbros_eng.aspx?id=2549)) to explain the reasons for the designation and to specify what it is about this building that makes it significant (the heritage character). It is a key reference document for anyone involved in planning interventions to federal heritage buildings and is used by FHBRO in their review of interventions.

*Postal Station B, Ottawa, was built in 1938-39 to designs by W.E. Noffke, architect, of Ottawa. In 1984, the Historic Sites and Monuments Board identified this along with the other buildings around Confederation Square as of national historical and architectural importance. The building belongs to Public Works Canada. See FHBRO Building Report 85-14.*

#### Reason for Designation

*In June, 1986, Postal Station B was designated Classified because it is a significant and creative work of architecture and because it makes an important contribution to the character of Confederation Square and the Sparks Street Mall.*

*In Postal Station B, W.E. Noffke, a distinguished Ottawa architect of the period, found an elegant solution to a demanding symbolic program. The government of the day recognized this building as its major contribution to the enclosure of the newly-created Confederation Square. Its cornice heights and, to a degree, its bay rhythms were established by the adjoining Langevin Block; the roof was imposed by a political preference for the Chateau Style, or at least for large copper roofs. Noffke integrated these givens in a composition of Classical regularity with the honed-down surface treatment typical of the Art Deco sensibility. The building is an entirely convincing example of good architectural manners.*

*Postal Station B was intended to be the springing of a consistent façade to Elgin Street south to Laurier Avenue. The Lord Elgin Hotel is a direct response to this aim; the Lorne Building and the British High Commission are less direct responses to the same intention. Postal Station B also works well as the gateway to the Sparks Street Mall.*

#### Character Defining Elements

*The whole of the visible façades and roofs of the building, including windows and doors, architectural metals and fittings, and, of course, the lions which guard its doors, are essential to its heritage character. It is unlikely that any of these elements can be altered without seriously diminishing the whole.*

*The public interiors of the building were originally finished with a suitable richness of material and ornament. The qualities of this space have been eroded over the years by successive small changes. It would be appropriate for this process now to reverse itself. The architectural and social values of this building would be best preserved if it were to remain a post office.*

### Heritage Material Database and Heritage Material Management Protocol

As part of the stewardship role of PWGSC, architectural components being considered for salvage or disposal must be carefully considered to ensure that the heritage value is respected. The Government of Canada has established a legal and policy framework for the protection of heritage buildings, sites and moveable heritage assets in its care. In addition to the *Treasury Board Guide to the Management of Real Property* (<http://www.tbs-sct.gc.ca/rpm-gbi/doc/gmrp-ggbi/gmrp-ggbi06-eng.asp>), the following documents affect how salvaged items are to be assessed and managed: *Treasury Board Policy on Management of Materiel* (<http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=12062>); and *Guide to the Management of Movable Heritage Assets* (<http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=13872&section=text> ).

#### Heritage Material Database:

The *Heritage Material Database* identifies the heritage character defining elements; their description, location and quantity; heritage and material values, and includes a photographic heritage recording of each element. The database includes recommended salvage/disposal/protect/reinstate requirements for each component based on the project requirements including design intent, implementation strategy and conservation approach. Further detail will be provided in the *Heritage Material Management Protocol* for items selected for salvage or disposal including: who will remove it, storage requirements for long term or short term, outdoor or indoor storage, de-accessioning protocols to museums and other third parties; treatment of sensitive items and disposal procedures.

A *Heritage Material Database* has been prepared by PWGSC and will be made available to the Prime Consultant for use on the project. (*Postal Station B Heritage Material Database, Heritage Conservation Directorate, February 2015*). This database will be continually updated and maintained during the design and construction phases of the project by the Prime Consultant with monthly update reports to PWGSC.

Further investigations and inspections may be required to verify the heritage materials and their condition in obscured areas of the building (for example behind drop ceilings and under raised floors). The Prime Consultant would prepare an inspection and investigation plan for the CM to provide access to verify existing conditions. Access for some investigations will only be possible once a floor has been vacated for construction.

#### Heritage Material Management Protocol (HMMP):

A HMMP will be prepared by the Prime Consultant for the project. This document details the protocol for the CM to follow during construction for heritage materials. The HMMP is a document which is an appendix to the construction specification sections containing the historic – protective measures. The HMMP includes:

- a. the initial material actions,
- b. the various steps and types of cataloguing: the purpose of this is to provide guidance to the CM for the appropriate cataloguing of heritage

- materials that are disassembled from their current location, including those that will be reinstalled or permanently stored;
- c. the material handling during removal: the purpose is to provide guidance for the appropriate handling of all heritage material during the removal from their location;
- d. the protection, including protection in-situ, protection removal to undertake work, and crating protection;
- e. transportation procedures;
- f. temporary storage;
- g. permanent storage;
- h. unanticipated heritage element discovery protocols;
- i. unanticipated damage to heritage elements during construction protocols;
- j. sample heritage material condition report; and
- k. sample crating tag and heritage material I.D. tag.

### **1.3.3.17 Value Engineering and Life Cycle Costing**

Value engineering and life cycle costing are considered an integral component of this project, in view of optimizing the design process and the selection of materials and building systems to achieve the best value for the Crown. The CM must collaborate and provide constructability and schedule impact input to the Prime Consultant for value engineering and life cycle costing.

Value engineering should be a total review of all components (equipments, systems, etc.), their complexity, utility, material specifications and LCC. The goal is to simplify, standardize and improve without compromising quality, use, life and budget. Value engineering should include the following but not be limited to these:

- i. The requirements of the functional program;
- ii. The design;
- iii. Maintenance of the finished product (component, equipment, building, etc.)
- iv. Sustainability;
- v. Efficiency (energy usage, durability);
- vi. Constructability (including the project constraints);
- vii. Schedule impact;
- viii. Systems integration; and
- ix. Heritage implications.

LCC should be used in all cases where options are presented, as to equipment type, operating reliability, costs, choice of construction methods and life of equipment. *ASTM Standard E917 Standard Practice for Measuring Life-Cycle Costs of Buildings and Building Systems* is considered a reference document to follow for LCC for this project.

The LCC process must include at least the following but not be limited to these:

- i. Use present value for all costs based on 30 year life before renovations;
- ii. Maintenance and operating costs;
- iii. Replacement cost for major components (equipment);
- iv. Potential savings based on quality of materials used;
- v. Potential savings due to constructability;
- vi. Schedule impact on cost; and
- vii. Method of construction cost impact.

The following selected building systems will be investigated as part of the Prime

Consultant's mandate:

- i. Roofing Repairs versus Replacement: The scope of work is currently based on undertaking localized repairs of the roofing as described in Section PD 1.3.3.5. The Prime Consultant is to perform VE/LCC to determine the optimum option, considering that replacement of the entire roofing would provide an opportunity to incorporate roofing insulation resulting in reduced energy costs.
- ii. Steam-to-Hot Water Converter: The building is currently serviced with steam radiators. The project includes for the replacement of the heating system for the entire building, including replacement of existing steam radiators with new hot water radiators. This will require the installation of a new steam-to-hot-water conversion station. In addition, this VE/LCC exercise needs to take into account a future PWGSC requirement to change over from steam to low-temperature hot water supply to buildings in the NCA including Postal Station B (*Guidelines for Hot Water System for Buildings Connected to Central Heating Plants in NCA, PWGSC, Jul 2011*). The efficiency of the conversion stations selected will have an impact on energy costs and overall life cycle costs, which are to be evaluated as part of the VE/LCC exercise.
- iii. Air Handling Unit Replacement: The current program includes for the refurbishment of the existing AHU in-situ given space constraints in the mechanical room. This would require phased implementation over a series of weekends to maintain business continuity. The Prime Consultant will also be reviewing the feasibility of replacing the existing AHU as an option.
- iv. Lighting Approach: Review options for optimizing the lighting system design with the objective of reducing energy, user-friendly control, maintenance and operating costs.
- v. Building Automation System: The cost estimate currently includes for the installation of a new Building Automation System (BAS) which includes local Direct Digital Control (DDC) type controllers and a new Central Management System. However, the existing BAS has been recently upgraded and in addition the BAS services other buildings in Block 1. The Prime Consultant will include an investigation and report on the best value to PWGSC on the extent of replacement or modification to the BAS.
- vi. Sequencing of Construction Work: PCO will vacate a minimum of one floor at a time using a designated floor as swing space and CPC space on the ground floor will remain fully occupied. Work on occupied floors and on the CPC ground floor will need to be performed during off hours. The Prime Consultant in consultation with the CM will apply value engineering to optimize the sequencing of construction activities with the objective of reducing the overall construction schedule.
- vii. Operating Costs: Operating costs must be kept to a minimum and reflect the projected operating costs in the cost plan, as provided by PWGSC. This is to be achieved by compliance with the energy budget and selection of equipment and finishes that require minimum operating personnel and easy maintenance. The implications of operating and maintenance costs on the selection of equipment and finishes are to be reviewed.
- viii. In addition to the items identified above, the Prime Consultant with input from the CM will propose an additional five (5) opportunities for the application of value engineering and life cycle costing with justification for approval by PWGSC.

### **1.3.3.18 Environmental/Sustainable Development**

#### **1.3.3.18.1 Principals and Guidelines for Sustainable Development**

Sustainable Development objectives must be addressed throughout the evolution of the project. Sustainable Development is defined in broad terms as a strategy that routinely and consistently includes the consideration of the environmental, economic and societal impact of every decision made for the project. The following are some of the principles that will be incorporated into the design:

- i. Integrated Strategic Assessment;
- ii. Integrated Design Process;
- iii. Energy Efficiency;
- iv. Environmental Impact;
- v. Waste Management;
- vi. Life Cycle Management; and
- vii. Sustainability Performance Assessment.

Sustainable development guidelines include:

- i. Energy efficiency and conservation including HVAC and mechanical systems;
- ii. Greenhouse gas emissions reduction;
- iii. Practical water management and conservation;
- iv. Pollution prevention;
- v. Product selection and resource conservation;
- vi. Recycling and reusing material where feasible;
- vii. Using durable building material and assemblies;
- viii. Using building products with recycled content where feasible;
- ix. Implementing a Construction, Renovation and Demolition (CRD) waste management plan;
- x. Indoor environmental quality (thermal, air, and lighting quality and control); and
- xi. Environmentally friendly maintenance procedures and products (e.g. low Volatile Organic Compounds (VOC).

As well as the *Treasury Board Policy on Management of Real Property*, other guidance documentation outlining sustainable design principles to be included for federal real property projects include:

- i. *The Environmentally Responsible Construction and Renovation Handbook* (<http://www.tpsgc-pwgsc.gc.ca/biens-property/gd-env-cnstrctn/index-eng.html>);
- ii. *The Environmentally Responsible Green Office at a Glance Handbook* (<http://www.tpsgc-pwgsc.gc.ca/biens-property/env/page-1-eng.html>);
- iii. *Strategic Framework for Sustainability in Buildings*; and
- iv. *Green Building Implementation Guide*.

This project requires a solid waste management program which must be implemented for all construction phases - this is the responsibility of the Environmental Consultant retained by PWGSC. The Prime Consultant will coordinate all requirements and the scope of the demolition program with the EC, who will prepare the Consolidated Waste Inventory and Reduction Plan, which is an element of the solid waste management program. The Prime Consultant will review a draft of the Consolidated Waste Inventory and Reduction Plan prior to being finalized and confirm in writing that the scope of the Consolidated Waste Inventory and Reduction Plan is reflective of the planned

construction work. The EC will also be responsible for performing waste management audits during construction to verify the degree to which recycling objectives are being achieved and recommendations for improvements if objectives are not being met.

The team approach is crucial to sustainable design projects. It encompasses a methodology that is focused on a collaborative process involving input from all team members early in the project. To this end, the Prime Consultant shall lead the integrated design process to provide a holistic approach to the rehabilitation design. With due consideration of the project scope, the intent should be to focus on the design, construction and operation of building systems, and the occupancy of the building over the complete life cycle, in a multi-disciplinary approach that clearly defines the functional, environmental and economic goals and objectives of the project. In doing so the following should be accomplished:

- i. Establishment of an inter-disciplinary team including PWGSC and the Client/User;
- ii. Establishment of the priorities of the various performance issues;
- iii. Energy simulation on design options and objective information on system performance;
- iv. Provision of subject specialists to provide consultation;
- v. Use of performance assessment tools such as LEED;
- vi. Use of a design facilitator to initiate and stimulate discussions; and
- vii. Use of team workshops.

#### **1.3.3.18.2 Environmental Performance**

This project provides the opportunity to incorporate innovative, sustainable and environmentally responsive design into the rehabilitation. PWGSC policy requires that rehabilitation projects of Crown-owned buildings meet an industry recognized level of high environmental performance (Leadership in Energy and Environmental Design (LEED) Silver, Green Globes for Design, or equivalent standard).

The Prime Consultant will apply for and obtain, on behalf of PWGSC, certification for the project under an industry-recognized rating system. The Prime Consultant will provide guidance to PWGSC as to which rating system would be most appropriate, and realistically achievable, for the project. The Prime Consultant will perform an initial assessment early in the design stage that will inform PWGSC which rating system (e.g LEED, Green Globes, etc.) and which level of rating the project will be able to achieve keeping in mind the minimum standards set forth in the Federal Sustainable Development Strategy. For a major renovation project such as this, the minimum level of performance is LEED NC Silver or 3 Green Globes for Design. The Prime Consultant will be responsible for all tasks, including preparation of documentation, required for certification and will balance the requirements of the rating systems' prerequisites and credits with other project requirements. For more information visit the Canada Green Building Council web site: <http://www.caqbc.org> and Green Globes for Design at <http://www.greenglobes.com/home.asp>. The CM will support the Prime Consultant in the environmental certification process by advising on the sourcing, availability and on-site verification of materials. Refer to section RS4.5.12 for additional information.



### **1.3.3.19 Building Components and Connectivity (BCC)**

#### **General**

Building components means building fixtures, furnishings and equipment. Building connectivity means the physical, electronic and other systems – namely Information Technology, Multi-Media and Integrated Security Systems (IT/MM/ISS) - that connect buildings and the workstations in them.

The scope of work on the interior of the building includes the abatement of ACM and upgrade of base building systems on a floor by floor basis, with no changes to the tenant functional program. Other than for the abatement of ACM and upgrade of base building systems, the design and construction work shall be planned to minimize any disturbance to interior walls and character-defining elements. The intent is that after completion of the construction work, the tenant space will be returned to its original layout, generally using the original Building Components and Connectivity components where reusable. However, new Connectivity components will be required for the upgrades to the Integrated Security Systems (ISS) included as part of the project.

#### **Building Components**

The majority of Building Components are owned by PCO, the main building tenant, and it is planned that these will be largely reused by PCO. PCO will be fully responsible for the purchase and installation of any new Building Components where required. The CM will be responsible for coordinating with PCO and PWGSC to ensure that PCO activities related to Building Components are properly coordinated and scheduled with the CM's activities.

#### **Design and Construction Documents**

The Prime Consultant shall prepare architectural drawings for each floor and shall include for all Building Components located within the space in sufficient detail to ensure a fully coordinated and integrated design including architectural, structural, electrical and mechanical disciplines.

#### **Construction**

PCO is responsible for the supply and installation of all Building Components owned by PCO. Prior to construction work commencing within the designated space and prior to the Construction Manager (CM) becoming Constructor under the Occupational Health and Safety Act, PCO's own forces will remove and store elsewhere all reusable Building Components (as defined below) which are owned by PCO together with other reusable equipment (as defined below) which are owned by PCO. After completion of construction work by the CM on each floor, PCO's own forces will install these Building Components back into their designated space, as well as any new Building Components purchased by PCO. PCO are responsible for planning and executing this work with all costs to PCO account.

**"Building Components"** are defined as:

- i. commercially available furniture;
- ii. case goods;
- iii. purpose-built furniture and shelving;



- iv. soft seating;
- v. chairs;
- vi. task lighting;
- vii. **heritage furniture;**
- viii. **art and artifacts;**
- ix. maintenance equipment;
- x. food service equipment;
- xi. security equipment;
- xii. health and safety equipment;
- xiii. material handling equipment; and
- xiv. equipment such as computers, photocopiers, printers, scanners, digital radios in support of the delivery of common services (i.e., security posts, printing services, building management).

**“Other Equipment”** (not included in the building components definition) is defined as:

- i. office equipment related to administrative functions such as: computers, printers, fax machines, television sets, VCRs, converters, phone sets or radios; and
- ii. office accessories such as: garbage cans, supplies, plants, decorative drapes and rugs.

## **Connectivity**

### **Design and Construction Documents**

A Security Services Consultant will be retained by PWGSC on PCO’s behalf to complete the Integrated Security System (ISS) design for the project and to act as an interface between PCO and the Prime Consultant to ensure full coordination of the security design requirements with the Prime Consultant design deliverables.

The Prime Consultant’s architectural drawings for each floor shall include for all Connectivity Components located within the space in sufficient detail to ensure a fully coordinated and integrated design, which support a fully coordinated set of construction documents, including architectural, structural, electrical and mechanical disciplines. All pathways, conduit runs, recessed terminal boxes and junction boxes shall form part of the Consultant drawings and will be fully coordinated with all disciplines and with the Security Services Consultant, to achieve the required degree of separation and to prevent interferences with other building services.

### **Construction**

The CM will be fully responsible for the removal, moving and temporary storage of existing Connectivity components designated by PCO for reuse. All non-reusable Connectivity components will be removed from the site by the CM under the waste management process.

The CM will also be responsible for the reinstatement of reused Connectivity components, as well as the supply, installation and commissioning of new ISS components required as part of the security systems upgrade.

**“Connectivity”** is defined as:

- i. infrastructure fit-up;

- ii. cabling;
- iii. Integrated Security System (ISS);
- iv. CATV;
- v. network;
- vi. telephony;
- vii. vote chimes;
- viii. multimedia;
- ix. external media (broadcast);
- x. digital radio;
- xi. exterior cameras and communications Centre;
- xii. initial operation and maintenance requirements;
- xiii. fire alarm monitoring system; and

“**Connectivity**” does not include the following:

- i. operation and maintenance requirements subsequent to transfer of assets; and
- ii. base building renovation and construction activities (such as pathways, cable trays, conduit, etc.).

#### **PD 1.3.3.20 Exclusions**

The current project definition does not include the following:

- i. Rehabilitation of Women’s Washrooms;
- ii. Blast hardening of the building including windows;
- iii. Vertical transportation;
- iv. Foundation repair and waterproofing (except localized intervention required as a result of localized exposure for access to services); and
- v. Landscaping (except localized landscaping required to reinstate areas disturbed during construction).

### **1.3.4 CONSTRAINTS AND CHALLENGES**

#### **1.3.4.1 Site**

- i. The building is situated on a site with no parking spots and a very narrow alley leading to a small loading bay;
- ii. Pedestrian and vehicular traffic on Sparks Street and Elgin Street cannot be obstructed by the CM;
- iii. The close proximity of the site to the National War Memorial requires that exterior interventions to Postal B by the CM are respectful of this site and in particular, Remembrance Day ceremonies, Canada Day and the various other events occurring on Sparks Street;
- iv. Highly visible project and location with many stakeholders: PWGSC, Canada Post Corporation, Privy Council Office, RCMP, City of Ottawa, FHBRO and the general public;
- v. The site is next to the Langevin Block which is a secure building.; and
- vi. Protection of heritage fabric must be ensured by the CM.

#### **1.3.4.2 Seismic Upgrading**

- i. A detailed seismic assessment of the building was completed in 2014 (*Structural Seismic Assessment of Postal Station "B" Building, Dessau, July 2014*) to verify the seismic capacity of the building and compliance to the seismic requirements of the National Building Code of Canada and the PWGSC Seismic Policy. Seismic upgrading of the building will be required to meet PWGSC Policy Requirements will be designed by the Prime Consultant, and will need to be implemented by the CM on a floor by floor basis in a partially occupied building.

#### **1.3.4.3 Abatement and Demolition (AD)**

- i. Abatement and Demolition construction work to be tendered by the CM in advance of other construction documents as required to maintain schedule;
- ii. Abatement and Demolition work will be performed one floor at a time as the floor occupants will need to be moved to a designated swing space for the duration of the AD work and the base building fit up. Other floors will remain fully occupied during this time.
- iii. Mobilization and demobilization of the AD contractor will be required on each floor, and the AD contractor shall allow for a lag between the completion of AD work on a floor and the start of AD work on the subsequent floor to be abated;
- iv. Perform abatement work in a partially occupied building on a floor by floor basis while balance of building remains occupied ensuring that all health and safety requirements are met. This will require the development and implementation of rigorous mitigation measures AD contractor under the oversight of the CM to ensure that areas where Abatement and Demolition construction work is occurring are well sealed, to prevent migration of dust and ACM into occupied spaces and into existing LAN rooms where equipment will remain; and
- v. All asbestos abatement work is to be completed during evenings and/or on weekends, including removal of asbestos-containing materials for off-site disposal.

#### **1.3.4.4 Building Security Requirements**

- i. The CM shall ensure that all CM personnel and subcontractors, requiring building access have the correct security clearance; and
- ii. The floor sequencing strategy is to be developed by the Prime Consultant in coordination with CM input, in concert with PCO and in consideration of their Top Secret Space Accommodation Strategy.

#### **1.3.4.5 Implementation**

- i. Ensure day-to-day operations are not affected by execution of work by the CM;
- ii. PCO offices will be vacated one floor at a time using a designated floor as swing space and the CPC space on the ground floor will remain fully occupied.;
- iii. All interior work (excluding noise and or odour generating activity, and asbestos abatement work) is to be performed by the CM on a floor by floor basis during normal working hours from 7 am to 6 pm on weekdays and non-holidays. Disruptive work (including noise and odour generating activity, and asbestos abatement), and all work on the Ground Floor must be performed during off-hours (6 pm to 7 am) and/or on weekends.

- iv. For exterior work, the building will be occupied as described above and accordingly a limited amount of work will be permitted by the CM under the constraint that it is not disruptive to the balance of the occupied space;
- v. The CM is to expect a significant program of off-hours work to meet the constraint of mitigating impacts to tenants while meeting the project schedule.
- vi. Sound readings must be taken by the CM on the floors above and below the working floor to mitigate impacts to tenants;
- vii. Restricted access to the building, given its location, layout and security requirements;
- viii. Site office space for CM to be accommodated by the use of limited space in the basement, the provision of an on-site trailer by the CM in the hoarded area, and on the floor under construction;
- ix. Use of passenger elevators is not permitted by the CM. Restricted use of freight elevator by the CM for material handling and personnel usage; heavy and bulky material deliveries are to be coordinated during off-hours;
- x. Shared use of loading dock for material deliveries with building tenants during working hours. Heavy and bulky material deliveries are to be coordinated by the CM during off-hours.
- xi. Restricted use of washrooms by the CM. Only the washrooms on the floor under construction are available for use by the CM as well as portable facilities as provided by the CM;
- xii. Limited lay-down area for CM;
- xiii. Heating, cooling and ventilation requirements of the occupants must be maintained by the CM throughout the duration of construction with no disruptions;
- xiv. Space is limited and the option for installation of a new Air Handling Unit (AHU) may not be possible, requiring the refurbishing of the existing unit in place. Therefore phased implementation by the CM over a series of weekends may be required to maintain business continuity;
- xv. Mechanical room in basement requires expansion to accommodate new converters therefore alternative space is required for PCO file storage in the basement level;
- xvi. CM is to coordinate with PWGSC and users to ensure advance communication to users in the building to inform them of upcoming construction activities;
- xvii. Completion of all exterior work by CM including window rehabilitation suitably in advance of July 1 2017 sesquicentennial celebrations; and
- xviii. Vehicular and pedestrian traffic and circulation around the building must be maintained by CM. Construction traffic operations must cease during peak traffic times on Monday to Friday from 5:00 am to 9:30 am and from 3:30 pm to 7:00 pm to ensure public safety and less constrictive traffic flow. Construction traffic will be allowed at all other times in accordance with Municipal noise bylaws and the Authority's requirements. No deliveries will be allowed on Sparks Street after 11:00 am during the summer.

#### **1.3.4.6 Heritage Conservation**

- i. The building is designated "Classified", the highest level of designation by the federal government, and as such, all work must be done in accordance with the *Standards and Guidelines for the Conservation of Historic Places in Canada*, and guided by the Heritage Character Statement with the intention of protecting the identified heritage character-defining elements. Areas of high heritage value

- include the exterior facades, the space occupied by Canada Post and the lobby areas.
- ii. All proposed interventions as part of the project will be submitted by the Prime Consultant to the FHBRO for review at various stages of the project, typically during schematic design, design development and at the construction document stage.
- iii. CM is to ensure protection of heritage materials by adhering to the Heritage Material Management Protocol developed by the Prime Consultant.

### 1.3.5 ESTIMATED CONSTRUCTION COST

The total estimated construction budget (Class D estimate) for the Postal Station B rehabilitation is \$27,970,000 (including BCC Connectivity and Security Upgrades), as broken down in the table below. This amount excludes HST, contingency, risk allowance, professional fees, Construction Management costs and Disbursements (including Bonding and Insurance, Permits, and Site Office Costs).

Construction and Building Components & Connectivity Estimates	Current \$000
<b>Construction</b>	
<b>Envelope Rehabilitation</b>	
Exterior Facade, Roof, Windows	3,831
<b>Base Building Rehabilitation</b>	
Interior Architectural (includes ACM Abatement)	6,749
Sprinkler System Upgrade	1,221
Electrical Systems Upgrade	1,841
Heating System Replacement	2,510
Plumbing System Upgrade	669
HVAC Upgrade	4,518
Control Systems Upgrade	837
Seismic Upgrade	2,887
Subtotal Construction Estimate (excluding contingency)	25,063
<b>PCO-Owned Building Components and Connectivity (BCC)</b>	
BCC Connectivity (IT/MM/ISS) <sup>1</sup> (excluding Security Upgrades)	1,001
Security Upgrades <sup>1</sup>	1,906
Subtotal BCC Estimate (excluding contingency) <sup>1</sup>	2,907
<b>TOTAL CONSTRUCTION ESTIMATE (excluding contingency)</b>	<b>27,970</b>
BCC Components <sup>2</sup>	825

NOTES:

- (1) **BCC Connectivity** and **Security Upgrades** are included in the CM contract. CM is fully responsible for the removal, moving and temporary storage of existing BCC Connectivity components designated by PCO for reuse. The CM is also responsible for the reinstatement of reused Connectivity components, as well as the supply, installation and commissioning of new Integrated Security System (ISS) components required as part of the security systems upgrade. Refer to Section 1.3.3.19 for additional information.
- (2) **BCC Components** are excluded from the CM contract. PCO is fully responsible for the removal and reinstatement of existing BCC Components, and the supply and installation of any new BCC Components. Refer to Section 1.3.3.19 for additional information.

### 1.3.6 SCHEDULE

The schedule below highlights key estimated milestone dates associated with the Postal Station B Rehabilitation project and reflects an early tender and award of the abatement and demolition. Design and construction Work will need to be sequenced and overlapped in order to meet schedule.

Key milestones are as follows:

Stage	Completion Date
Full Project Approval (PA) and Expenditure Authority (EA)	Jan 2014
Prime Consultant Contract Award	Jun 2015
Construction Manager Appointment	Sep 2015
Design and Construction Documents complete	Oct 2016
Start of Construction	Feb 2016
Completion of Exterior Work*	July 1 2017
Substantial Performance	Dec 2017
Total completion and turn over	Mar 2018

*\*Exterior work must be completed and all scaffolding removed suitably in advance of preparation for July 1, 2017 celebrations*

The Construction Manager must work closely with PWGSC, the Client/Users and the Prime Consultant to meet or optimize the durations set out in this schedule.

### 1.3.7 IMPLEMENTATION STRATEGY

#### **1.3.7.1 Implementation Strategy**

Because of the requirement for careful construction sequencing to minimize disturbance to occupants and with a wide range of trades working in a secure environment, the

Construction Manager (CM) will need to execute construction with well planned, progressive release of work packages.

Interior system upgrades and abatement of ACMs will be implemented by the CM on a floor by floor using a designated floor as swing space. Rehabilitation of the building envelope including masonry, windows and roofing, will be implemented by the CM from the exterior using scaffolding erected along the building facades. This exterior work is to be coordinated by the CM to occur at the same time as the interior work on the floor which is under construction, as much as possible.

Construction must start as soon as possible. Immediately after the completion of the Schematic Design by the Prime Consultant, the CM will work closely with the Prime Consultant (PC) and Environmental Consultant (EC) to establish the AD program as well as the temporary services requirements. This includes any requirements to isolate or close off mechanical and electrical services to ensure that the space is safe for demolition and abatement. It is expected that the scope of the first abatement and demolition package will cover work that is not dependent on the final design. This will allow for construction work to start as early as possible. The remaining AD tender packages can then be released by the CM on a floor-by-floor basis during design development of the base building so that the AD work continues with no delays.

A phased design process is required and the construction documents will be produced iteratively by the PC. While design development is taking place, certain aspects of the base building design will be accelerated so that construction documents can be produced for those areas that do not require the design to be fully completed such as the building envelope. Consequently, the construction documents for the foregoing work will be developed tender ready to allow construction to continue.

While the construction documents are being developed iteratively, the PC will sequentially release to the CM a minimum of nine (9) primary construction documents issuances, for CM tender, to optimize the construction schedule. A proposed sequence for the release of tender-ready construction documents is shown below but will be reviewed and updated by the CM in consultation with the PC. Note that the PC will be responsible for preparing tender-ready construction documents, while the CM will be responsible for assembling and issuing targeted tender packages based on these construction documents.

Multiple additional secondary work packages will be required as determined by the CM in consultation with the PC to best meet project phasing requirements. It should be assumed that a minimum of twenty (20) additional construction document work packages will be required in total.

- i. Abatement and Demolition;
- ii. Structural/Seismic;
- iii. HVAC System;
- iv. Heating System;
- v. Electrical System;
- vi. Interior Architectural;
- vii. Domestic Water and Fire Protection;
- viii. Control System; and
- ix. Building Envelope.

During the design phase, the CM must work closely and in a cooperative manner with the Prime Consultant so that the CM has all the information to provide accurate and complete advice on CM activities such as, but not limited to the following:

- i. Construction costs;
- ii. Material delivery;
- iii. Project schedules;
- iv. Constructability;
- v. Suitability and availability of materials and components; and
- vi. Sustainable design, construction, heritage, and operational principles and practices.

A detailed sequence of construction activities must be developed by the CM as part of the design development process. This sequence of construction activities will consider the constraints and challenges identified in Section 1.3.4.

## 2. ROLES AND RESPONSIBILITIES

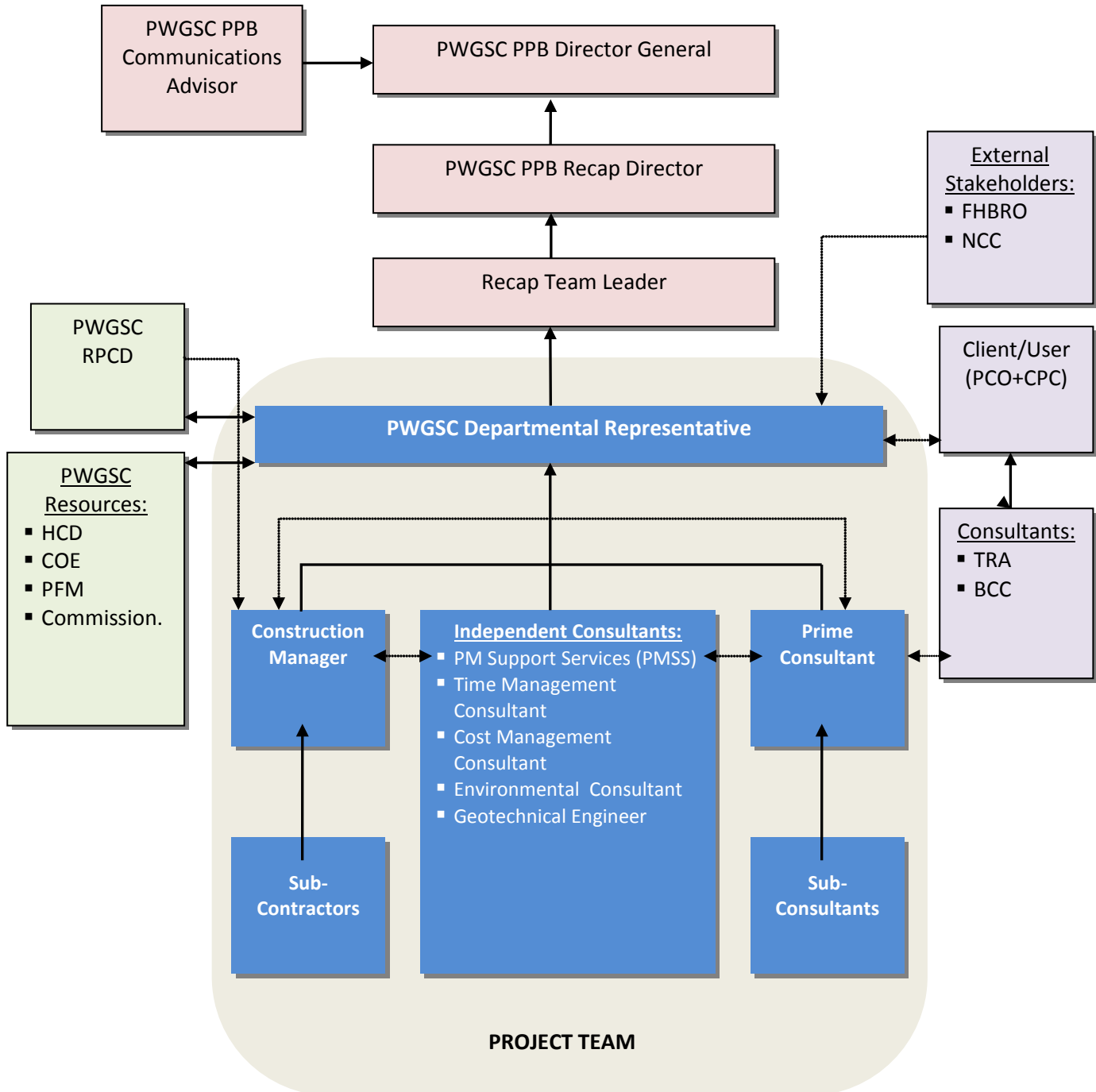
### 2.1 PWGSC

This project is to be managed and implemented in a collaborative manner. All members of the Project Team are required to work cooperatively at every stage of the design and construction process. Under the leadership of the PWGSC Departmental Representative, all team members are responsible for establishing and maintaining a professional and cordial relationship.

The Project Team refers to the key representatives involved in coordinating and delivering this project. The PWGSC Departmental Representative leads the Project Team, with membership representing those responsible for project implementation.

The following chart identifies the organizational relationships. Solid lines indicate functional reporting relationships. Dotted lines indicate project communication relationships. Note that not all Authorities Having Jurisdiction are indicated. Note that the chart below is included for illustrative purposes only and does not supersede information provided in Section 2.





## 2.1.1 ROLES OF THE PWGSC PROJECT TEAM AND THE CLIENT/USER

### **2.1.1.1 PWGSC Departmental Representative**

The PWGSC Departmental Representative (DR) is responsible for managing the CM's Contract. The DR will assign Project Managers to oversee portions of the Project and this Contract. The Prime Consultant reports to the PWGSC DR.

The PWGSC DR:

- Is directly engaged with the Project and is responsible for its progress.
- Liaises with the Privy Council Office, Canada Post and PWGSC, obtains their requirements, and conveys these requirements to the Prime Consultant and to the Construction Manager, as required.
- Is the technical authority for the Construction Manager's contract. Is the official conduit for the exchange of information between the Construction Manager, PWGSC, the Privy Council Office, Canada Post, the Environmental Consultant and the Prime Consultant.
- Coordinates the approvals of all design and Contract Documents and conveys approval or disapproval to the Prime Consultant.

### **2.1.1.2 PWGSC Contracting Authority**

The PWGSC Contracting Authority (Real Property Contracting Directorate) is responsible for the establishment of the Construction Management agreement, its administration including Contract Amendments, and any contractual issues related to it. The PWGSC Contracting Authority will at times attend and participate in Construction Management Meetings.

### **2.1.1.3 PWGSC Technical Resources**

The Professional & Technical Services Directorate (P&TS), as well as the Heritage Conservation Directorate (HCD) and Quality Assurance Team, are members of the PWGSC Technical Resources Team. The PWGSC Technical Resources Team provides expert advice and quality assurance for key architectural, conservation, engineering, and interior design professional disciplines including design reviews to ensure technical requirements are suitably defined and incorporated through all phases of planning, design, and implementation. The PWGSC Technical Resources Team will review the documents from the standpoint of assuring that the project requirements are met. Compliance with the current edition of the National Building Code of Canada and other regulations will remain fully the responsibility of the Prime Consultant. The PWGSC Technical Resources Team will participate regularly in design phases and will review Construction Documents. During construction, the technical resources may attend Construction Management meetings and field review on an ad hoc basis to advise the PWGSC Departmental Representative.

### **2.1.1.4 PWGSC Commissioning Manager**

The PWGSC Commissioning Manager represents the Client/Users, Departmental Representative, and Property Manager's interests and maintains overall responsibility for

representing PWGSC in the commissioning process. The PWGSC Commissioning Manager is responsible for overseeing all commissioning activities during the development, design, implementation, and post construction stages of the project, assuring that all program issues are addressed. Responsibilities include the review and input into the approval of commissioning schedule, approval of commissioning reports, and certification of final completion and input to the evaluation report. The Commissioning Manager will review O&M reports, commissioning specifications, training, and performance verification procedures at all stages of the project and will ensure all O&M aspects are addressed.

Throughout the project, the Construction Manager will work closely with the PWGSC Commissioning Manager. Reporting to the PWGSC DR, the Commissioning Manager will review and approve all documentation at all stages of the project delivery and will monitor all commissioning activities, including the accuracy of reported results and manuals produced by the Prime Consultant and Construction Manager. CM and CM commissioning agent responsibilities are defined in section 4.5.16

#### **2.1.1.5 Project Management Consultants Engaged by PWGSC**

PWGSC has engaged the services of third party project management support services in the following areas of expertise:

- Project Management
- Project Scheduling
- Project Cost Control

These consultants report directly to PWGSC. In the case of the Schedule and Cost consultants, they are required to provide a third party challenge function and advisory services to PWGSC at the individual project level. The Project Management Support Services (PMSS) consultant will be directly involved in the day-to-day management of this project.

#### **2.1.1.6 PWGSC Senior Communications advisor**

The Senior Communications Advisor is the PWGSC representative responsible for all communications requirements and activities including contact with the media and the public.

#### **2.1.1.7 PWGSC Property and Facilities Manager**

The PWGSC Property and Facilities Manager (PFM) is responsible for building operations and management. The Property Manager is present on the Project Team to ensure facility management requirements are identified and incorporated into the project. The PFM will play a very active project role during project commissioning and turn over.

## **2.2 CLIENT DEPARTMENT**

The Privy Council Office (PCO) and Canada Post, as PWGSC's clients, have the role of providing the following:

- Schematic, design development and construction documents review and approval

- Quality reviews and acceptance on selected systems relative to client functional program

PCO will be responsible for all Building Components and Connectivity (BCC) owned by them. This includes the removal, storage and reinstatement of existing BCC to be retained, as well the acquisition, design and installation of any new BCC required by PCO. It is noted that the majority of BCC are owned by PCO and it is planned that these will be largely reused by PCO. More detailed information on BCC for this project can be found in Section 1.3.3.19.

The PCO will assign an on-site manager/ representative/project officer for connectivity, multimedia and integrated security systems as the Technical Specialist, inspecting and certifying work as it progresses.

## 2.3 OTHER GOVERNMENT DEPARTMENTS

There may be numerous representatives of Other Government Departments (OGD's) involved in the Project such as the Federal Heritage Buildings Review Office (FHBRO), City of Ottawa, and National Capital Commission (NCC), among others. OGD Representatives and PWGSC may require separate meetings with the Construction Manager to review specific issues. OGD's Representatives will:

- Be responsible for functional issues on the project related to their respective organizations.
- Have input to functional and operational design requirements.
- Provide assurance that:
  - The OGD program requirements are thoroughly understood by all
  - The functional and operational requirements are met
  - OGD approvals, as required, are signed off

## 2.4 PRIME CONSULTANT

A Prime Consultant will be retained by PWGSC to prepare detailed design and construction documents for this Project. The team includes the prime consultant, sub consultants, and specialists with extensive relevant experience capable of providing all of the required professional services for the Project.

The Prime Consultant and its team are responsible for, but not necessarily limited to:

- Completing the design for the Work and for coordinating and directing the work of sub consultants and specialists.
- Preparing and assembling the construction documents for sequential tendering by the Construction Manager.
- Preparing Cost Estimates during Schematic Design and Design Development stages (CM is responsible for Cost Estimates from Construction Documents Stage to project completion).
- Providing input into the Risk Plan.
- Providing construction administration services during construction.
- Providing construction administration services related to the preparation and estimation of changes, verification of progress billings and recommendation to the Departmental Representative of acceptance of the Work.

- Cooperating with the Construction Manager, the Privy Council Office, Canada Post and PWGSC. Participate in actions to ensure that the Project remains on track should budget overruns or delays occur.
- Providing general field review services for quality control and responding to Site conditions/issues.
- Providing full-time Resident Site Services during construction.
- Defining commissioning procedures and confirming that performance requirements have been met; verifying operating manuals, and ensure that record drawings are provided and are accurate; participate and provide updates in coordination meetings organized by the Construction Manager. Refer to section 4.5.16 for CM commissioning responsibilities.
- Providing warranty period services.

Refer to the *Prime Consultant Project Brief* document, available to bidders through the link provided in this RFP, for a full description of consultant services.

## 2.5 PROVINCIAL, MUNICIPAL AND OTHER AUTHORITIES HAVING JURISDICTION

Although the Federal Government is not formally subject to jurisdictions at other levels of government, voluntary compliance with the requirements of these other Authorities is a requirement unless otherwise directed by the Departmental Representative. Codes, regulations, by-laws and decisions of authorities identified herein as having jurisdiction shall be observed.

- In areas of conflict between authorities, the Federal authority prevails.
- In areas of conflict between codes, standards and regulations, where possible the most rigid requirements shall be adhered to.
- The Construction Manager shall identify other jurisdictions appropriate to the project.

## 2.6 PROVINCIAL ACTS, REGULATIONS, STANDARDS AND INSPECTIONS

The Federal government does not defer to provincial and municipal authorities, except for specific regulations, standards, and inspections noted below. Unless directed otherwise by the Departmental Representative, the Construction Manager shall:

- Adhere to all applicable provincial Construction Health and Safety Acts and regulations in addition to the related Canada Occupational Safety and Health Regulations
- Adhere to the requirements of the Province of Ontario for:
  - Employment Standards
  - Construction Safety
  - Designated Substance Management
  - Workers Compensation
- Adhere to the requirements of the governing authority for:
  - Building Discharges into the air, water and ground

- Disposal of Designated Substances including Asbestos
- Adhere to Municipal By-laws, Regulations, Standards and Inspections
- Obtain and pay for all permits and approvals necessary for the work, including, but not limited to, Building, Electrical, and Plumbing Permits. The Prime Consultant will be responsible for applying for permit including preparing all supporting documentation.
- Resolve all Building Permit related issues, with support from the Prime Consultant as may be required.
- Provide fire safety equipment and access for fire-fighting services, as required by the city.
- If required, apply for an Occupancy Permit and co-ordinate the resolution of all outstanding issues related to obtaining the permit.
- Provide Municipal authorities with access to the site as required and arrange for inspections of the construction work by the City or governing utility officials.
- Adhere to any other required authorities as directed by Departmental Representative in spirit of voluntary compliance.

## 2.7 CONSTRUCTION MANAGER

The Construction Manager leads the construction team, which comprises of its own workforce and all construction sub-trades retained by the Construction Manager. Note that the Prime Consultant will be responsible for preparing tender-ready construction documents, while the Construction Manager will be responsible for assembling and issuing targeted tender packages based on these construction documents. Tendering and award of the multiple construction trade packages is the responsibility of the Construction Manager.

The Construction Manager acts as Constructor in charge of a single integrated construction site. Construction site health & safety rules are established and enforced by the Construction Manager. All individuals working on site, including Project Team members, must respect these health & safety rules and will be required to follow a site induction before being permitted access to site.

The Construction Manager formally reports to the Departmental Representative in all matters. The Construction Manager will also form part of an integrated design team and will participate in design meetings, provide constructability advice, and provide recommendations for construction phasing and tender package sequencing.

The Construction Manager shall be contracted directly with PWGSC to provide the Services and Work described in this Request for Proposal (RFP). The Construction Manager will coordinate and cooperate with all members of the Project team.

The Construction Manager is responsible to:

- Provide all necessary personnel to perform the Services and duties for the Project, either by assignment of Construction Manager qualified staff or by engagement of services contracted directly to the Construction Manager.
- Ensure continuity of key personnel and maintain a dedicated working team in accordance with their proposal for the life of this project.

- Have an in-depth understanding of the project requirements, including scope, budget, and schedule objectives and all their obligations as described in this RFP.
- Work constructively to ensure a collaborative and cooperative team approach with knowledgeable and timely input and contribution by all Project Team members.
- In cooperation with the Prime Consultant, ensure at all times the design solution and construction is maintained within the accepted cost objectives of the project.
- In cooperation with the Prime Consultant, ensure at all times the design solution and construction can, and is, undertaken within the fixed schedule objectives of the project.
- Organize ongoing coordination meetings and interference meetings with team members.
- Perform the services described in Section 4.

## 2.8 ENVIRONMENTAL CONSULTANT

PWGSC will retain an Environmental Consultant, separate from the Prime Consultant, for all services related to the design and monitoring of all abatement work, and for the development and management of the Construction, Renovation and Demolition (CRD) Waste Management Program. The Environmental Consultant is responsible for:

- Designing the abatement tender packages related to demolition.
- Air monitoring and testing during construction.
- Development and management of the Waste Management Program, which includes the following elements: Waste Audits, Waste Reduction Workplan, Cost/Renevnuue Analysis Workplan, Waste Source Separation Program and Waste Diversion Report. This also includes training of CM employees and subcontractors on the CRD Waste Management Program.

In cooperation with the Environmental Consultant, the Construction Manager shall ensure at all times the design solution and construction can, and is, undertaken within the fixed schedule and cost objectives of the project. The CM shall coordinate and cooperate with the Environmental Consultant throughout all stages of the Project.

## 2.9 GEOTECHNICAL CONSULTANT

PWGSC may retain the services of a Geotechnical Consultant, separate from the Prime Consultant, should the Prime Consultant identify a requirement for additional geotechnical services to support their design. The Geotechnical Consultant would report directly to the PWGSC Departmental Representative.

### 3. PROJECT ADMINISTRATION

#### 3.1 SUBMISSIONS TO PWGSC

Provide three (3) paper copies in a size/format suitable for easy reading/understanding of the information being conveyed, plus one (1) electronic copy in unprotected native format and one (1) electronic copy in portable document format (\*.pdf), unless otherwise specified.

#### 3.2 ELECTRONIC COMMUNICATIONS

All Team participants including PWGSC, Consultants and Construction Manager must be able to communicate electronically by e-mail.

Acceptable software is:

For written reports and studies:	MS Word (*.doc)
For Spreadsheets and budgets:	MS Excel (*.xls)
For Presentations:	MS Power Point (*.ppt)
For Schedules:	MS Project
For Drawings:	AutoCAD (*.dwg)
For Specifications:	MS Word
For Web	Adobe PDF, HTML, Macromedia Flash

#### 3.3 LINES OF COMMUNICATION

Distribute all correspondence related to this project as directed by the Departmental Representative. Do not correspond directly with the Privy Council Office, Canada Post or others unless directed by the Departmental Representative. Develop a communication protocol to be approved by the DR and incorporate into the Project delivery.

All communications must carry the Contract name/number, PWGSC Project title and PWGSC Project number. The date format will be yy-mm-dd.

#### 3.4 MEDIA RELATIONS

Ensure that no personnel from either the Construction Manager's firm, or from the Construction Manager's Subcontractors, communicate with the media unless requested to do so by the Departmental Representative. If contacted by reporters, or others, refer the inquiring party to the Departmental Representative immediately. Do not publish, or agree to have published, information on this Project or this Contract without the prior written approval of the Departmental Representative.



## 4.0 CONSTRUCTION MANAGEMENT REQUIRED SERVICES

### 4.1 GENERAL REQUIREMENTS

The Construction Manager as an expert in matters of construction will provide strategic advisory services to Public Works and Government Services Canada (PWGSC) and the Prime Consultant throughout the implementation of the Work.

In addition to the Required Services outlined in this section, the requirements as outlined in Section 3. Project Administration, are to be included herein as Required Services.

### 4.2 PROJECT RESPONSE TIME

It is a requirement of this project that the key personnel of the Construction Manager (all site superintendents and project managers) are personally available to attend meetings or respond to inquiries promptly. During the project, the Construction Manager's Key Personnel shall be:

- 1) Available to attend meetings and respond to inquiries within one working day notice
- 2) Able to respond to emergencies within one (1) hour, including those occurring during off-hours and on weekends/holidays.

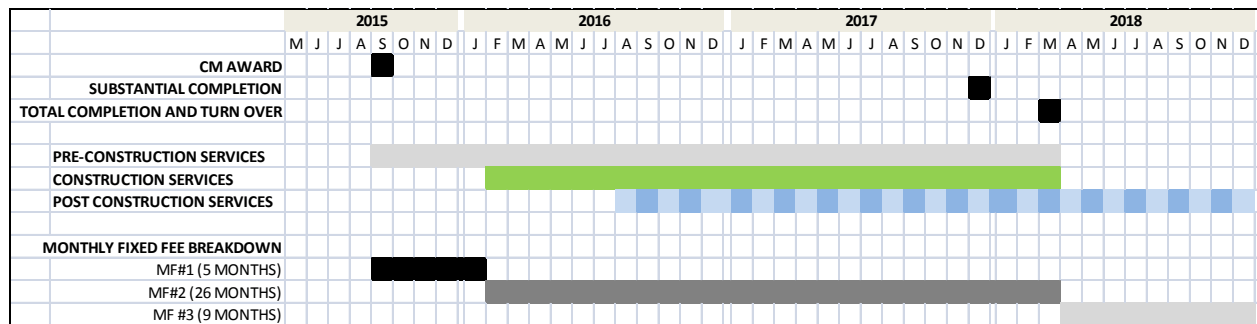
### 4.3 SUMMARY OF SERVICES

PWGSC will contract with the Construction Manager to deliver the following services including, but not limited to those listed in the table below. Project Management Services are required throughout all phases of the contract including Pre-Construction Services, Construction and Post Construction Services.

<b>Project Management Services</b>	<b>General Contractor Services</b>
Advisory and support services	Function as Constructor including coordinating and directing Subcontractors retained by the Construction Manager, ensuring the continuous safety management and protection of the Site and the general public near the Site,
Project Administration	Subcontract construction Work using competitive bidding processes, with prequalification when warranted, as outlined in these Terms of Reference.
Work Packaging	Pre-purchase key materials as needed

Cost Management	
Time Management (Scheduling)	
Risk Management	
Scope Control and Management	
Quality Control & Quality Assurance	
Commissioning (3 <sup>rd</sup> party)	
Site logistics coordination	
Mechanical & electrical interference coordination drawings	
Building Components and Connectivity (BCC) owned by PCO – refer to section 1.3.3.19	

The chart below shows the expected phasing of the Services provided by the CM, as well as the associated Monthly Fixed Fee breakdown.



## 4.4 PRE CONSTRUCTION SERVICES

Pre Construction Services as described in this section are required from the Construction Manager throughout all phases of the contract including as part of Construction Services (Section 4.5) and Post Construction Services (Section 4.6).

### 4.4.1 COST SERVICES

Cost control requirements are a major driver for the Postal Station B rehabilitation project. Planning and controlling cost is a continuous interactive and iterative process involving planning, action, measurement, evaluations and revision.

Construction Manager shall provide a Cost Estimator who is fully conversant with all aspects of construction cost estimating as well as the use of Cost Analysis, Risk Analysis, Life Cycle Costing and Value Engineering/Management techniques including the CIQS Elemental Format estimating (as used by the Prime Consultants cost consultant) and Trade Format estimating; and be comfortable in reconciling estimates presented in differing formats. The Construction Manager's Cost Estimator must be completely conversant with local construction economy and market conditions.

The Prime Consultant's Cost Estimator is responsible for costing and cost control services during the Schematic Design and Design Development stages. The Construction Manager shall provide costing and cost control services from the onset of the Construction Documents stage through to the completion of the Project as detailed below.

- 1) Complete and update estimates for each construction document package submission at 66%, 99% and 100%. Reconcile estimates with the final estimate prepared at Design Development by the Prime Consultant , and report in writing any significant variances.
- 2) Submit a Class A estimate for each tender package issue and consolidate within overall construction estimate.
- 3) Submit monthly cost reports.
- 4) Establish a cost control program in accordance with PWGSC requirements. Prepare and keep an updated projected cash flow for the Project, based upon reconciled estimates. Cost control program is to include Earned Value Management following the Project Management Institute's (PMI) methodology.
- 5) Within the limits of the Estimated Construction Cost, establish estimates for Work packages, as well as make and document assumptions for Work not yet defined. Submit to the Departmental Representative for review. Update and refine the estimates for the approval of the Departmental Representative. The intent is to ensure that at all times during the Project, a comprehensive construction estimate is in place which includes all aspects of the Project, even those which are not fully developed and/or which have not yet been assigned to any specific Work package.
- 6) Co-operate and coordinate all budget and estimating information with PWGSC's Cost Specialist retained by Departmental Representative as an independent, third party Professional Quantity Surveyor, and respond to questions by the Cost Specialist.
- 7) Reconcile estimates with estimates from PWGSC's Cost Specialist, to the approval of the Departmental Representative.
- 8) Discuss with the Departmental Representative and the PWGSC's Cost Specialist such matters as inflation, trade settlements, market conditions, risk contingencies and the like. Such discussions shall be considered to form part of the cost estimating process. Document allowances arising as part of the cost estimates.
- 9) Review all information provided and visit the Work as required throughout the course of Project in order to become knowledgeable and familiar with the Site conditions, Site access, on-Site progress, etc. Analyze local labour and material supply conditions, local bidding practices and competition, in order to establish pricing levels. A written monthly report detailing this reconnaissance activity is required.
- 10) Inform the Departmental Representative and Prime Consultant in writing immediately of any project specific issues arising. Recommend actions to ensure the Project remains within the estimated Construction Cost.
- 11) Incorporate into cost estimating process and cost estimates a broad range of cost techniques, especially the following:

- a) Risk Analysis: All construction estimates (except the final pretender estimate) shall include and identify design, estimating, inflation escalation and currency exchange risk allowances as are deemed necessary in light of the current information available.
- b) Life Cycle Costing: Advise the Prime Consultant of the life cycle cost information for alternative materials, methods and systems. Use all available information to ensure that the Project Estimated Construction Cost (upon which design and construction decisions will be made) is respected.
- c) Cash Flow: Provide and maintain an accurate monthly cash flow for the Work, based upon the Project Schedule and the current estimate at each stage. The Construction Manager shall have the ability to forecast project expenditures to end of each fiscal year. The Construction Manager shall implement an effective system to ensure the yearly forecasts (and variances) are as accurate as possible. Accurate yearly expenditures forecasting is a key component to the cost services deliverables. The cash flow expenditures shall be detailed and broken down with key line items as agreed with the Departmental Representative for a monthly review. Refer to 4.4.1.1 for the allowable variances in forecasting project expenditures. CM to apply Earned Value Management in cash flow reporting following PMI EVM methodology.

In addition to the cost estimating and cost control services related to Class-level estimates described above, the CM will also be responsible, through the appropriate allocation of resources, for providing cost control services for changes made during construction. This includes negotiating with the CM's subcontractors for change requests and managing cost changes to maintain the budget.

#### **4.4.1.1 Costing Services Deliverables**

The Construction Manager shall:

- 1) Complete and update estimates for each construction document package submission at 66%, 99% and 100%. Reconcile estimates with the final estimate prepared at Design Development by the Prime Consultant, and report in writing any significant variances.
- 2) Complete Class A estimates for each tender package issue and consolidate within overall construction estimate.
- 3) Prepare a draft cost report and submit to the Departmental Representative for review and acceptance within 6 weeks of contract award to establish the content and format of the monthly reports going forward. Revise as required incorporating comments of the Departmental Representative. The draft report will include the initial breakdown of the construction budget identifying a budget for each Work package with a breakdown by Division, the Construction Management fees and a single separate line for the construction contingency. A second draft report broken down by Division will also be provided for review and acceptance of PWGSC. The draft reports shall incorporate a system of Earned Value Management using the cost estimate established at the 66% construction documents stage as the baseline for future reporting on costing.
- 4) Submit a monthly report outlining the costing activities during the previous month,

- highlighting any areas of concern and new information received etc., along with forecast and proposed construction estimate revisions and changes to construction contingencies. Include, as separate cost categories, the Construction Manager's fixed fee and percentage fee. Include an explanation of variance between the actual cost and forecasted cost. The monthly report shall conform to the format approved by the Departmental Representative.
- 5) Each monthly report shall be based on the previous report and will provide the Departmental Representative with up to date information on all aspects of the construction estimate and the Construction Manager's fees. Indicate all costs committed and expended to date. Identify for each Work package broken down by Division, the original estimate amount, the contract amount, the contingency, the breakdown and total of approved Expenditure Authorities (EA), estimated amounts on Supplemental Instructions (SI) (refer to section 4.5.5), the revised contract amount, the total additional cost forecasted and the cost to complete the Project. Total additional cost forecasted shall include all SIs and all EAs in process and approved. The Construction Manager shall be prepared to sequence work with PWGSC funding approval. No acceptance or approval by PWGSC, whether expressed or implied shall be deemed to relieve the Construction Manager of its professional or technical responsibility for the Construction Manager's estimates and monthly reports. Neither does acceptance of an estimate by PWGSC in any way abrogate the Construction Manager's responsibility to maintain the Estimated Construction Cost throughout the life of the Project and to recommend corrective action should the lowest acceptable bid, for any Work package, differ significantly from the approved estimate.
- 6) The monthly costing report from the Construction Manager will contain as a minimum:
- a) Narrative including inclusions and exclusions.
  - b) Elemental or other format Estimate Summary.
  - c) Estimate Back-up Detail.
  - d) Basis for escalation, inflation and contingency calculations.
  - e) Detailed measurement and pricing.
  - f) Outline description of estimate basis.
  - g) Description of information obtained and used in the estimate.
  - h) Listing of notable exclusions; listing of items/issues carrying significant risk;
  - i) Reconciliation against last submission.
  - j) Cash Flow updates.
  - k) An exception section including sufficient description and cost detail to clearly identify:
    - i) Scope Change: Identifying the nature, reason and total cost impact of all identified and potential Project scope changes affecting the Estimated Construction Cost.
    - ii) Cost overruns and under runs: Identifying the nature, the reason and the total cost impact of all identified and potential cost variations.
    - iii) Options enabling a return to the Estimated Construction Cost: Identifying the nature and potential cost effects of all identified options proposed to return the Project within Estimated Construction Cost.
    - iv) Contingency management report

- l) Cost of forecasted final subcontract amounts
- m) Summary identifying committed & uncommitted funding
- n) List of change notices for each subcontract
- o) List of change orders for each subcontract
- p) Earned Value Management reporting in numeric and graphic format
- q) Any other relevant information

#### **4.4.1.2 Forecasting of Expenditures**

When submitting monthly reports, accurate forecasting shall be of prime importance. Accuracy, predictability and stability of the forecast, both multiyear as well as monthly within the current year, cannot be overstated. From April 1 to November 30 of each fiscal year, the Construction Manager is to forecast yearly expenditures within 20 % of actual total expenditures calculated end of March of the same fiscal year. On December 1 of each year, the Construction Manager is to forecast current year expenditures to end of fiscal year within 5 % of actual expenditures calculated end of March of the fiscal year. The calculations of the variance shall start 4 months from Contract award to allow the Construction Manager to mobilize and understand the details of the project scope.

#### **4.4.2 TIME SERVICES**

Schedule requirements are another major driver for the Postal Station B rehabilitation project. Planning and scheduling is a continuous interactive and iterative process involving planning, action, measurement, evaluations and revision.

The Construction Manager shall employ an experienced Scheduler fully conversant with all aspects of project planning, scheduling and construction sequencing. The scheduling resource must use the latest version of Microsoft Project software. The scheduling resource in collaboration with the CM's Project Manager and Superintendant will play a major role in the development and monitoring of the Construction schedule. The Construction Manager shall provide scheduling services from award of the Contract, through construction and commissioning, including the warranty period. PWGSC will retain an independent, third party planning and scheduling consultant (referred herein as the Time Specialist) to assess all Schedules and to develop a Client Master Schedule trending analysis. Co-operate and coordinate all planning and scheduling information with PWGSC's Time Specialist and respond to questions by the Time Specialist. Update the Project Schedule as required reflecting PWGSC's Time Specialist comments.

The Construction Manager shall:

- 1) Prepare, monitor, update and maintain the overall Project Schedule for the duration of the Project. A master schedule is required within 6 weeks from Contract award for review and acceptance.
- 2) Following consultation with the Project Team, incorporate the sequence and timing of the required basic program decisions, including design time, documentation, bid calls, bid evaluations, subcontract awards and on-Site construction activities and commissioning into the Schedule. The Construction Manager shall also revise, monitor, update and submit the Project Schedule by end of each month for review.
- 3) Finalize the Project Schedule for the approval of the DR and estimate the

- manpower requirements for each Work package. Break down the Schedule into individual networks and tasks for each package of Work in the Project. Indicate the sequence and timing for the construction operations and the milestone completion dates for the Work packages.
- 4) Identify items or processes where long lead times are required and that could jeopardize the Project. Pre-purchase items (material, machinery, equipment, supplies) and implement procurement methodologies to ensure timely delivery to meet the Schedule and cash flow requirements. Assess the risk to the Project Schedule for late deliveries.
  - 5) Provide cost loading on the schedule and operate a system of earned value management following PMI methodology. The baseline for tracking and reporting on the schedule progress shall be established based on the 66% construction documents.

#### **4.4.2.1 Time Services Deliverables**

The Construction Manager shall:

- 1) Prepare, revise, monitor and update a detailed schedule in accordance with the Scheduling Specification, provided herein as Attachment 2.
- 2) Respond to comments from the Departmental Representative or the PWGSC Time Specialist and update the Schedule accordingly.
- 3) Upon review and acceptance of the Schedule, monitor changes to the Schedule bi-weekly or more often when required, and submit written monthly reports to the DR on deviations from the baseline schedule including analysis of the root causes with a mitigation strategy to maintain the project schedule.

#### **4.4.3 RISK MANAGEMENT SERVICES**

The Construction Manager shall provide support to the Departmental Representative in identifying risks throughout the Project life cycle, providing input and assessment of the Project risk plan. Provide the Departmental Representative written comment on the Project risk plan at each stage of the Project. The Construction Manager shall:

- 1) Prepare and maintain a construction-specific risk registry.
- 2) Review, comment and advise on the PWGSC risk management plan using the CM risk registry.
- 3) Participate in six risk management sessions organized by the Departmental Representative on an anticipated twice annual basis. All Construction Manager Project Managers and site superintendent(s) shall participate in each of the risk sessions. Allow a half day for each risk session.
- 4) Advise on project risks specific to the project and recommend mitigation options to the Departmental Representative.
- 5) Identify and implement methodologies aimed at mitigating and minimizing the impact of construction activities on ongoing PCO, CPC and PWGSC operations.
- 6) Identify risks that are no longer relevant.

- 7) Implement a claims avoidance program.

#### **4.4.3.1 Risk Management Services Deliverables**

The Construction Manager shall provide a narrative update of Project risks in each monthly report.

#### **4.4.4 QUALITY CONTROL & QUALITY ASSURANCE**

##### **4.4.4.1 Definitions**

Quality Assurance (QA) is a set of activities whose purpose is to demonstrate that an entity meets all quality requirements. This is done by adopting a standard set of processes and QA techniques like review, training, facilitation etc. It can be termed as defect prevention.

Quality control is set of activities whose purpose is to ensure that all quality requirements are being met. This is defect detection, and is done by testing. Quality Control is mainly an inspection function. Quality assurance is an audit function.

##### **4.4.4.2 Quality Control and Quality Assurance Services**

The primary responsibility for construction quality control remains with the Construction Manager. The Work must meet the design and operational intent and criteria. The Construction Manager's continuous adherence to quality management of the entire construction process throughout all aspects of construction is of the utmost importance. The significance of this issue cannot be overstated.

The Construction Manager shall:

- 1) Develop a Quality Management System to ensure that the specified quality standards for the Project are achieved.
- 2) Apply rigorous quality assurance reviews during the design focusing on constructability, and rigorous quality assurance reviews during construction phases, including participation in reviews of the systems, components, construction tools and techniques of the proposed design.
- 3) Be responsible for ensuring that the Construction Manager's Subcontractors adhere to:
  - a) Best industry practices and standards following the requirements of the Construction Documents.
  - b) Professional conduct in all phases of the project, employing best practices for budget, schedule, quality, and scope management.
  - c) Respecting the building's high heritage value and protecting all heritage zones and character-defining elements during all construction phases.
- 4) Work cooperatively to:
  - a) Adopt good project delivery processes such as Risk Management and advising on methods to obtain best value,
  - b) Ensure that all Health, Security and Sustainable Development issues are properly adhered to.



- 5) Actively document non-compliance. Monitor and follow-up on the Work. Do not rely solely upon the Prime Consultant to document non-compliance with the design, but rather take a leading role in managing the Subcontractors and their Work, establishing a quality management database to ensure all construction issues, observations and reports are recorded and closed out, completely and correctly, to the approval of the Departmental Representative.
- 6) Establish, monitor, update and report on a quality management database specific to this Project. Inputs to the database will come from PWGSC, the Privy Council Office, the Prime Consultant team, the Construction Manager's team daily Site observations, etc. Output from the database will go to Subcontractors and suppliers, as required, the Prime Consultant and the Departmental Representative. All quality issues are to be addressed promptly, to ensure the pace of construction is maintained without the need for rework of the Work.
- 7) Develop a Quality Incident Protocol for incidents arising from any inspection that indicates a project deficiency.
- 8) The Construction Manager shall provide a Quality Control Officer who is responsible for:
  - a) Day-to-day execution of the Quality Plan – architectural, mechanical, electrical and structural components and systems;
  - b) Working with Subcontractors to explain the nature of the Quality Plan and their role in it and ensuring quality workmanship on Site;
  - c) Maintaining quality records on Site including:
    - i) Inspections and tests reports;
    - ii) Non-conformance reports; and
    - iii) Corrective actions reports and sign offs.
  - iv) Facilitating quality inspections by the Departmental Representative, and the Prime Consultant;
  - d) Reporting to the Contractor's project manager on the quality process for the Project.

#### **4.4.4.3 Quality Control and Quality Assurance Deliverables**

The Construction Manager shall prepare and submit to the Departmental Representative (within five (5) weeks of award of contract) a Quality Control and Quality Assurance Plan including, but not limited to:

- 1) Description of the processes and techniques that should be used and when they should apply.
- 2) Identification and definition of key activities and deliverables.
- 3) Description of internal controls.
- 4) Methodologies and procedures to be utilized to deliver a high quality facility.
- 5) Frequency of QC/QA checks.
- 6) Deliverable verification plan.

The Construction Manager shall provide on a monthly basis an updated quality log indicating what was inspected and when, what was determined to be of insufficient quality, whose responsibility it is to repair, when the re-inspection will take place and verification the work is done.

#### 4.4.5 CONSTRUCTION MANAGER'S HEALTH AND SAFETY PLANNING AND IMPLEMENTATION

##### **4.4.5.1 Construction Manager's Responsibilities**

The Construction Manager shall assume the role of "Constructor" as defined in the Occupational Health and Safety Act and Regulations for Construction Projects (Revised Statutes of Ontario, 1990 Chapter O.1, as amended) and be fully responsible for ensuring compliance with OSHA for all aspects of Project's construction.

- 1) Further, the Construction Manager shall comply with and enforce the requirements of:
  - a) The National Building Code of Canada 2010 (NBC), Part 8 Safety Measures at Construction and Demolition Sites and Provincial Regulations for Construction Projects.; and
  - b) The Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage and disposal of hazardous materials, as well as, labelling and the provision of Material Safety Data Sheets (MSDS) acceptable to Human Resources and Skills Development Canada Labour Program.
    - i) Ensure that all designated hazardous materials are properly treated, handled and stored;
    - ii) Ensure that workers' exposure to fumes is within acceptable health and safety limits;
    - iii) Ensure that temporary ventilation or protection, as required for products utilized, is properly provided;
    - iv) Ensure that construction dust is controlled such that workers and occupants are not adversely impacted by dust from construction activities within the building or on the site;
    - v) Ensure that shop-drawing submissions include Manufacturers Standard Data (MSD) Sheets.
- 2) In addition the Construction Manager shall:
  - a) Provide a traffic control plan including loading/unloading zones, road restrictions, etc.
  - b) Provide a hoarding plan that meets PCO, CPC and NCC requirements. PCO requirements include the following: minimum height of hoarding is 12 feet from the nearest access point, all access points to hoarding to be secured with padlocks, provision of guard hut with heating and air conditioning.
  - c) Provide a pedestrian traffic plan including building access/egress, exterior scaffolding, etc.

- d) Ensure the 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.
- e) Implement a safety program on site.
- f) Provide appropriate safeguards to ensure safe protection and security of materials and holdings on the site.
- g) Provide the Services of Site Safety Officers, who will visit and document Site conditions daily, throughout the implementation of the Project.
- h) Provide site specific occupational health and safety orientation sessions to all workers and visitors.
- i) Give precedence to safety and health of public and Site personnel and protection of environment over cost and Schedule considerations for Work.
- j) Perform Site-specific safety hazard assessment related to the Project activities.
- k) Develop and implement a Site-specific safety plan for all aspects of this Project. The Site-specific safety plan shall be based on a preliminary and ongoing hazard assessment of the Project to be performed. Update the Site-specific safety plan as Site conditions or hazards change. Inform all persons on the Site in the change of conditions or hazards. Resubmit the updated plan to the Departmental Representative immediately.
- l) Develop an On-site Contingency and Emergency Response Plan that must address standard operating procedures to be implemented during emergency situations.
- m) Be responsible for health and safety of persons on site, safety of property on Site and for protection of persons adjacent to Site and environment to extent that they may be affected by conduct of Work.
- n) Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with Site-specific Health and Safety Plan.
- o) Shall respond to any unforeseen or peculiar safety-related factor, hazard, or condition that becomes evident during performance of the Project, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Province having jurisdiction. Advise Departmental Representative verbally and in writing.
- p) Ensure applicable items, articles, notices and orders are posted in conspicuous location on Site in accordance with Acts and Regulations of Province having jurisdiction, and in consultation with Departmental Representative.

- q) Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Departmental Representative. Provide Departmental Representative with written report of action taken to correct non-compliance of health and safety issues identified. Departmental Representative may stop Work if non-compliance of health and safety regulations is not corrected.
- r) Use powder actuated devices only after receipt of written permission from Departmental Representative. Blasting or other use of explosives is not permitted without prior receipt of written instruction by Departmental Representative.
- s) Maintain on Site sufficient personal protective equipment to equip a minimum of ten (10) PWGSC visitors, including hard hats and safety glasses. As well, provide 5 pairs of construction boots in typical sizes.

Departmental Representative will review Construction Manager's Site-specific Health and Safety Plan and provide comments to Construction Manager within five days after receipt of plan.

The Construction Manager shall revise the plan as appropriate and resubmit plan to Departmental Representative within three days after receipt of comments from Departmental Representative. The Departmental Representative's review of Construction Manager's final Health and Safety plan should not be construed as approval and does not reduce the Construction Manager's overall responsibility for construction Health and Safety.

#### **4.4.5.2 HEALTH & SAFETY Deliverables**

The Construction Manager shall submit to the DR the following documents:

- 1) Traffic control plan and updates as necessary;
- 2) Hoarding plan and updates as necessary;
- 3) Pedestrian traffic plan and updates as necessary;
- 4) Site specific Health and Safety plan and updates as necessary;
- 5) Copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors.
- 6) Contingency and emergency response plans and updates as necessary.
- 7) Copies of incident and accident reports
- 8) Material Safety Data Sheets (MSDS)
- 9) File Notice of Project with Provincial authorities prior to commencement of Work.

#### **4.4.6 REPORTING AND PROJECT SITE DOCUMENTS**

##### **4.4.6.1 Monthly Report**

The Construction Manager shall prepare and submit, at the start of the project, a sample of the Construction Management Monthly Report structure for review by the DR. Resubmit, as may be required for approval and acceptance. The structure of the report

shall be used for all subsequent project stages.

The monthly report will accompany each application for Progress Payment. The Progress Payment will not be accepted unless the monthly report is attached. This report will provide a system for documentation and project monitoring and reporting through each stage of project delivery, for review and acceptance by the Departmental Representative.

The Construction Management Monthly Report will include;

- 1) Invoicing Summary
  - a) The billing section should be broken down by tender package and then itemized by trade.
  - b) Identify all expenditures to date (including all change orders) in a form that compares the original budgets for each trade with the expected costs, including contingencies
- 2) Cost Section – Refer to Section 4.4.1
- 3) Time Section – Refer to section 4.4.2
- 4) Risk Section – Refer to Section 4.4.3
- 5) Quality – Refer to section 4.4.4
- 6) Health and Safety Section – Refer to Section 4.4.5.
- 7) Copy of the daily logbook and daily photographs, certified as true copies, as a separate report or volume. For each day worked, provide individual daily log that will include all activities on the Site. Document and verify quantities of materials received and record Work progress through daily photographs and narrative reports. Record the following:
  - a) Weather conditions, particularly unusual weather relative to Work in progress,
  - b) Materials and equipment deliveries,
  - c) Daily activities and major Work done through all shifts of Work,
  - d) Start, stop or completion of activities through all shifts of Work,
  - e) Presence of inspection and testing firms, tests taken, results, etc.,
  - f) Unusual Site conditions experienced,
  - g) Significant developments, remarks, email or other correspondence, etc.
  - h) Reports, instructions from appropriate authorities response actions,
  - i) Strength on-Site by each Subcontractor and the Contractor;
  - j) Safety inspections and reports; and
  - k) If work is based on unit prices, measure and record the quantities for verification of monthly progress claims and the Final Certificate of Measurement.

#### **4.4.6.2 Decision Log**

The Construction Manager shall maintain a separate decision log indexed for preconstruction and construction, for the entire duration of the Contract, recording participants, date and place of all decisions affecting scope, Schedule, cost and quality. These records are to be made available to Departmental Representative at all times.

#### **4.4.6.3 Site Documents**

The Construction Manager shall maintain at the Project Site, on a daily basis, records of all necessary contracts, samples, purchases, materials, equipment, maintenance and operating manuals and instructions, and other Work related documents, including revisions thereof. These site documents are to be made available to Departmental Representative at all times.

### **4.4.7 PROJECT ADMINISTRATION**

#### **4.4.7.1 Acceptance of Deliverables**

While PWGSC acknowledges the Construction Manager's obligations to meet project requirements, the project delivery process entitles PWGSC to review all work. PWGSC reserves the right to reject undesirable or unsatisfactory work. The Construction Manager must obtain Departmental Representative's acceptance of all required deliverables for the Project.

Acceptance indicates that based on a general review of work for specific issues, the work is considered to comply with governmental and departmental objectives, policies and practices and those overall project objectives appear to be satisfied.

Acceptance does not relieve the Construction Manager of responsibility for the work and compliance with the contract. Acceptance does not prohibit rejection of work, which is determined to be unsatisfactory at later stages of review.

It is noted that given the project will be implemented one floor at a time, acceptance of work as described above will generally be implemented on a sequential basis at the time of substantial completion of each completed floor. Exceptionally, acceptance of work for some aspects of the exterior work such as masonry and roofing work may be implemented on a different basis.

#### **4.4.7.2 Project Procedures Manual**

The Construction Manager shall develop a Project Procedures Manual in consultation with the Departmental Representative, within 8 weeks of contract award, for the execution of key Project activities. The Manual will provide a clear description of procedures, roles, responsibilities, levels of authority and the information systems for the execution of the Project, including details of the processes and sample formats.

The manual will include the process and methods to:

- 1) Maintain Project records
- 2) Implement a quality assurance program;
- 3) Prepare, update, monitor and maintain the Master Schedule;
- 4) Update, monitor and maintain the Cost Plan, Expenditures, Change Orders and Cash Flow, including changes in construction contingency
- 5) Manage communications 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.
- 6) Manage correspondence, reports and performance records.

- 7) Distribute correspondence electronically and by facsimile;
- 8) Process Shop Drawings
- 9) Document the process for reviews and approvals of Tender Package Contracts and change orders;
- 10) Include an issue and decision log (Refer to 4.12) during the construction of the entire project, recording participants, date and place of all decisions affecting schedule, budget, scope, or quality.
- 11) Update the Heritage Materials Database prepared by the PWGSC, and implement the Heritage Materials Management Protocols (prepared by the Prime Consultant) when moving, storing, or protecting identified heritage elements.
- 12) Update the CM risk registry.

#### 4.4.8 CONSTRUCTION ADVICE

Act as an advisor to the Project Team throughout the life of the Project.

The Construction Manager shall:

- 1) Acquaint PWGSC and other members of the design team with the labour conditions and supply issues applicable for the duration of the Project;
- 2) Assist in providing liaison and coordination among government authorities, utilities and other authorities having jurisdiction;
- 3) Provide advice on separation of Work packages and sequencing of design work to effectively meet schedule and cost objectives; and
- 4) Provide design input and constructability reviews, as well as input to value engineering and life cycle costing work lead by the Prime Consultant.

#### 4.4.9 DESIGN MEETINGS

Meetings with PWGSC, the Construction Manager, the Prime Consultant and Client will normally be held in downtown Ottawa. The Departmental Representative will arrange meetings every two weeks throughout the design.

All aspects of the design, design coordination, cost, Schedule, quality, constructability, scope separation for Work packages, scope changes, etc. are to be discussed.

Other ad hoc meetings and when necessary workshops to discuss detailed requirements will be required in the progress of the Project such as meetings between the Prime Consultant, the Construction Manager on constructability and construction implementation plan, Subcontractors, PWGSC / Privy Council Office, Canada Post, technical team members, City of Ottawa, NCC, or other Authorities having jurisdiction. Decisions taken at these other ad hoc meetings and workshops must be ratified at the next design meeting. These meetings are for the accurate exchange of information.

The Prime Consultant shall be responsible for preparing minutes of meetings and forwarding minutes to all attendees.

The Construction Manager shall attend all service-related and design meetings and respond to minutes as required prior to the next meeting.

#### 4.4.10 REVIEW OF DESIGN AND CONSTRUCTION DOCUMENTS

The Construction Manager shall:

- 1) Review and provide comment on all design and construction document submissions released to the Construction Manager. The review shall focus on constructability, coordination between all design disciplines, schedule impacts and costing. Documents are to be reviewed at Schematic design and updates, design development (66 %, 99 % and 100 %) and each construction documents package (66 % and 99 %, and 100% tender ready).
- 2) Take all reasonable measures to identify errors and omissions and to promptly advise the Departmental Representative of the same.
- 3) Provide advice to the Prime Consultants and the Departmental Representative, including the provision of expertise for constructability, bid-ability, scheduling, cost control and coordination, as well as construction phasing, site security and site safety. Recommend alternative solutions whenever design details adversely affect construction feasibility or schedules.
- 4) Provide suggestions and/or alternatives for cost reductions or acceleration of the Project Schedule. Provide input to Prime Consultant in regards to value engineering and life cycle costing for options being considered, including review of the Value Engineering and Life Cycle Costing Report prepared by the Prime Consultant at the Schematic Design phase;
- 5) Refer all questions for the interpretation of the documents prepared by the Prime Consultant to the Prime Consultant. In the event of continuing interpretation difficulties, refer the issue with all required background material to the Departmental Representative for resolution; the Departmental Representative's interpretation shall be deemed final and conclusive.
- 6) Participate in value engineering workshops facilitated by the Prime Consultant during design and provide advice and recommendations for the systems being proposed as to their ease of installation, cost, availability, suitability, robustness, constructability, etc. and make suggestions for potential alternatives. There are three (3) value engineering sessions planned for this project at the following stages: Schematic Design, Design Development and Construction Documents.
- 7) Make recommendations to the Prime Consultant and Departmental Representative regarding the phased issuance of drawings and specifications to facilitate phased construction of the Work taking into consideration such factors as available funding, time of performance, economies and provision of temporary facilities.

##### **4.4.10.1 Review of design and Construction Documents Deliverable**

Review and return one marked-up set of documents with detailed, written comments relating to the reports, drawings, details, specifications, etc. to the Departmental Representative with a copy to the Consultant within ten (10) working days of each design and construction document submission.



#### 4.4.11 CONSTRUCTION IMPLEMENTATION PLAN

##### **4.4.11.1 Scope**

The purpose of this implementation plan is to document the constraints and requirements that will be imposed on the Work so that approval from the stakeholders is received. Once approval is received, the constraints and requirements will be outlined in the construction documents mainly in Division 1 of the Construction Specification. It is important for the Construction Manager and its sub trades to be aware of the constraints and requirements that have a cost and schedule impact. Those constraints and requirements deal with various subjects such as environmental control inside the building, commissioning, scheduling restrictions, sequence of work, construction safety, hours of work, delivery of equipment/materials and waste disposal, scaffold, temporary services, noise, welding, security, shutdown of services, storage, parking, and access to site, fire watch, site plan showing limits of construction and staging areas, etc.

Input for this plan is required from all stakeholders. The Construction Manager shall take a lead in developing this plan.

Once the plan is approved by the Departmental Representative, the Construction Manager and the Consultant will be required to work together to incorporate those requirements into the construction documents mainly in Division 1 of the construction specification. The Consultant will be responsible to develop Division 1 common to all trades. The Construction Manager shall be responsible to review the common Division 1 to ensure all the requirements and constraints outlined in the construction implementation plan have been captured. The Construction Manager shall be responsible to develop the Division 1 construction specification (i.e Front-End Document for Bidders) specific to each tender package that may include other requirements from the Construction Manager's perspective.

##### **4.4.11.2 Deliverables**

Submit a construction implementation plan, within 12 weeks of contract award, so that the Division 1 specification is developed prior to tendering any tender packages. This implementation plan shall be updated as required to coincide with other tender packages. The Consultant will update Division 1 if required as the project progresses.

#### 4.4.12 TENDERING THE WORK

##### **4.4.12.1 Context**

While the Contract for the delivery of construction management services for the Postal Station B Rehabilitation is between the Department and the Construction Manager, it is understood that the Construction Manager will deliver the construction services called for in this Terms of Reference through subcontractors.

It is most important that the selection processes used by the CM to retain subcontractors are fair, open and transparent and that all qualified subcontractors have the opportunity to be considered for the construction Work. PWGSC believes that competitive bidding and open tendering processes will yield the best value for subcontracted Work.

#### **4.4.12.2 Scope**

- 1) In subcontracting for the construction the Construction Manager shall:
  - a) In consultation with the Consultant, prepare tender and contract documents that clearly set out the full requirements for material and services (i.e. 100% tender ready documents). Exceptions may be considered on a case-by-case basis to meet schedule requirements subject to PWGSC DR approval;
    - i) When warranted, using standard construction industry documents, such as CCDC 11 - 1996 (R2006) Contractor's Qualification Statement, ensure that subcontractors in trades that are essential to the successful delivery of the Work, are pre-qualified prior to being invited to submit tenders. Basis for prequalification to be submitted to DR prior to solicitation of tenders.;
    - ii) Submit a recommendation award to Departmental Representative for approval prior to contract award.
  - b) Enter into contracts with qualified subcontractors who submit the lowest-priced compliant tenders. Note where appropriate, time and materials contracts are acceptable subject to Departmental Representative approval. Entry into subcontracts on a time and material basis is dependent on following the process outlined in this section and where an upset limit has been established. Upset limits do not preclude proper reporting procedures required by the Departmental Representative. A site-based inventory control system must be set up and managed by the CM to ensure time and material usage does not exceed upset limits. In the event that an upset limit needs to be increased, the CM shall seek appropriate approval from the DR prior to exceeding the upset limit.;
  - c) Manage subcontractors and ensure they provide the required services in a manner consistent with the terms and conditions of this Contract and achieve timely delivery of quality services at the lowest cost;
  - d) Establish quality and performance requirements and monitor subcontractor performance, including quality of deliverables, adherence to schedules and costs;
  - e) Provide for dispute resolution, initiation of subcontract amendments and payments; and
- 2) The Construction Manager shall obtain open, fair and competitive bids for the subcontracts required for each portion of the Work in accordance with the following requirements:
  - (a) Subcontracts estimated at less than \$25,000 including Harmonized Sales Tax, may be single-sourced to qualified suppliers only upon the written approval of the Departmental Representative.
  - (b) For subcontracts estimated at less than \$100,000, including Harmonized Sales Tax, and upon the written approval of the Departmental Representative, the Construction Manager may invite on a rotating basis a minimum of 3 qualified suppliers from the CM's prequalified lists to submit bids. It is recommended the Construction Manager will notify in writing subcontractors who are unsuccessful.
  - (c) For subcontracts estimated at less than \$100,000, including Harmonized Sales Tax, the Construction Manager, upon the written agreement of the

Departmental Representative, may set aside the requirement to solicit a minimum of three bids if it has demonstrated to the satisfaction of the Departmental Representative, that less than three firms are capable of performing the Work.

- (d) For subcontracts estimated at \$100,000 or more, including harmonized sales tax, advertise publicly through MERX<sup>TM</sup> Private, in accordance with the following open bidding procedures:
- i) The public advertisement shall include, at a minimum, a description of the nature of the Work to be performed, information regarding any technical requirements, financial guarantees or other documentation to be provided with the bid, the completion date for the Work, the address of the bid closing location and the final date and time for receiving bids, the identification of a contact point for obtaining bid documents and from which further information may be obtained, the date, time and place of the public opening of the bids.
  - ii) The minimum time period (in calendar days) for receipt of tenders shall vary based on the estimated value of subcontracts (including HST) according to the schedule below. Reduced tendering periods may be considered on a case-by-case subject to written approval from PWGSC DR.

\$100,000 to \$1,000,000	10 days
\$1,000,001 to \$2,000,000	15 days
Over \$2,000,001 to \$8,000,000	21 days
Over \$8,000,000	40 days

- iii) Tender documentation shall include all of the public advertisement information, as well as identification of the bid validity period, the criteria for awarding the contract including any factors other than price to be considered in the evaluation of bids, the type of procurement (i.e. 1 or 2 stage process), the terms of payment and any other terms or conditions.
  - iv) During the solicitation the Construction Manager shall reply promptly to any request for bid documents or any reasonable request for relevant information made by a supplier participating in the tender. Information provided in response to questions during the tender period must be provided to all bidders.
- 3) The receipt and opening of bids and the awarding of contracts must be consistent with the following:
- a) Bids must be opened in Ottawa in the presence of at least one representative of the Construction Manager, and a representative of Canada, all of whom will act as witnesses to the opening by verifying and signing the Record of Bids received.
  - b) Contracts shall be awarded in accordance with the requirements specified in the notices and bid documentation, and must be submitted by a supplier that complies with the terms and conditions of the bid documents.

- 4) The CM shall:

- a) Seek pre-approval from the DR for any deviation from the competitive subcontracting process and make the documentation available to PWGSC.
  - b) Demonstrate to the DR that it has a competitive subcontracting process and a prequalification process, reflecting best industry practices.
- 5) The CM shall analyze the bids received and recommend awards to the DR through a trade contract award recommendation. The format of the trade contract award recommendation is the responsibility of the CM, however, at a minimum; the recommendation must include copies of the following documents:
- a) Prequalification Phase (if applicable) – copies of prequalification documents such as CCDC 11 - 1996 (R2006) Contractor's Qualification Statement or equivalent, the list of contractors submitting applications for prequalification and the results of the evaluation of prequalification submissions
  - b) Tender Phase: copies of all bids received, verification (e.g. a time stamp) that bids were received on time prior to the time scheduled for bid closing, a copy of the Record of the bid opening, properly witnessed, a copy of the MERX TM notice, or invitation to tender if the Work is valued at under \$100,000, a copy of all solicitation documents, a summary of all tenders received with bid amount breakdowns and totals, verification that bid security (if applicable) was provided with the bid, information on any tender qualifications or disqualifications; and identification of the supplier recommended for contract award
- 6) When the Departmental Representative approves the procurement process and the trade contract award recommendation by the CM, the Construction Manager shall prepare the subcontracts for execution. No award of subcontracts to a Subcontractor can proceed without an approved trade contract award recommendation. It is recommended the Construction Manager will notify in writing subcontractors who are unsuccessful.
- 7) The Construction Manager, and anyone not at Arm's Length to the Construction Manager, shall be ineligible to submit bids for any construction tenders issued for work tendered as part of the Postal Station B Rehabilitation, Construction Management contract. For further clarity, the 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.
- 8) Canada reserves the right to require the Construction Manager to enter into subcontracts for the supply of services or materials with Subcontractors that have been prequalified by Canada for any component of the Work. Any such subcontract shall form part of the Cost of the Work.

## 4.5 CONSTRUCTION SERVICES

The following services are rendered in support of construction (the Work).

#### 4.5.1 GENERAL

The Pre-construction Services in Sections 4.4.1 to 4.4.13 are to be provided concurrently with the Construction Services described herein.

#### 4.5.2 CONSTRUCTION MEETINGS

The Construction Manager will chair construction meetings every two (2) weeks. The meeting participants to include Construction Management staff, PWGSC Departmental Representative, Client Representative, and Consultants. Key trade contractors and PWGSC Technical Resources may be invited on an as-needed basis to meetings.

The Construction Manager shall:

- 1) Arrange and coordinate all regular construction meetings (every 2 weeks) on site throughout the duration of the project:
- 2) Prepare and distribute minutes within two (2) working days of the meeting.
- 3) Endeavour to hold all meetings as Green Meetings (i.e. Electronic copies of documents where possible or double sided hard copies)
- 4) Establish a list of standing agenda items, including (as a minimum):
  - a) Schedule and progress,
  - b) Cost issues and changes,
  - c) Risk and quality issues,
  - d) Quality,
  - e) Scope of work
  - f) Site safety,
  - g) Sustainable development
  - h) Commissioning (separate meetings)
  - i) Lessons Learned
- 5) Hold separate subtrade construction and commissioning meetings with Subcontractors, PWGSC, the Privy Council Office, Canada Post and the Prime Consultant. Prepare and distribute meeting minutes within two (2) working days, with copies to the Departmental Representative and the Prime Consultant.

#### 4.5.3 INTERFERENCE DRAWINGS & ADDITIONAL MEETINGS

The Construction Manager will take the lead and manage the interference drawings process. The Construction Manager will be responsible to engage a dedicated Interference Drawing Specialist resource to produce 3 dimensional AutoCAD interference drawings covering all disciplines with input from all stakeholders. The Interference Drawing Specialist cost will be part of the fixed fee. CM is to ensure that mechanical and electrical trades carry their own dedicated interference specialist. The Prime Consultant will provide drawings in Autocad format to the CM to facilitate the preparation of interference drawings.

Participation and level of effort by the trades is to be included in the respective tender packages. Allow also for nine (9) meetings (3 hrs maximum each). This allowance is based on one (1) interference meeting per floor. In attendance: PCO technical specialists, Consultants, Mechanical & Electrical, Controls and other trades as required.

The Construction Manager shall:

- 1) Arrange and coordinate all the interference drawings meetings on site throughout the duration of the Project;
- 2) Prepare and distribute minutes within two (2) working days of the meeting.
- 3) Manage and be responsible for the Interference Drawings Specialist performance and all required deliverables.

#### 4.5.4 CONSTRUCTION MONITORING

Maintain competent full-time supervisory staff on Site during implementation of the Work to monitor and provide general direction to all those associated with the Work for all work shifts as required; and quality management and field engineering staff as required. Identify unacceptable Work early to avoid delays that might arise as a result of required corrections of deficient Work. Ensure that comprehensive quality management processes are followed daily. Ensure that adequate back-up personnel are available.

Monitor progress on site and ensure coordination of trades.

- 1) Establish on-Site organization and lines of authority in order to carry out the overall plans of the Construction Manager and PWGSC;
- 2) Schedule and conduct progress meetings at which Subcontractors, PWGSC, Prime Consultant and Construction Manager can discuss jointly such matters as procedures, progress, problems, risks, costs and scheduling;
- 3) Provide daily monitoring of the Schedule as the Work proceeds;
- 4) Complete the Work according to the accepted construction documents, Project Schedule and Project Estimated Construction Cost;
- 5) As part of a comprehensive quality management process, provide daily inspection of all aspects of the Work, documenting matters for action or follow-up by Subcontractors, or referral to the Prime Consultant. Ensure the Work is constructed as specified. Use photographs to document issues and their correction;
- 6) Review the adequacy of the Subcontractors personnel and equipment and availability of material and supplies to meet the Schedule. Implement remedial action when requirements of a subcontract or the Project Schedule are not being met;
- 7) Prepare and maintain a decision log recording all decisions affecting Schedule, construction estimates, scope, or quality, including dates, place, and participants. These records are to be made available to PWGSC at all times;
- 8) Monitor and document all health and safety matters daily.
- 9) Ensure that the protocols identified in the Heritage Material Management Protocol (HMMP) for the cataloguing, material handling, protection, transportation and storage of heritage materials are implemented by the CM and all Subcontractors. The HMMP is to be included as an appendix to the construction specifications containing the historic – protective measures.

#### 4.5.5 SUBCONTRACTOR'S CHANGES (NOTICES AND ORDERS)

When a change to a subcontract is contemplated, the Prime Consultant (PC), or as appropriate, the Environmental Consultant (EC), shall prepare and issue a Supplemental Instruction (SI). This can be the result of a consultant-driven change to the construction documents or a CM/subcontractor-initiated Request for Information (RFI). In the case of a consultant-driven change, the PC, or as appropriate, the EC, shall prepare an indicative cost estimate (Class D) and submit to the Construction Manager (CM) for review. The Class D estimate shall itemize all labor, material, plant and equipment costs associated with the change. In the case of a CM/subcontractor-driven RFI, no indicative estimate from the PC, or as appropriate, the EC, is required.

Upon receipt of an SI, the CM will promptly review and validate the SI and supporting estimate (if applicable), prior to forwarding to their subcontractors to obtain a quotation. While the subcontractors are preparing their quotation, the CM will also prepare a Class A estimate which will be used as the basis to evaluate subcontractor quotations.

It is the responsibility of the CM to ensure that all prices included in the Subcontractor's breakdown, including the costs and mark-ups of subcontractors, are fair and reasonable and in accordance with contract documents. The CM must provide written confirmation, in the form of Expenditure Authorization (EA) letter, to the PWGSC DR declaring that the quotation is fair and reasonable and on this basis recommends the EA for approval. The EA letter shall include: a detailed description of the change; the applicable EA driver category; a breakdown of all labor, material, plant and equipment, rates, and mark-ups; subcontractor contract change; contingency budget drawdown/cash flow. Note that project-specific EA driver categories (e.g. Client Request, Site Conditions, Consultant Request) will be established by PWGSC at project initiation and must be adhered to by the CM for the duration of the project.

The DR will review the EA letter provided by the CM. The DR may request further breakdown and clarification of costs, until such time that the DR is satisfied with the information provided and that the quotation is indeed fair and reasonable. Upon written approval of the EA letter, a Change Order will be prepared and issued by the CM to the Subcontractor, with a copy to the PC, or as appropriate the EC, and the DR.

Under normal circumstances, the PWGSC DR will review and approve an EA within 48 hours, and/or advise accordingly. No work is to proceed without prior written approval from the DR. The CM shall ensure that Supplemental Instructions are prioritized and processed in an expeditious manner in view of maintaining the project schedule.

A detailed log of the cost of forecasted final subcontract amounts, changes in construction contingency that may result, change notices and change orders is to be maintained by the CM for all subcontracts, at all times throughout the Project. A copy of this log is to be included in the monthly report.

#### 4.5.6 CONSTRUCTION WORK

The Construction Manager shall:

- 1) Be responsible for the development, coordination and management of all Work and services included in Division 01.
- 2) Ensure the provision of all necessary equipment to the Project and all other resources required to perform all services.

- 3) Procure, coordinate, administer and manage all construction Work and contracts.
- 4) Prepare and execute contracts with the successful Subtrades so as to:
  - a) Coordinate and manage the respective contracts in an integrated manner to avoid any conflicts between the Work of any of the Construction Manager's subtrades and/or the Construction Manager's own forces.
  - b) Coordinate, manage and ensure completion of all the Work of each Subtrade tender package in strict adherence to the accepted drawings and specifications of each tender package, including all addenda and authorized change orders.
  - c) Deliver the Work packages by the agreed upon completion dates
  - d) Develop and implement a procedure for review, certification, processing and payment of Subtrades in accordance with the terms and conditions of the Construction Management Contract.
  - e) Schedule and conduct progress meetings at which Subtrades, PWGSC and the Construction Manager can jointly discuss such matters as procedures, progress, problems, risks and scheduling.
  - f) Provide timely response to correct issues, as they occur.

#### 4.5.7 QUALITY CONTROL & QUALITY ASSURANCE

This is supplemental to Section 4.5.4 and outlines additional QC/QA services to be provided during the Construction Phase.

The Construction Manager shall:

- 1) Ensure that quality assurance measures are implemented.
- 2) Arrange for testing services as required, which may include concrete testing, compaction testing.

Carry out Work using qualified licensed workers or apprentices in accordance with Provincial Act respecting manpower vocational training and qualification.

Permit employees registered in Provincial apprenticeship program to perform specific tasks only if under direct supervision of qualified licensed workers.

Determine permitted activities and tasks by apprentices, based on level of training attended and demonstration of ability to perform specific duties.

#### 4.5.8 AS-BUILT DRAWINGS

The Construction Manager is to collect and turn over to the Prime Consultant at the end of each completed subcontract a marked-up set of drawings and specifications for completion of as-builts by the Prime Consultant. As-built documents shall clearly indicate all deviations from the Issued for Construction documents, including identifying all changes by Change Order number.

#### 4.5.9 SHOP DRAWINGS

The review of shop drawings by Departmental Representative is for sole purpose of ascertaining conformance with general concept. This review does not constitute



approval by the Departmental Representative of the detail design inherent in shop drawings, responsibility for which shall remain with Contractor or Subcontractor submitting same, and such review shall not relieve Contractor or Subcontractor of responsibility for errors or omissions in shop drawings or of responsibility for meeting requirements of Contract Documents. Shop drawings shall be stamped: "Reviewed", or "Revise and Resubmit", as appropriate, by the Construction and by the Prime Consultant before return to the subcontractor.

The Construction Manager shall:

- 1) Produce and manage a shop drawing log with a complete list of all shop drawings, samples and mock-ups required by the tender documents. Log to track all dates associated with each submission, review and return in keeping with the construction schedule.
- 2) Prioritize the preparation and submission of shop drawings to ensure schedule is maintained.
- 3) Submit for the Departmental Representative's review, three (3) copies of each shop drawing.
- 4) Review, discuss, record problems and identify agreed remedial action.
- 5) Monitor and record the progress of shop drawing review. Record parties designated for action and follow up.
- 6) On completion of project, forward reviewed/as-commissioned shop drawings to the Departmental Representative.
- 7) Verify that shop drawings include the project number and are recorded in sequence.
- 8) Do not commence manufacture or order materials before shop drawings are reviewed.

#### 4.5.10 PERMITS AND APPROVALS

Pay all fees and obtain all permits. Provide authorities with plans and information for acceptance certificates. Provide inspection certificates as evidence that work conforms to requirements of Authority having jurisdiction. The Construction Manager will be responsible for coordinating, paying for and obtaining all permits and approvals from local and statutory authorities and shall:

- 1) Liaise with local and statutory authorities with respect to hoarding, traffic restrictions, services and associated diversions and/or connections.
- 2) Inform PWGSC of their requirements to inform any statutory body via applications or orders.
- 3) Ensure that all applications are filed and executed successfully.
- 4) Verify that all necessary approvals have been obtained.

#### 4.5.11 SITE REVIEWS

The Construction Manager shall:

- 1) Arrange with the Departmental Representative for the issuance of necessary forms respecting interim and final completion of the work;
- 2) Prepare lists of incomplete and deficient items;
- 3) Schedule completion of these items with the Subtrades and distribute all lists as appropriate;
- 4) Distribute interim and final completion certificates.

#### 4.5.12 SUSTAINABILITY AND ENVIRONMENTAL

On behalf of PWGSC, the Prime Consultant will pursue certification for the project under an industry recognized sustainability and environmental performance rating system (LEED Silver, Green Globes for Design, or equivalent standard). The Consultant will provide guidance to PWGSC as to which rating system would be most appropriate, and realistically achievable, for the project. The Consultant will perform an initial assessment early in the design stage that will inform PWGSC which rating system (e.g LEED, Green Globes, etc.) and which level of rating the project will be able to achieve keeping in mind the minimum standards set forth in the Federal Sustainable Development Strategy. Minimum standards for a major renovation project such this is LEED NC Silver or 3 Green Globes for Design. The Consultant will be responsible for all tasks, including preparation of documentation, required for certification and will balance the requirements of the rating systems' prerequisites and credits with other project requirements.

The Construction Manager will provide:

- 1) Advice on the source and availability of regional materials and materials with recycled content, including on-Site verification of same;
- 2) Provide information required by the Environmental Consultant to develop the Waste Management Program for the Work and to monitor its implementation;
- 3) Site verification related to the use of acceptable materials, compiling and verifying MSDS sheets and WHMIS information;
- 4) Monitoring and testing for indoor air quality during construction;
- 5) Coordination with all subcontractors to ensure compliance with contract requirements for sustainability and environmental requirements; and
- 6) The CM shall continue to be available to support the Prime Consultant in the environmental performance certification process until the certification process is complete, up to a period of 1 year following substantial completion.

#### 4.5.13 WASTE MANAGEMENT

The Construction Manager shall:

- 1) Obtain from the Environmental Consultant the draft Waste Audit plan (including inventory) and draft Waste Reduction Workplan for the project. Review the documents and provide comments to the Environmental Consultant as to the completeness and practicality of the plan.

- 2) Prepare and provide to the Environmental Consultant written monthly reports on waste reduction efforts including quantities of materials reused, recycled or disposed of (based on tonnage), with supporting documentation (i.e. waybills, receipts, invoices, waste tracking forms).
- 3) Review the findings of the Waste Audits conducted by the Environmental Consultant. The audits will indicate the degree to which recycling objectives are being achieved and will provide recommendations for improvements if objectives are not being met.

#### 4.5.14 GENERAL REQUIREMENTS

The Construction Manager is to provide for the management of all services normally included in Division 1 of the National Master Specification (<http://www.tpsgc-pwgsc.gc.ca/biens-property/ddn-nms/index-eng.html>). This Work is to be defined as all those items that are necessary for the smooth and safe operation and co-ordination of the site.

Services to be provided mainly in relation to requirements of Division 1 of the National Master Specifications: site organization and safety as per "prime contractor" and "constructor" duties defined in the Ontario OHSA; provision of temporary services and site facilities, site security, traffic management, management of the waste and recycling program for the site; protection, hoardings, cranes and lifts as required; system maintenance, and other miscellaneous Works related to managing a construction Site adjacent to other Government buildings.

#### 4.5.15 PROJECT SITE OFFICE

The CM is responsible for establishing his site presence for the project. There will be some limited space available within the Postal Station B building for the CM to use as a Site office for the Project. This includes approximately 400 m<sup>2</sup> of space in the basement area. Additional accommodations for Site Office may be required as determined by the CM. The CM is responsible for ensuring that there is sufficient space and services for the CM's staff as well as provision for the Prime Consultants Resident Site Supervision personnel. Costs for the fit-up and operation of the Site Office will be reimbursed as a disbursement.

#### 4.5.16 COMMISSIONING

The Construction Manager's Commissioning Agent will be directing a commissioning process, or program of activities, for all of the Work that is reasonable and practical. This Commissioning Agent shall document and witness all test results. The Construction Manager is to report on the activities of the Commissioning Agent to the Departmental Representative. The actual cost of commissioning agent and trade commissioning is part of the fixed fee.

The PWGSC Departmental Representative, the Construction Manager and Construction Manager's Commissioning Agent, the Subcontractors, the Consultants, the PWGSC Commissioning Manager will form the commissioning team. The commissioning team must work together in a collaborative and open manner to successfully complete the

commissioning process. The Construction Manager and the Construction Manager's Commissioning Agent shall take on a key and leading role in driving the commissioning process to successful completion. Refer to PWGSC Commissioning Manual available at <http://www.tpsgc-pwgsc.gc.ca/biens-property/sngp-npms/bi-rp/tech/miseenservice-commissioning/documents/manuel-manual-eng.pdf> for requirements and Specifications.

#### **4.5.16.1 Commissioning Plan and Services**

Commissioning is an integral part of all phases of the Work. Commissioning and performance verification is a key element of the Project Quality Management Plan and shall be conducted at all stages of the Project. Develop and update a Commissioning Plan throughout the Project, with input and direction from the Prime Consultant. Administer, and manage the implementation of the Commissioning Plan. Commission each phase of the Work and the overall Work and make every effort to reduce the Project Schedule and Estimated Construction Cost.

The Construction Manager and the Construction Manager's Commissioning Agent are responsible for:

- 1) Ensuring that all required commissioning activities are identified in the Project Schedule and in construction documents;
- 2) Review the preliminary commissioning plan as well as commissioning specification (Div 1 only) in the attachments under separate cover. The plan is more specific regarding the Construction Manager's commissioning Specialist. This plan will be made project specific by the Prime Consultant during the design and development of the construction documents. CM shall use the project specific plan prepared by the Prime Consultant as the basis for preparing a Final Commissioning Plan for use during construction.
- 3) Ensuring that information on labelling protocols, maintenance data requirements and protocols are relayed to the sub-contractors and related information sessions with PWGSC are scheduled as required;
- 4) Confirming that sub-contractors' Work is sufficiently complete to warrant inspection and testing by the Prime Consultant and for scheduling of the required inspections and tests;
- 5) Developing and implementing a Site quality assurance program: to minimize delays as a result of poor workmanship or sub-contractor error; to reduce deficiencies and call backs during warranty periods; and to reduce long-term risk to PWGSC arising from poor workmanship;
- 6) Administering and managing independent quality control testing as may be required by PWGSC, the Prime Consultant or the Contractor to confirm the adequacy of a sub-contractor's Work or commissioning reports;
- 7) Ensuring that all test results, documents, and manuals are provided by sub-contractors, monitoring the Prime Consultant review process, and reporting to PWGSC on the progress of the commissioning effort;
- 8) Directing sub-contractors to complete, repair, adjust or rebuild portions of the Work that do not meet the verification standards including monitoring deficiencies and ensuring that they are corrected;

- 9) Ensuring that seasonal commissioning activities are detailed within the Project Schedule and are completed on time with the proper documentation and or follow-up action;
- 10) Monitoring and inspecting with the Prime Consultant the Work during its warranty period and during seasonal commissioning activities to ensure defects are corrected. The frequency of monitoring and inspection is expected to occur twice during the warranty period at three and eleven months;
- 11) Ensuring that testing and commissioning of equipment is witnessed and inspected by the Prime Consultant and the required authority;
- 12) Coordinating the federal, provincial and municipal inspections required for occupancy;
- 13) Scheduling and following-up on the three and eleven month inspections after the issuance of the Substantial Performance;
- 14) Undertaking all actions required to close-out subcontracts including final warranty reviews and contract close-outs;
- 15) Coordinating the training of PWGSC operational staff and the equipment handovers;
- 16) Monitoring and reporting to PWGSC on the progress of the commissioning process against the plan;
- 17) Witnessing all testing including testing of all components, systems and integrated systems. This includes, but is not limited to, a complete verification of the controls sequence of all systems in a dynamic operating state;
- 18) Completing and signing-off of all verification reports and compiling into a comprehensive Commissioning Manual as the Project progresses, including Commissioning Manual updates to include seasonal commissioning activities;
- 19) Organizing weekly commissioning meetings at a minimum, preparing agenda, chairing meetings, preparing minutes and distributing them;
- 20) Providing Schedules related to all commissioning activities as well as reporting and monitoring. Present an updated commissioning Schedule at all commissioning meetings. Identify any variances and issues to be addressed at those commissioning meetings;
- 21) Assisting in the labelling protocols by gathering all forms dealing with product information from various sub-contractors and reviewing and verifying that the information is correct. The physical labelling requirements are the responsibility of the sub-contractors;
- 22) Confirming that the sub-contractors' Work is sufficiently complete prior to start up so that inspections are carried out. Ensuring deficiencies identified by the Consultants are corrected by the sub-contractors;
- 23) Gathering all the start-up reports, reviewing format and content against manufacturer's instructions prior to start-up, and ensuring that they reflect the procedures listed in the manufacturer's instructions;

- 24) Managing the process of developing the testing and performance verification. The Commissioning Agent will prepare verification forms and make them Project specific. All forms will be submitted to the Prime Consultant and PWGSC Commissioning Manager for review and comment. Update the forms as required. During testing the Commissioning Agent will record all results and report any variances to the PWGSC Commissioning Manager and Prime Consultant.

#### 4.5.17 ANTICIPATED SITE SHUTDOWNS

In addition to the usual statutory holidays (Ontario), the Construction Manager will allow for 5 working days per year of site shut down for unanticipated special events to take place in an unencumbered manner. The CM shall incorporate these shutdown requirements in all trade packages with due consideration for timing of holidays.

Specifically for the CM's own site personnel, the CM will also include 50 hours of stop Work per year for unforeseen Project shut downs.

#### 4.5.18 FIRE SAFETY REQUIREMENTS

The Construction Manager shall:

- 1) Comply with the National Building Code of Canada [2010] (NBC) for fire safety in construction and the National Fire Code of Canada 2010 (NFC) for fire prevention, fire fighting and life safety in building in use.
- 2) Comply with PWGSC Fire Protection requirements, Fire Commissioner of Canada (FCC) standards:
  - a) No. 301: Standard for Construction Operations
  - b) No. 302: Standard for Welding and Cutting
  - c) No. 374: Fire Protection Standard for General Storage (Indoor and Outdoor)
  - d) Available from Fire Protection Engineering Services, Labour Program, HRDC
  - e) Retain all fire safety documents and standards on site.
- 3) Welding and cutting: Before cutting and welding operations commence, issue hot work permits then continuously monitor all welding, soldering, grinding and/or cutting work. Store flammable liquids in approved CSA containers. No open flame shall be used unless permitted and authorized by the Construction Manager.
- 4) At least 48 hours prior to commencing cutting, welding or soldering procedure, advise the Departmental Representative of the following:
  - a) Notice of intent, indicating devices affected, time and duration of isolation or bypass.
  - b) Completed welding permit as defined in FC 302.
  - c) Return welding permit to Site Superintendent immediately upon completion of procedures for which permit was issued.
- 5) A firewatcher as described in FC 302 shall be assigned when welding or cutting operations are carried out in areas where combustible materials within 10m may be ignited by conduction or radiation.

- 6) Where work requires interruption of fire alarms, fire suppression, extinguishing or protection systems:
  - a) Provide watchman service as described in FC 301. In general, watchman service is defined as individuals conversant with Fire Emergency Procedures, performing fire picket duty within an unprotected and unoccupied (no workers) area once per hour.
  - b) Retain services of manufacturer for fire protection systems on daily basis or as approved by FCC, to isolate and protect all devices relating to:
    - i) Bypass and reinstatement of fire alarms, fire suppression, extinguishing or protection systems;
    - ii) Modification of fire alarms, fire suppression, extinguishing or protection systems; and/or
    - iii) Cutting, welding, soldering or other construction activities, which might activate fire protection systems.
- 7) Immediately upon completion of work, restore fire protection systems to normal operation and verify that all devices are fully operational.
- 8) Inform fire alarm system monitoring agency and local Fire Department immediately prior to isolation and immediately upon restoration of normal operation.

#### 4.5.19 HAZARDOUS MATERIALS

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

For work in occupied buildings give the Departmental Representative 48 hours notice for work involving designated substances (Ontario Bill 208), hazardous substances, and before painting, caulking, installing carpet or using adhesives.

#### 4.5.20 INTERACTIVE OPERATIONS AND MAINTENANCE (O&M) MANUALS

The Construction Manager is expected to manage the production of the interactive O&M manuals. Managing the process is part of the services but the cost of producing the manuals is part of the construction costs. Given that construction will be phased on a floor-by-floor basis, provision of O&M manuals and training will be required over the course of construction, as completed floors are released for occupancy.

Twelve (12) weeks prior to any scheduled training, submit to the Departmental Representative four (4) CD copies of approved Operations Data and Maintenance Manual in both official languages and one hard copy, compiled as follows:

- 1) Bind data in vinyl hard cover 3 "D" ring type loose-leaf binders for 212 x 275 mm size paper. Binders must not exceed 75 mm thick or be more than 2/3 full.
- 2) Enclose title sheet labelled "Operation Data and Maintenance Manual," with project name, date and list of contents. Project name must appear on binder face and spine.

- 3) Organize contents into applicable sections of work to parallel project specifications breakdown. Mark each section by labelled tabs protected with celluloid covers fastened to hard paper dividing sheets.
- 4) Include following information plus data specified.
  - a) Maintenance instruction for finished surface and materials.
  - b) Copy of hardware and paint schedules.
  - c) Description: Operation of the equipment and systems defining start-up, shut-down and emergency procedures, and any fixed or adjustable set points that affect the efficiency of the operation. Include nameplate information such as make, size, capacity and serial number.
  - d) Maintenance: Use clear drawings, diagrams or manufacturers' literature which specifically apply and detail the following:
    - i) Lubrication products and schedules.
    - ii) Trouble shooting procedures.
    - iii) Adjustment techniques.
    - iv) Operational checks.
    - v) Suppliers' names, addresses and telephone numbers and components supplied by them must be included in this section. Components must be identified by a description and manufacturers part number.
  - e) Guarantees showing:
    - i) Name and address of projects.
    - ii) Guarantee commencement date (date of Interim Certificate of Completion).
    - iii) Duration of guarantee.
    - iv) Clear indication of what is being guaranteed and what remedial action will be taken under guarantee.
    - v) Signature and seal of Guarantor.
    - vi) Additional material used in project listed under various Sections showing name of manufacturer and source of supply.
  - f) Spare parts: List all recommended spares to be maintained on site to ensure optimum efficiency. List all special tools appropriate to unique application. All parts/tools detailed must be identified as to manufacturer, manufacturer part number and supplier (including address).
  - g) Include one complete set of final shop drawings (bound separately) indicating corrections and changes made during fabrication and installation.
- 5) Format: All as-builts drawings and O & M manuals shall be converted, where necessary, into Portable Document File (PDF) format permit for viewing using the Acrobat reader Software. Documentation storage and retrieval system shall be structured based on a database framework with direct links to the appropriate PDF files. Documents retrieval and viewing shall be executed through a menu driven approach. The Program shall provide multi-level of password entry for access to add new or edit stored data by authorized users

#### 4.5.21 RECORDS

As work progresses, maintain accurate records to show deviations from Contract drawings. Just prior to Departmental Representative's inspection for issuance of the



Certificate of Completion for each completed floor or building system, supply to the Departmental Representative one (1) electronic copy, and three (3) hard copies of the prints with all deviations neatly inked in.

#### 4.5.22 GUARANTEES AND WARRANTIES

Before completion of Work on each completed floor and at the end of the project, collect all manufacturers' guarantees and warranties and deposit with Departmental Representative. Provide copies of all manufacturers' guarantees and warranties in the O&M Manuals.

#### 4.5.23 CONSTRUCTION CLEANING

The Construction Manager will be responsible for construction cleaning throughout the life of the project. Construction cleaning is to be carried out to ensure a safe work environment and to protect site systems and heritage elements from excessive construction dust and debris. As work packages are completed and/or construction areas are completed, perform a final construction cleaning of the entire area, including all interior surfaces, fixtures and equipment to eliminate all construction dust and debris. Include for such cleaning after the installation of PCO-owned BCC by their subcontractors. Advise the Departmental Representative in writing before final cleaning is to proceed. Obtain acceptance of cleaning in writing from Departmental Representative when completed. Cleaning shall be completed prior to application for Certificate of Substantial Performance.

#### 4.5.24 SECURITY CLEARANCES

The CM and all subcontractors are required to comply to the security requirements described in the Security Requirements Checklist (SRCL) and associated Security Classification Guide. It is the responsibility of the CM to provide personnel cleared at the appropriate level of security clearance. CM is required to submit the names and date of birth of personnel a minimum of 48 hours in advance for verification.

The Construction Manager, in collaboration with PWGSC security services, will issue a Building security card. All persons accessing the Site shall wear this security card in plain view at all times. Construction Manager to check all personnel daily at start of work shift for their card. Pass must be returned at end of project or work package.

#### 4.5.25 SITE SECURITY

Construction Manager shall be responsible for security of the construction site under his direct control. Given that the majority of the building will continue to be occupied by PCO and CPC, responsibility for security of the tenant-occupied spaces is out of the CM's scope. Develop a security plan in consultation with the Departmental Representative. Revise plan as required to approval of Departmental Representative. Update plan to meet requirements of Departmental Representative as Project progresses. Be responsible for:

- 1) Coordination of construction activities and PCO, CPC and PWGSC operations;

- 2) Access to the Site including sign-in procedures and security clearances;
- 3) Off-hours security including procedures to “escort”, to “lockup”, evening and weekend surveillance, fire watches, emergency procedures and responses;
- 4) All safety issues related to the Work or its Site to be performed as required by federal, provincial or municipal regulations;
- 5) Safeguarding of components to be reused or recycled;
- 6) Protection of materials, equipment, workmanship and, throughout the implementation of the Project, any PWGSC or the PCO, CPC items installed prior to the building being ready for use; and
- 7) A Site protocol to be developed and enforced, including:
  - a) No CDs, radios or tape machines;
  - b) Noise control;
  - c) No parking on Site; and
  - d) Due regard for the general public’s expectations with respect to behaviour, language and dress in public places (all spaces exterior of the Site are deemed to be public).
- 8) Engaging private sector security services.

Provide emergency response coordination and for responses to Site problems during non-working hours. In consultation with the Departmental Representative, establish a list of contacts for responses and communication. In the event of any problems, contact Departmental Representative immediately. In case of an emergency where the safety of persons or property is concerned, or Work is endangered by the actions of the subcontractors or other persons, take immediate action. If required, stop Work. In all situations, notify the Departmental Representative. Give immediate written notice to the subcontractor or other person of the hazard.

#### 4.5.26 NOISE, VIBRATION, ODORS AND DELIVERIES

A significant program of off-hours work during evenings and weekends will be required to mitigate the constraints of mitigating impacts to tenants while meeting the project schedule. Carefully plan and schedule all noise generating work, all deliveries and waste removal after hours, to minimize the impact to ongoing operations. Normal working hours are considered to be from 7 am to 6 pm on weekdays and non-holidays. Take steps to minimize noise, vibration and odours, affecting both the Postal Station B building (interior and exterior) and impacting on the neighbouring and adjacent occupancies including buildings, roadways, parks and recreational areas. The CM shall implement a sound monitoring program during construction, which includes taking sound readings on the floors above and below the working floor to ensure that disturbance to tenants is controlled. The Departmental Representative’s decision will be final on whether the Work is causing excessive noise, vibration or odour.

Coordinate with the Prime Consultant during Construction Documents preparation, providing advice and input on documenting contractual requirements in the sub-contractor Tender Document Packages to minimize potential cost and schedule impacts in performing work expected to generate excessive noise, vibration, and odours.

#### 4.5.27 COORDINATION OF CONTRACTORS HIRED DIRECTLY BY PWGSC OR PCO

PWGSC will from time to time require that activities and projects be undertaken by PWGSC's own forces, by PWGSC contractors, or by PCO's contractors, within the construction site. These activities will be subject to the coordination and safety overview of the Construction Manager, as the Constructor. The Construction Manager will grant free access to these areas by PWGSC or their contractors, provided that all safety and security protocols are followed. At the current time, the following projects are envisioned. However, other contracts of varying scale could arise over the course of the contract.

- PCO security commissioners will require access to the construction space for security monitoring purposes throughout the project.

#### 4.6 POST CONSTRUCTION AND WARRANTY STAGE

Given that construction will be phased on a floor-by-floor basis, the warranty period will be staged by floor over the course of construction, as completed floors are released for occupancy. During the Post Construction and Warranty Stage for each completed floor, the Construction Manager shall:

- 1) Assemble Record Documents in whole packages per subproject or as directed by the Departmental Representative. Provide copies of Record Documents to PWGSC as directed by the Departmental Representative;
- 2) Review and comment on the accuracy of warranties and guarantees.
- 3) Review the Final Commissioning Report and comment on the accuracy and completeness;
- 4) Coordinate with Subtrades to provide final Record Documents (Operations and Maintenance Manuals, As-built drawings and specifications) as required for each subtrade.
- 5) Within eleven (11) months of the commencement of the warranty period, arrange for an inspection of the facility to determine all deficiencies to be corrected;
  - a) Prepare a deficiency list for review and acceptance by the Departmental Representative.
  - b) 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;
  - c) Arrange for and correct all identified deficiencies in accordance with the schedule and advise when all deficiencies have been properly corrected.
  - d) Ensure that all warranty deficiencies are properly corrected in a timely manner. The Construction Manager warranty inspection and up to 4 return inspections to be included in the fees.
- 6) The Construction Manager is to attend all warranty site meetings.
- 7) The Construction Manager to participate in a half-day lessons learned workshop and provide an updated lessons learned log.

- 8) Provide a post-construction evaluation and cost analysis report within one month of the completion of each tendered construction package, include lessons learned, outstanding issues and any Work that was not completed or was deferred to subsequent projects. Submit a sample format for this report for review and acceptance by the Departmental Representative. Amend as required.

# **APPENDIX A**

## **SUMMARY OF PREVIOUS REPAIRS/RENOVATIONS**

### **Major Renovations/Repairs and Recent Reports**

Apart from the removal of the rooftop skylights, the **exterior of the building** remains relatively unchanged. The **interior of the building** has been significantly altered with the exception of the post office, the main entrance vestibules, the elevators and stairwells which have preserved original materials and finishes.

The following is a summary of interventions of building repair and renovations along with recent reports:

**1938-1939:** Original building construction.

**1975:** Major renovation including passenger elevator modernization, installation of basement sprinklers, re-construction of the interior portion of exterior walls, and installation of an additional exit stair. Mechanical systems upgrade including replacement of the air handling unit, distribution ductwork, installation of two re-heat boxes and a fan coil unit to serve the Ground Floor.

**1985:** Existing conventional hard-wired fire alarm system installation.

**1990-1995:** Major renovation including upgrades to the base building for accessibility compliance and major retrofit of the base building elements. Women's washroom and barrier-free plumbing fixtures replaced.

**1991:** Direct Digital Control added to the pneumatic control system to enhance operational performance.

**1991:** An asbestos survey of the complete building was conducted. Report concluded that Asbestos Containing Material (ACM) is present in steam and water pipe insulation, ductwork, AHU housing, some floor tiles, plaster ceilings, some plaster walls and fireproofing on beams. (*Asbestos Survey Parliamentary Precinct Postal Station B, T. Harris Partnership, May 1991*)

**1991-1993:** Entrance doors repairs and refurbishment.

**1992:** Ground Floor marble floor refinished.

**1993-1994:** Interior light fixtures retrofit.

**1997-2002:** New branch circuit panel boards were installed on floors 1, 2, 4 and 6 as part of normal power distribution.

**1997:** Electrical system upgrade including installation of service sub-feed from Langevin Block and Motor Control Centre. 120/208V branch panels upgraded to 72-circuit panels to provide additional circuit capacity. New modified bitumen rolled roofing system installed on flat roofs.

**1998:** Investigation report for some of the building piping systems. Investigation of the piping distribution on each floor was not carried out. Report concluded that the original cast iron drainage system was in poor condition, the basement lacks floor drainage and that sanitary piping is in poor condition. (*Postal Station B Piping Investigation, Eternal*

*Engineering Corp., Sep 1998)*

**1999:** Rear laneway was re-graded and repaved.

**2000:** Plumbing drainage for women's washroom and all storm drains were upgraded. Installation of new 120/280V equipment.

**2001:** Emergency power diesel generator replaced.

**2002:** New fire booster pumps installed.

**2005:** Several of the 12 step-down, dry-type transformers in the building were replaced as part of normal power distribution.

**2006:** Modernization of 2 passenger elevators and replacement of the service/passenger elevator.

**2006:** Asset Management Plan (AMP) and Level II Building Condition Report (BCR) of all building systems. The comprehensive report includes detailed recommendations for repair, maintenance, or replacement of building components. The recommended strategy was to retain and upgrade the asset as per the findings of the BCR. (*Asset Management Plan and Building Condition Report, Postal Station B, Corporate Research Group and Halsall Associates Ltd., Jun 2006*)

**2006:** Demolition and fit-up of second floor including abatement of ACM, and installation of new flooring, ceilings, partition walls, HVAC, plumbing and electrical/fire alarm systems. (*Issued for tender drawings and specifications, PSB 2<sup>nd</sup> Floor SCIF, Project Number 493798X1, Aug, 2006*)

**2008-2009:** Level I screening of the masonry facade, performed by HCD. Screening was done from the ground, adjacent buildings, a boom lift and crane basket. Short term repairs and additional investigations were recommended, including repairs to the large carved lintel over the main entrance. First HCD screening report produced in 2005-2006. (*Postal Station B Building Envelope Screening Reports 2008-2009, Heritage Conservation Directorate, Mar 2009*)

**2009:** A more detailed investigation of the condition of the large carved stone lintel over the main entrance of the building was carried out. Investigation led to the ultimate replacement of steel and re-positioning of the lintel. (*Postal Station B Building Lintel Distress Investigation, KIB Consultants Inc., Feb 2009*)

**2011:** Investigation report completed to examine treatment options for the building envelope and mechanical heating system. No implementation strategy was included with the options. Test openings were conducted to determine the underlying conditions where leaks, staining, or displacement of stone units were observed. (*Postal Station B Envelope and Mechanical System Investigation Report, DFS Architecture & Design, Mar 2011*)

**2013:** Main Entrance Intervention, which began initially as a routine repair of the concrete stairs and escalated into a localized rehabilitation of the foundation footings and structural support beams. (*Postal Station B – Main Entrance Stair Repair, As-Built*

*Record 2013, Drawing A1 to A4, Heritage Conservation Directorate. Jul 2013)*

**2013:** Detailed investigation and report on the building envelope and the base building systems, including mechanical and electrical systems. Site investigations included an X-ray analysis of piping for the domestic, sanitary and heating systems. Report proposes design options for replacement and repair, as well as alternative scenarios for implementing the work. In addition, a Gap Analysis was conducted to analyze the interaction of the various recommended repairs and to study the areas and components which had not been studied already. This work included an updated Building Condition Report (BCR) conducted by Halsall Associates Inc. under the same contract. The report also raises concern about the seismic capacity of the building. (*Envelope Rehabilitation and Base Building Upgrade, Postal Station B, 47-59 Sparks Street, Watson MacEwen Teramura Architects, Jun 2013*)

**2014:** A detailed seismic assessment of the building was completed by Dessau to verify the seismic capacity of the building and compliance to the seismic requirements of the National Building Code of Canada and the PWGSC Seismic Policy. (*Structural Seismic Assessment of Postal Station "B" Building, Dessau, August 2014*)





Government  
of Canada

Gouvernement  
du Canada

RECEIVED

FEB 05 2015

Contract Number / Numéro du contrat

EP775150701 Rev1

Security Classification / Classification de sécurité  
UNCLASSIFIED

SECURITY REQUIREMENTS CHECK LIST (SRCL)

LISTE DE VÉRIFICATION DES EXIGENCES RELATIVES À LA SÉCURITÉ (LVERS)

PART A - CONTRACT INFORMATION / PARTIE A - INFORMATION CONTRACTUELLE

1. Originating Government Department or Organization / Ministère ou organisme gouvernemental d'origine		Public Works and Government Services Canada	2. Branch or Directorate / Direction générale ou Direction PPB	
3. a) Subcontract Number / Numéro du contrat de sous-traitance			3. b) Name and Address of Subcontractor / Nom et adresse du sous-traitant	
4. Brief Description of Work / Brève description du travail Construction Management contract for the Postal Station B Envelope Rehabilitation and Base Building Upgrade project				
5. a) Will the supplier require access to Controlled Goods? Le fournisseur aura-t-il accès à des marchandises contrôlées?			<input checked="" type="checkbox"/> No Non	<input type="checkbox"/> Yes Oui
5. b) Will the supplier require access to unclassified military technical data subject to the provisions of the Technical Data Control Regulations? Le fournisseur aura-t-il accès à des données techniques militaires non classifiées qui sont assujetties aux dispositions du Règlement sur le contrôle des données techniques?			<input checked="" type="checkbox"/> No Non	<input type="checkbox"/> Yes Oui
6. Indicate the type of access required / Indiquer le type d'accès requis				
6. a) Will the supplier and its employees require access to PROTECTED and/or CLASSIFIED information or assets? Le fournisseur ainsi que les employés auront-ils accès à des renseignements ou à des biens PROTÉGÉS et/ou CLASSIFIÉS? (Specify the level of access using the chart in Question 7. c) (Préciser le niveau d'accès en utilisant le tableau qui se trouve à la question 7. c)			<input type="checkbox"/> No Non	<input checked="" type="checkbox"/> Yes Oui
6. b) Will the supplier and its employees (e.g. cleaners, maintenance personnel) require access to restricted access areas? No access to PROTECTED and/or CLASSIFIED information or assets is permitted. Le fournisseur et ses employés (p. ex. nettoyeurs, personnel d'entretien) auront-ils accès à des zones d'accès restreintes? L'accès à des renseignements ou à des biens PROTÉGÉS et/ou CLASSIFIÉS n'est pas autorisé.			<input checked="" type="checkbox"/> No Non	<input type="checkbox"/> Yes Oui
6. c) Is this a commercial courier or delivery requirement with no overnight storage? S'agit-il d'un contrat de messagerie ou de livraison commerciale sans entreposage de nuit?			<input checked="" type="checkbox"/> No Non	<input type="checkbox"/> Yes Oui
7. a) Indicate the type of information that the supplier will be required to access / Indiquer le type d'information auquel le fournisseur devra avoir accès				
Canada <input checked="" type="checkbox"/>		NATO / OTAN <input type="checkbox"/>		Foreign / Étranger <input type="checkbox"/>
7. b) Release restrictions / Restrictions relatives à la diffusion				
No release restrictions Aucune restriction relative à la diffusion <input checked="" type="checkbox"/>		All NATO countries Tous les pays de l'OTAN <input type="checkbox"/>		No release restrictions Aucune restriction relative à la diffusion <input type="checkbox"/>
Not releasable À ne pas diffuser <input type="checkbox"/>		Restricted to: / Limité à: <input type="checkbox"/>		Restricted to: / Limité à: <input type="checkbox"/>
Specify country(ies): / Préciser le(s) pays:		Specify country(ies): / Préciser le(s) pays:		Specify country(ies): / Préciser le(s) pays:
7. c) Level of information / Niveau d'information				
PROTECTED A PROTÉGÉ A <input type="checkbox"/>	NATO UNCLASSIFIED <input type="checkbox"/>	PROTECTED A PROTÉGÉ A <input type="checkbox"/>		
PROTECTED B PROTÉGÉ B <input type="checkbox"/>	NATO NON CLASSIFIÉ <input type="checkbox"/>	PROTECTED B PROTÉGÉ B <input type="checkbox"/>		
PROTECTED C PROTÉGÉ C <input type="checkbox"/>	NATO RESTRICTED <input type="checkbox"/>	PROTECTED C PROTÉGÉ C <input type="checkbox"/>		
CONFIDENTIAL CONFIDENTIEL <input type="checkbox"/>	NATO DIFFUSION RESTREINTE <input type="checkbox"/>	CONFIDENTIAL CONFIDENTIEL <input type="checkbox"/>		
SECRET <input checked="" type="checkbox"/>	NATO CONFIDENTIAL <input type="checkbox"/>	SECRET <input type="checkbox"/>		
TOP SECRET <input type="checkbox"/>	NATO SECRET <input type="checkbox"/>	TOP SECRET <input type="checkbox"/>		
TRÈS SECRET <input type="checkbox"/>	NATO SECRET <input type="checkbox"/>	TRÈS SECRET <input type="checkbox"/>		
TOP SECRET (SIGINT) <input type="checkbox"/>	COSMIC TOP SECRET <input type="checkbox"/>	TOP SECRET (SIGINT) <input type="checkbox"/>		
TRÈS SECRET (SIGINT) <input type="checkbox"/>	COSMIC TRÈS SECRET <input type="checkbox"/>	TRÈS SECRET (SIGINT) <input type="checkbox"/>		





**PART A (continued) / PARTIE A (suite)**

8. Will the supplier require access to PROTECTED and/or CLASSIFIED COMSEC information or assets?

Le fournisseur aura-t-il accès à des renseignements ou à des biens COMSEC désignés PROTÉGÉS et/ou CLASSIFIÉS?

☒ No ☐ Yes  
Non Oui

If Yes, indicate the level of sensitivity:

Dans l'affirmative, indiquer le niveau de sensibilité :

9. Will the supplier require access to extremely sensitive INFOSEC information or assets?

Le fournisseur aura-t-il accès à des renseignements ou à des biens INFOSEC de nature extrêmement délicate?

☒ No ☐ Yes  
Non Oui

Short Title(s) of material / Titre(s) abrégé(s) du matériel :

Document Number / Numéro du document :

**PART B - PERSONNEL (SUPPLIER) / PARTIE B - PERSONNEL (FOURNISSEUR)**

10. a) Personnel security screening level required / Niveau de contrôle de la sécurité du personnel requis

☐ RELIABILITY STATUS  
COTE DE FIABILITÉ

☐ CONFIDENTIAL  
CONFIDENTIEL

☒ SECRET  
SECRET

☐ TOP SECRET  
TRÈS SECRET

☐ TOP SECRET- SIGINT  
TRÈS SECRET - SIGINT

☐ NATO CONFIDENTIAL  
NATO CONFIDENTIEL

☐ NATO SECRET  
NATO SECRET

☐ COSMIC TOP SECRET  
COSMIC TRÈS SECRET

☒ SITE ACCESS  
ACCÈS AUX EMPLACEMENTS

REFER TO ATTACHED SECURITY CLASSIFICATION GUIDE. NOTE: SITE ACCESS ONLY APPLIES TO CM BASE BUILDING  
SUBCONTRACTORS

Special comments:

Commentaires spéciaux :

NOTE: If multiple levels of screening are identified, a Security Classification Guide must be provided.

REMARQUE : Si plusieurs niveaux de contrôle de sécurité sont requis, un guide de classification de la sécurité doit être fourni.

10. b) May unscreened personnel be used for portions of the work?

Du personnel sans autorisation sécuritaire peut-il se voir confier des parties du travail?

☒ No ☐ Yes  
Non Oui

If Yes, will unscreened personnel be escorted?

Dans l'affirmative, le personnel en question sera-t-il escorté?

☒ No ☐ Yes  
Non Oui

**PART C - SAFEGUARDS (SUPPLIER) / PARTIE C - MESURES DE PROTECTION (FOURNISSEUR)**

**INFORMATION / ASSETS / RENSEIGNEMENTS / BIENS**

11. a) Will the supplier be required to receive and store PROTECTED and/or CLASSIFIED information or assets on its site or premises?

Le fournisseur sera-t-il tenu de recevoir et d'entreposer sur place des renseignements ou des biens PROTÉGÉS et/ou CLASSIFIÉS?

☐ No ☒ Yes  
Non Oui

11. b) Will the supplier be required to safeguard COMSEC information or assets?

Le fournisseur sera-t-il tenu de protéger des renseignements ou des biens COMSEC?

☒ No ☐ Yes  
Non Oui

**PRODUCTION**

11. c) Will the production (manufacture, and/or repair and/or modification) of PROTECTED and/or CLASSIFIED material or equipment occur at the supplier's site or premises?

Les installations du fournisseur serviront-elles à la production (fabrication et/ou réparation et/ou modification) de matériel PROTÉGÉ et/ou CLASSIFIÉ?

☒ No ☐ Yes  
Non Oui

**INFORMATION TECHNOLOGY (IT) MEDIA / SUPPORT RELATIF À LA TECHNOLOGIE DE L'INFORMATION (TI)**

11. d) Will the supplier be required to use its IT systems to electronically process, produce or store PROTECTED and/or CLASSIFIED information or data?

Le fournisseur sera-t-il tenu d'utiliser ses propres systèmes informatiques pour traiter, produire ou stocker électroniquement des renseignements ou des données PROTÉGÉS et/ou CLASSIFIÉS?

☒ No ☐ Yes  
Non Oui

11. e) Will there be an electronic link between the supplier's IT systems and the government department or agency?

Disposera-t-on d'un lien électronique entre le système informatique du fournisseur et celui du ministère ou de l'agence gouvernementale?

☒ No ☐ Yes  
Non Oui





**PART C - (continued) / PARTIE C - (suite)**

For users completing the form **manually** use the summary chart below to indicate the category(ies) and level(s) of safeguarding required at the supplier's site(s) or premises.

Les utilisateurs qui remplissent le formulaire **manuellement** doivent utiliser le tableau récapitulatif ci-dessous pour indiquer, pour chaque catégorie, les niveaux de sauvegarde requis aux installations du fournisseur.

For users completing the form **online** (via the Internet), the summary chart is automatically populated by your responses to previous questions.

Dans le cas des utilisateurs qui remplissent le formulaire **en ligne** (par Internet), les réponses aux questions précédentes sont automatiquement saisies dans le tableau récapitulatif.

**SUMMARY CHART / TABLEAU RÉCAPITULATIF**

Category Catégorie	PROTECTED PROTÉGÉ			CLASSIFIED CLASSIFIÉ			NATO				COMSEC					
	A	B	C	CONFIDENTIAL	SECRET	TOP SECRET	NATO RESTRICTED	NATO CONFIDENTIAL	NATO SECRET	COSMIC TOP SECRET	PROTECTED PROTÉGÉ			CONFIDENTIAL	SECRET	TOP SECRET
				CONFIDENTIEL		TRÈS SECRET	NATO DIFFUSION RESTREINTE	NATO CONFIDENTIEL		COSMIC TRÈS SECRET	A	B	C	CONFIDENTIEL		TRÈS SECRET
Information / Assets Renseignements / Biens					✓											
Production																
IT Media / Support TI																
IT Link / Lien électronique																

12. a) Is the description of the work contained within this SRCL PROTECTED and/or CLASSIFIED?

La description du travail visé par la présente LVERS est-elle de nature PROTÉGÉE et/ou CLASSIFIÉE?

☒ No  
Non ☐ Yes  
Oui

If Yes, classify this form by annotating the top and bottom in the area entitled "Security Classification".

Dans l'affirmative, classifiez le présent formulaire en indiquant le niveau de sécurité dans la case intitulée « Classification de sécurité » au haut et au bas du formulaire.

12. b) Will the documentation attached to this SRCL be PROTECTED and/or CLASSIFIED?

La documentation associée à la présente LVERS sera-t-elle PROTÉGÉE et/ou CLASSIFIÉE?

☒ No  
Non ☐ Yes  
Oui

If Yes, classify this form by annotating the top and bottom in the area entitled "Security Classification" and indicate with attachments (e.g. SECRET with Attachments).

Dans l'affirmative, classifiez le présent formulaire en indiquant le niveau de sécurité dans la case intitulée « Classification de sécurité » au haut et au bas du formulaire et indiquer qu'il y a des pièces jointes (p. ex. SECRET avec des pièces jointes).

ANNEX A

SECURITY CLASSIFICATION GUIDE - EP775-15-0701 REV.3						
LEVEL	ENTITY	FSC	DSC	PERSONNEL	IT/MEDIA	DESCRIPTION
Secret	CONSTRUCTION MANAGER	X	X	X		The Construction Manager must hold a Facility Security Clearance (FSC) and Document Safeguarding Capability (DSC) at the Secret level. As well, all Construction Manager personnel must hold a valid Secret clearance. DSC is required at the Construction Manager's office location (off site) and must be obtained prior to contract award. A designated secure room with DSC will be made available at the Postal Station B building for use by the Construction Manager to view and store classified information.
						IT/Media security clearance of the <u>Construction Manager's IT systems</u> will not be required for purpose of the project. However, it is noted that PWGSC will provide one Secret-cleared laptop for the use of the Construction Manager. Use of the laptop by the Construction Manager will be limited to a designated secure room within the Postal Station B building. The Construction Manager will be responsible for storing this laptop in a DSC approved storage container in the designated secure room in the Postal Station B building. The Construction Manager will be required to follow security protocols prescribed by PWGSC for the use and storage of the laptop.
Secret	SUBCONTRACTORS - SECURITY SYSTEMS	X	X	X		Subcontractors retained directly by the Construction Manager for the installation of security systems will be required to hold a Facility Security Clearance (FSC) and Document Safeguarding Capability (DSC) at the Secret Level. As well, subcontractor personnel must hold a valid Secret clearance.
						IT/Media security clearance of the Security Systems Subcontractors' IT systems will not be required for purpose of the project. However, it is noted that PWGSC will provide one Secret-cleared laptop for the use of the Security Systems Subcontractor. Use of the laptop by the Security Systems Subcontractor will be limited to a designated secure room within the Postal Station B building. The Security Systems Subcontractor will be responsible for storing this laptop in a DSC approved storage container in the designated secure room in the Postal Station B building. The Security Systems Subcontractor will be required to follow security protocols prescribed by PWGSC for the use and storage of the laptop.
Site Access Clearance*	SUBCONTRACTORS - BASE BUILDING WORK	X		X		All subcontractors retained directly by the Construction Manager for base building construction work will be required to hold a Facility Security Clearance (FSC) at the Secret Level. All subcontractor personnel must hold a valid Site Access Clearance.

\* The FSC requirement for a specific subcontractor may be waived if all subcontractor personnel currently hold a valid Site Access.

# CERTIFICATE OF INSURANCE

Page 1 of 1



Travaux publics et  
Services gouvernementaux  
Canada

Public Works and  
Government Services  
Canada

Description and Location of Work Construction Management Services, Postal Station "B" Envelope Rehabilitation and Base Building Upgrade, 59 Sparks Street, Ottawa, Ontario	Contract No. EP775-150701/B
	Project No. R.037973.270

Name of Insurer, Broker or Agent	Address (No., Street)	City	Province	Postal Code
Name of Insured (Contractor)	Address (No., Street)	City	Province	Postal Code
Additional Insured <b>Her Majesty the Queen in Right of Canada as represented by the Minister of Public Works and Government Services</b>				

Type of Insurance	Insurer Name and Policy Number	Inception Date D / M / Y	Expiry Date D / M / Y	Limits of Liability		
<b>Commercial General Liability</b> <b>Umbrella/Excess Liability</b>				Per Occurrence	Annual General Aggregate	Completed Operations Aggregate
				\$	\$	\$
				\$	\$	\$
<b>Builder's Risk / Installation Floater</b>				\$		
<b>Wrap-Up General Liability</b>				\$ <input type="checkbox"/> Per Incident <input type="checkbox"/> Per Occurrence		Aggregate \$
<b>All Risk in Transit Insurance</b>				\$		
<b>Environmental Impairment Liability Insurance</b>				\$ <input type="checkbox"/> Per Incident <input type="checkbox"/> Per Occurrence		Aggregate \$
				\$		

I certify that the above policies were issued by insurers in the course of their Insurance business in Canada, are currently in force and include the applicable insurance coverage's stated on page 2 of this Certificate of Insurance, including advance notice of cancellation / reduction in coverage.

Name of person authorized to sign on behalf of Insurer(s) (Officer, Agent, Broker)

Telephone number

Signature

Date D / M / Y



# Envelope Rehabilitation & Base Building Upgrade Postal Station B, 47-59 Sparks Street

## PPB Operations

Project R.037973.001  
EN388-113451

**Watson MacEwen Teramura Architects**

BPA  
Hanscomb Limited  
KIB Consultants Inc.

3 June 2013 - Final





## Postal Station B - Envelope Rehabilitation & Base Building Upgrade

Final Report  
3 June 2013





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## 1.0 Executive Summary

The deteriorated condition of building envelope components as well as the heating system in Postal Station B has been documented in various reports. The present study includes a more detailed assessment of the base building mechanical and electrical systems, and proposes design options for their replacement or repair, as well as alternative scenarios for implementing the work. It also examines building envelope repairs.

The piping for the existing steam heating system is exhibiting signs of widespread corrosion, and incidents of leakage have been well documented.

X-ray analysis of piping was undertaken as a means of confirming expectations concerning the remaining life in domestic, sanitary, and heating piping. The overall results obtained from this pipe scanning investigation further supports conclusions established from previous studies and real-time interventions performed by PWGSC operation and maintenance staff; that the existing heating piping system within the Postal Station B building needs to be replaced as it is past its normal service life, a fact that is further reinforced by the imminent conversion of the district heating system from steam to hot water. Replacement of the heating system piping and radiators is unavoidable.

Replacement of the domestic water and sanitary drains is proposed, but can be limited to the risers and the men's washroom group. New, low flow fixtures would be installed and a backflow preventer would need to be installed on the main water entrance.

The removal of ceilings provides an opportunity to upgrade the fire protection system to include sprinklers in all occupied spaces as well as standpipes. While the project does not necessarily trigger a legal requirement to add this system, it does bring the building into code compliance and it is therefore recommended that this opportunity be taken to improve the performance of the building from a life safety standpoint.

Similarly, the ventilation system is driven by a single air handling unit that is in need of replacement. Numerous possible configurations were considered, but due to the physical limitations of the existing building the most feasible approach is to recondition the existing air handling unit in situ, which will provide another forty years of reliable service.

The new building systems will be controlled by a centralized building automation system, replacing the existing 1970's era pneumatic controls.

The ceilings in the office levels contain significant amounts of friable asbestos. While indoor air quality monitoring by PWGSC does not detect harmful levels of airborne contaminants, the work required to implement the mechanical upgrades will involve disturbing these materials. It is therefore recommended that a full abatement of these materials be undertaken while the spaces are unoccupied.

The electrical services have been upgraded in recent years, although capacity remains limited. The work to the electrical systems will be mainly limited to replacing systems as triggered by the mechanical work. This will be an opportunity to install more energy efficient lighting, for example. New electrical rooms housing transformers and panelboards would be provided on each floor. In addition, a new replacement 600A sub feed from the Langevin Building be provided.

The copper roof should be replaced, as it has reached the end of its service life. The windows are excellent candidates for conservation however.

Assuming minimal disruption to building operations is preferred, the recommended implementation procedure would be to work on a floor-by-floor basis. This assumes that swing space can be provided for the occupants for the duration of the work; in this analysis it is assumed that the seventh floor can be fit up for this purpose. It may, of course, be provided in another building as well.

Eleven weeks would be required for each floor, with the implementation of the work planned to minimize disruption to the occupants of adjacent levels. Conservation of the windows would be done at this time as well.

The overall duration of the phased project would be 37 months, which includes 9 months for plans and specifications. The cost for the recommended option is \$25 million.

One area of concern which requires further consideration is the seismic capacity of the building. The replacement of the mechanical systems in itself does not trigger a requirement to seismically upgrade the building; however the Asset Management Plan recommends a seismic evaluation of the building. To perform this analysis additional detail on the construction of the building and the attachment of the cladding to the framing is required. This information can only be obtained through exploratory openings in the walls. A finite element analysis of the building will provide an accurate assessment of the seismic characteristics of the building, which will inform the design of any required upgrades.

## 2.0 Introduction

Postal Station B, Ottawa, was built in 1938-39 to designs by W.E. Noffke, architect, of Ottawa. In 1984, the Historic Sites and Monuments Board identified this along with the other buildings around Confederation Square as of national historical and architectural importance. Postal Station B forms part of the Confederation Square National Historic Site.

Postal Station B was designated "Classified" by the Federal Heritage Buildings Review Office (FHBRO) in 1986.

Numerous condition assessments have been undertaken in recent years, including Screening Reports by the Heritage Conservation Directorate, detailed investigations into specific issues, such as the doors, and a more comprehensive assessment of the envelope and heating systems by DFS Architects. This report is intended to build upon these previous investigations, and propose strategies for their implementation. Additional investigations into the condition of the base building systems were undertaken, and a concurrent Building Condition Report (BCR) was also undertaken. The findings of this report are coordinated with those of the BCR prepared by Halsall.

Retrofitting base building systems in an occupied, asbestos contaminated building is complex. A further complication is the requirement to convert the building from steam to hot water heating to coordinate with anticipated changes in the district heating system that currently supplies energy to the building. Finally, the systems will be designed to provide optimal, long term performance, and not be compromised by the restrictions caused by the implementation scenarios.

This report breaks down the possible alternative design and implementation options as follows.

The proposed changes to the heating system are driven by both the requirement to convert to hot water heating, and by the deteriorated condition of the steam piping. There are no alternative options for this aspect of the project.

Options for the upgrading of the ventilation system are possible however. These include *Option 1* compartmentalizing the air handling systems, floor by floor; or *Option 2* continuing to use a centralized air handling system.

With a design *Option* selected, alternate *Solutions*, or design configurations are proposed and analyzed. These consider variables such as the locations of the equipment, number of pieces of equipment, and so forth.

Finally, *Implementation Scenarios* are proposed and analyzed. Building on a recommended *Solution*, the *Implementation Scenarios* consider how the construction work would be undertaken. In accordance with the Terms of Reference, these include:

a) All Floors Fully Occupied – PCO Monday to Friday during normal business hours; CPC Monday to Saturday during normal business hours.

b) PCO Floor(s) Partially Occupied + CPC Fully Occupied.

Occupancy as for a) above, but modified to assume each floor occupied by the PCO can be partially vacated for a limited time, sequentially floor by floor.

c) PCO Floors Unoccupied + CPC Fully Occupied

Assume PCO vacates the building. CPC fully occupied Monday to Saturday during normal business hours.

In all instances the heritage character of the building is considered, and interventions are limited to areas where changes to character defining elements can be avoided.

### 3.0 Methodology

#### 3.1 General

The assessment of the base building systems for the purposes of the options analysis was coordinated with surveys required for a Building Condition Report prepared under this contract, but separately, by Halsall. This minimized duplication of efforts and repeated access into secure spaces. The findings of this report are therefore consistent with those contained in the BCR.

As many existing reports have been prepared on the condition of the building envelope, these reports were relied upon to inform this report. A detailed review and summary of these reports follows.

Site investigations were undertaken on several occasions, however, to further confirm the findings on the condition of the heating system. As well, the ventilation, domestic water, sanitary, and electrical systems were not included in the previous studies; therefore these required additional field investigations. Finally, investigations into the available space for mechanical equipment was undertaken.

X-ray analysis of piping was undertaken as a means of confirming expectations concerning the remaining life in domestic, sanitary, and heating piping. Refer to Appendix D for the results obtained from the x-ray scans.

This study required the careful consideration of multiple design options for the HVAC systems, as well as several scenarios for implementing the work vis-à-vis degrees of building occupancy during construction. To narrow the focus and manage the possible permutations, the study works from general *Options* (overall configuration of the HVAC system) to particular *Solutions* (locations of equipment in the building.) Finally, *Implementation Scenarios* are evaluated in terms of their viability and impact on building occupants.

As an independent exercise, a conservation approach was developed based on the Heritage Character Statement and following the *Standards and Guidelines for the Conservation of Historic Places in Canada*, 2<sup>nd</sup> ed. Design *Solutions* were developed to follow the conservation approach.



### 3.2 Results of Document Review

*Quality Assurance Design Review (QADR) re Postal Station B Envelope Rehabilitation and Base Building Upgrade HCD Project Number: R.051630.001, August 15, 2012*

#### *Summary*

The terms of reference for the Gap Analysis are defined in this report, which describes a requirement to analyse the interaction of the various repairs recommended in the document it reviews, *Postal Station B Envelope and Mechanical System Investigation Report*, by DFS Architecture & Design. The report also recommends that the implementation of the projects is carried out with due consideration for the character-defining elements of the building.

With respect to the specific interventions discussed in the DFS report, the QADR recommends that an alternative to the proposed radiant ceiling panels be investigated, and that the status of the existing radiators as heritage elements be confirmed. The building envelope intervention is commended for its thoroughness and for recommending a long-term solution.

The remarks concerning the radiant panels suggest that using radiant panels in lieu of perimeter radiators will compromise the heritage values of the building.

The comments pertaining to the design of the mechanical system suggest that the use of radiant ceiling panels tends to lead to user complaints because of thermal comfort issues. The option that utilised perimeter radiation is preferred by the authors of the QADR.

#### *Analysis*

The existing office spaces are provided with lay-in-tile ceiling systems, which conceal ventilation equipment added in an earlier HVAC upgrade. It is anticipated that a ceiling such as this will continue to be required in the building; if so, the radiant ceiling panels will sit within this system and be more or less indistinguishable from the ceiling tiles. If one accepts the premise of the lay-in-tile ceiling, the impact of the radiant panels will be minimal.

The existing radiators consist of steam heating elements concealed within cabinets located at the base of the windows. In 1974, both the heating elements and the front panel of the cabinets were replaced. The physical material of the radiators are therefore lacking in heritage significance, however the overall geometry of the cabinet should be considered to be part of the heritage character of the interior.

*Postal Station B Envelope and Mechanical System Investigation Report, prepared by DFS Architecture & Design, March 2011, Project # R.035163.003*

#### *Summary*

This study was commissioned to examine treatment options for the building envelope and heating system, both of which had exhibited signs of distress, which in some cases at least appeared to be related phenomena. The water damage in the wall assembly appear to have been caused by failures in the heating system, as the piping is corroded and visibly leaking in places.

The envelope and heating system are examined separately, with three options proposed for each. The envelope analysis involved a series of test openings to determine the underlying conditions where leaks, staining, or displacement of stone units was observed. The heating system analysis included visual inspection of the piping. No material testing was included.

The recommended option for the building envelope is to restore the windows and decorative metals, repoint and repair the masonry, and dismantle and rebuild portions of the penthouse walls. The intent is to create a long term solution which would address all existing issues, and prevent further deterioration caused by existing deficiencies.

Similarly, the recommendation for the heating system is to replace the existing system, and the proposed solution is hydronic ceiling mounted radiant panels.

#### *Analysis*

This study examines two systems in isolation, and its mandate does not appear to have included an implementation strategy. Moreover, with respect to the mechanical systems, its mandate was limited to the repair of the existing heating system, and did not account for the later decision to convert the Cliff Heating Plant from steam to hot water. Therefore the scope of work envisioned by this study is much smaller than that proposed by the current study, which is intended to address ventilation, cooling, and electrical systems as well.

The test openings in the walls revealed, in one location, masonry ties that were not connected to the building structure. However, the report does not discuss the significance of this finding for the building as a whole. While the masonry in general does not exhibit bulging or movement that would suggest that this condition is widespread, this finding does raise questions. This is particularly pertinent to the development of a finite element analysis of the building's seismic performance. To perform this analysis, assumptions concerning connections of the masonry to the structure will need to be made, ideally on the basis of physical evidence.

*Postal Station B Bronze Door Repairs Report, prepared by DFS Architecture & Design, March 2011  
Project # R.035163.003*

#### *Summary*

A condition assessment and options analysis for remedial work to the bronze entrances to the building. Currently the doors are corroded and binding on the pavers below them due to oxide jacking. The doors are intact and able to be restored, however this will require removal to a shop to repair joints and remove corrosion.

The options range from temporary stabilization and cleaning to full conservation. It is noted that continued deferral of repairs will lead to higher costs to implement the work which is inevitable.

#### *Analysis*

The condition of the monumental bronze doors is consistent with other metal elements on the building; that is, they are complete and excellent candidates for restoration. However, they are deteriorated enough that to delay restoration would be to place them at ever increasing risk.

*Postal Station B Building Lintel Distress Investigation, Ottawa, Ontario, prepared by KIB Consultants Inc., February 2009, Project #R.011852.014.*

#### Summary

Following from the investigations required by the 2009 Building Envelope Screening, a more detailed investigation of the condition of the large carved stone lintel over the main entrance of the building was carried out. Exploratory openings revealed that the steel structure supporting the lintel was severely corroded, and oxide jacking was forcing the stone down, causing cracks to form at the corners. Ultimately, the steel was replaced and the lintel's position reinstated correctly. Humid conditions and water leaking was found inside the wall cavity.

#### Analysis

The corrosion and resultant displacement of the stone is indicative of the forms of concealed damage that could be occurring anywhere in the building wherever water has been entering for prolonged periods.

*Postal Station B Building Envelope Screening 2008-2009, prepared by Heritage Conservation Directorate, PWGSC, March 2009, HCD R.011852.014*

#### Summary

The screening is a cyclical Level 1 screening of the entire building envelope, conducted from the ground, adjacent buildings, a boom lift, and a crane basket. It was the second screening performed on the building under the HCD Building Exterior Program.

The investigation found the overall condition of the building envelope to be fair, with the windows exhibiting the most deterioration. The roofs range in condition, with the copper roof on the mansard being in poor condition. Adjacent gutters were also found to be in poor condition.

Short term repairs and additional investigations were recommended, included repairs to the large carved lintel over the main entrance, investigations into the water leaks, and masonry rehabilitation.

#### Analysis

A Level 1 screening is a visual and tactile examination, which generally includes recommendations for more specific investigations which may include test openings and testing. It is assumed that the 2011 envelope investigation was initiated by the findings of this study. Many of the deficiencies identified in this report may also be found in the previous Level 1 Screening report, as recommended repairs were not implemented.

*Postal Station B Condition Assessment, prepared by Corporate Research Group/Halsall Associates Ltd, 2006.*

*Summary*

A detailed condition assessment of all building systems, prepared as part of an Asset Management Plan. The report includes detailed recommendations for the repair, maintenance, or replacement of building components, referred to as “events,” along with associated costs. The recommended projects assume a “status quo” scenario, with repairs being implemented as required to maintain the building in its current state, with no major changes to occupancy or building system design. The projected cost for the five year plan is \$3.309 million, and the twenty-five year plan is \$11.706 million (2006 dollars).

The report finds that various regulatory deficiencies exist, as one would expect in a building of this age, and that the Seismic Priority Index (SPI) is 12.4, indicating a “Medium” priority for further seismic assessment. Various building performance indicators were measured, and a review of indoor air quality, water consumption and quality, and environmental factors did not reveal major concerns. “Minor” amounts of Asbestos Containing Materials (ACMs) were detected.

## Analysis

The report suggests that the building is in relatively good condition, albeit with various repairs and maintenance items required. The “Medium” priority for seismic investigations is derived from the National Research Council’s *Manual for Screening of Buildings for Seismic Evaluation*, which employs a numerical scoring system to evaluate buildings’ vulnerability to seismic loads. The Manual leaves the definition of the priority ranking for the user to determine; therefore, an SPI of 12.4 should be considered within the context of other assets in PWGSC’s portfolio. The nature of the occupancy and its importance to Parliament’s business continuity should also be taken into consideration.

The report’s finding that ACMs do not appear to be a major concern appears to be at odds with the 2011 asbestos mapping exercise, which indicates ACMs in friable materials distributed widely throughout the building. This may simply be the result of the more detailed ACM investigations superseding the BCR on this issue.

### *Document Review: Overall Summary*

The findings of the reviewed documents, prepared between 1991 and 2011, depict a building that has very high heritage value, is largely intact, and in reasonably good condition albeit with a number of specific and significant deficiencies. The windows in particular have been identified repeatedly as an item requiring attention, as well as repointing and repairs to the masonry. The copper roofing is also an area of concern, with replacement recommended. The most recent documentation, specifically the 2011 *Postal Station B Envelope and Mechanical System Investigation Report*, notes that the heating system distribution piping is experiencing widespread corrosion and leaks.

The variations in the life expectancy of certain elements that appear in the various reports may be accounted for by the methodology used for their assessment. The roof, for example, is expected to last until between 2014 (HCD Screening Report) and 2021 (Halsall BCR). A significant difference between the two studies is that the HCD Screening Report was done using a boom lift, and the investigators had an opportunity to examine the roof in detail, observing deterioration such as perforations and thinning of the copper material. These pathologies are indicative of the potential remaining life of the roof, but would not be readily detectable from street level or from the flat roof above. Also, it should be noted that the 2006 HCD Level 1 Screening, which also recommended roof replacement, was not among the documents available to the BCR team, possibly because the two studies were being prepared concurrently. For the purposes of this study the more pessimistic assessment of the roof condition will be used.

The existing documentation therefore highlights the following main items as requiring rehabilitation in the short term: roofing, masonry, windows, and the heating system. Each of these deficiencies poses the threat of water entering the building envelope, and failure to address them will lead to accelerated deterioration of the masonry, structural frame, and interiors. An additional concern is the widespread presence of ACMs in ceiling spaces, which will greatly complicate any attempt to work on mechanical and electrical infrastructure in occupied spaces. Furthermore, leaks which leach through ACMs can cause the widespread distribution of these materials through occupied spaces, although there is no indication that this has happened yet in this building.



## 4.0 Existing Mechanical and Electrical Systems

### 4.1 Existing Heating Configuration

- Postal Station B currently has no natural gas service. The building is heated by steam that is provided from the Cliff Street Heating Plant. The steam service that enters into Postal Station B from the Langevin Block has an approximate pressure of 40 PSIG. A pressure reducing station within the mechanical room of Postal Station B reduces the steam pressure further to 4-5 PSIG before it is distributed throughout the building at a typical pressure of 3.25 PSIG. There are separate main distribution pipes in the building serving the basement, ground floor and floors 1 through 7. The existing steam service to the building is in good condition as it was replaced in the 1990's. On the other hand the steam distribution system within Postal Station B is showing signs of severe corrosion and decay and there have been numerous incidences of leaks in the system.
- It has been estimated that the existing steam service to the building has a capacity of approximately 3,000 lbs/hr of steam which is approximately equivalent to 2,880 MBH. It has also been estimated that the heating load requirement for the building steam systems is approximately 2,470 MBH (based on total radiator capacity).
- The majority of the steam distribution systems in Postal Station B date back to the original construction of the building in 1938. There have been several retrofit projects to the building over the years with a major renovation to the mechanical systems in 1975 where the building's air handling unit was replaced and some of the distribution ductwork was rerouted. The air handling unit that was installed in 1975 is the same unit that is currently operating in the building. The air handling unit that was installed as part of the 1975 system upgrades is equipped with steam heating coils and a steam humidifier. The building operator has indicated that the steam heating coils are used only in very rare circumstances when the building requires additional heat beyond what the perimeter is able to provide. It was confirmed that the humidifier is never used as it is a direct steam humidifier and the steam from the central plant contains anti corrosive agents, which have a detrimental health impact if inhaled. As part of the 1975 retrofit there were also two reheat boxes and a fan coil unit installed to serve the ground floor.
- Each of these pieces of equipment contains a steam heating coil. At present, the building is primarily heated by the perimeter cast iron steam convectors with the ventilation air being tempered by the steam coils installed in the air handling equipment.
- There is very little design information available for the mechanical systems of the building. In addition there are large portions of the piping distribution network that are concealed behind insulation, walls and ceilings that contain Asbestos Containing Materials (ACMs). The existing steam heating system in the building is original and has been experiencing an increasing incidence of leaks and failures in the piping distribution components.

### 4.2 Existing Perimeter Radiators

- Based on the information provided in the DFS report and information obtained from the 1975 drawings there are approximately 170 perimeter radiators/convectors that have varying capacities ranging from 5.0 MBH to 6.5 MBH each. The heating capacities for the other mechanical components still fed by the steam system were determined based on the as-built equipment schedule.

#### 4.3 Existing Primary Air System Configuration

- Postal Station B currently has a single air handling system to serve all the floors of the building. Based on the 1975 drawings, this unit currently has a capacity of approximately 45 000 cfm. The unit is composed of a supply and return fan, a steam heating coil, a chilled water cooling coil, and a set of filters. This unit is located in the main basement mechanical room and is primarily used for cooling of the office floors but can also serve to provide heat when required. Fresh-air is obtained from three intake louvers located on the north side of the building. These louvers are located very close to the adjacent building and are in direct path of an egress route. Also two air condensers are located directly below the fresh-air louvers. It is important to note that the existing location of the fresh-air louvers does not meet the requirements of ASHRAE 62.1. The fresh-air is mixed with the return air of building before being conditioned by the AHU. An exhaust duct removes air directly at the unit and discharges this air in the loading dock area.
- Two mechanical shafts are used as paths for the supply and return ductwork from the mechanical room to the office floors. Once on the floors, the distribution system is done with variable-air volume terminal units, which provide constant temperature air while varying the flow for each zone. The supply fan of the AHU is equipped with vanes capable of modulating the flow to the office floors.
- As part of the base building upgrade, the air handling unit would be replaced so as to provide another 40 years of service.

#### 4.4 Existing Electrical Main Service

- The main electrical room is located in the basement level. The room is also shared with the main telecom service includes the main backboard.
- The electrical service for the Postal Station B building is a sub feed from the Langevin Block electrical distribution which is believed installed in 1997. The Langevin Block is supplied from Hydro Ottawa 13.2 kV system, terminating in a transformer vault. The Utility transformer size is not known. A service entrance switchboard is provided with main breaker rated 1600/1200A trip and includes secondary utility metering. Record information indicates the switchboard includes a feeder breaker, sized at 400 A, 347/600V, for the Postal Station B building. There is also a separate feeder from the Langevin Block for the normal power supply to the fire pump.
- Only customers check metering is provided at the main distribution panel in Postal Station B.



- Main secondary switchboard is manufactured by ITE ((1975), and consists of single section with customer metering on top, main breaker compartment and distribution section in the bottom compartment.
  - 800A, 347/600V 3 phase 4 wire
  - 800A -3p main breaker
  - Ampere and volt meters with selector switch.
  - Distribution breakers
    - 225A-3p
    - 3 x 100A-3p
    - 200A-3p
    - 70A-3p
    - ATS breaker
- The main distribution panel has an 800A rating however records indicate a 400A feeder supply from the Langevin Block. Customer metering in the main panel indicated a 200A demand load on day of site visit and the KWHR meter had recorded a 300 kW peak demand.

#### 4.5 Motor Control

- A two section motor control centre is located in the basement mechanical room.
- The MCC is manufactured by Siemens and was installed in 1997.

#### 4.6 Normal Power Distribution

- There are 12 step down dry type transformers (600 to 120/208V) located in the building. The original installation was in 1975 and several of the units were replaced in 2005. Panel boards and step down transformers are not provided on each floor.
- 347/600 Volt distribution
- Panel boards are located floors 1, 2, 4 & 6 and provide branch circuits for lighting and distribution breakers to feed step down transformers (30 kVA) and 120/208V branch panels.
- Panels were upgraded between 1997 and 2002.
- 120/208 Volt distribution
- New branch circuit panel boards are installed (between 1997 and 2002) on floors 1, 2, 4 and 6. Floors 4 and 6 have 72 circuit panel capacity. Generally one panel serves two floors.

#### 4.7 Emergency Power Distribution

- A diesel generator is located in the basement providing emergency power for the Postal Station B building and other loads outside of this building. The generator and distribution was installed in 2002.
- The generator is rated 350 kW/ 437.5 kVA, manufactured by Cummins.
- The generator load is not known at this time and requires further site investigation.
- The generator output supplies an emergency feed to the fire pump transfer switch/controller located in the fire pump room. Note that the normal power supply to the fire pump is a separate feeder from the Langevin Block.
- The generator output supplies a distribution panel (G) which includes:
  - Automatic transfer switch
  - Spare
  - Spare
- The ATS is supplied from the emergency panel G and normal power from the main distribution panel.
- The output from the ATS supplies distribution panel EE-1 which serves the following loads:

- o Transformer and panel EE-2 basement
  - o Distribution panel EE main electrical room
  - o Langevin Block
  - o Hope Building
- The normal power for the fire pump service is supplied from the Langevin Block

#### 4.8 Building Fire Alarm System

- The building is provided with an Edwards EST-3 single stage control panel located in the basement electrical room. Field devices are conventional type.
- Recent sprinkler modification include addressable loop and addressable modules.
- Remote annunciator is located at the main lobby.
- Conventional field devices wired Class B.
- Newer circuits (addressable) wired Class A.
- Signal devices are bells.
- Wiring not known.

#### 4.9 Telecommunications

- The main telecommunications backboard is located in the basement main electrical room. This is not an ideal location and modern requirements would require a separate main entrance termination room or main telecom room (MTR).
- On the typical floor the telecommunication room (TR), riser and backboard is shared and part of the floor electrical room. Building occupant IT rooms are installed on a number of floors and interconnect with the TR.

## 5.0 M&E Base Building Upgrade

### 5.1 General Mechanical Requirements

#### 5.1.1 Purpose

- The purpose of this section is to provide an overview of the different mechanical and electrical systems that could be implemented at the Postal Station B Building. The report will focus on identifying the main mechanical and electrical systems that are to form part of the project and provide the main reasons for the choices made.
- The project intent is to provide the best HVAC solution to meet PWGSCs requirements stated in the Terms of Reference (TOR). In any case, the selected systems shall be energy efficient, cost-effective, safe, and capable of providing a healthy and comfortable environment while reducing maintenance cost.

#### 5.1.2 Objectives

- The main design objectives for the mechanical systems are the following:
  - 2 space for equipment, including sufficient space for efficient servicing and maintenance.
  - Equipment and means of installation is compatible with the character of the historic place

#### 5.1.3 Criteria for System Selection

- Temperature, humidity, air quality and space pressure requirements (negative or positive)
- The selected system shall have the ability to fulfill all of the design parameters;
- Optimize options for filtration and dehumidification for improved indoor air quality;
- Limit the condensation water in occupant workplace.

#### 5.1.4 Equipment Area

- The equipment area is expressed in percentage (%). It is the ratio of equipment area / gross building area. The mechanical equipment for a building such as the Postal Station B building is relatively large compared to smaller buildings and therefore requires significantly large mechanical room both for operation and maintenance of the equipment.
- Office space is relatively densely occupied space. The mechanical systems have to handle large air quantities required to maintain good indoor air quality and cool the space.

#### 5.1.5 First Cost

- First cost (or capital cost) is the required investment for the construction and does not include maintenance or operating costs. Priority is to reduce the capital cost or first cost by optimizing all equipment selection and system design.

#### 5.1.6 Operating Cost

- Operating cost essentially include energy cost and operating staff. According to ASHRAE (American Society of Heating Refrigerating and Air-conditioning Engineers) approximately 20% of the cost of the building is the first cost, with the other 80% being operation cost when looked at on a life cycle cost analysis perspective.
- Equipment sized, selected and controlled to operate at their point of maximum efficiency in order to reduce operating costs;
- Variable frequency drive (VFD) reduce the electrical consumption from motors;
- Energy conservation methods, such as air side free cooling improve significantly energy efficiency and reduce operating costs.

#### 5.1.7 Maintenance Cost

- Keeping HVAC equipment away from occupant space provide appropriate service work environment, reduce disruption to occupants;
- Reducing the quantity of equipment needed to maintain, repair and eventually replace reduce significantly maintenance costs;
- Reducing the amount of water lines in ceiling space to minimize the possibility of water leakage in occupant workspace;
- Mechanical equipment must be kept clean and filters regularly replaced to ensure adequate performance. When mechanical equipment is installed in occupied space, this routine maintenance work can become difficult to accomplish.
- The impact of an equipment failure must also be considered. The failure of a centralized piece of equipment will impact a larger number of occupants than a small piece of equipment deserving a limited area.

#### 5.1.8 Reliability - Equipment Life Cycle

- The equipment and system selection must take into account the normal service life of equipment and reliability of the installation.

#### 5.1.9 Flexibility - Adapt To Future Changes

- Due to the nature of the project, systems must be easily adaptable to changing tenant needs at minimum cost.

#### 5.1.10 Controllability

- The goal is to provide systems that will have maximum controllability and integration to the Building automation system (BAS), in the concept of an intelligent building. Refer to the section below for the more information on EMCS requirements for this project.

#### 5.1.11 Sound and Vibration

- Location of equipment and acoustical treatment is essential to provide high quality workspace. Typically, keeping the mechanical equipment away from the occupant space will reduce the risk of generated noise that will disturb the working occupant and reduce productivity.

#### 5.1.12 Space Requirements for Equipment Rooms

- The space requirements are often expressed as a percentage of the total building floor area. According to ASHRAE (American Society of Heating Refrigerating and Air-conditioning Engineers) the combined mechanical and electrical space requirement of most building is between 6% and 9%.
- The total equipment area presently allowed for the project corresponds to less than 4% of the gross area of the building. Based on the AHSRAE standards, the equipment area is below minimum standards.
- These spaces are required to install the equipment that will treat the building loads.

### 5.2 Plumbing System

- The following section addresses the base building work required on the Postal Station B plumbing systems. X-ray scans have been completed to obtain a better understanding on the existing condition of the piping and justify the following program of work. The following describes the general plumbing upgrade required as part of the base building program.

#### 5.2.1 Sanitary and Storm Drainage

- Underground Piping
  - Replace all underground piping in the building by new. Underground piping replacement is much easier when site is under construction. For this reason, all underground piping will be replaced by new.
  - New underground piping should be PVC SDR for durability.
  - Slope underground piping at 1:50.
- Above-ground piping

- The drainage system of the men's washroom group would need to be upgraded, while the women's washroom group drainage system is relatively in good shape as it was upgraded in the early 2000. The vertical chases should be replaced as they are original to the building.
- All above ground drainage piping will be cast iron with hubless fittings or DWV copper, depending on application. Foot of risers shall be in cast iron.
- All storm drainage piping shall be thermally insulated. All existing storm drains are to remain as the system was upgraded in the early 2000.
- All above ground levels shall be gravity drained.
- The existing sump pumps would be upgrade to include duplex pumps.

#### 5.2.2 Domestic Water Piping

- The existing main water entry will need to be modified to meet code requirements as it is currently not equipped with the proper back-flow preventer. The water entry is currently common with the fire protection system. A duplex pump system is currently used to feed sprinklers located in the basement and fire-hose cabinets on the office floors.
- Domestic water piping distribution system is to be constructed of copper, type L, hard, to ASTM-088 with thermal insulation.
- The existing domestic water booster pumps would be re-used as they are still in good operating condition. The future replacement of these pumps would not be disruptive to the operation of the building.

#### 5.2.3 Plumbing Fixtures

- All plumbing fixtures would be replaced to suit the following:
- Plumbing fixture controls: flush valves with infra-red proximity sensor, electric type (battery-powered systems will not be accepted) for lavatory, urinals, and water closets.
- Water-closets shall have hands free flush valves that automatically initiate a four (4) liter flush when the user remains inside the sensor range for a period of time. Button shall mechanically let the user initiate flush.
- Water-closets will be wall mounted wherever possible for ease of maintenance.
- Urinals will be wall mounted with recessed flush valves with 0.8 liters per flush.
- Service mop sinks will be floor mounted moulded stone, roll rim, with high undrilled integral back.

#### 5.2.4 Hot Water Heaters

- The two existing domestic hot water tanks are relatively in good condition but would need to be relocated for proper space allocation within the mechanical room.
- Hot water will be made available at every fixture in less than 10 seconds by a properly designed hot water recirculation system.
- Domestic hot water supply temperature shall be generated and stored at a minimum of 60°C and delivered to outlets at 49°C.
- Provide mixing valves where outlet temperature could exceed 49°C.
- Hot water supply to dishwashers shall be at 60°C and boosted to 82°C for final sanitizing.

### 5.3 Fire Protection System

#### 5.3.1 Standards and Requirement

- The design of the fire protection system of Postal Station B building is based on the following standards:
- NFPA 14 09, Standard for the Installation of Standpipe and Hose Systems.
- NFPA 13 2010, Standard for the Installation of Sprinkler Systems.
- NFPA 20-2010, Standard for the Installation of Stationary Pumps for Fire Protection.
- NFPA 25-2008, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems.
- Underwriters Laboratories of Canada (ULC).
- National Building Code (NBC).
- All fire protection systems must be coordinated with fire alarm systems.

#### 5.3.2 Water Flow and Pressure

- There are two systems that determine the required amount of flow for the fire protection water supply; the ceiling sprinklers, and the standpipe system (with hose connections). Each system must have access to the appropriate amount of water as required by the governing codes.

**Table 5.3.2A - Fire Protection System Flow Rates**

Systems	Flow rate (L/s)
Ceiling sprinklers (Ordinary Hazard)	14.2
Standpipes	31.5
<b>Total:</b>	<b>45.7</b>



- The required system pressure is based on the system that uses the highest pressure to operate. In this case, the standpipe system is the most demanding, requiring 689 kPa at the two furthest hose connection locations.

**Table 5.3.2B - Fire Protection Required Pressures**

Systems	Pressure (kPa)
Ceiling sprinklers (Ordinary Hazard)	138
Standpipes	689

- Pressure losses in the pipes and the distance to the furthest standpipe connections were calculated using approximate pump locations. A total distance of 75m was used (40m horizontally and 35m vertically).

**Table 5.3.2C - Fire Protection Total System Pressure**

Components	Pressure Loss (kPa)
Friction and fittings	32
Loss due to height	343
Most demanding pressure (standpipe)	689
<b>Total:</b>	<b>1064</b>

- The existing fire protection pumps are capable of providing 500 gpm (31.5 L/s) at a pressure of 110 psi (758 kPa) and are located in the basement. The pumps are unable to meet the requirements of the new building design. During the site investigation, it was noted that one of the existing fire pumps is leaking and will need to be replaced. If the base building upgrade does not take place, the pumps will still need to be replaced.
- The new pump configuration would use a duplex pump layout complete with two horizontal split case base mount pumps, fire pump controller, automatic transfer switch, jokey pump with controller, and all components required as per NFPA 20. The fire pumps will need to be connected to emergency power.

### 5.3.3 Siamese Connections

- Siamese connections are to be installed for the use by the authority having jurisdiction. The fire department connection (Siamese) is to be installed on an exterior building wall not more than 45 m from a fire hydrant.

### 5.3.4 Standpipes

- Standpipes shall be installed in the stairwells in accordance with National Building Code. These standpipes are hose connections installed on every intermediate landing of each exit stair. Existing fire hose cabinets will be removed since they are not required when a building has sprinkler coverage.

### 5.3.5 Occupancy Protection – Sprinklers

- Light Hazard:
  - Most of the complex will be equipped with a sprinkler system capable of protecting light hazard occupancy. The sprinklers will be spaced so that each sprinkler is capable of protecting 20.8m<sup>2</sup> of floor area. Semi-recessed sprinklers are to be installed in all areas where the piping is concealed. In all exposed areas, ordinary upright sprinklers are to be installed.
- Ordinary Hazard:
  - Storage and mechanical rooms are to be protected using a sprinkler design capable of protecting an ordinary hazard. The sprinklers shall be spaced to protect an area of 12m<sup>2</sup>. Semi-recessed sprinklers are to be installed in all areas where the piping is concealed. In all exposed areas, ordinary upright sprinklers are to be installed.

**Table 5.3.5 – Sprinkler Layout Requirements**

Hazard	Max. Spacing (m)	Min. Spacing (m)	Max distance from wall (m)	Min. Spacing from wall (m)
Light	4.6	1.8	2.3	0.1
Ordinary	3.7	1.8	1.8	0.1

### 5.3.6 Wet Pipe Sprinkler System:

- All areas of the building except location with risk of freezing or sensitive equipment will be designed using a wet pipe system. The piping will be schedule 40 black steel with mechanical joints. The piping is to be full of water at all times.
- The pipe size, sprinkler layout and risers shall be designed by a professional fire protection engineer using hydraulic calculations. All system to be designed in accordance to NFPA 13.

### 5.3.7 Sprinkler Zones

- The floor space is mostly light hazard protection with the addition of ordinary protection as described above. Each floor of the building is to become a separate zone as referenced in NFPA 13. For every zone, a zone control valve is required. These valves as well as the risers are to be located in an accessible area for ease of maintenance and drainage.
- Refer to Appendix A for a typical sprinkler layout on an office floor

## 5.4 Primary Services – Chilled Water and Hot Water Production

### 5.4.1 Purpose

- Currently, the Postal Station B building is supplied with steam and chilled water by the Cliff Central Heating and Cooling Plant. The intention is to keep the building connected to the central heating plant.
- PWGSC has determined that the conversion of the Central Heating Plants district systems from steam to low temperature water has many advantages for efficient operation and for future integration of renewable and waste energy resources. The general approach is to eliminate the need for primary steam within the buildings (for perimeter heating, air handling units, process loads and humidification) so that there is, preferably, a single interface where steam is converted to hot water or other hydronic medium. For buildings undergoing a major renovation, the maximum building system supply water temperature should not exceed 60°C, while the return temperature should be as low as possible with a maximum of 40°C, although 35°C or lower would be preferable.

### 5.4.2 Design Analysis of Building Loads

- Any building has basic heat gains and losses which are not dependant on the type of air-conditioning system used. Heat losses or gains must be calculated in relation with the building envelope and exterior condition.
- It is a well-known fact that any building consumes enormous amount of energy to provide a suitable environment for people and processes inside the building. It is also admitted that much of this energy is often needlessly wasted. To evaluate the possibilities of energy conservation it is important to understand how the building needs and uses energy to keep desired internal environment.
- In the case of the Postal Station B buildings, the loads are a function of the following variables:
  - Outside air temperature.
  - Inside air temperature.
  - Outdoor air ventilation rate.
  - Solar radiation.
  - Lighting level.

- o People occupancy.
- o Miscellaneous internal processes.
- o The estimated interior loads (heat gains) and heat losses during occupied period are as follows:

- Loads independent of exterior temperature

Description	MBH	kW
Lighting	277	81.1
Electrical motors for air-conditioning	21	6.2
Occupancy (with 80% diversity)	125	36.6
Equipment	242	70.9
Solar radiation	187	54.8

- Loads dependent of exterior temperature

Description	Exterior T°: -29°C		Exterior T°: 32°C	
	MBH	kW	MBH	kW
Transmission of heat and air infiltration through building enclosure	1,722	504	180	52.7
Minimum outside air	503	148	235	68.8

- o Estimated peak load conditions for the building are as follows:
  - Cooling: 1,269 MBH (105 tons)
  - Heating: 2,225 MBH (552 kW)

## 5.5 Air Handling and Distribution Systems

### 5.5.1 General Requirements

- The project intent is to provide the best HVAC solution to meet the building's requirements. The design shall be capable of meeting the requirements of ASHRAE 55, monitor and control systems to ensure that conditions are effectively met and maintained. In any case, the selected systems shall be energy efficient, cost-effective, safe, and capable of providing a healthy and comfortable environment while reducing maintenance cost.
- Objectives
  - o The main design objectives for the air handling and distribution systems are the following:
    - Optimizing investment, considering energy costs use and maintenance costs. Systems have to be efficient, dependable, available for installation according to

the construction schedule, and easily integrated to the architectural and structural systems of the building.

- Optimization of energy efficiency.
- Optimizing comfort of occupant and indoor air quality.
- Conformity to all applicable codes and regulations.
- Use minimum space for equipment, including sufficient space for efficient servicing and maintenance.
- Design systems to be compatible with the character of the historic place.

#### 5.5.2 Primary-Air Handling System

- When considering the ventilation strategies of the Postal Station B building, it is important to pay attention to the main differences between the various possible systems. In any case, the comfort requirements, air quality and space temperature control will be achieved by employing the latest air conditioning technology. At the same time there is also pressure for lowering operating cost imposed by rising energy prices, which in turn pushes the reduction of primary energy consumption.
- The current occupancy level of the Postal Station B building is 168 people, as provided by PWGSC. Following discussions with PWGSC-COE, it was deemed that an occupancy level of approximately 250 people will be used to calculate fresh-air requirements. PWGSC has requested that a minimum of 10 L/s of fresh air be provided for each occupant.

### 5.6 Chemical, Biological, and Radioactive (CBR) requirements

- PWGSC has requested that CBR requirements be investigated as part of the base building upgrade study. No criteria have been specified as to the level of protection required for the Postal Station B building. Therefore, the following section describes the various level of protection offered, and the implication on the building and mechanical systems.

#### 5.6.1 Design Criteria

- The purpose of this section is to summarize the design criteria to protect the Postal Station B Building, in particular the security area, against airborne chemical, biological, and radiological (CBR) agents.

#### 5.6.2 Description of Protective Measures

- This section includes a description of protective measures, filtration system types and arrangements, protective area overpressure, and collective protection system design and equipment applicable to the Postal Station B building, and guiding principles based on the type and level of threats.

#### 5.6.3 Reference to USDD

- This section of the report is based on the document UFC 4-024-01, published by the US Department of Defense on June 10th 2008, entitled Security Engineering: Procedures for Designing Airborne Chemical, Biological and Radiological Protection for Buildings.

#### 5.6.4 Background

- Airborne delivery tactics involve the introduction of a CBR agent into an occupied building by an aggressor directly inserting the agent into the building's outside air intake for the ventilation system, releasing the agent at a standoff distance upwind of the building, or releasing an agent inside the building.
- The current location of the fresh-air intake for the main air-handling system is located on west face elevation of the Postal Station B building, approximately 4m above grade, but are accessible via a series of access stairs. These intake louvers are located directly located above 2 condensing units currently serving the adjacent Hope building. It is also important to note that these intake louvers are located approximately 3 meters away from the Hope building and are in direct route of an emergency egress route of the Hope building.
- In order to protect the Postal Station B building, measures such as locating air intakes either on the roof of the building or at a minimum distance of 10 meters off the ground level must be implemented.
- In order to adequately design the ventilation systems as well as architectural requirements for the area to be protected, the level of required protection must be identified. UFC 4-024-01 range the levels of protection from very low to high, depending on the value of potential target assets and the design basis threat. The design basis threat is defined as "the threat (aggressors, delivery tactics, and associated weapons, tools, or explosives) against which assets within the building must be protected and upon which the security engineering design of the building is based".

#### 5.6.5 Design Criteria

- To adequately design the system for the area to be protected for sheltering in place in case of an event, the threat type must be identified. The threat type is a combination of the agent type and the delivery tactic and can be described as follows.
  - Agent Types:
    - Toxic Industrial Chemicals and Materials are liquids, particulates, and gases produced for commercial and industrial applications. They are generally of lower toxicity than military chemical agents but are available throughout the world.
    - Biological agents (toxins and pathogens such as viruses) are small particles. Effective delivery of these agents as aerosols generally requires a particle size ranging from 1 to 5 microns. Pathogens are some of the smallest agents, with a particle size of 0.005 to 5 microns, and therefore will affect filter requirements. Pathogens act more like a gas than a particle and travel in droplet nuclei or in clumps, whereas toxins may be in liquid or crystalline form.
    - Radiological agents. The physical form of a radioactive threat could be liquid, particulate, or vapor.
    - Military chemical agents can be liquid, gas, or aerosol at standard conditions. Most of the toxic military chemical agents are liquids, which evaporate at differing rates to produce vapor.
  - Delivery Tactics:
    - External release from a point or line source, such as an aircraft (aerial release) or aerosol upwind of a facility (standoff release), or by direct insertion into an outside air intake. The simplest way to protect against an external release is to shut down the HVAC system. In addition, filtration systems can be placed on the outside air intakes or in the air-handling unit to remove CBR agents and enable pressurization of the area to be protected.
    - Internal release via a direct release within the building, insertion into the internal ventilation system, or mail or supplies delivery. The simplest way to respond to an internal release is to shut down the HVAC system to limit dispersion of CBR agents. Central air-handling filtration systems that are designed to remove specific CBR agents from recirculated air can help limit distribution of the CBR agent within the building through the HVAC system. However, such filtration systems do not protect the immediate area where the internal release occurred or possibly even the adjacent area, and contaminated air in return air ducts or plenums may be spread to other parts of the facility
- In order to protect an area or a building against CBR agent release, pressurization requirement of the space in conjunction with the level of protection required must be identified.
  - Class of pressurization:
    - Class III – No pressurization

- Class II – Filtration with slight pressurization Class II provides a slight overpressure capability of 5 to 12 Pa (0.02 to 0.05 in wg) to resist a short duration event of minutes to hours (depending on the event). For class II pressurization, it is desirable to have a double-entry door such as a vestibule entrance or revolving door that acts as an airlock to maintain the slight overpressure of the protective area.
- Class I – Filtration with pressurization provides an overpressure capability to resist a long-duration event that could last for weeks and corresponds to a low likelihood that an event will compromise the asset. Protective area overpressure must be at least 75 Pa (0.30 in wg).
- o Level of Protection:
  - Very Low level of protection does not provide any overpressurization and no special filtration. HVAC system will operate in 100% recirculation (no outside air) or will shut down in case of an event.
  - Low level of protection will provide slight overpressurization and hepa filtration on outside air.
  - Medium level of protection will provide Class I or Class II overpressurization with hepa filtration and carbon adsorbers on outside air. Type of adsorber will depend on the type of agent against which the area must be protected.
  - High level of protection will provide Class I or Class II overpressurization with hepa filtration and carbon adsorbers on all air supply. Type of adsorber will depend on the type of agent against which the area must be protected



- The design criteria can be summarized in a matrix that combines the level, agent types and delivery tactics:

Level of protection	Agent Type	Class of pressurization
Very Low	Industrial Chemicals	Class III
Low	Industrial Chemicals	Class II
	Biological and Radiological	
Medium	Industrial Chemicals	Class II or Class I With filtration on outside air
	Biological and Radiological	
	Military chemical Agents	
High	Industrial Chemicals	Class II or Class I With filtration on all supply air
	Biological and Radiological	
	Military chemical Agents	

Note that each design basis threat level includes all of the lower levels.

#### 5.6.6 Detecting an event

- For protection against imperceptible agents, the only practical protective measures are those that are always in place, such as filtering outside air on a continuous basis.
- Theoretically, automatic detectors can be used to initiate protective actions such as shutting down ventilation systems, closing outside air intakes, or turning on filtration systems. However, automated responses to an attack or accidental release are not typically feasible due to limitations in detector technology. As an example, biological agents are imperceptible and there are currently no detection devices that can determine their presence in the air in real time.
- Warning signs of a hazard involving seeing, smelling and hearing something out of the ordinary, such as the hiss of a rapid release from a pressurized cylinder can be considered to initiate the protective measures.

### 5.6.7 Design Approach

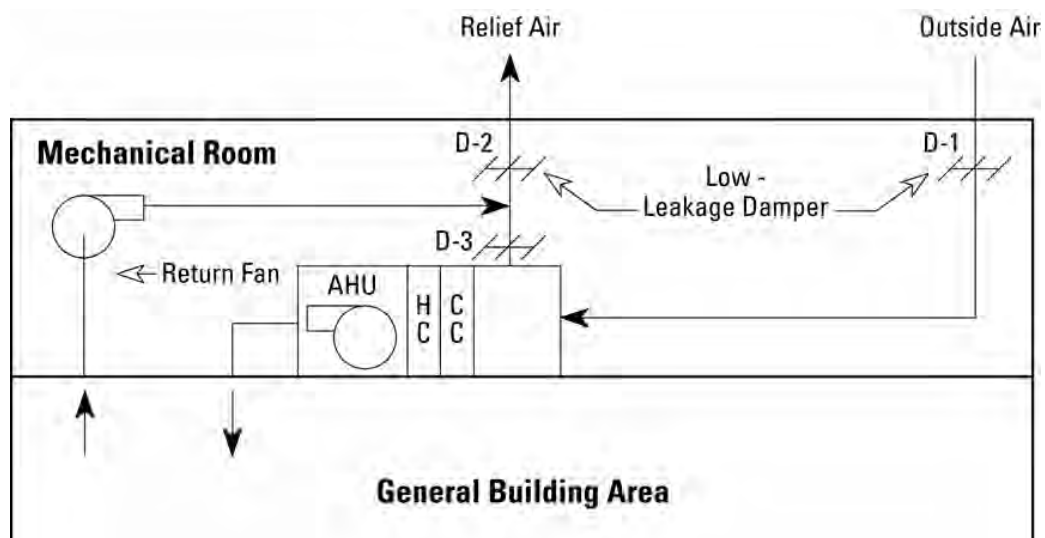


Figure 1 Very Low level of protection

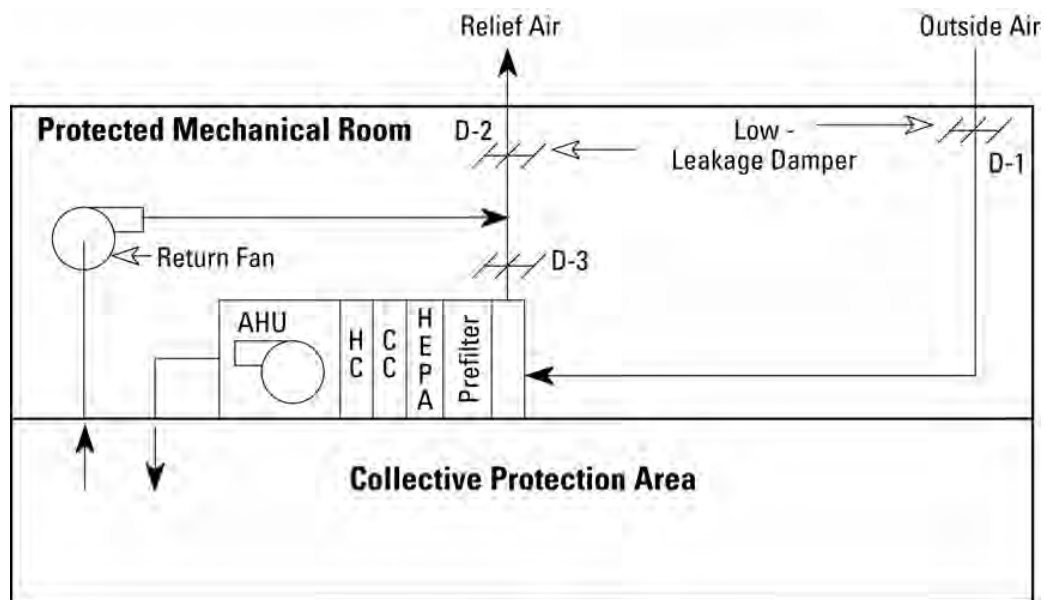


Figure 2 Low Level of Protection

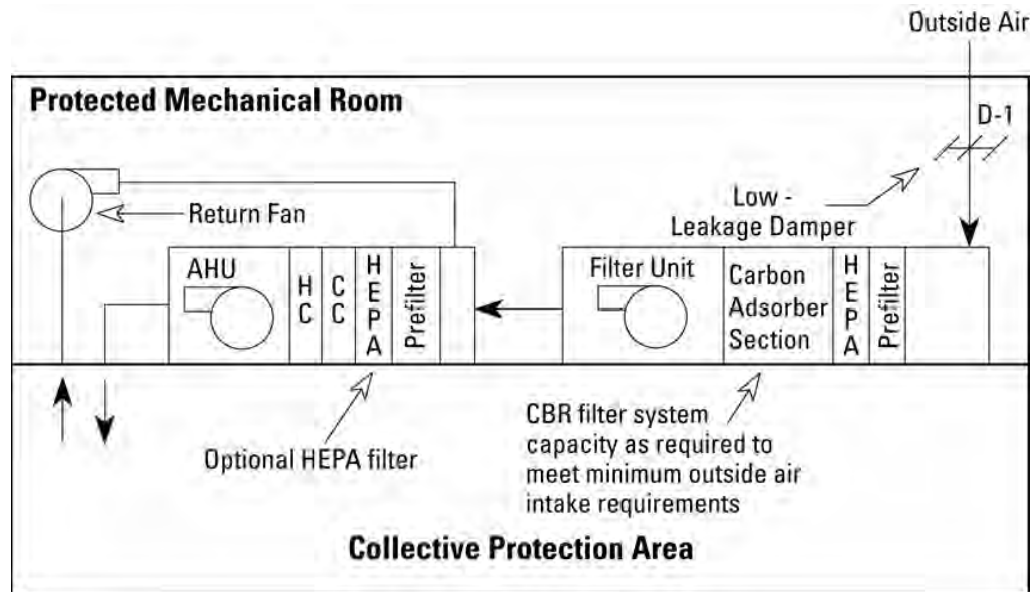


Figure 3 Medium Level of protection

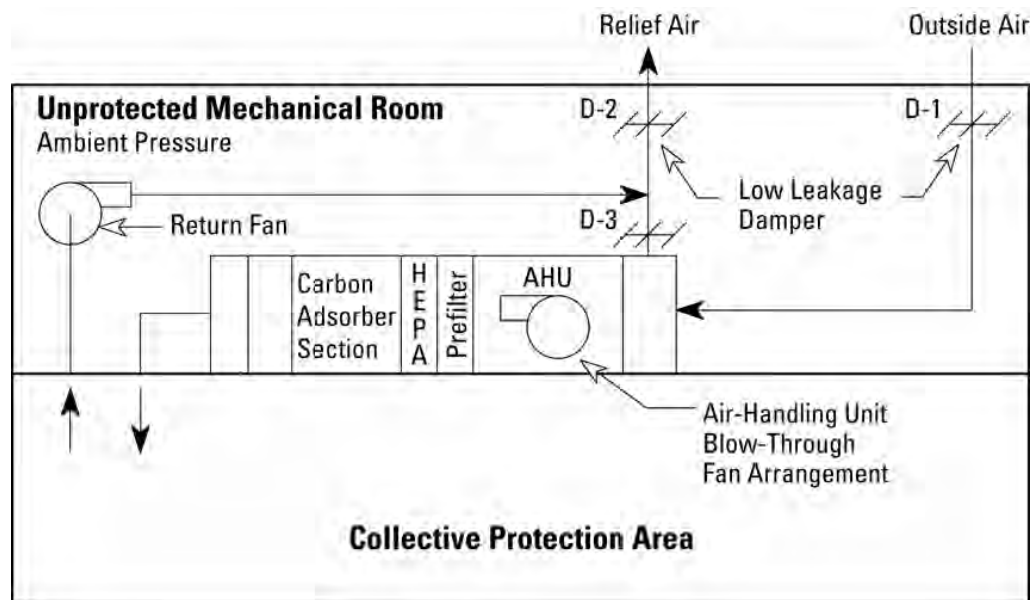


Figure 4 High Level of Protection

#### 5.6.8 Recommendation

A more thorough investigation involving threat and risk assessments is required prior to making a recommendation. This assessment would identify the level of protection required for the building

## 5.7 Building Automation System (BAS)

### 5.7.1 Design Principles

- The BAS will include the following:
  - Building controllers of various types distributed strategically throughout the building;
  - Field devices to measure equipment and environmental conditions and control system components;
  - A network architecture connecting the different BAS components to allow communication and data sharing between devices;
  - A centralized management system to manage system data and allow users to interface to the BAS;
  - Programs and software to optimize control strategies and energy efficiency.
  - A Graphical User Interface (GUI) installed on all BAS operator interfaces. GUI will be intuitive, real-time based and will enable the end-users to fully customize control systems.
  - The system will provide alarming and monitoring for all control points. Parameters configuration, system adjustment and verification will be easily achievable from any connection point in the building, through the use of any operator interface.

### 5.7.2 Building Controllers

- All controllers will be Direct Digital Control (DDC) type, fully programmable, microprocessor based complete with real-time clocks, internal memory, input/output modules, communication interfaces and power supplies.
- Controllers will be located in proximity of systems being controlled. The controller's installation will include all memory, data, software, field devices and accessories required to perform all operations associated with the regulation of its related equipment:
  - Master Control Units (MCU) will be distributed in mechanical rooms near main equipment and systems being controlled.
  - Terminal Control Units (TCU) will be installed directly on terminal equipment or in ceiling space in proximity of the equipment for local control.
  - Network Management Controllers (NMC) will be placed strategically in electrical or mechanical rooms to integrate control units (MCU, TCU) and other third party controllers to ensure communication on the BAS primary network.
- BAS will be of distributed type. Each controller will be equipped with the necessary hardware/software to control its associated system on a standalone basis, independently of failure of other control units or communication links.

- All control points associated with an electro-mechanical system will reside on a single control unit to maintain system operation reliability in standalone mode.
- NMCs will communicate with each other and their associated control units (MCU, TCU) to supervise control actions and optimize control strategies.
- All controllers will communicate using the BACnet protocol and will be BTL Listed by the BACnet Testing Laboratories.

#### 5.7.3 Centralized Management System

- The centralized management system will include a Local Command Center, laptops for maintenance, a notification system, a server and all the software required for system data management and user interaction.
- The Local Command Center will be located in the operator's office in basement and will include an operator workstation (OWS), a printer and a standalone UPS.
- Maintenance laptops will be supplied with the necessary Ethernet and RS-485 ports to interface with BAS networks and building controllers. Ethernet access points will be provided at least in each mechanical room for on-site maintenance.
- A server will be installed as part of the centralized management system. The server will allow archiving of trends, histories, reports, operator activities, alarm management and include a database for system recovery.
- The system will manage all alarming activities and report alarms to operation staff through a notification system. Notifications will be broadcasted through email and will be accessible from a web-enabled device such as a PDA.
- Access to system from OWS and laptops will be web-based.

#### 5.7.4 Network Architecture

- The BAS communication will take place at two levels:
  - Ethernet TCP/IP primary network will interconnect the Central Management System, Network Management Controllers (NMCs) and integrators to provide BAS high-level control and system management.
  - Secondary network to interconnect system controllers and local control devices (MCU, TCU) to NMCs.
- For the secondary network, the connection of controllers will be done using a daisy chain line topology, in accordance with the BACnet MS/TP protocol.
- The primary Ethernet TCP/IP network will be a dedicated IT infrastructure which will include all the necessary networking equipment: cabling, routers, switches, UPS, etc.
- Integration with other systems (e.g. lighting) will be made through dedicated bridges and gateways.

#### 5.7.5 Integration

- Integration of other systems and third party controllers will be achieved through BACnet TCP/IP or using integration controllers provided that they comply with one of the following communication protocol: ASHRAE BACnet, Echelon Lonworks or Modbus.
- Lighting System:
  - Lighting systems will be adjusted by their own integrated controls. However, the BAS will be able to modify schedules and activate specific lighting zones.
  - Integration of lighting systems will allow operators to control and supervise occupancy status and schedules form a single system.
- Power Monitoring, Emergency Power:
  - Integration of equipments associated with these systems will provide all the information (status, alarms, measurements, faults) required to allow proper supervision of systems as part of regular building maintenance activities.

#### 5.7.6 Control Strategies – Interior Space

- General Office Floors (Typical)
  - For the Postal Station B building, the choice between the ventilation options has no impact on the control of local and terminal equipment. Control strategies for typical office floor areas remain independent of the choice of options.
- Perimeter Heating
  - The main objective of perimeter space control is to regulate building skin losses. As a result, perimeter control strategies will be primarily based on outdoor conditions. In heating mode, building envelope control methods will be used to overcome building skin losses.
  - To prevent heat loss through the building's envelope, the system will always be operational during heating season. Night setback strategies can be used by reducing the perimeter space temperature setpoint and optimizing only building envelope heating.
  - Building envelope control will be achieved by evaluating the interior facade temperature and the outdoor air temperature (OAT) in order to supply enough heat to the interior perimeter to overcome building skin losses. A 3-point linear curve based on the OAT would be used as the primary basis for perimeter equipment adjustment. The interior temperature sensor would then be used to fine tune perimeter space conditions.
- Perimeter Variable Air Volume System with terminal reheat.
  - Perimeter spaces will be served by VAV units. The air is supplied from the primary AHU at a determined temperature required to meet the interior cooling demand. Terminal reheat coils are used to adjust supply air temperature locally in these spaces.
  - VAV with terminal reheat will be paired with their adjacent radiators. In heating mode, perimeter heating will be adjusted to overcome building skin losses. Additional heat, if required, will be provided to heat the minimum flow of the VAV during occupancy.
  - During occupancy, the VAV is set to minimum flow (30%) and the airflow is modulated in accordance with the cooling demand. After occupied hours, the VAV is closed and heating is provided, if required, by the perimeter radiators.
- Interior – Open Space Offices
  - Zones are served by VAV terminal units which operate in cooling mode only.
  - In occupied mode, the zone VAV is set to minimum flow (30%) and the airflow is modulated to maintain the zone's temperature setpoint.
  - Temperature setpoints will be controlled by building operators through the centralized management system via operator workstations.
- Closed Offices

- Closed offices are served by a VAV terminal unit which operates in cooling mode only. For closed offices on the perimeter, these spaces may include radiator control and VAV reheat.
  - Occupancy status of the office is determined by the system schedule but can also be done at the office thermostat as an energy savings measure. An occupancy switch on the thermostat allows the user to force his system in occupied mode.
  - During operation, the VAV is set at minimum flow (30%) and modulates the airflow to maintain the office temperature setpoint. In closed offices, setpoint can be adjusted by the user. Building operators have control over the setpoint span.
- Meeting Rooms
  - Meeting rooms are served by a VAV terminal unit and a transfer fan or a fan powered VAV. The VAV is used to provide cooling while the transfer fan is used to increase air-change and maintain indoor air quality.
  - The system operates according to occupancy status. During occupied mode, the transfer fan is turned on and the VAV modulates airflow to maintain the space temperature.
  - Occupancy status in meeting rooms is determined by CO<sub>2</sub> sensor located within the room.



- Exhaust Systems
  - Exhaust systems will include a dedicated washroom exhaust (constant flow) and a general exhaust system (variable) connecting each floor. Both systems will operate according to the occupancy schedule.
  - Floor exhaust systems are connected to a common exhaust system. A motorized damper will be installed upstream of the main exhaust duct to modulate exhaust airflows in accordance with floor pressure.
- Fresh Air Regulation
  - Typical Office Floors
    - In occupied mode, fresh air supplied to each floor will be set to minimum, as per ASHRAE 62.1 standard.
    - CO<sub>2</sub> room sensors will be installed strategically on floors and re-adjust fresh air rates to maintain CO<sub>2</sub> levels less than 1,200 ppm.
  - Public Spaces
    - Ventilation systems serving public spaces will be equipped with return air or space CO<sub>2</sub> sensors to re-adjust fresh air rates and maintain ambient levels below 1,200 ppm.
- Pressurization
  - Building pressurization will be controlled using airflow tracking methods. Airflow sensors will be installed on supply fans and return systems to coordinate building air intake and exhaust volumes.
  - An outside pressure station will be installed and provide an outdoor pressure reference. Each floor will be equipped with a differential pressure sensor, which will be connected to the building reference, and provide floor pressure monitoring.
  - Floor pressurization will be customizable to eliminate building pressure problems and offset stack effects.

#### 5.7.7 Control Strategies – Mechanical Equipment

- Ventilation– Centralized VAV system:
  - A central AHU is used to supply multiple floors. The main riser supplies the VAV networks. The system is started in accordance with the occupancy schedule.
  - Fresh air rates are regulated at the AHU according to all floor requirements via CO<sub>2</sub> monitoring points installed on each floor.
  - The supply fan speed (via its VFD) is controlled to maintain proper pressurization in the VAV networks.

- Individual floor pressure is controlled by a return damper which controls airflow back to main return riser. The AHU uses real fan tracking to optimize the return fan speed and maintain proper floor pressures. Exhaust airflow are adjusted to maintain proper building pressurization.
- Heating and Cooling Systems:
  - The current heating and cooling system arrangement uses the Cliff CHCP to provide primary chilled water and steam.
  - The Cliff CHCP provides regulated steam and chilled water inside the building. The BAS controls valves on heat exchangers and circulation pumps to regulate the building's hot water loop. The BAS would control 2-way control valves on the primary CHW to maintain the cooling loop temperatures and pressures.

#### 5.7.8 Energy Management Strategies

- The central AHU will incorporate economizer control to take advantage of free-cooling when outdoor conditions permit.
- Night setback strategies will include shutting down the central AHU during unoccupied hours and using solely perimeter heating equipment to control the building envelope. Temperatures inside the space will be lowered during heating season. During the cooling season, all equipment will be shutdown.
- Optimized start-up algorithms will be implemented to start the AHU in time and pre-heat (or-pre-cool) the building in preparation for occupancy. During the cooling season, the system will allow the use of purging strategies in early mornings to take advantage of low outdoor ambient temperatures.

#### 5.7.9 Energy Monitoring

- Monitoring Systems
- Energy monitoring devices will be installed on main building services. Energy consumption data will be shared to the BAS. Monitored services will include:
  - Domestic water;
  - Chilled water and steam (from Cliff CHCP);
  - Electrical Power.
- All monitoring devices will be microprocessor based and include non-volatile memory for consumption data archiving. All consumption data is compiled in the device itself. Information is then shared to the BAS through open communication protocols such as ASHRAE BACnet, Echelon Lonworks or Modbus.

### 5.8 Electrical Base Building Upgrade

#### 5.8.1. Main Service

- The main electrical room is full with no available wall space. The separation of the telecom backboard and service entrance into a separate dedicated room would improve the telecom infrastructure in following modern IT standards and create much need space within the room for electrical distribution.
- The electrical service for the Postal Station B building is marginally sized for the current demand load and undersized for the anticipated load growth after the upgrade/ modernization. Existing records indicate a demand of approximately 300A. A service calculation using CEC method and estimated mechanical loads results in a main service demand of 356 kW. The existing feeder in Langevin Building has an over current protective device 400A (80% rated) with a service limit of 320A. The feeder should be increased to 600A sub feed from the Langevin Block secondary distribution. Feeder breaker to be 100% rated with electronic trips. PWGSC should confirm long term planning for electrical upgrades for the Langevin Block distribution which may affect the service to the Postal Station B building and decisions taken on systems upgrades.
- The existing Postal Station B main distribution panel is not a true service entrance type distribution panel with barriers and Hydro Ottawa metering compartment. The existing Postal Station B main panel is a distribution panel with main breaker and metering package. This approach can be retained if there are no long term changes anticipated in servicing or distribution for the Langevin Block. The existing Postal Station B main distribution panel is however at end of useful life and we recommend replacement upgrade as part of this project.
- The Postal Station B new main distribution panel should be equipped with a modern digital metering package with remote monitoring capabilities.

#### 5.8.2 Motor Control

- The existing motor control is in good condition and will remain. Upgrade to include expansion to suit any new mechanical equipment requirements.

#### 5.8.3 Normal Power Distribution

- The electrical distribution system serving the floors is not adequate for modern standards. Some of the equipment is near end of life. As part of the floor modernization and upgrade an electrical room should be provided on each floor. This would include 45 kVA (K13) transformer and 84 circuit panelboard on each floor. This panel would provide branch circuits for receptacle loads, lighting, miscellaneous power and small mechanical loads. All new equipment will include sprinkler proof enclosures.

#### 5.8.4 Emergency Power Distribution

- The diesel generator (basement) and emergency distribution serves Postal Station B and other buildings including Langevin Block and Hope Chambers. As part of the base building upgrades we recommend the system be modified so that there are dedicated transfer switches for the Postal station B building.
- Modification would include the following:
  - The existing emergency power feeds to the Langevin Block and Hope Building should be emergency feeds only. This requires transfer switches be added in the two additional buildings and also remote start signal back to the generator. This requires modifications and upgrades to the distribution in these two buildings.
  - In the Postal Station B to include two transfer switches. The existing ATS would remain for the life safety loads.
    - Life safety loads such as emergency lighting, exist signage, elevators, etc.
    - Non-life safety loads such as critical mechanical, clock system, UPS, tenant loads.
  - The generator output supplies an emergency feed to the fire pump transfer switch/controller located in the fire pump room. Note that the normal power supply to the fire pump is a separate feeder from the Langevin Block. The method of connection in terms of code compliance should be confirmed.

#### 5.8.5 Building Fire Alarm System

- The building fire alarm control panel is relatively new however, the balance of the system remains an older conventional type, and the system should be modified to include voice communication. Any deficiencies will be corrected during the floor upgrades. This will include the addition of voice communication, flow switches and tamper valve supervision on typical floors where sprinklers added.
- Remote annunciator can remain located at the main lobby, however some upgrades required.
- Signal devices to be changed to speaker system.
- Recommend upgrade field devices with new wiring Class A to addressable type and replace wiring Class A.

#### 5.8.6 Telecommunications

- The main telecommunications (MTR) backboard should be relocated to a separate room.
- On the typical floor a new telecommunication room (TR), riser and backboard to be constructed. Building tenant should be consulted to confirm there IT room requirements and how that may be integrated with a new TR on each floor.

#### 5.8.7 Building Lighting

- The building lighting is connected at 347 V and controlled via control relay system.
- As part of each floor modernization and upgrade new lighting and branch wiring is required.
  - Presently there are many emergency battery units in the building. These should be eliminated except where required in rooms such as emergency generator room and main electrical room.
  - New emergency and exit lighting design should consider connection to the emergency power system. Requires further study of the existing emergency power system to confirm available capacities. Alternately emergency lighting may be provided in local battery units and remote leads or central battery inverter system

## **6.0 Code and Regulatory Analysis**

### **6.1 Code Summary**

The existing building is a Group D occupancy, and due to its size and height is classified under the requirements of Article 3.2.2.54 of the National Building Code. This article stipulates a requirement for sprinklers, non-combustible construction, and two hour fire separations.

The office floors are served by two exits, providing an aggregated exit width of 1700 mm, or an exit capacity of 280 persons. This is far in excess of the actual occupant load of the building as it is presently configured.

No changes to building use or occupancy are contemplated in this base building upgrade; therefore no code-related changes to the building are required.

However, due to the nature of the building's construction and relatively low occupant load, the building will remain largely compliant with respect to major life safety considerations. Moreover, proposed work to add sprinklers and standpipes, and to improve fire protection to floor assemblies, will improve the performance of the building significantly.

## 7.0 Options Analysis

### 7.1 Results of Inspection and Testing including condition assessment

#### 7.1.1 Architectural

- For architectural components, the recently completed studies referenced above are the primary source of information for this report, as per the terms of reference. Some observations of other conditions are noted below.
- The existing plaster ceilings are made from ACMs in most of the office areas. In addition, the plaster ceiling, which is concealed by a lay-in acoustical tile ceiling, has numerous holes in it, presumably created to implement repairs. This is problematic on a number of levels. The ceiling space between the lay-in tile ceiling and plaster ceiling is a return-air plenum. The holes in the plaster ceiling create unintended pathways for return air, which is likely to be causing inefficiencies in the air distribution, or challenges in controlling air movement. Second, the plaster is the only fire protection for the structural steel framing and deck above; therefore the fire separations and fire-resistance ratings of the structure are compromised. Any work on mechanical systems installed below this ceiling will disturb the ACMs, making the work costly and time consuming. Finally, the presence of fragmented ACM ceilings within a return-air plenum is a possible source of airborne contaminants.
- The plaster ceilings are therefore in need of replacement, which would provide an opportunity to address the ACMs, fire separations, fire resistance ratings, and to create a hygienic return air plenum.

### 7.2 Proposed Heating Replacement

- As part of this study, a single replacement option has been proposed since we believe it to be the most feasible and economical means of replacing the system.

#### **Option 1 – Replace steam heating system with a new hot water heating system.**

- Description:
  - The proposed new heating system for the Postal Station B building would include a converting station located in a new basement mechanical room. Since steam from Cliff CHCP is the primary source for heating, this converting station would include a steam to hot water heat exchanger. The heat exchanger would be sized for the full heating load of the building (approx. 2500 MBH) and would be selected to supply heating water at 60°C with 40°C return water. Circulation pumps would be installed in the basement mechanical room to ensure the distribution of the heating water to the floors.

- Since the existing distribution piping is dispersed within non-accessible walls of the building, these pipes would simply be cut, capped, and abandoned. A single supply riser would be installed in the existing mechanical shaft and branch circuits would serve each floor. A reversed return type distribution would be preferred. The new distribution piping would be installed in the ceiling space of each floor and would supply the new radiators from the floor below. Therefore, the existing gypsum ceiling would need to be removed to allow access to the floor above.
- The existing steam radiators would be replaced with new hot water radiators. The existing cabinets were measured to verify if they could be retained as part of the heritage value of the building. Based on a preliminary selection obtained, it would seem possible to replace the radiator steam element with new hot water heating elements within the same cabinet space.
- For the majority of all floors, the radiators would be supplied from distribution piping located in the floor below. Certain areas, such as the radiators located on the 1st floor directly above the Canada Post Office public area, will need to be supplied from either the 1st floor ceiling space (with boxed in piping, or via individual risers originating from the basement and boxed in on the ground floor. Another alternative would be to feed the 1st floor radiators from the ceiling space of the 1st floor, and install the branch piping of each radiator through the exterior wall. This would involve adding thermal insulation within the wall (surrounding the pipe area) to prevent freezing.
- Refer to Appendix A for the hydraulic diagram of the proposed layout.
- Advantages:
  - Hot-water heating is more flexible than low-pressure steam systems because temperatures can be widely varied.
  - Due to the low working temperatures of the water, the heat from a hot-water heating system is relatively mild, and the air does not become too dry.
  - Hot water heating systems are safer than steam heating systems.
  - Quiet operation and easy zoning.
- Disadvantages:
  - Slower heat response than steam radiators
  - Because the water temperature is lower than steam, the size of the radiator is proportionally larger.
  - There is a risk of the water in the hot water system freezing, although circulating the heating water all night can prevent that.
  - More equipment is associated with the installation of hot water heating system (heat exchanger, pumps, expansion tank, control valves, etc) which requires more maintenance.



### 7.3 Air Handling Options

- The purpose of this section is to provide an overview of the various ventilation system analysed for the Postal Station B building. This section will focus on identifying the main ventilation systems that are to form part of the project and provide the main reasons for the choices made. The advantages and disadvantages of the various air conditioning systems analysed are compared and evaluated in the following study.

#### Option 1 –Compartmental Air Handling System

- The following option will consider a configuration where each floor of the Postal Station B building would have a mechanical room with dedicated air handling systems capable of addressing the floor's heating and cooling requirement.
- Since this proposed option is to provide individual air handling systems on each floor, new mechanical rooms would need to be created on each floor. Since each floor will be equipped with its own air handling unit, fresh-air can be directly accessed at each floor by installing a louver in an existing opening (window) or the provision of a new opening.
- With this type of configuration, each tower floor level will be equipped with AHU unit(s) capable of serving the entire heating and cooling demand of the floor. This unit(s) would be located in a new mechanical room located on each floor. Basic elements of the AHU(s) include a finned-tube heating and cooling coil, filters, and fan sections with variable frequency drives. The unit would re-circulate air from the space and fresh-air would be introduced into the air stream before being conditioned by the heating or cooling coil as required.
- The AHU(s) would be designed to meet and serve the heating cooling load of both the interior and perimeter zones of a typical tower floor. The supply air temperature leaving the AHU would be set at 12.8 °C (55°F) and reset to meet the strongest cooling demand on the floor.
- Ventilation air is introduced at the air handling unit such that each zone receives a constant percentage of ventilation air. The air handling unit is to incorporate economizers capable of introducing up to 100% fresh-air in the space to take advantage of free cooling during mild weather and increase indoor air quality. It will also have a heating coil to provide the proper supply air temperature in cold weather.
- Based on preliminary calculations, each floor's air handling system would require the following approximate peak capacities:
  - Minimum fresh-air: 635 L/s
  - Typical floor cooling: 2,475 L/s
  - Typical floor heating: 1,185 L/s

These values are based on cooling supply air temperatures of 12.8 °C (55°F) and 37.8°C (100°F) heating air temperature.

- Typical Advantages
  - Since each floor would have their own mechanical system, in the event that a unit fails, the other floors of the tower would not be affected.
  - Flexibility is guaranteed during the building life cycle: each unit is provided for only one particular area. So within a floor space, different operating mode requirements such as free-cooling, re-circulation, additional fresh-air can be met.
  - With the principle of compartmental air handling systems, the contamination of one space (floor) by another, as possible with a centralized system, is avoided.
- Typical Disadvantages
  - This type of system treats only a single floor of the building tower. It cannot benefit from the fact that the peak load does not occur simultaneously everywhere in the building. Each piece of equipment must be sized for the maximum load, without diversity factor, increasing the overall installed capacity and capital cost.
  - Because of the large number of units located on each office floor space, the required maintenance cost is higher with this type of system.
  - Smaller equipment typically has a shorter normal service life than larger equipment. Also, since maintenance is harder to perform, routine maintenance can be challenging which reduces the performance of the equipment and reduces its service life.
- The equipment installed in the mechanical rooms on the occupied floor space can generate noise that will disturb the occupant. Controlling mechanical noise transmission to the space is more challenging.
- Higher commissioning cost due to increased number of mechanical equipment
- A larger number of mechanical rooms are required to implement this solution.

#### **Option 2 – Centralized HVAC System**

- The following option will consider a configuration where the Postal Station B building would have a centralized mechanical room equipped with air handling systems capable of addressing the building's HVAC requirements (all 7 floors).
- From this centralized mechanical room, distribution ductwork would be installed within the existing ventilation shaft to then be distributed onto each floor. Based on the estimated air flow required on all floors, this shaft would take up approximately 6 m<sup>2</sup> of space on each floor, which is the equivalent area of the existing shaft.
- Basic elements of the AHUs include finned-tube cooling and heating coils, filters, and fan sections with variable frequency drives. The unit would re-circulate air from the space and fresh-air would be introduced into the air stream before being conditioned by the cooling or heating coil as required.

- Ventilation air is introduced at the air handling units, operating at variable volume, in order to vary the quantity of fresh-air based on occupancy rate and levels of contaminants in the building. The air handling units are to incorporate economizers, which can introduce up to 100% fresh-air to take advantage of free cooling during mild weather and to increase indoor air quality. They will also have a preheat coil to provide the proper supply air temperature in cold weather.
- The air handling units would serve both interior and perimeter zones. A variable air volume (VAV) system controls temperature in interior and perimeter spaces by varying the quantity of supply air rather than varying the supply temperature. The air quantity is varied to meet the heating or cooling load gained from the exterior, equipment, lights and people loads. All supply ductwork is to be thermally insulated to prevent condensation and increase energy efficiency. Acoustic lining, used as thermal insulation, will not be accepted.
- Heating load will be mostly addressed via hydronic radiators located at the perimeter zones at window sills. Perimeter spaces will also be equipped with supplemental terminal reheat coils located downstream of the VAV boxes, thus allowing the air temperature to be increased locally and meet the space's heating demand. Each perimeter zone would be equipped with individual controls capable of adjusting the hydronic flow through the radiator and heating coil.
  - Estimated Peak Air-Flows:
  - Typical minimum fresh-air: 2 435 L/s
  - Typical cooling air: 21 475 L/s
  - Typical heating air: 15 815 L/s
- Typical Advantages
  - Because the systems serve large portions of the building, it is possible to benefit from the fact that the peak load does not occur simultaneously everywhere in the building. Taking advantage of this diversity factor reduces the size of the equipment, reduces the capital cost and increases energy efficiency.
  - All mechanical equipment is installed in equipment rooms and the number of systems is limited. This provides many maintenance related advantages: regular maintenance can be performed at any time without disrupting the occupant; all work is performed in one place which reduces time and cost required for maintenance and provides the best working environment for the maintenance staff.
  - All equipment being installed in equipment rooms, away from the occupants, provides and easier solution to control noise and vibration.
  - Because all mechanical equipment is installed in equipment rooms and the number of systems is limited, the time required for commissioning is reduced and costs related to the commissioning will therefore be lower.
- Typical Disadvantages

- o With a centralized mechanical room, the contamination of the air handling system would affect all the floors.
- o Numerous reheat coils are required to implement this option, thus increasing maintenance cost and potential disruption to tenants.

#### 7.4 Recommendation

Two options (1 and 2) have been presented as possible solutions for the primary air distribution for the Postal Station B station. Both of these options present numerous advantages and disadvantages that are unique to each option.

Since both options provide the occupants with the necessary comfort levels and control, the decision to pursue Option 1 or Option 2 is left available for PWGSC to select. Based on discussion with PWGSC-PM and PWGSC-COE, a compartmental HVAC system (Option 1) is not a preferred solution for the Postal Station B system. The higher cost of maintenance and likely higher capital cost would be unfavorable in the long term.

Therefore, as part of this study, Option 2 – Centralized HVAC system - was selected as being the preferred option to move forward with for costing.

With Option 2 being recommended, the next step is to determine potential centralized HVAC solutions to replace the existing system. Numerous scenarios were considered with the purpose of keeping the existing air system operational during the implementation.

#### 7.5 Solutions Considered

##### **Solution 1 – Temporary mechanical room on 7th floor, final mechanical room in basement**

- Description of Work:
  - o As part of this solution, it is proposed to install a temporary mechanical room on the 7th floor of the building. The major part of 7th floor is currently used for file storage. This would involve removing the existing storage to an offsite facility or to an alternate location within the building. This new mechanical room would be used to install a temporary AHU-1, capable of providing 50% of the peak demand. Once this temporary AHU-1 is installed, the intention would be to connect it to the existing ductwork system installed in the shafts. The AHU-1 would therefore be supplying air in the opposite direction as it currently is provided. Once the temporary AHU-1 is operational, the existing AHU in the basement can be demolished and replaced with an AHU-2 having 50% of the peak demand. Once AHU-2 is operational, AHU-1 can be removed from the 7th floor and relocated to the basement. The existing mechanical room would also be used to install of the heating equipment required for the steam to hot water conversion.
- Implications

- While this room is being constructed and equipment installed, the existing mechanical room would still be capable of distributing air and cooling to the office floors.
- New heating and cooling pipes would need to be installed in the shaft to provide heating water and chilled water to the temporary AHU on the 7th floor. The chilled water pipes will need to be removed once the temporary unit is relocated to the basement mechanical room.
- The existing mechanical room in the basement is not sufficiently large to house two (2) AHU. Additional space is required.

- Technical Difficulties
  - Installing the temporary AHU-1 on the 7th floor and re-using the existing ductwork is not feasible. The existing ductwork is extremely small to accommodate the airflow of AHU-1. The pressure generated by forcing such flow would likely result in a catastrophic failure of the ductwork.
  - This solution is not considered to be viable.

## **Solution 2 – New mechanical room located on 7th floor**

- Description
  - As part of this solution, it is proposed to install a new permanent mechanical room on the 7th floor of the building. The major part of 7th floor is currently used for file storage. This would involve removing the existing storage to an offsite facility or to an alternate location within the building. This new mechanical room would be used to install the new centralized AHU and associated HVAC equipment and will eventually become the main mechanical room of the building. While this room is being constructed and equipment installed, the existing mechanical room would still be capable of distributing air and cooling to the office floors. At each floor, some temporary work at the main mechanical shafts would need to be done to allow for such staging. Thus, a work area would need to be isolated on each floor near the mechanical shaft. The existing supply and return ductwork would be replaced in stages over nights and weekends. In other words, portion of the main shafts would be replaced and re-connected to existing system, thus allowing the existing system to remain operational. The existing mechanical room would be used to install the new heating equipment required for the steam to hot water conversion.
- Implication
  - New heating and cooling pipes would need to be installed in the shaft to provide heating water and chilled water to the new AHU. These piped would take up additional space in the mechanical shaft.
  - The main advantages of this solution is the ease of accessing fresh-air from near windows or the roof, far from typical contaminants found near ground level (combustion emissions, dust, odors), and elevated enough to meet the CBR requirements.
  - The main disadvantage of this option is the loss of rentable space on the 7th floor of the building. However, once work is completed, a portion of the existing mechanical room in the basement could be used for storage.
- Technical Difficulties
  - The staged work required for the replacement of the main mechanical shafts will be time consuming.

- o This solution is considered to be viable.

### **Solution 3 – Use Room B.10 to install 1 of 2 new AHU**

- Description
  - o Since all existing primary mechanical services are located in the basement of the Postal Station B building, it would be logical to install the new systems and equipment in the same area. As part of this solution, it is proposed to install two (2) AHUs in the basement. However, a new mechanical room would be required as the existing mechanical does not have sufficient space to house a new AHU while the existing remains operational. Even if the existing mechanical room were to be cleared, additional space would be required to house two (2) AHUs and all associated heating equipment. It is proposed to use room B.10 as a future permanent mechanical room. The room is currently being used for file storage. This would involve removing the existing storage to an offsite facility or to an alternate location within the building. This new mechanical room would be used to install the first AHU-1, capable of providing 50% of the peak demand. Once this AHU-1 is installed, the intention would be to connect it to the existing shaft via flexible ductwork. Once the temporary AHU-1 is operational, the existing AHU in the basement can be demolished and replaced with an AHU-2 having 50% of the peak demand. Once both new AHUs are operational, they will both be capable of providing the required peak flow rate. The existing mechanical room would also be used to install of the heating equipment required for the steam to hot water conversion.
- Implication
  - o The main disadvantage of this option is the loss of the storage space in the basement. The overall usable area of the basement will be reduced due to an increase in space of mechanical rooms.
- Technical Difficulties
  - o The current fresh-air location does not meet the CBR requirement. If meeting the CBR criteria is a required as part of the base building upgrade, an alternate location for fresh air louvers will need to be discussed with PWGSC and FHBRO.
  - o The space available in room B.10 is not enough to house the new AHU, hot water heat exchanger and associated heating pumps. As such, the room would need to be increased in size. This would involve a major architectural intervention at the basement level.
  - o Room B.10 is located adjacent to the existing mechanical room. However, the only exit stairwell of the basement is located between these two rooms. This means of egress needs to be maintained available during the construction and for the final configuration. Architectural modifications to the basement configuration would likely be required.

#### **Solution 4 – Refurbish Existing Air Handling System**

- Description of Work:
  - For buildings with faulty and deteriorating ventilation units, the obvious choice may appear to be replacement. However there are many reasons why the repair or refurbish alternatives should also be explored. Such is the case at for the Postal Station B building. As part of this solution, it is proposed to rebuild the existing air handling unit located in the mechanical room B.12. This solution provides less disruption and more flexibility as works can be scheduled so as not to interfere with tenant's business and carried out overnight or weekends. Refurbishment will likely be a much quicker solution from start to finish than replacement using multiple units, and also gives the choice of separating the necessary works and completing out at different times for much greater programming flexibility. For instance, the return fan can be replaced one weekend, coils on another weekend, casework and other components on another and then a controls upgrade that can integrate with BAS carried out at a later date, with other equipment on site. This solution also provides the opportunity to improve the existing unit specification by including a higher grade of filtration and upgrading fan performance. The performance of the new system can be upgraded to better match actual capacity and airflow requirements. Efficiency and therefore running costs can be improved by a considerable margin. The fans would be replaced with the latest energy efficient fans replacing the current forward curved fans. The new design would include the use of a multiple fan array to move air versus the existing single fan configuration. The modular design of fan array systems allows individual cubes to be navigated through a standard 3-foot door and assembled inside the existing/new air handler cabinet. With conventional single fan and motor systems, a failure of either component shuts down the entire air handling system. When a fan or motor failure occurs in a fan array system, the remaining operating fans can compensate to maintain airflow and static pressure until such time that the failed component(s) can be repaired or replaced. This provides redundancy to the air handling unit, without the use of multiple units. Since the Postal Station B AHU has restricted access, replacement coils can be provided in sections which are then joined on site. New valves and actuators would also be provided. New filter frames would be provided to fit a higher grade filters as required. The end result would include a new air handling unit capable of providing another 40 years of service.
- Implications
  - The main disadvantage of this option is the loss of the storage space B.10 in the basement. The overall usable area of the basement will be reduced due to an increase in space of mechanical rooms.
  - Involves a detailed plan of action to arrange for all necessary repairs to the air handling units. This plan will need to be elaborated with the new air handling unit manufacturers during the design phase. Thus, sole sourcing of the air handling unit will likely be required to ensure proper phasing.



- o The awarded mechanical contractor will need to be trained by the air handling manufacturer to ensure proper installation of the air handling unit. A manufacturer representative could be required to supervise the onsite installation of the air handling unit.
- Technical Difficulties
  - o Replacing the casing of the existing air handling unit will be the most challenging aspect of the refurbishment. The casing cannot be fully replaced over a single weekend to ensure that the unit is online during normal business hours. Means of temporarily connecting the new casing with the old will need to be designed. This can be as simple as temporarily connecting both casings with the use of plywood.

## 7.6 Recommended Solution

- Solutions 1 is not considered viable as it would involve major upgrades to the existing ductwork located in the shaft, and require additional mechanical and electrical infrastructure to operate the unit on the 7th floor. Installing this unit temporarily and relocated towards the end of the project would significantly increase the construction costs.
- Solution 2 would involve installing new chilled water piping from the basement level to the seventh floor and reconfiguring the entire ductwork within both mechanical shafts. New electrical distribution from the basement to the 7th floor would also be required to operate the unit. The solutions would also involve a reduction in usable rentable space on the 7<sup>th</sup> floor which is likely to be considered prime rentable space and would therefore be of more value.
- Solution 3 is not feasible since the room B.10 is not sufficiently sized in its current state to house the new heating conversion equipment and an air handling unit. Implementing solution 3 would require some architectural modifications to the basement layout to increase the size of room B.10, which would add cost to the construction project.
- Solution 4 is the recommended option for providing a new air handling unit. The phased replacement/refurbishment of this unit will allow the system to remain in operation so as to not disturb the tenants comfort.

## 7.6 Electrical

### 7.6.1 Main Service

- The electrical service to the Postal Station B building is a sub feed from the Langevin Block electrical distribution. Unless there are planned changes for the Langevin building distribution this sub feed service will remain, however it will be upgraded in capacity with new breaker and sub-feeder (600A).
- Alternate solution is to construct a separate Hydro Vault and service entrance. This would be very expensive and possibly impractical.

- Upgrading the main distribution panel for the Postal Station B building may be accomplished by:
  - Install a new panel in the main electrical room with new upgraded sub-feed service from the Langevin Block. Requires creating additional space in the electrical room. This might be accomplished by relocating the telecom backboard; however the relocation may also require a staged approach over the duration of the renovations.
  - Another possibility to create space within the electrical room is to relocate some of the electrical panelboards to another room in the basement.
  - The work would include operation of both existing and new panels until renovation and upgrade work complete.
  - Reconnection of existing services to remain in a controlled sequenced manner during building quiet hours.
  - Connect new distribution to new service as the floor upgrades progress.

#### 7.6.2 Motor Control

- Add a new section to the existing motor control to suit.
- This could be connected to the existing or if load is too great it can be a separate unit and fed from the new main panel.

#### 7.6.3 Normal Power Distribution

- As each floor is upgraded the new electrical installation will be completed and connected to the new distribution system.
- Non renovated floors will remain on the old distribution until all work completed.

#### 7.6.4 Emergency Power Distribution

- All work to be done during building quiet hours to minimize disruption.
- New work to be install and prepared in parallel to reduce down time.

#### 7.6.5 Building Fire Alarm System

- In an occupied building the existing system must remain operational during the construction process. Minor interruptions can be overcome using fire watch personnel.
- New equipment and installation should be installed in parallel to existing and interconnected. As the new system is completed the old portions can be removed.

#### 7.6.6 Telecommunications

- While not essential to upgrade the telecommunication infrastructure, the building renovations and upgrades present an opportunity to bring this system up to modern standards recognized by the industry and the Federal Government.

## 8.0 Implementation Strategies

Two options were retained as part of the above analysis for the base building upgrade, and these options were selected based on the best available technical solution. These options are:

- Heating System Replacement: Option 1 – Centralized Heating System
- Primary Air Handling System Replacement: Option 2 – Centralized HVAC System

For Option 2 – Centralized HVAC system, three potential solutions were investigated:

- Solution 1: Temporary mechanical room on 7th floor, final mechanical room in basement
- Solution 2: New mechanical room located on 7th floor
- Solution 3: Use Room B.10 to install 1 of 2 new AHU
- Solution 4: Refurbish existing air handling unit.

Solution 4 was retained as the most favorable solution since it would maintain all mechanical systems within the basement level and minimize the disruption to the existing mechanical shafts.

### 8.1 Summary of work to be implemented

- Remove asbestos containing plaster ceilings
- Provide new GWB 2 hours fire protection to underside of floors
- Replace carpets
- Paint
- Remove and replace existing suspended ceilings
- Conserve existing steel windows
- Replace copper roof
- Upgrade plumbing infrastructure including drainage piping, domestic water and fixtures;
- Upgrade fire protection system of building by adding a standpipe system and sprinklers throughout the building. This will involve the replacement of the fire-pumps.
- Upgrade heating system by replacing the steam radiators with new hot water radiators on all floors. This work also includes the installation of a steam to hot water conversion station in the basement (B.10) and the installation of a new hot water distribution system.
- Upgrade the HVAC system by refurbishing the existing AHU located in the basement mechanical room (B.12). This work also includes new variable volume air distribution system on all floors.

- The installation of a new Direct Digital Control (DDC) building automation system for mechanical and electrical systems.
- Upgrade electrical service from the Langevin Block electrical distribution.
- Replace main distribution panel in basement electrical room. On each floor upgrade the electrical installation including branch power circuits
- Upgrade the motor control to a new section to the existing motor control to suit the new mechanical installation.
- Upgrade the emergency power distribution by modifying connections for emergency power feeds to the Langevin Block and Hope Building. For the Postal Station B building, modify the system to include for two transfer switches. Modify normal power supply to the fire pump to meet code compliance as required.
- Upgrade building fire alarm system to include voice communication.
- Upgrade the telecommunication infrastructure to meet tenant requirements and modern standards recognized by the industry and the Federal Government.
- Upgrade building lighting and controls as part of the floor renovations.

From the options analyzed, the retained solutions were driven by three possible implementation strategies considered in this study:

- Implementation Option A: All Floors Fully Occupied
- Implementation Option B: PCO Floors Partially Occupied + CPC Fully Occupied
- Implementation Option C: PCO Floors Unoccupied + CPC Fully Occupied

This section will focus on the factors and costs to consider in order to implement the recommended options and solutions within the proposed occupancy strategies. The intention will be to determine a viable base solution and evaluate the impacts and costs of this solution for each implementation strategies.

## 8.2 Implementation Option A: All Floors Fully Occupied

### Sequence of work:

- HVAC Upgrade:
  - In order to commence this work, the existing storage room B.10 will need to be emptied and converted into a mechanical room. This new mechanical room would house the new heating water conversion station and associated pumps and accessories. As such, some space in the existing mechanical room (B.12) would be made available to assist in the refurbishment of the existing AHU.
  - Once the heating conversion station has been installed in room B.12, the refurbishment of the existing AHU would commence. All components of the existing AHU would be replaced including, casing panels, fans, coils, and filter bank. This work would take place during weekends to ensure that service to the floors is not interrupted. Means of temporarily connecting the new casing with the existing would be implemented to ensure that the unit is functional following the weekend work. Chilled water and steam connections will need to be provided to the unit. Temporary fresh-air and exhaust flexible ductwork would also need to be installed to the new AHU. AHU will need to be specified as a built-up unit and assembled onsite.
  - Once the AHU is installed, permanent connections would be completed for the fresh-air, supply and return ductwork.
  - Based on the required CBR requirements, new locations for fresh air louvers will need to be discussed with PWGSC and FHBRO. The modification of the fresh-air intake will likely affect the occupants.
  - The distribution on the floors will need to be completed during evenings and weekends. The air distribution will be re-configured based on the current office layout of the floors. Terminal reheat coils would need to be added to provide supplemental heating in critical areas. This staged construction would likely involve the removal and installation of a single VAV at a time.
  - Once all floor distribution has been completed, the air system can be balanced and commissioned.
- Heating System Upgrade:
  - The installation of the heating conversion station in room B.10 would need to be completed during the spring, summer and fall season when the heating demand is minimized or non-existent.
  - The existing supply shaft would need to be made accessible on each floor to allow the installation of the new heating riser. A hoarded construction area around the shaft will need to be created to prevent access to occupants. The new heating riser would need to be installed during evenings and weekends. At each floor, a 1m pipe spool along with

an isolation valve would be installed directly at the exit of the shaft. This pipe will be the main pipe serving the future radiators of the floor above.

- Demolition work of the existing radiators must be completed during nights and weekends. The mechanical demolition work on the office floors will involve the removal of the existing heating elements and accessories located inside the existing heating cabinets. Any exposed or apparent steam or condensate pipe would be removed; however concealed pipe located in walls or ceiling spaces would be capped and abandoned.
  - In provision to the new installation, a portion of the gypsum ceiling located on the floor below each radiator will need to be removed to allow piping access from the floor below. This gypsum ceiling contains asbestos material.
  - Demolition work in the basement level can be completed during normal working hours. The demolition work would involve the removal of all the steam and condensate piping, equipment and accessories back to the main steam entry valve (40 psi).
  - From the new isolation valve installed from the heating riser, new piping would be installed within the available space between the gypsum and suspended ceiling. This work will involve the removal and re-installment of ceiling tiles to allow access to the ceiling space.
  - Core drilling will be required in the slab at each radiator location in order to connect the new heating pipe to the heating element.
  - Once all piping on an individual floor has been installed and tested, it must be flushed and cleaned before it can be connected to the main heating system. After flushing has been completed, the heating pipes would be thermally insulated.
  - When all floors have been completed, flushing, cleaning, and balancing of the system will be required. This will involve re-accessing all radiators on all floors.
  - Upon completion of balancing, the heating system will be commissioned.
- Electrical Upgrade:
    - All work to be done during off hours to minimize disruption

- Window conservation
  - The windows would be removed and restored in a shop, with temporary plywood plugs inserted into the window openings.
- Impact on tenant and office space:
  - Since all work on the floors will be completed evenings and weekends, there shouldn't be any noise disturbances to the tenants. However, dust control and asbestos removal of the ceiling will likely be an issue during construction.
  - When only AHU-1 is in operation, thermal discomfort could be felt on the office floors depending on outside conditions.
  - In order to save time, the suspended ceiling would be completely removed and would remain as such until all work in the ceiling space has been completed.
  - The window restoration will be disruptive to spaces adjacent to the windows, and must be limited to summer months as thermal comfort will be compromised. Lexan windows can be inserted in the plubs, however views and daylight will be severely limited
- Impact on heritage value:
  - The work is limited to mechanical spaces, shafts, and ceiling spaces in office areas. These areas are not considered to be character defining elements in the Heritage Character Statement. Impact on heritage values will therefore be limited. It is possible that in the detailed development of the design minor interventions may be required in public areas that have not been anticipated at this preliminary stage, therefore it is recommended that in the implementation of this project qualified conservation professionals continue to be involved in monitoring the development of the design.



Cost:

Construction	\$	13,036,900.00
General Requirements	\$	1,173,320.00
Fee	\$	426,310.00
Design and Pricing Allowance	\$	2,195,480.00
Restrictive Work Hours Premium	\$	5,049,600.00
Phasing Premium	\$	16,411,210.00
	\$	<b>38,292,820.00</b>

### 8.3 Implementation Option B: PCO Floors Partially Occupied + CPC Fully Occupied

Sequence of work:

- HVAC Upgrade:
  - In order to commence this work, the existing storage room B.10 will need to be emptied and converted into a mechanical room. This new mechanical room would house the new heating water conversion station and associated pumps and accessories. As such, some space in the existing mechanical room (B.12) would be made available to assist in the refurbishment of the existing AHU.
  - Once the heating conversion station has been installed in room B.12, the refurbishment of the existing AHU would commence. All components of the existing AHU would be replaced including, casing panels, fans, coils, and filter bank. This work would take place during weekends to ensure that service to the floors is not interrupted. Means of temporarily connecting the new casing with the existing would be implemented to ensure that the unit is functional following the weekend work. Chilled water and steam connections will need to be provided to the unit. Temporary fresh-air and exhaust flexible ductwork would also need to be installed to the new AHU. AHU will need to be specified as a built-up unit and assembled onsite.
  - Once the AHU is installed, permanent connections would be completed for the fresh-air, supply and return ductwork.
  - Based on the required CBR requirements, new locations for fresh air louvers will need to be discussed with PWGSC and FHBRO. The modification of the fresh-air intake will likely affect the occupants.
  - The distribution on the floors can be completed sequentially on the vacated floors. Once the work on one floor has been completed, the work can proceed with the demolition and installation of the new air distribution on another floor. The air distribution will be re-configured based on the current office layout of the floors.
  - Once all floor distribution has been completed, the air system can be balanced and commissioned.
- Heating System Upgrade:

- The implementation of this work must be completed after the HVAC upgrade has been completed since available space needs to be made in the existing mechanical room to house the new heat exchangers and pumps. Also, this work will need to be completed during the spring, summer and fall season when the heating demand is minimized or non-existent.
- Demolition work must be completed on floor at a time. The mechanical demolition work on the office floors will involve the removal of the existing heating elements and accessories located inside the existing heating cabinets. Any exposed or apparent steam or condensate pipe would be removed; however concealed pipe located in walls or ceiling spaces would be capped and abandoned.
- In provision to the new installation, an area of the gypsum ceiling located on the floor below each radiator will need to be removed to allow piping access from the floor below. This gypsum ceiling contains asbestos material.
- Demolition work in the basement level can be completed during normal working hours. The demolition work would involve the removal of all the steam and condensate piping, equipment and accessories back to the main steam entry valve (40 psi).
- The existing supply shaft would need to be made accessible on each floor to allow the installation of the new heating riser. A hoarded construction area around the shaft will need to be created to prevent access to occupants. The new heating riser would need to be installed during evenings and weekends.
- From the heating riser, new piping would be installed within the available space between the gypsum and suspended ceiling. This work will involve the removal and re-installment of ceiling tiles to allow access to the ceiling space.
- The distribution from the heating riser will need to be completed one floor at a time. The heating water distribution piping of the vacated floor is actually serving the floor above (with the exception of the ground floor)
- For the ground floor CPC area, this work will need to be completed evenings and weekends.
- Core drilling will be required in the slab at each radiator location in order to connect the new heating pipe to the heating element.
- Once all piping has been installed and tested, thermal insulation of the piping would be completed.
- When all floors have been completed, flushing, cleaning, and balancing of the system will be required. This will involve accessing all radiators on all floors.
- Upon completion of balancing, the heating system will be commissioned.
- Electrical Upgrade:
  - Work to be done during off hours to minimize disruption.

- Window Conservation:
  - The windows would be removed and restored in a shop, with temporary plywood plugs inserted into the window openings.
- Impact on Tenant and Office Space:
  - Since an entire office floor is vacated, work on the floors can be completed during normal working hours. However, noise generating work such as core drilling will need to be performed during evenings and weekend.
  - When only AHU-1 is in operation, thermal discomfort could be felt on the office floors depending on outside conditions.
  - With this proposed implementation strategy, the heating system replacement will not be completed within one cooling season. Therefore, both the existing steam and new hot water heating system will need to be operational during the winter construction period.
  - The window removal and reinstallation will occur while the floor is vacated, and hence will have no impact on building occupants.
- Impact on Heritage Value:
  - The work is limited to mechanical spaces, shafts, and ceiling spaces in office areas. These areas are not considered to be character defining elements in the Heritage Character Statement. Impact on heritage values will therefore be limited. It is possible that in the detailed development of the design minor interventions may be required in public areas that have not been anticipated at this preliminary stage, therefore it is recommended that in the implementation of this project qualified conservation professionals continue to be involved in monitoring the development of the design.

Cost:

Description	Cost
Construction	\$ 13,036,900.00
General Requirements	\$ 1,173,320.00
Fee	\$ 426,310.00
Design and Pricing Allowance	\$ 2,195,480.00
Restrictive Work Hours Premium	\$ 3,366,400.00
Phasing Premium	\$ 5,049,600.00
	<b>\$ 25,248,010.00</b>

#### 8.4 Implementation Option C: PCO Floors Unoccupied + CPC Fully Occupied

Sequence of work:

- HVAC Upgrade:
  - Demolition work in the basement mechanical room can commence immediately after PCO floors have been vacated. Temporary ventilation and cooling can be provided to the CPC area via ductless splits or fan-coils.
  - Demolition of the existing air distribution system on the PCO floors can also be completed once the floors are vacated.
  - All demolition work can be completed during normal working hours.
  - With this proposed implementation strategy, the new AHU could be replaced rather than rebuilt.
  - Once all demolition work has been completed, the new equipment and distribution can be installed. The air distribution will be re-configured based on the current office layout of the floors. Terminal reheat coils would need to be added to provide supplemental heating in critical areas.
  - Once all floor distribution has been completed, the air system can be balanced and commissioned.
- Heating System Upgrade:
  - The implementation of this work can be completed in conjunction with the HVAC upgrade.
  - The mechanical demolition work on the office floors will involve the removal of the existing heating elements and accessories located inside the existing heating cabinets. Any exposed or apparent steam or condensate pipe would be removed; however concealed pipe located in walls or ceiling spaces would be capped and abandoned.
  - Demolition work in the basement level can be completed during normal working hours. The demolition work would involve the removal of all the steam and condensate piping, equipment and accessories back to the main steam entry valve (40 psi).
  - Room B.10 would need to be vacated of the current storage in order to install the new heating water conversion station and associated pumps and accessories.
  - The existing supply shaft would need to be made accessible on each floor to allow the installation of the new heating riser.
  - From the heating riser, new piping would be installed within the available space between the gypsum and suspended ceiling. This work will involve the removal and re-installment of ceiling tiles to allow access to the ceiling space.

- For the ground floor CPC area, this work will need to be completed evenings and weekends.
  - Core drilling will be required in the slab at each radiator location in order to connect the new heating pipe to the heating element.
  - Once all piping has been installed and tested, thermal insulation of the piping would be completed.
  - When all floors have been completed, flushing, cleaning, and balancing of the system will be required.
  - Upon completion of balancing, the heating system will be commissioned.
- Electrical Upgrade:
  - Work can be completed during normal working hours. CPC electrical distribution will need to be kept functional during normal business hours.
- Impact on tenant and office space:
  - None
- Impact on heritage value:
  - The work is limited to mechanical spaces, shafts, and ceiling spaces in office areas. These areas are not considered to be character defining elements in the Heritage Character Statement. Impact on heritage values will therefore be limited. It is possible that in the detailed development of the design minor interventions may be required in public areas that have not been anticipated at this preliminary stage, therefore it is recommended that in the implementation of this project qualified conservation professionals continue to be involved in monitoring the development of the design.

Cost:

Construction		\$	12,886,900.00
General Requirements		\$	1,159,820.00
Fee		\$	421,400.00
Design and Pricing Allowance		\$	2,170,220.00
Restrictive Work Hours Premium		\$	1,663,830.00
Phasing Premium		\$	1,830,220.00
		\$	<b>20,132,390.00</b>

## 9.0 Additional Analysis Required

### 9.1 Additional Structural Assessment

The findings of the building envelope study included the observation that the connection between the stone cladding and the brick backup was “structurally incoherent.” That is, masonry ties were present in some of the test openings, but in some instances these ties were not connected to the backup wall or the structural framing. Due to the limitations on the available locations for test openings during the investigation phase of that study, it is impossible to determine how extensive this problem is.

Similarly, the nature of the structural connections of the framing elements is not known. Should a seismic evaluation be undertaken, this information is required, as is the nature of the connections between the stone and brick. To adequately investigate this issue would be intrusive and potentially damaging to the masonry if it was done from the exterior.

Considering its age, it is assumed that seismic loads were not considered in the original structural design of the building. As per the AMP of 2006, the NRC guidelines on preliminary seismic screening resulted in a Seismic Priority Index of 12.4 indicating a ‘moderate’ requirement for further investigation and a seismic review was recommended for 2006-07. We affirm the need for such evaluation prior to the implementation of any comprehensive upgrade project for the building.

The Postal Station B building main structural system can be simply described as a steel structure with masonry walls infill. The steel structure tends to behave in a ductile manner where it tends to deform under lateral loads. On the other hand, the masonry wall infill tends to behave in a brittle manner where it tends to exhibit small deformation under lateral load. When these two systems are mixed together, the overall behaviour becomes more complex and is typically affected by the existing details such as the stiffness of the steel structure and the gap between the steel frame and the infill walls.

The exterior masonry walls consist of an exterior stone cladding and interior backup brick wythe. The building exterior wall structural capacity is significantly affected by how the exterior stone cladding is tied or keyed in with the interior brick wythe. The extent of the keying or tying between the interior brick backup masonry and the exterior stone cladding is unknown at this stage.

In order to provide enough understanding of the building main structural system, some investigation test openings will be required to identify the nature of the steel frame connections and how the steel structure is integrated with the interior and exterior masonry walls. Some other openings will be required to investigate the tying between the interior wythe and the exterior stone cladding. Sufficient representative test openings will be required to record the as-found details which should be compared with the existing drawings of the building. These openings can be performed from the interior, and will not require destructive removal of limestone cladding.

### 9.2 Investigation Related to the Condition Assessment

Some areas of the building exhibited deterioration that is considered unique to these areas. The water infiltration to the light steel lintels of the penthouse caused severe corrosion and related jacking of the masonry. The diagonal cracking at the base of the roof gables is considered a unique problem to these

areas. The severe corrosion of the steel lintel supporting the stone decorative lintel of the southeast entrance and the corrosion of the steel work members supporting the concrete landing are unique deterioration problems that are specific to these areas.

However, aside from the known aforementioned areas with unique deterioration and exposure conditions, the condition of the steel structure embedded in the masonry envelope is unknown. While most of the exterior masonry walls exhibits no considerable signs of movement that could be related to steel corrosion or masonry core deterioration, confirmation of the condition of the main walls including the embedded steel frame is required. Some test openings will be required to investigate the performance of the envelope and how it provides a protection to the embedded steel structure. Sufficient representative test openings will be required at various locations of the envelope. Test openings should be expected to be made from the inside or the outside surfaces of the building.

### 9.3 Dynamic Analysis of the Building

The evaluation of the seismic performance of the building with its mixed structural system is very challenging and complex. The simple equivalent static method of the NBCC-2010 may not be sufficient to accurately achieve such evaluation. This may result in conservative interventions that may not be necessary and may compromise the historic fabric of the building. A more complex mathematical tool (such as finite element method) is recommended for investigating the seismic behavior of the building. A spectral or a more complex ground-motion time-history analysis can be carried out to determine the building performance. A three-dimensional finite element model for the building is typically expensive. However, it will result in a more accurate prediction of the building lateral resistance and typically result in effective less-intrusive interventions with a lower cost. It should be noted that the soils classification is required to undertake this analysis, and if this information is not already known then geotechnical investigations will be required. Also, the interaction with the adjacent building during seismic events should be considered. Information gathering about the nature of the interface with and the seismic adequacy of the adjacent building may be necessary for making a decision about the potential required seismic retrofit interventions.

### 9.4 Number of Test Openings

For capturing the existing structural details of the steel frame and the interaction between the steel structure and the infill walls, we expect that 8 test openings will be required. These openings are expected to be of about 0.8 x 1.2 m in size.

Also, we expect that 8 test openings will be required for verifying the condition of the building. These openings are expected to be of about 0.8 x 1.2 m in size. It is anticipated that most of these openings will be made in the building envelope from the interior.

### 9.5 Additional Analysis

In addition to a seismic analysis, it is recommended that Postal Station B be evaluated for other threats such as physical security and blast. These kinds of analysis are typically undertaken by specialists in their respective fields, and are driven by the needs of the building occupants. However, by coordinating these studies there may be opportunities to also synchronize the mitigation measures required by each.



## 10.0 Conservation Approach

### 10.1 General

The proposed work entails repairs to the Postal Station B Building to allow for the continued compatible use of the building. This work requires the installation of new mechanical and electrical equipment, piping, and ductwork. The work to install these systems will be concentrated in areas that are not considered to be character defining, and the equipment itself will be replacing modern mechanical and electrical systems in kind. Wherever possible, the routing of these systems will follow existing pathways, minimizing the need for work on the fabric of the building.

The continuing use of the ground floor of the building as a post office is consistent with the Heritage Character Statement's recommendation to maintain this function as a means to preserving the social and architectural values of the building. Similarly, the office occupancies are to remain unchanged.

Other work included in this project is related to the conservation of building envelope components, which are intact and good candidates for this treatment. Structural stabilization of some masonry is required, but this can be carried out in such a manner as to be invisible when complete.

As no changes to Character-Defining Elements are proposed, and no visible changes to the building will be required by the mechanical and electrical work, the *primary* treatment of the building is therefore Preservation; Standards 1 through 9 will apply.

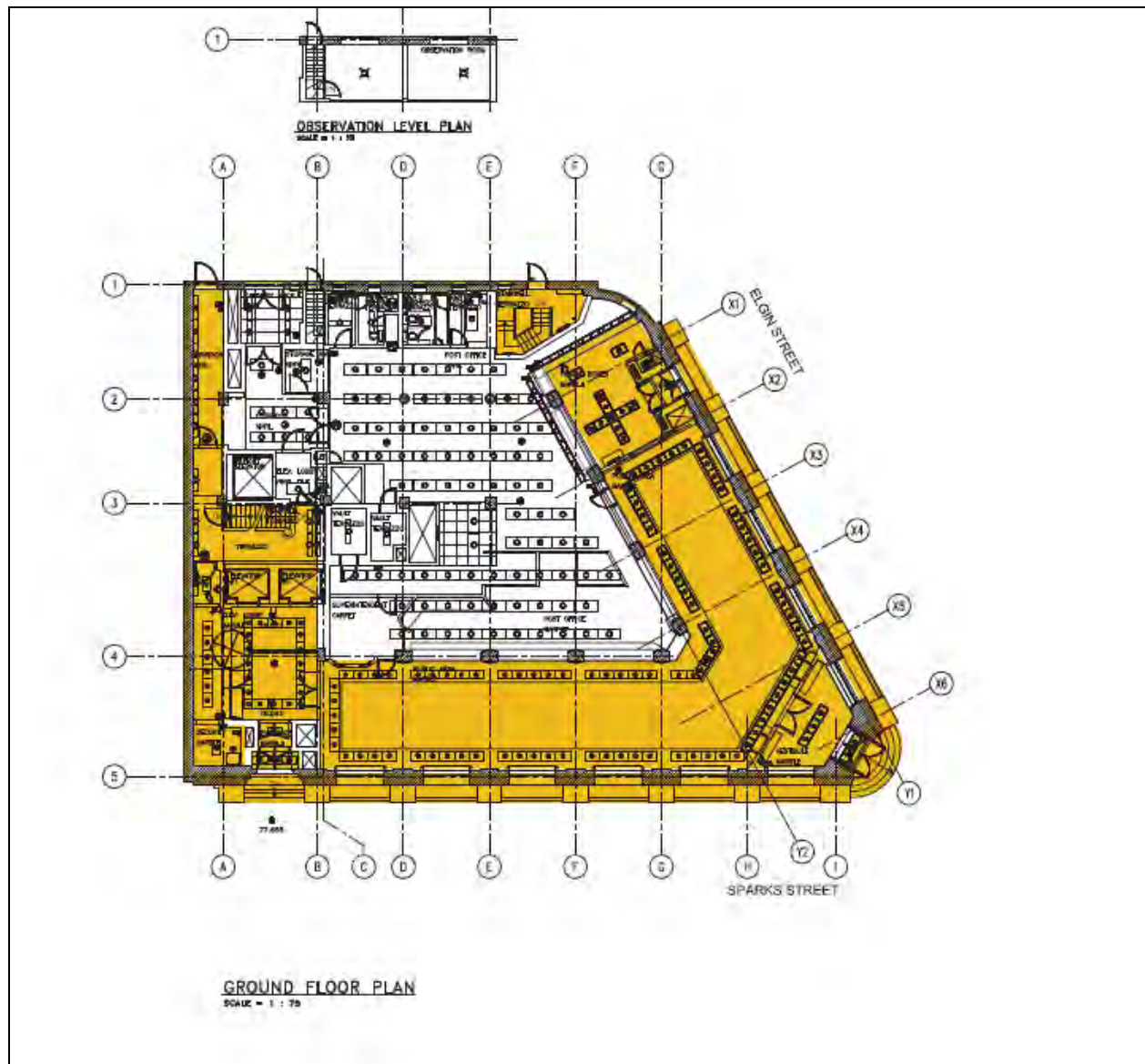
However, the reconstruction of the ceilings in the office areas may provide an opportunity to reinstate the ceilings in a manner more sympathetic to the character of the historic place. While not classed as a character-defining element, the office areas would benefit from less generic treatment. Guidance for this work would be found in Standards 10 through 12.

### 10.2 Character-Defining Elements

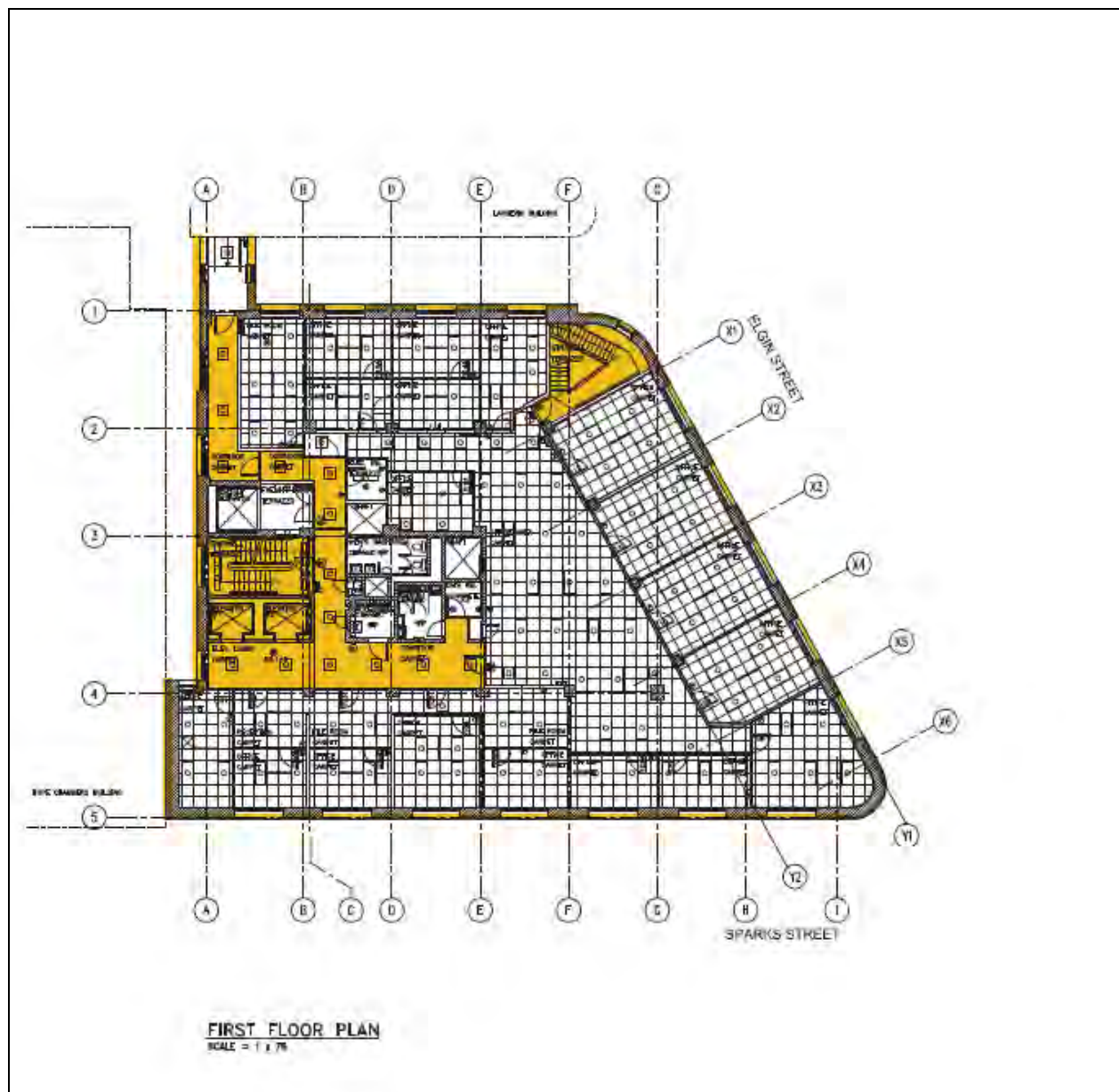
The Heritage Character Statement includes the following description of the character-defining elements:

*The whole of the visible façades and roofs of the building, including windows and doors, architectural metals and fittings, and, of course, the lions which guard its doors, are essential to its heritage character. It is unlikely that any of these elements can be altered without seriously diminishing the whole.*

*The public interiors of the building were originally finished with a suitable richness of material and ornament. The qualities of this space have been eroded over the years by successive small changes. It would be appropriate for this process now to reverse itself.*



**Figure 5 Ground Floor** Character Defining Elements indicated in shaded areas. Areas are an interpretation of the Heritage Character Statement which indicates all exteriors and public interiors are considered character-defining.



**Figure 6 Typical office floor.** Character Defining Elements are limited to public areas. Note extensive use of lay-in acoustical tile ceilings in the office areas. Areas are an interpretation of the Heritage Character Statement which indicates all exteriors and public interiors are considered character-defining.



**Figure 7 Character Defining Elements on East Elevation.** Areas are an interpretation of the Heritage Character Statement which indicates all exteriors and public interiors are considered character-defining.

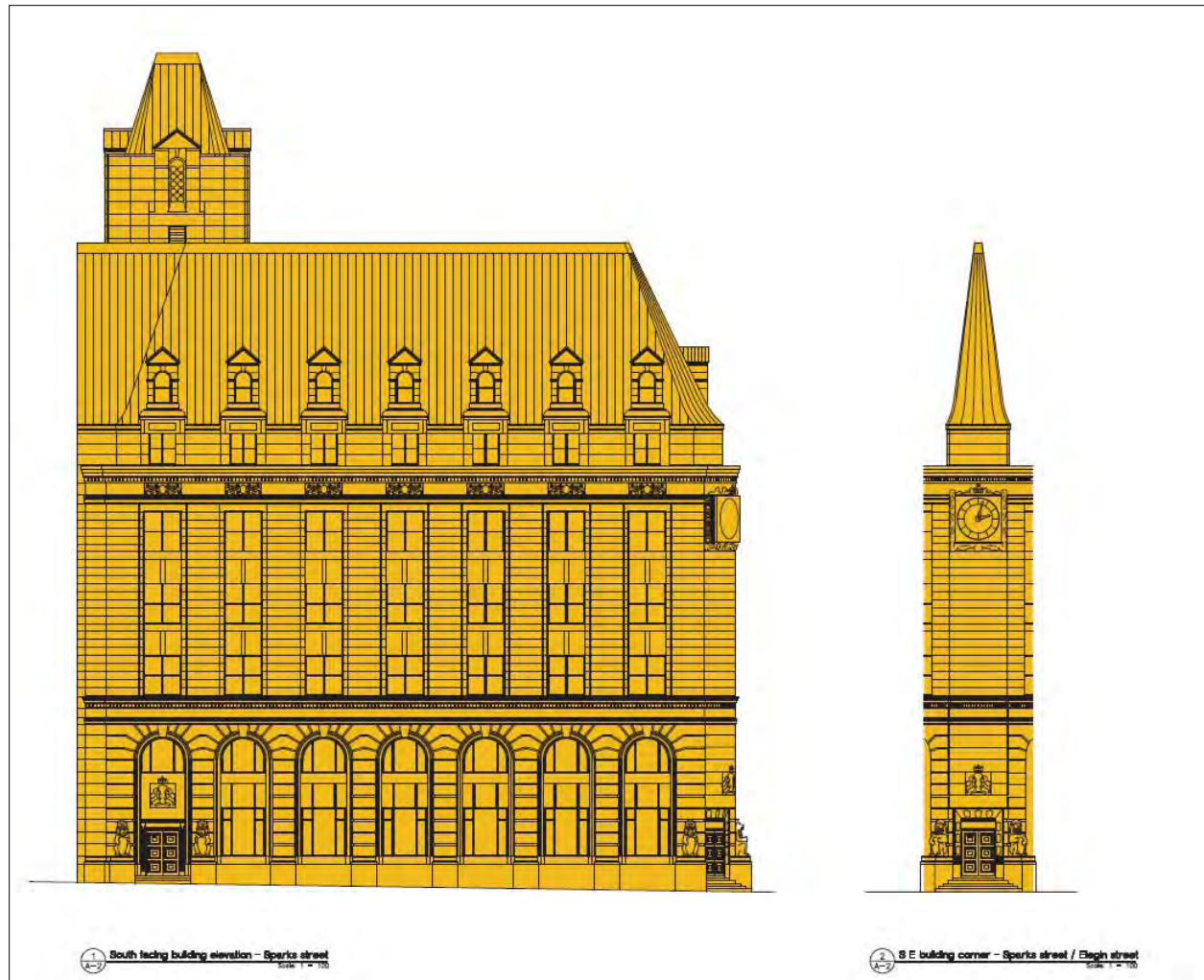




**Figure 8 Character Defining Elements on North Elevation.** Areas are an interpretation of the Heritage Character Statement which indicates all exteriors and public interiors are considered character-defining.



**Figure 9 Character Defining Elements on West Elevation.** Areas are an interpretation of the Heritage Character Statement which indicates all exteriors and public interiors are considered character-defining.



**Figure 10 Character Defining Elements on South Elevation.** Areas are an interpretation of the Heritage Character Statement which indicates all exteriors and public interiors are considered character-defining.

## 11. Conservation of Character-Defining Elements

### 11.1 Building Envelope

The building envelope in its entirety is the chief character defining element of Postal Station B. The proposed approach to their conservation is to retain as much original material as possible, as in Standard 1. The windows, although suffering from various pathologies described in previous reports, are largely intact and good candidates for conservation. The process for removing, cleaning, and refinishing the windows is described in the report *Postal Station B: Detailed Building Envelope and Related Mechanical System Investigation*.

A detailed assessment of the condition of the masonry is included in the above report. The granite and Queenston limestone are generally in good condition, although localized cracking and damage is found. The conservation of these elements should be based on professional assessment of the individual problems and treated with the gentlest means possible, as recommended by Standard 7.

As described above, reports on the condition of the roof vary widely. While it may be feasible to extend the life of the roof by repairing it in situ, roofing, unlike stone, is considered to be a wearing element, subject to cyclical replacement. Replacing the roof while the façade is scaffolded would reduce disruption to the building occupants, and be less costly in the long term. It would also provide the benefit of a fully conserved building envelope at the conclusion of the project, rather than one which still has medium-term durability concerns.

Professional conservation of the main entrance doors is recommended, and a procedure is described in *Postal Station B Bronze Door Repairs Report*, prepared by DFS Architecture & Design in March 2011.

The public areas, i.e. lobbies and corridors, should and can remain outside of the area of work required to upgrade the mechanical and electrical systems.

### 11.2 Other Elements

The majority of the building interior, that is, the office areas, have been altered significantly over time, and are not considered character defining elements. The original flat plaster ceilings have been covered with a suspended acoustical lay-in tile ceiling system in order to accommodate ventilation ductwork, and to provide a flexible arrangement for laying out office workstations. The typical office floors currently have private offices enclosed by partitions of unknown provenance, with an open work area in the centre. It is anticipated that this arrangement will continue to be a requirement.

The general approach to these areas not discussed in the Heritage Character Statement should follow the recommendations of Standard 3, which calls for minimum intervention. The configuration of the perimeter heating cabinets, for example, should be retained although the conversion of the building from steam to hot water heating will require replacement of the mechanical equipment inside them. The metal front panel of the cabinets themselves is relatively modern, having been replaced in the 1970's mechanical upgrade, however the surrounding architectural finishes remains intact. The application of Standard 3 suggests that the most appropriate approach to installing the mechanical equipment is one in which fewest architectural surfaces are disturbed. This will inform the routing of piping as well as the



replacement of heating elements. It will also influence the design of the new hot water heating system, should the cabinets not have sufficient space to house the new heating elements.

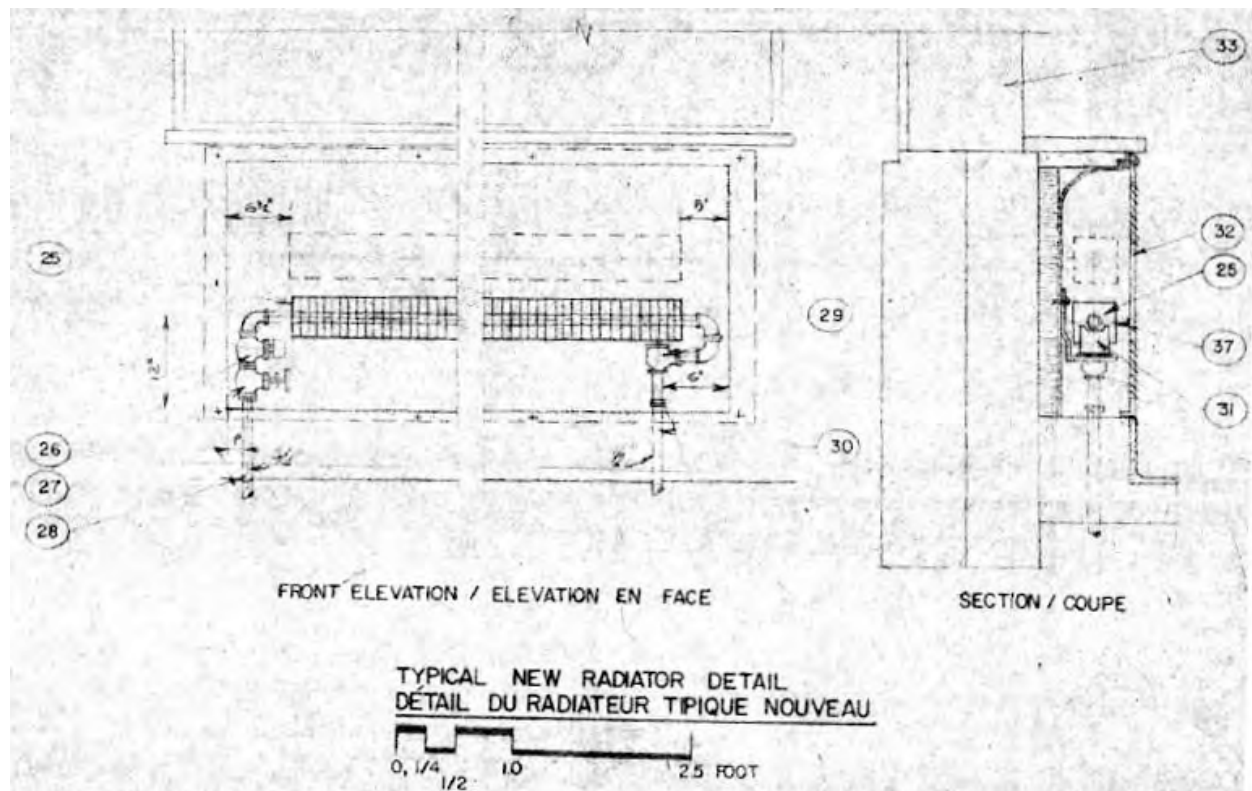


Figure 11 Replacement of radiator cover circa 1970. Existing cover is a replacement for the original panel.

While not an original feature of the building, the ceiling system in the office areas allows for the necessary mechanical systems to be installed without disturbing the finishes in the public corridors, which are considered to be character-defining elements. Furthermore it provides a flexible system for lighting and diffuser placement which allows for reconfiguration of work spaces. However, in the design stage, the possibility of introducing a combination of bulkheads and coffers should be examined, which will allow for the concealment of mechanical systems while reinstating the original ceiling height for much of the office area.

## 12. Conclusions and Recommendations

The recommended approach to replacing the base building systems consists of the following:

Centralized air distribution system

- o Refurbished AHU in existing mechanical room
- o Full replacement of heating system
- o Upgrades to electrical distribution as described
- o Upgrades to domestic water and sanitary systems
- o Restoration of windows
- o Replacement of copper roof

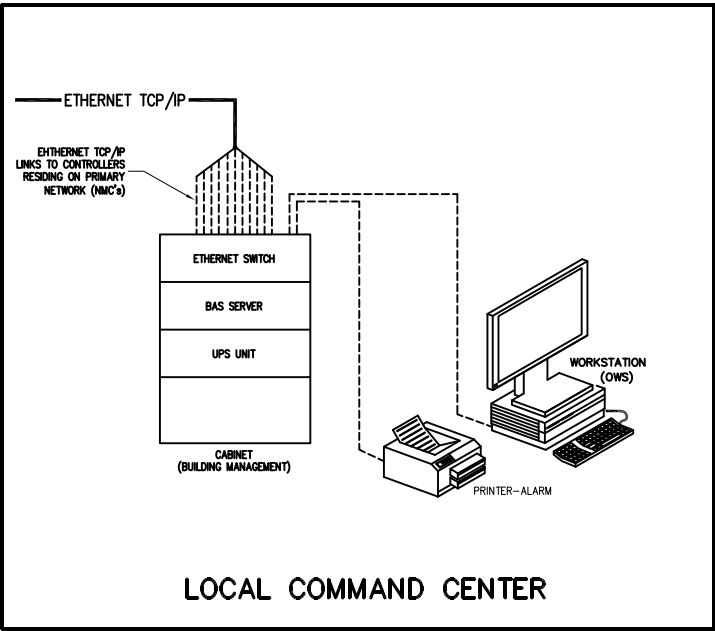
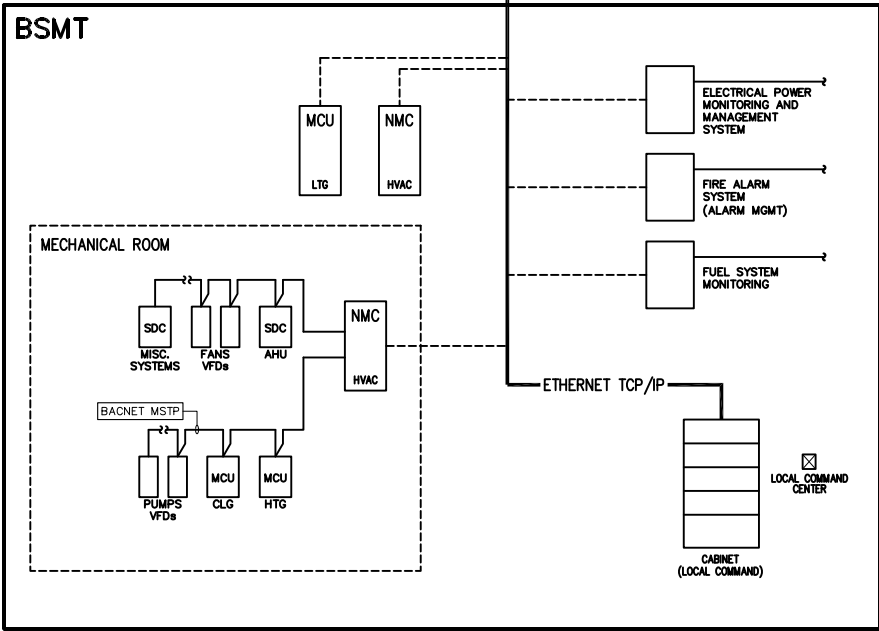
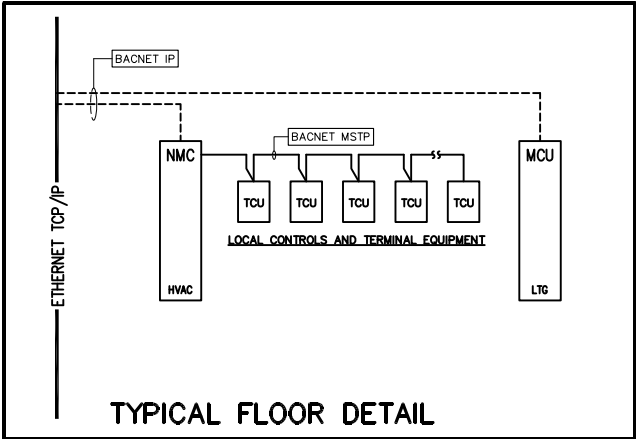
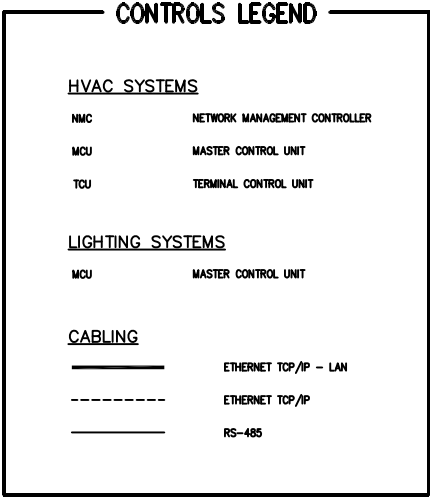
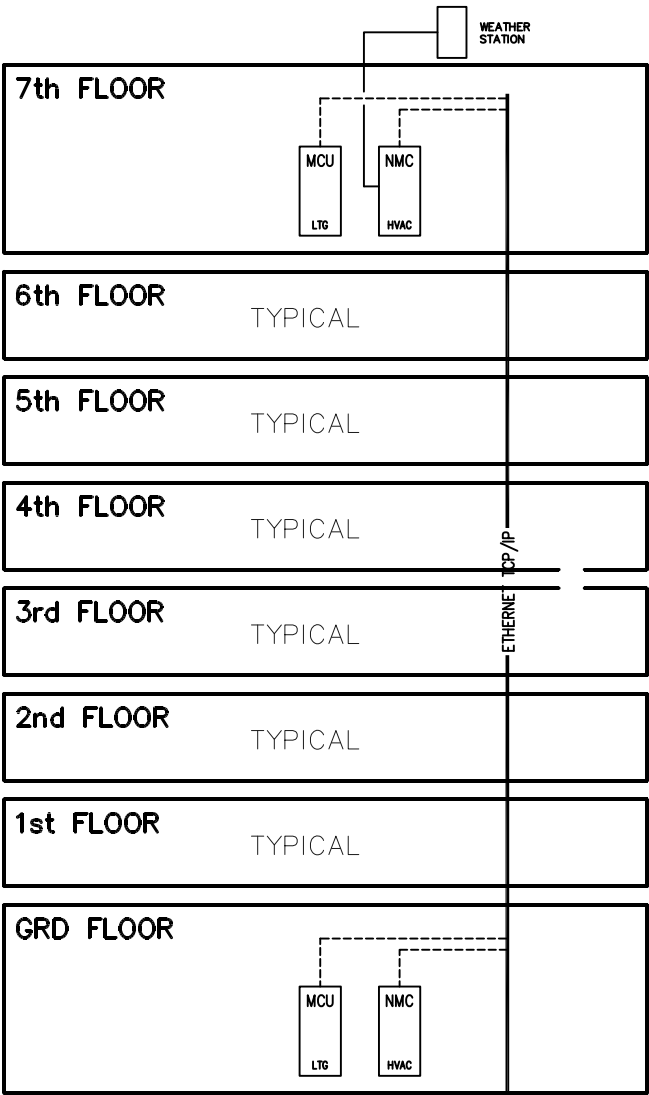
The preferred implementation scenarios require that the office areas be unoccupied, either for the entirety of construction, or on a floor-by-floor basis. The requirement for full asbestos abatement and disconnection of the heating system make the implementation of this work in a fully occupied space highly problematic.

## Postal Station B - Envelope Rehabilitation & Base Building Upgrade

Appendix A: Preliminary Mechanical Drawings and Diagrams

Final Report

June 3 2013



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Consulting Engineers

PROJECT

POSTAL B  
BASE BUILDING UPGRADE

BPA PROJECT #

8012-110

DATE

11/02/2013

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P.B.

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SCALE

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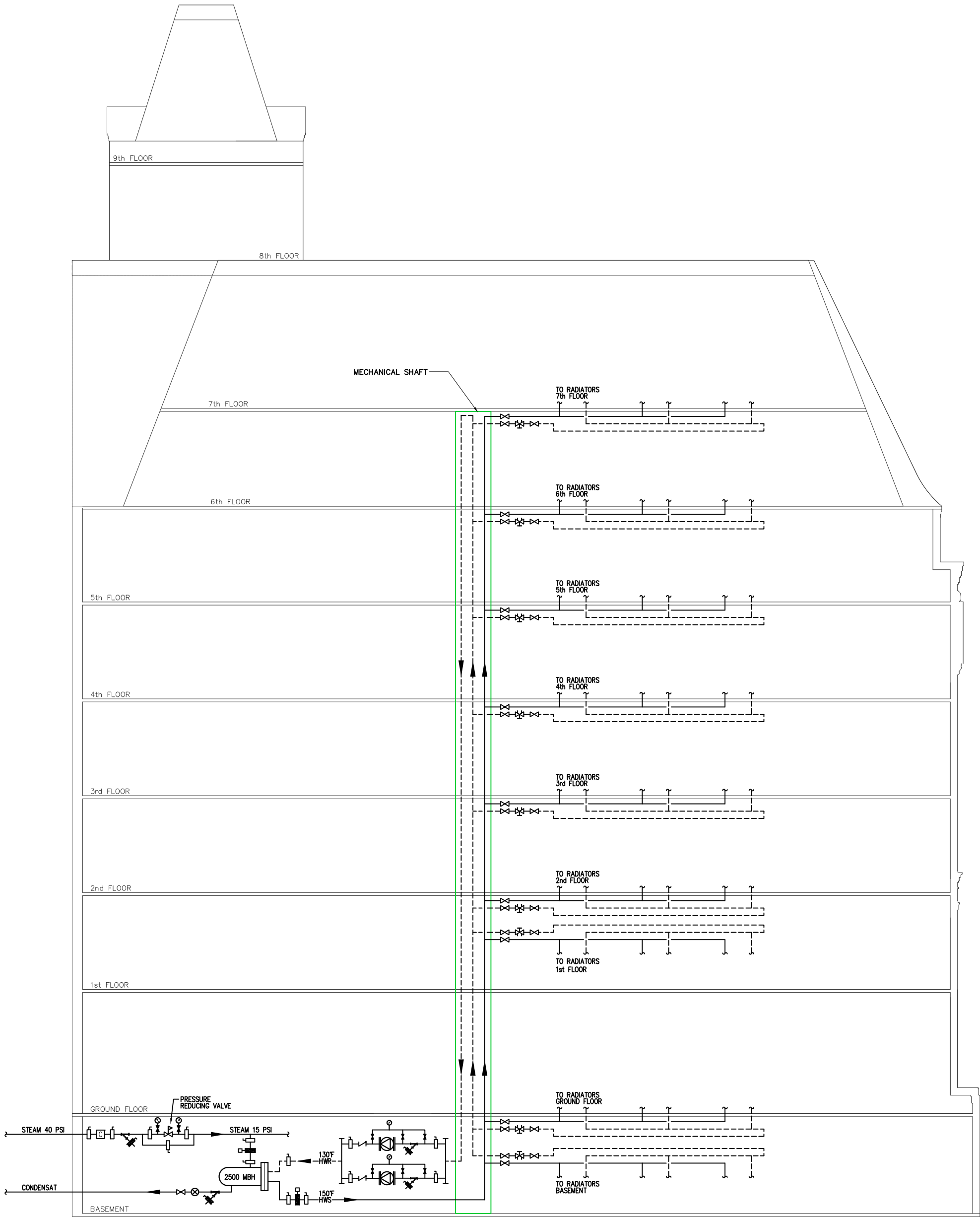
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DRAWING TITLE

BAS  
NETWORK ARCHITECTURE

DRAWING NUMBER

SKE-4

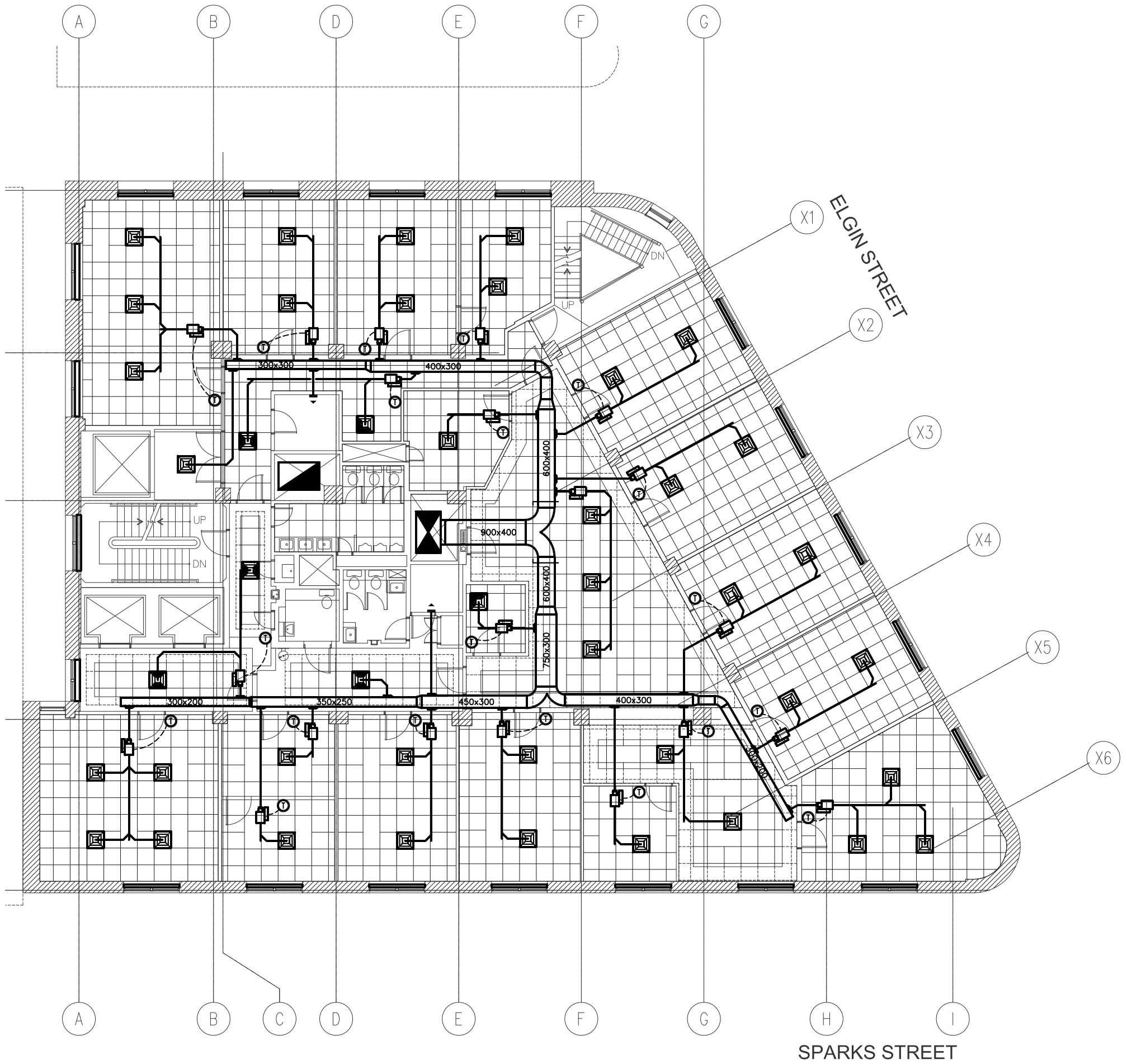


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PROJECT			DRAWING TITLE	
POSTAL B BASE BUILDING UPGRADE			NEW HEATING SYSTEM HYDRAULIC DIAGRAM	
BPA PROJECT #	DRAWN	SCALE	DRAWING NUMBER	
8012-110	P.B.	1:150		
DATE	CHECKED	REVISION	SKE-4	
11/02/2013	XX	00		



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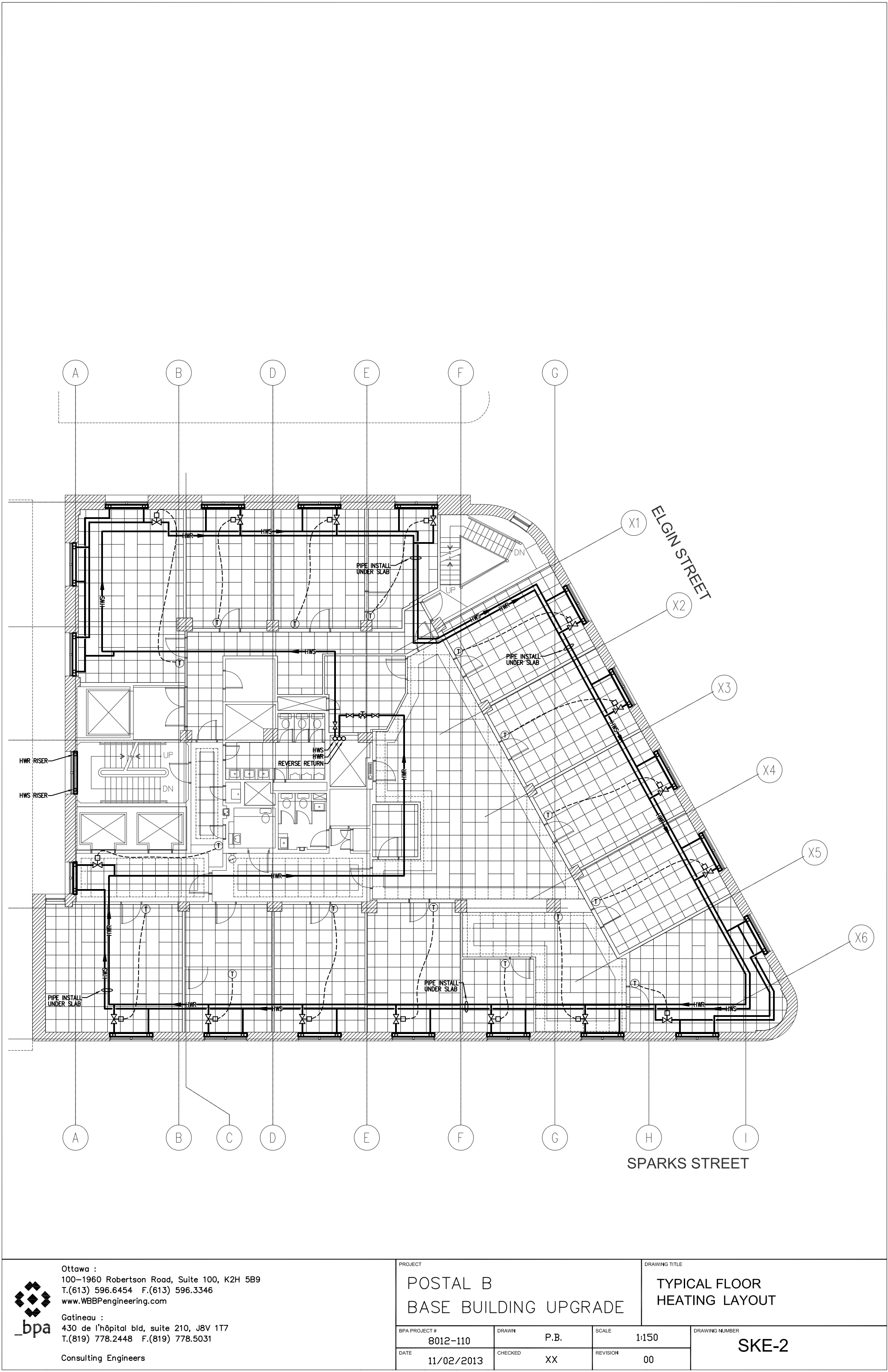
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DRAWING TITLE

TYPICAL FLOOR  
VENTILATION LAYOUT

DRAWING NUMBER

SKE-3



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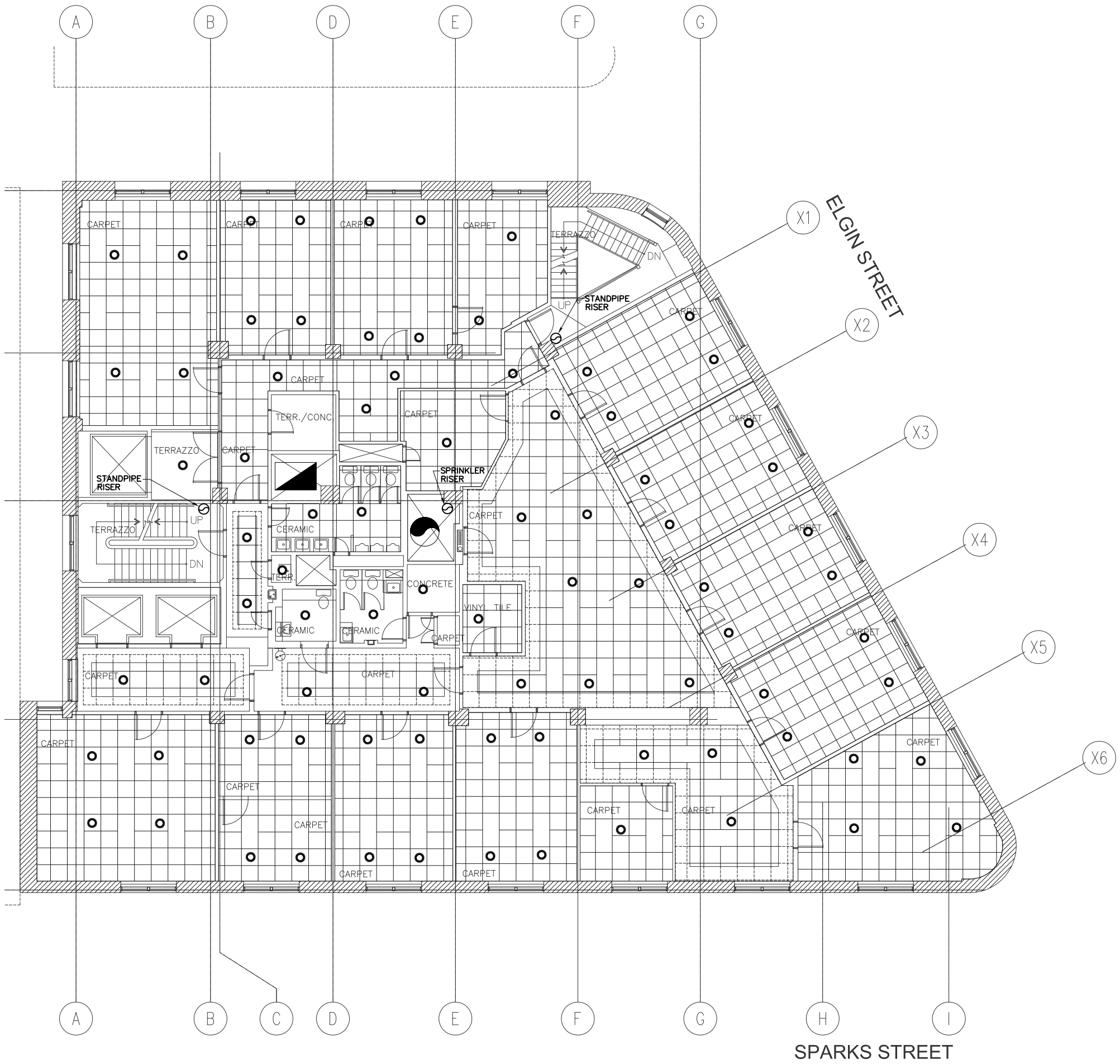
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TYPICAL FLOOR  
HEATING LAYOUT

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DRAWING TITLE

TYPICAL FLOOR  
SPRINKLER LAYOUT

DRAWING NUMBER

SKE-1



## Postal Station B - Envelope Rehabilitation & Base Building Upgrade

Appendix B: Report on Interviews with Building Operators

Final Report

June 3 2013



**BOUTHILLETTE PARIZEAU Inc.**

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TO: PWSGC – Steven Flannery  
DATE: February 11<sup>th</sup>, 2013  
SUBJECT: Postal B Building: Summary of discussion with building operator on October 12<sup>th</sup>, 2012

---

Steven,

The purpose of this meeting and walk through was to familiarize ourselves with the building's existing infrastructure. Present at this meeting was:

- Miguel Sousa – PWGSC Facility Operator
- Nicolas Boulet-Groulx – Facility Manager
- Georges Maamari – BPA
- Pascal Benjamin - BPA

The walkthrough and discussions were focused on the existing mechanical and electrical infrastructure. The following is a summary of our discussion and findings:

- The Postal B building currently receives its primary heating and cooling service from the Langevin building. The source comes from the Cliff Street Heating and Cooling Plant.
- Chilled water is only used for the AHU. Thus, chilled water is limited to the basement and there is no chilled water delivered to the floors.
- High pressure steam is delivered to the Postal B building (40 psi). A pressure reducing station lowers this pressure to 3.25 psi. The operator informed us that this is the pressure required to ensure that sufficient heat is delivered to the 7<sup>th</sup> floor, while avoiding problems (leaks) on lower floors.
- The existing steam distribution piping in the building is currently in bad shape and numerous leaks are reported throughout the heating season. Repairs are done on a "as required" when a leak presents itself.
- The entire heating distribution pipe is installed within the exterior wall and feeds the perimeter radiators on all floors. The heating pipes are therefore not accessible through the ceiling space. In a few cases, some pipes are located within the ceiling space, but behind the gypsum ceiling, making them inaccessible.
- During our visit, a leak had occurred on one of the floors.
- The 7<sup>th</sup> floor crawl space was accessed; signs of leaks (steam) were present within 2 areas.
- The AHU is also equipped with a steam heating coil. The operator informed us that the AHU is normally only used for cooling throughout the year. The heating coil serves as an emergency in the event that a shutdown is required on the heating distribution to make repairs to a leak.

- Discussions occurred with regards to potential locations of the new AHU, the locations will be discussed in the report.
- The Postal B building is fed electrically from the hydro vault located in the Langevin building.
- The operator informed us that a major flood of the entire basement occurred approximately 10 years ago. As part of the flood cleaned up, the electrical wiring distribution was redone within the basement; however, the electrical panels were maintained.



Georges Maamari, P.Eng, MPM

## Postal Station B - Envelope Rehabilitation & Base Building Upgrade

Appendix C: Implementation Schedule - Recommended Option

Final Report

June 3 2013

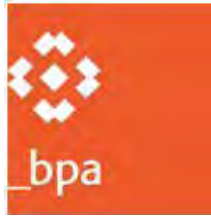


## Postal Station B - Envelope Rehabilitation & Base Building Upgrade

Appendix D: X-Ray Analysis of Existing Piping

Final Report

June 3 2013



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### **Postal B Building**

TO: Allan Teramura  
DATE: April 3<sup>rd</sup>, 2013  
SUBJECT: Pipe Scanning Review

---

BPA was mandated to perform sample radiographic scans of various piping systems at the Postal B building in order to determine the remaining pipe thicknesses and assist in the evaluation of the overall condition and remaining service life. BPA hired the services of Les Inspection Atlas to perform 40 x-ray scans on various services within the building (steam, condensate, chilled water, drainage, domestic water, etc) however, the majority of the samples were performed on the heating system since numerous leaks have been recently reported.

The x-ray scans were performed on February 23<sup>rd</sup> and 24<sup>th</sup> 2013. Each sample was tagged onsite with the x-ray number so that it may be referenced to at a later date. The samples were selected based on a visual evaluation of their age and condition. Les Inspections Atlas provided BPA with their report, identifying the remaining pipe thickness and percent reduction from the original pipe thickness. The report also identified any local signs of corrosion that was found on the scans. Refer to Appendix A. The x-ray films have also been provided by Atlas and will be returned to PWGSC Building Operators for their use in future references.

Although some pipes were identified as showing signs of localised corrosion (some more severe than others), the report obtained from Atlas did not provide any comment or evaluation on the remaining pipe thickness of the samples and the effects on the durability of the pipes.

Durability is defined as the ability of a pipe to withstand, to a satisfactory degree, the effects of service conditions to which it is subjected; it is the ability of a pipe to resist wear and decay (NRCC-1998b). The long term performance and durability of pipes (i.e. service life) are directly related to their corrosion resistance to various chemical and biological actions, as well as mechanical resistance to abrasion, temperatures and sustained loading.

#### **Corrosion**

Although corrosion is not considered a major factor in the deterioration of the piping at the Postal B building, it is important to touch base on the causes and impacts on the durability of the system.

Corrosion is the destruction of pipe material by electrical and chemical action. Most commonly, corrosion attacks steel pipe during the process of returning metals to their native state of oxides or salts.

In a piping system there are a number of factors working alone or in combination that can affect the rate of corrosion occurring in pipe. Depending on the degree of these factors a new piping system can show signs of corrosive wear in as little as a few months after installation. The rate of corrosion on a piping system is related to basically these factors:

- the pH of the water
- the amount of oxygen in the water or exposed to the pipe (drainage)
- the chemical make-up of the water
- the amount of galvanic corrosion from the use of dissimilar metals contained in or in contact with the piping system
- the temperature of the water
- the velocity/pressure of the water in the pipe

The domestic water and drainage system is an “open” system where the water in use is always being replenished with fresh oxygenated water. Dissolved air in water consists of about 30% oxygen and the rest is mostly nitrogen, which is non-corrosive. Oxygen degrades metals through an electro-chemical process of internal oxidation. The result is that metal gradually gets converted to an oxide (rust), becoming thinner and weaker in the process. As the pipe corrodes the impurities are deposited in the water lines. Encrusted build up is the direct result of the oxidation process. We believe this to be the case for the x-ray sample XR-10 which was taken on a leaking drainage pipe.

Corrosion can affect the inside (water-side), the outside, the internal wall structure of a pipe, or all of the above. The potential for corrosion to occur, and the rate at which it will progress, is variable and dependent upon a variety of factors. Depending on a given corrosive environment, increased pipe wall thickness may be required to provide adequate corrosion protection, such as the case of installing schedule 80 pipe on the condensate and steam piping.

The report submitted by Atlas identifies samples which are currently showing signs of corrosions.

### **Abrasion**

Abrasion is described as the gradual wearing away of the pipe material wall due to the contact of liquid and suspended material with the pipe surface. Abrasion will almost always occur in the invert of the pipe. As with corrosion, abrasive potential is a function of several factors, including pipe material, frequency and velocity of flow in the pipe. Abrasion increases as the flow velocity increases and as the pipe diameter increases. Putting aside the impact of abrasion on hydraulic performance, the abrasion rate is less important than the residual strength of the pipe at the end of the estimated material service life.

The abrasive environments may accelerate corrosion, or vice versa. Typically, for steel the combined effect of corrosion and severe abrasion is believed to be more than the sum of separate effects.

Water velocity problems are usually associated with a “closed” loop piping system where the need to pump or circulate the water is required. Abrasion occurs at locations where water turbulence develops. Turbulence can be caused by excessive velocity, sudden changes in direction (sharp turns, elbows) and through “flow” obstacles such as valves, tees, and excess solder.



The major contributing factors to abrasion include:

- water velocities exceed 4 ft/sec
- installation of undersized distribution lines
- multiple or abrupt changes in the direction of the pipe
- improper soldered joints
- improper balanced system

In order to determine the abrasion effects on the Postal B pipes and the impact on the remaining durability, ASME B31.9 *Building Service Piping* was used to determine the minimum required thickness required for each service. This standard requires that the design conditions define the pressures, temperatures, and other conditions applicable to the design of building services piping. Such systems need to be designed for the most severe conditions of coincident pressure, temperature, and loading anticipated under any conditions of normal operation, including startup and shutdown. The most severe condition needs to be that which results in the greatest required wall thickness and the highest component rating. In order to perform these calculations, assumption needed to be formulated on the above identified conditions.

**Design Pressures:** The B31 standard requires that the internal design pressure, including the effects of static head, shall not be less than the maximum sustained fluid operating pressure within the piping system. Consideration should be given to possible pressure surges. The standard also requires provisions be made to safely contain or relieve excessive pressure to which the piping may be subjected. Piping not protected by a pressure-relieving device, or that can be isolated from a pressure-relieving device shall be designed for at least the highest pressure that can be developed. Therefore, the design pressure for the steam piping was selected at 40 psi, while the chilled water and domestic water design pressure was selected at 100 psi.

**Piping Mill tolerance f:** The B31 standard include the 12.5 percent wall thickness variation in their calculation for minimum required wall thickness for pipe. This requirement adjusts the calculation to account for the method of seamless pipe manufacture. When seamless pipe is made, a mandrel is pushed through a hot billet (or "bloom") of metal to create the "hole" that is the inside diameter. In this process the mandrel may "wander" (slightly off-course) as it is pushed through the billet. The result of this slight side-to-side movement of the mandrel is that the pipe wall may be 12.5 percent thicker in the wall on one side and 12.5 percent thinner in the wall directly across the diameter. To be sure that the thinnest wall permitted by this manufacturing methodology the B31 standard include in the "mill tolerance" in the minimum required wall thickness calculation.

Efficiency factor E: We are assuming that furnace butt welds are used throughout the buildings. Every type of weld will have an efficiency rating ranging from 0.6 to 1. The efficiency factor is taken directly from the B31.9 standard.

Corrosion factor C: In services where there is experience of uniform general corrosion the corrosion allowance will be based on the corrosion rate, expected service life and reasonable safety factors. In other words, it all depends on what the original designer accounted for. As an example, the original designer clearly included for an increased corrosion allowance on the steam pipe, and as such schedule 80 pipe was installed. For steel piping, a typical corrosion allowance assumed will be 1/16". In some extreme cases, 1/8" is used (but not as a general rule).

As such, the following was considered for the purpose of calculating the minimum pipe thickness.

Steam Design Pressure (P)	40 psi
Chilled Water Design Pressure (P)	100 psi
Domestic Water Design Pressure (P)	100 psi
Piping Mill Tolerance (f)	0.125
Steam and Condensate Corrosion Factor (C)	0.0625 in
Chilled Water Corrosion Factor (C)	0.03125 in
Domestic Water Corrosion Factor (C)	0.03125 in
Weld Efficiency Factor (E)	0.6
Maximum Allowable Stress for ASTM A53 Steel (S)	7200 psi
Maximum Allowable Stress for Brass Pipe (S)	8000 psi

*\*It is to be noted that this standard cannot be used to calculate the minimum required thickness on sanitary drainage piping as such systems are not pressurized.*

The following equations, as per ASME B31.9, were used to determine the minimum required thickness  $t_{req}$  of each pipe service.

$$t_{min} = \frac{P \times OD}{2SE}$$

$$t_{req} = (t_{min} + C)(1 + f)$$

The following table summarizes the calculation for each pipe sample.

Scan	Service	NPS	OD (in)	Original Pipe Thickness (in)	Measured Pipe Thickness	% reduction	Minimum Thickness as per ASME B31.9 (tmin) (in)	Required Thickness including allowances (treq) (in)	Measured thickness - Required thickness (in)
XR-1	Cond	1 1/2	1.9000	0.200	0.181	10	0.0088	0.08021	0.101
XR-2	Steam	4	4.5000	0.337	0.240	29	0.0208	0.09375	0.146
XR-3	Cond	1	1.3150	0.179	0.131	27	0.0061	0.07716	0.054
XR-4	CH.W	6	6.6250	0.280	0.278	1	0.0767	0.12142	0.157
XR-5	Steam	3	3.5000	0.300	0.214	29	0.0162	0.08854	0.125
XR-6	CH.W	2	2.3750	0.154	0.142	8	0.0275	0.06608	0.076
XR-7	Cond	2	2.3750	0.218	0.137	37	0.0110	0.08268	0.054
XR-8	Steam	2 1/2	2.8750	0.276	0.192	22	0.0133	0.08529	0.107
XR-9	DW	1	1.3150	0.179	0.113	37	0.0137	0.05057	0.062
XR-10	DR	2	2.3750	0.154	0.029	81	-	-	0.029
XR-11	Cond	1/2	0.8400	0.147	0.105	29	0.0039	0.07469	0.030
XR-12	Cond	3/4	1.0500	0.154	0.112	27	0.0049	0.07578	0.036
XR-13	Cond	3/4	1.0500	0.154	0.103	33	0.0049	0.07578	0.027
XR-14	Steam	1	1.3150	0.179	0.134	25	0.0061	0.07716	0.057
XR-15	Cond	3/4	1.0500	0.154	0.081	47	0.0049	0.07578	0.005
XR-16	Steam	1	1.3150	0.179	0.119	34	0.0061	0.07716	0.042
XR-17	Cond	3/4	1.0500	0.154	0.113	27	0.0049	0.07578	0.037
XR-18	Steam	1	1.3150	0.179	0.102	24	0.0061	0.07716	0.025
XR-19	Cond	3/4	1.0500	0.154	0.107	31	0.0049	0.07578	0.031
XR-20	Cond	3/4	1.0500	0.154	0.118	23	0.0049	0.07578	0.042
XR-21	Cond	3/4	1.0500	0.154	0.103	33	0.0049	0.07578	0.027
XR-22	Steam	1	1.3150	0.179	0.135	25	0.0061	0.07716	0.058
XR-23	Steam	1	1.3150	0.179	0.139	22	0.0061	0.07716	0.062
XR-24	Cond	1/2	0.8400	0.147	0.038	74	0.0039	0.07469	-0.037
XR-25	Steam	3/4	1.0500	0.154	0.145	6	0.0049	0.07578	0.069
XR-26	Cond	1/2	0.8400	0.147	0.090	39	0.0039	0.07469	0.015
XR-27	Cond	1/2	0.8400	0.147	0.099	33	0.0039	0.07469	0.024
XR-28	Steam	3/4	1.0500	0.154	0.119	23	0.0049	0.07578	0.043
XR-29	Steam	3/4	1.0500	0.154	0.112	27	0.0049	0.07578	0.036
XR-30	Cond	1/2	0.8400	0.147	0.100	32	0.0039	0.07469	0.025
XR-31	Steam	3/4	1.0500	0.154	0.108	30	0.0049	0.07578	0.032
XR-32	Cond	1/2	0.8400	0.147	0.097	43	0.0039	0.07469	0.022
XR-33	Steam	1/2	0.8400	0.147	0.041	72	0.0039	0.07469	-0.034
XR-34	Cond	1/2	0.8400	0.147	0.042	71	0.0039	0.07469	-0.033
XR-35	Steam	1/2	0.8400	0.147	0.124	16	0.0039	0.07469	0.049
XR-36	DW	3/4	1.0500	0.179	0.151	16	0.0109	0.04746	0.104
XR-37	DW	1	1.3150	0.179	0.137	23	0.0137	0.05057	0.086
XR-38	DW	3/4	1.0500	0.179	0.145	19	0.0109	0.04746	0.098
XR-39	Steam	3/4	1.0500	0.154	0.141	8	0.0049	0.07578	0.065
XR-40	Cond	1/2	0.8400	0.147	0.122	17	0.0039	0.07469	0.047

The last column compares the measured thickness obtained by the x-ray scans with the minimum required thickness obtained with the ASME calculation. The results show that three (3) pipes are below the minimum thickness required by B31.9 and a few others that are fast approaching the limitation. The items highlighted in red are considered to be below an acceptable level (0.05 in) for which to sustain another 5 years of operation. These pipes are more prone to failure given any fluctuation to system pressure or if additional abrasion is experienced.

Lastly, the overall results obtained from this pipe scanning investigation further supports conclusions established from previous studies and real-time interventions performed by PWGSC operation and maintenance staff; that the existing heating piping system within the Postal B building needs to be replaced as it is past its normal service life.

A handwritten signature in blue ink, appearing to read 'G. Maamari', with a large, stylized loop at the end.

Georges Maamari, P.Eng, MPM

**Appendix A**  
**Les Inspections Atlas Report**

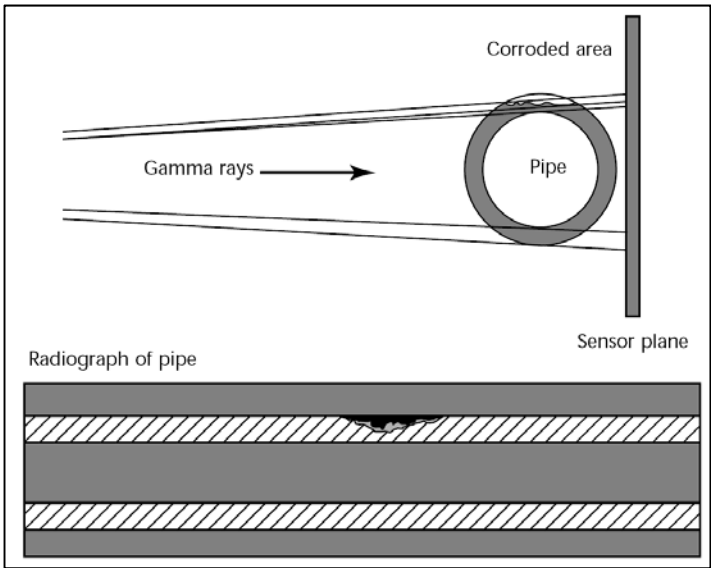
**RADIOGRAPHIC INSPECTION REPORT–TANGENTIAL RADIOGRAPHIC TECHNIC**  
**PIPE WALL THICKNESS MEASUREMENT–EROSION AND CORROSION DETECTION**

Client : <b>Bouthillette Parizeau (BPA)</b>	Report N°: <b>13-0140-A</b>
Contact : Georges Maamari, P. Eng.	Inspection date: February 23-24, 2013
Contract : Postal B - Ottawa	Report date : March 07, 2013
P.O. : A13-023	Inspection procedure N° : IAQ-WT-07 / Issue 4
Place of inspection : Postal B - Ottawa	Radiation source : Ir-192
Technician 1 :Benjamin Bellingham (CGSB RT2, CEDO)	Technician 2 :Craig Gendreau (CEDO)

**TANGENTIAL RADIOGRAPHIC TECHNIC DETAIL**

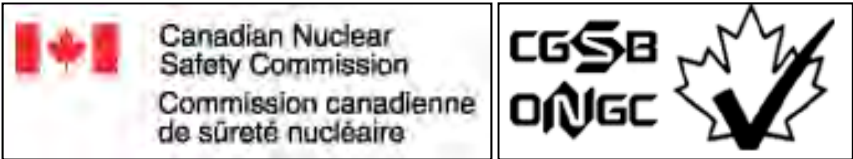
Tangential radiographic technique procedure applies to wall thickness measurement on piping for detection of erosion or corrosion.

Normally erosion and corrosion are hidden from viewing by either being on the pipes inside surface or by external corrosion being covered by insulation. In tangential radiography, a view of the pipes cross section, including a view of the pipe wall, is projected on the sensor (film), enabling direct measurement of the remaining pipe wall thickness.



**CERTIFICATIONS**

All personnel doing the radiographic testing shall be certified to CNSC/CEDO (Canadian Nuclear Safety Commission/Certified Exposure Device Operator). All personnel evaluating and reporting the radiographic test results shall be certified to CAN/CGSB-48.9712 RT Level II or Level III.





PIPE WALL THICKNESS (inch)										
Legend				Correction factor (IAQ-WT-07 § 9.0)				Wall thick.	Reduction	
OD <sub>r</sub> : OD real ball (1") OD <sub>a</sub> : OD apparent ball (>1") E <sub>f</sub> : Enlargement factor (%) (OD <sub>r</sub> /OD <sub>a</sub> ) I <sub>a</sub> : Apparent dimension (") I <sub>c</sub> : Corrected dimension (") (E <sub>f</sub> XI <sub>a</sub> ) Red: Reduction (%)										
ID	Pipe size	Wall thick	Mat'l	OD <sub>r</sub>	OD <sub>a</sub>	E <sub>f</sub>	I <sub>a</sub>	I <sub>c</sub>	Red. %	Remark
XR-1 (COND.)	1.5 sch 80	0.200	Steel	1	1.080	0.926	0.195	0.181	10%	Localized erosion& corrosion undetected
XR-2 (STEAM)	4 sch 80	0.337	Steel	1	1.090	0.917	0.240	0.240	29%	Localized erosion& corrosion undetected
XR-3 (COND.)	1 sch 80	0.179	Steel	1	1.070	0.935	0.140	0.131	27%	Localized erosion& corrosion undetected
XR-4 (CHILL WA.)	6 sch 40	0.280	Steel	1	1.160	0.862	0.322	0.278	1%	Localized erosion& corrosion undetected
XR-5 (STEAM)	3 sch 80	0.300	Steel	1	1.140	0.877	0.244	0.214	29%	Localized erosion& corrosion undetected
XR-6 (CHILL WA.)	2 sch 40	0.154	Steel	1	1.060	0.943	0.150	0.142	8%	Localized erosion& corrosion undetected
XR-7 (COND.)	2 sch 80	0.218	Steel	1	1.140	0.877	0.156	0.137	37%	Localized erosion& corrosion undetected
XR-8 (STEAM)	2.5 sch 80	0.276	Steel	1	1.120	0.893	0.215	0.192	22%	Localized erosion& corrosion undetected
XR-9 (DOM. WAT.)	T 1-3/4- 3/4	0.179	Brass	1	1.090	0.917	0.123	0.113	37%	Localized erosion& corrosion undetected
XR-10 (DRAIN)	2 sch 40	0.154	Steel	1	1.050	0.952	0.030	0.029	81%	Presence of severe corrosion
XR-11 (COND.)	1/2 sch 80	0.147	Steel	1	1.050	0.952	0.110	0.105	29%	Localized erosion& corrosion undetected
XR-12 (COND.)	3/4 sch 80	0.154	Steel	1	1.040	0.962	0.116	0.112	27%	Localized erosion& corrosion undetected
XR-13 (COND.)	3/4 sch 80	0.154	Steel	1	1.040	0.962	0.107	0.103	33%	Localized erosion& corrosion undetected
XR-14 (STEAM)	1 sch 80	0.179	Steel	1	1.050	0.952	0.141	0.134	25%	Localized erosion& corrosion undetected
XR-15 (COND.)	3/4 sch 80	0.154	Steel	1	1.050	0.952	0.085	0.081	47%	Start of localized corrosion
XR-16 (STEAM)	1 sch 80	0.179	Steel	1	1.050	0.952	0.125	0.119	34%	Localized erosion& corrosion undetected
XR-17 (COND.)	3/4 sch 80	0.154	Steel	1	1.040	0.962	0.118	0.113	27%	Start of localized corrosion (bottom)
XR-18 (STEAM)	1 sch 80	0.179	Steel	1	1.050	0.952	0.107	0.102	24%	Start of localized corrosion
XR-19 (COND)	3/4 sch 80	0.154	Steel	1	1.050	0.952	0.112	0.107	31%	Localized erosion& corrosion undetected
XR-20 (COND)	3/4 sch 80	0.154	Steel	1	1.020	0.980	0.120	0.118	23%	Localized erosion& corrosion undetected
XR-21 (COND.)	3/4 sch 80	0.154	Steel	1	1.050	0.952	0.108	0.103	33%	Localized erosion& corrosion undetected
XR-22 (STEAM)	1 sch 80	0.179	Steel	1	1.040	0.962	0.140	0.135	25%	Localized erosion& corrosion undetected
XR-23 (STEAM)	1 sch 80	0.179	Steel	1	1.040	0.962	0.145	0.139	22%	Localized erosion& corrosion undetected
XR-24 (COND.)	1/2 sch 80	0.147	Cu	1	1.040	0.962	0.040	0.038	74%	Localized erosion& corrosion undetected
XR-25 (STEAM)	3/4 sch 80	0.154	Steel	1	1.130	0.885	0.164	0.145	6%	Localized erosion& corrosion undetected
XR-26 (COND.)	1/2 sch 80	0.147	Steel	1	1.100	0.909	0.099	0.090	39%	Start of localized corrosion
XR-27 (COND.)	1/2 sch 80	0.147	Steel	1	1.060	0.943	0.105	0.099	33%	Localized erosion& corrosion undetected
XR-28 (STEAM)	3/4 sch 80	0.154	Steel	1	1.100	0.909	0.131	0.119	23%	Localized erosion& corrosion undetected
XR-29 (STEAM)	3/4 sch 40	0.154	Steel	1	1.160	0.862	0.130	0.112	27%	Localized erosion& corrosion undetected
XR-30 (COND.)	1/2 sch 80	0.147	Steel	1	1.040	0.962	0.104	0.100	32%	Localized erosion& corrosion undetected
XR-31 (STEAM)	3/4 sch 80	0.154	Steel	1	1.110	0.901	0.120	0.108	30%	Localized erosion& corrosion undetected
XR-32 (COND.)	1/2 sch 80	0.170	Steel	1	1.050	0.952	0.102	0.097	43%	Localized erosion& corrosion undetected



										Localized erosion& corrosion undetected
XR-33 (STEAM)	1/2 sch 80	0.147	Cu	1	1.080	0.926	0.044	0.041	72%	Localized erosion& corrosion undetected
XR-34 (COND.)	1/2 sch 80	0.147	Cu	1	1.070	0.935	0.045	0.042	71%	Localized erosion& corrosion undetected
XR-35 (STEAM)	1/2 sch 80	0.147	Steel	1	1.130	0.885	0.140	0.124	16%	Localized erosion& corrosion undetected
XR-36 (DOM. WA.)	T 3/4-3/4-1/2	0.179	Brass	1	1.020	0.980	0.154	0.151	16%	Localized erosion& corrosion undetected
XR-37 (DOM. WA.)	T 1-3/4-3/4	0.179	Brass	1	1.070	0.935	0.146	0.137	23%	Localized erosion& corrosion undetected
XR-38 (DOM. WA.)	T 3/4-3/4-1/2	0.179	Brass	1	1.030	0.971	0.149	0.145	19%	Localized erosion& corrosion undetected
XR-39 (STEAM)	3/4 sch 80	0.154	Steel	1	1.190	0.840	0.168	0.141	8%	Localized erosion& corrosion undetected
XR-40 (COND.)	1/2 sch 80	0.147	Steel	1	1.150	0.870	0.140	0.122	17%	Localized erosion& corrosion undetected

Vincent Houle, P.Eng.

CGSB-48.9712 RT Level3

Interpretation

Certification



## Postal Station B - Envelope Rehabilitation & Base Building Upgrade

Appendix E: Class D Estimate  
Final Report  
June 3 2013

**BASE BUILDING UPGRADES  
POSTAL STATION B - 47-59 SPARKS  
STREET  
OTTAWA, ONTARIO**

**CLASS 'D' ESTIMATE**

**March 11, 2013  
Revised: May 27, 2013**

**Hanscomb**

**BASE BUILDING UPGRADES  
POSTAL STATION B - 47-59 SPARKS STREET  
OTTAWA, ONTARIO**

**CLASS 'D' ESTIMATE**

**Prepared For:**

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**Prepared by:**

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**March 11, 2013  
Revised: May 27, 2013  
PROJECT NUMBER: Ott-4930**

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5.	Construction Cost Summary and Estimate	8

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## **1. INTRODUCTION**

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- 1.1 Purpose: This **Class 'D' Estimate** is intended to provide a realistic allocation of direct and indirect construction costs for the **Base Building Upgrades, Postal Station B - 47-59 Sparks Street**, located in **Ottawa, Ontario**, with exceptions of items listed in 1.5 below.
- 1.2 Description: This is the base building upgrades including new flooring and ceiling finishes, paint to walls, heating systems replacement, plumbing, HVAC, control system, sprinkler and electrical upgrades. We have estimate the costs based on three implementation scenarios. We have been instructed to include the exterior envelope restoration estimate from LCO dated June 8, 2010.
- 1.3 Methodology: From the documentation and information provided, quantities of all major elements were assessed or measured where possible and priced at rates considered competitive for a project of this type under a **stipulated lump sum** form of contract in **Ottawa, Ontario**.
- Pricing shown reflects probable construction costs obtainable in the **Ottawa, Ontario** area on the effective date of this report. This estimate is a determination of fair market value for the construction of this project. It is not a prediction of low bid. Pricing assumes competitive bidding for every portion of the work.
- 1.4 Specifications: For building components and systems where specifications and design details are not available, quality standards have been established based on discussions with the design team.

## **1. INTRODUCTION**

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1.5 Exclusions: This **Class 'D' Estimate** does not provide for the following, if required:

- Land acquisition costs and impost charges
- Development charges
- Legal fees and expenses
- Right of way charges
- Easement costs
- Financing or fund raising costs
- Owner's staff and associated management
- Relocation of existing facilities, including furniture and equipment
- Professional fees and expenses
- Maintenance equipment
- Special audio, visual, security equipment or installation other than provision of empty conduit systems carried in electrical division
- Loose furniture, furnishings and equipment
- Removal of contaminated materials located within the walls
- Cash allowances
- Escalation contingency
- Construction contingency
- Preventative maintenance contracts
- Building permit
- Harmonized Sales Tax

## **2. DOCUMENTATION**

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This **Class 'D' Estimate** has been prepared from the following documentation:

- 99% Draft Submission Postal Station B – Envelope Rehabilitation & Base Building Upgrades
- Exterior Envelope Estimate from LCO dated June 8, 2010 Option 3a

All of the above documentation was received from **Watson MacEwen Teramura Architects** and was supplemented with information gathered in meeting(s) and telephone conversations with the design team, as applicable.

Design changes and/or additions made subsequent to this issuance of the documentation noted above have not been incorporated in this report.

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### 3. COST CONSIDERATIONS

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- 3.1 Cost Base: All costs are estimated on the basis of competitive bids (a minimum of six (6) general contractor bids and at least four (4) sub-contractor bids for each trade) being received in March 2013 from general contractors and all major sub-contractors and suppliers based on a stipulated lump sum form of contract.
- If the minimum contractor/sub-contractor conditions are not met, the bids received could exceed the estimate.**
- 3.2 Escalation: No contingency has been included for construction cost escalation that may occur between March 2013 and the anticipated bid date for the project. Escalation during the construction period is included in the unit rates used in the estimate.
- 3.3 Contingencies: A contingency of 15.0% has been included to cover design and pricing unknowns. This contingency is not intended to cover any program space modifications but rather to provide some flexibility for the designers and cost planners during the remaining contract document stages.
- No contingency has been included to cover construction (post contract) unknowns. It is recommended that a provision for this item be included in the overall program budget.
- 3.4 Unit Rates: The unit rates in the preparation of this Class 'D' Estimate include labour and material, equipment, subcontractor's overheads and profits.
- 3.5 Taxes: No provision has been made for the Harmonized Sales Tax. It is recommended that the owner make separate provision for HST in the project budget.



**3.6 Statement of  
Probable Costs:**

Hanscomb has no control over the cost of labour and materials, the contractor's method of determining prices, or competitive bidding and market conditions. This opinion of probable cost of construction is made on the basis of experience, qualifications and best judgment of the professional consultant familiar with the construction industry. Hanscomb cannot and does not guarantee that proposals, bids or actual construction costs will not vary from this or subsequent cost estimates.

Hanscomb has prepared this estimate in accordance with generally accepted principles and practices. Hanscomb's staff is available to discuss its contents with any interested party.

**3.7 Ongoing Cost  
Control:**

Hanscomb recommends that the Owner and design team carefully review this document, including line item description, unit prices, clarifications, exclusions, inclusions and assumptions, contingencies, escalation and mark-ups. If the project is over budget, or if there are unresolved budgeting issues, alternative systems/schemes should be evaluated before proceeding into the next design phase.

Requests for modifications of any apparent errors or omissions to this document must be made to Hanscomb within ten (10) days of receipt of this estimate. Otherwise, it will be understood that the contents have been concurred with and accepted.

It is recommended that a final update estimate be produced by Hanscomb using Bid Documents to determine overall cost changes which may have occurred since the preparation of this estimate. The final updated estimate will address changes and additions to the documents, as well as addenda issued during the bidding process. Hanscomb cannot reconcile bid results to any estimate not produced from bid documents including all addenda.

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4. GROSS FLOOR AND SITE DEVELOPED AREAS

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GROSS FLOOR AREA:

Description	
Basement	710
Ground Floor	710
1 <sup>st</sup> Floor	710
2 <sup>nd</sup> Floor	710
3 <sup>rd</sup> Floor	710
4 <sup>th</sup> Floor	710
5 <sup>th</sup> Floor	710
6 <sup>th</sup> Floor	710
7 <sup>th</sup> Floor	710
<hr/>	
<b>TOTAL</b>	<b>6,390</b>

The above areas have been measured in accordance with the third edition of the Canadian Institute of Quantity Surveyors' "Measurement of Buildings by Area and Volume".

**4.0 Construction Cost Estimate Summary**

Ref	Description	Total Construction Cost
1	Implementation Option A - All Floors Fully Occupied	\$38,292,820
2	Implementation Option B - PCO Floors Partially Occupied + CPC Fully Occupied	\$25,248,010
3	Implementation Option B - PCO Floors Unoccupied + CPC Fully Occupied	\$20,132,390

**5.0 Construction Cost Estimate**

Ref	Description	Quantity	Unit	Unit Rate	Total Construction Cost
<b>1</b>	<b>Implementation Option A - All Floors Fully Occupied</b>				
	Remove existing t-bar ceiling	6,390	m2	\$35.00	\$223,650.00
	Remove ACM plaster ceiling - Type 3 Enclosure	6,390	m2	\$350.00	\$2,236,500.00
	Remove existing carpet	6,390	m2	\$15.00	\$95,850.00
	Fireproofing to existing structure	6,390	m2	\$45.00	\$287,550.00
	Paint to walls	16,567	m2	\$12.00	\$198,800.00
	New acoustic ceiling tile	6,390	m2	\$45.00	\$287,550.00
	New carpet	6,390	m2	\$60.00	\$383,400.00
	Allowance for miscellaneous work	6,390	m2	\$50.00	\$319,500.00
	Plumbing system Upgrade				
	Fixtures	1	sum	\$200,000.00	\$200,000.00
	Piping and accessories	1	sum	\$150,000.00	\$150,000.00
	Insulation	1	sum	\$50,000.00	\$50,000.00
	Heating system replacement				
	Radiators	1	sum	\$650,000.00	\$650,000.00
	Heat exchanger and accessories	1	sum	\$150,000.00	\$150,000.00
	Pumps	1	sum	\$75,000.00	\$75,000.00
	Piping and accessories	1	sum	\$500,000.00	\$500,000.00
	Insulation	1	sum	\$125,000.00	\$125,000.00
	HVAC system upgrade				
	Air handling unit	1	sum	\$250,000.00	\$250,000.00
	VAV's	1	sum	\$320,000.00	\$320,000.00
	Ductwork	1	sum	\$1,450,000.00	\$1,450,000.00
	Grilles and diffusers	1	sum	\$250,000.00	\$250,000.00
	Exhaust fans	1	sum	\$50,000.00	\$50,000.00
	Insulation	1	sum	\$380,000.00	\$380,000.00
	Control system upgrade				
	Local DDC controls	1	sum	\$400,000.00	\$400,000.00
	Mechanical Room	1	sum	\$50,000.00	\$50,000.00
	Central management system/integration	1	sum	\$50,000.00	\$50,000.00
	Fire Protection				
	Sprinklers	1	sum	\$180,000.00	\$180,000.00
	Piping and accessories	1	sum	\$150,000.00	\$150,000.00
	Fire Pumps	1	sum	\$150,000.00	\$150,000.00
	Standpipe	1	sum	\$250,000.00	\$250,000.00
	Electrical upgrade				
	Lighting	1	sum	\$350,000.00	\$350,000.00
	Secondary distribution	1	sum	\$350,000.00	\$350,000.00
	Floor distribution	1	sum	\$250,000.00	\$250,000.00
	Fire alarm	1	sum	\$150,000.00	\$150,000.00
	LCO Class D estimate Dated June 2012, Option 3A	1	sum	\$2,074,100.00	\$2,074,100.00
	Subtotal				\$13,036,900.00
	General Requirements	9.0%			\$1,173,320.00
	Fee	3.0%			\$426,310.00
	Design & Pricing Allowance	15.0%			\$2,195,480.00
	Restrictive Work Hours Premium	30.0%			\$5,049,600.00
	Phasing Premium	75.0%			\$16,411,210.00
	<b>Total Construction Costs</b>				<b>\$38,292,820.00</b>

## 5.0 Construction Cost Estimate

Ref	Description	Quantity	Unit	Unit Rate	Total Construction Cost
<b>2</b>	<b>Implementation Option B - PCO Floors Partially Occupied + CPC Fully Occupied</b>				
	Remove existing t-bar ceiling	6,390	m2	\$35.00	\$223,650.00
	Remove ACM plaster ceiling - Type 3 Enclosure	6,390	m2	\$350.00	\$2,236,500.00
	Remove existing carpet	6,390	m2	\$15.00	\$95,850.00
	Fireproofing to existing structure	6,390	m2	\$45.00	\$287,550.00
	Paint to walls	16,567	m2	\$12.00	\$198,800.00
	New acoustic ceiling tile	6,390	m2	\$45.00	\$287,550.00
	New carpet	6,390	m2	\$60.00	\$383,400.00
	Allowance for miscellaneous work	6,390	m2	\$50.00	\$319,500.00
	Plumbing system Upgrade				
	Fixtures	1	sum	\$200,000.00	\$200,000.00
	Piping and accessories	1	sum	\$150,000.00	\$150,000.00
	Insulation	1	sum	\$50,000.00	\$50,000.00
	Heating system replacement				
	Radiators	1	sum	\$650,000.00	\$650,000.00
	Heat exchanger and accessories	1	sum	\$150,000.00	\$150,000.00
	Pumps	1	sum	\$75,000.00	\$75,000.00
	Piping and accessories	1	sum	\$500,000.00	\$500,000.00
	Insulation	1	sum	\$125,000.00	\$125,000.00
	HVAC system upgrade				
	Air handling unit	1	sum	\$250,000.00	\$250,000.00
	VAV's	1	sum	\$320,000.00	\$320,000.00
	Ductwork	1	sum	\$1,450,000.00	\$1,450,000.00
	Grilles and diffusers	1	sum	\$250,000.00	\$250,000.00
	Exhaust fans	1	sum	\$50,000.00	\$50,000.00
	Insulation	1	sum	\$380,000.00	\$380,000.00
	Control system upgrade				
	Local DDC controls	1	sum	\$400,000.00	\$400,000.00
	Mechanical Room	1	sum	\$50,000.00	\$50,000.00
	Central management system/integration	1	sum	\$50,000.00	\$50,000.00
	Fire Protection				
	Sprinklers	1	sum	\$180,000.00	\$180,000.00
	Piping and accessories	1	sum	\$150,000.00	\$150,000.00
	Fire Pumps	1	sum	\$150,000.00	\$150,000.00
	Standpipe	1	sum	\$250,000.00	\$250,000.00
	Electrical upgrade				
	Lighting	1	sum	\$350,000.00	\$350,000.00
	Secondary distribution	1	sum	\$350,000.00	\$350,000.00
	Floor distribution	1	sum	\$250,000.00	\$250,000.00
	Fire alarm	1	sum	\$150,000.00	\$150,000.00
	LCO Class D estimate Dated June 2012, Option 3A	1	sum	\$2,074,100.00	\$2,074,100.00
	Subtotal				\$13,036,900.00
	General Requirements	9.0%			\$1,173,320.00
	Fee	3.0%			\$426,310.00
	Design & Pricing Allowance	15.0%			\$2,195,480.00
	Restrictive Work Hours Premium	20.0%			\$3,366,400.00
	Phasing Premium	25.0%			\$5,049,600.00
	<b>Total Construction Costs</b>				<b>\$25,248,010.00</b>

### 5.0 Construction Cost Estimate

Ref	Description	Quantity	Unit	Unit Rate	Total Construction Cost
<b>3</b>	<b>Implementation Option B - PCO Floors Unoccupied + CPC Fully Occupied</b>				
	Remove existing t-bar ceiling	6,390	m2	\$35.00	\$223,650.00
	Remove ACM plaster ceiling - Type 3 Enclosure	6,390	m2	\$350.00	\$2,236,500.00
	Remove existing carpet	6,390	m2	\$15.00	\$95,850.00
	Fireproofing to existing structure	6,390	m2	\$45.00	\$287,550.00
	Paint to walls	16,567	m2	\$12.00	\$198,800.00
	New acoustic ceiling tile	6,390	m2	\$45.00	\$287,550.00
	New carpet	6,390	m2	\$60.00	\$383,400.00
	Allowance for miscellaneous work	6,390	m2	\$50.00	\$319,500.00
	Plumbing system Upgrade				
	Fixtures	1	sum	\$200,000.00	\$200,000.00
	Piping and accessories	1	sum	\$150,000.00	\$150,000.00
	Insulation	1	sum	\$50,000.00	\$50,000.00
	Heating system replacement				
	Radiators	1	sum	\$650,000.00	\$650,000.00
	Heat exchanger and accessories	1	sum	\$150,000.00	\$150,000.00
	Pumps	1	sum	\$75,000.00	\$75,000.00
	Piping and accessories	1	sum	\$500,000.00	\$500,000.00
	Insulation	1	sum	\$125,000.00	\$125,000.00
	HVAC system upgrade				
	Air handling unit	1	sum	\$250,000.00	\$250,000.00
	VAV's	1	sum	\$320,000.00	\$320,000.00
	Ductwork	1	sum	\$1,450,000.00	\$1,450,000.00
	Grilles and diffusers	1	sum	\$250,000.00	\$250,000.00
	Exhaust fans	1	sum	\$50,000.00	\$50,000.00
	Insulation	1	sum	\$380,000.00	\$380,000.00
	Control system upgrade				
	Local DDC controls	1	sum	\$400,000.00	\$400,000.00
	Mechanical Room	1	sum	\$50,000.00	\$50,000.00
	Central management system/integration	1	sum	\$50,000.00	\$50,000.00
	Fire Protection				
	Sprinklers	1	sum	\$180,000.00	\$180,000.00
	Piping and accessories	1	sum	\$150,000.00	\$150,000.00
	Fire Pumps	1	sum	\$150,000.00	\$150,000.00
	Standpipe	1	sum	\$250,000.00	\$250,000.00
	Electrical upgrade				
	Lighting	1	sum	\$350,000.00	\$350,000.00
	Secondary distribution	1	sum	\$350,000.00	\$350,000.00
	Floor distribution	1	sum	\$250,000.00	\$250,000.00
	LCO Class D estimate Dated June 2012, Option 3A	1	sum	\$2,074,100.00	\$2,074,100.00
	Subtotal				\$12,886,900.00
	General Requirements	9.0%			\$1,159,820.00
	Fee	3.0%			\$421,400.00
	Design & Pricing Allowance	15.0%			\$2,170,220.00
	Restrictive Work Hours Premium	10.0%			\$1,663,830.00
	Phasing Premium	10.0%			\$1,830,220.00
	<b>Total Construction Costs</b>				<b>\$20,132,390.00</b>

## Postal Station B - Envelope Rehabilitation & Base Building Upgrade

Appendix F: Building Condition Report

Final Report

June 3 2013

PWGSC/TPSGC

**Building Condition Report**

**Postal Station B Ottawa P400238A**



Construction Year : 1938

Gross Area (square meters) : 6,036 Square Metre



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**Details**

Region  
Province  
Address  
City  
Replacement Cost New  
Construction Year (YYYY)  
Gross Area (square meters)  
Asset Name

**Values**

National Capital  
Ontario  
59 Sparks  
Ottawa  
11,122,257  
1938  
6035,7  
Postal Station B

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## BCR Project Team and Documents

### Scope of Work:

Halsall Associates Limited was engaged by Watson MacEwen Teramura Architects to produce an updated Building Condition Report of the Postal Station B Building located at 47 Sparks Street, Ottawa.

The scope of work of this report includes site visits by Halsall and its sub-consultants to visually review a selective sampling of all components of the facility including site, building structure, building envelope, interiors, mechanical, electrical and vertical transportation. Using the PWGSC AVS tool Version 2.0, all components present within the facility are included in the report, with descriptions of current condition evaluations. Events are detailed with Class D estimates of costs, for any repairs/replacements of components over a 30-year horizon. Costing in the BCR is based on the latest applicable PWGSC Cost Tables unless specifically indicated otherwise. Some costs are based on detailed information from reports prepared by DFS Architects Inc. for heritage components such as the Queenstone cladding, bronze and steel windows, bronze doors, etc. Events with repair or replacement costs with a value of less than \$5,000 are only included where the work scope is not considered to be part of normal maintenance. Digital photographs of the facility, typical components and component deficiencies have been incorporated as part of the database files. The reporting is completed according to the Terms of Reference outlined in the 2009 BCR Standing Offer.

### BCR Team:

The following firms participated in the preparation of this BCR:

Halsall Associates Limited, 210 Gladstone Avenue, Suite 3001, Ottawa, Ontario K2P 0Y6 Tel: (613) 237-2462

Fax: (613) 237-2935 - [Architectural, Structural, Property, Interiors] - Paul Johannsen

Wood Banani Bouthillette & Parizeau Inc., 3740 Richmond Road, Suite 100, Ottawa, Ontario K2H 5B9 Tel: (613)

596-6454 Fax: (613) 596-3346 - [Mechanical and Electrical] - Mina Mansour

Priestman Neilson and Associates, 68 Robertson Road, Suite 107, Ottawa, Ontario K2H 8P5 Tel: (613) 828-7293

Fax: (613) 828-8081 - [Vertical Transportation] - John Rooney

### SITE VISIT DATES:

- Halsall Associates: October 26 & 31, 2012

- Wood Banani Bouthillette Parizeau: October 22, 2012

- Priestman Neilson and Associates: December 6th, 2012

### Limitations in Liability:

This work does not wholly eliminate uncertainty regarding the potential for existing future costs, hazards or losses in connection with this asset. No physical or destructive testing and no design calculations have been performed unless specifically recorded. Conditions existing but not recorded were not apparent given the level of study undertaken.

Responsibility for detection of, or advice about pollutants, contaminants or hazardous materials is not included in Halsall's mandate.

Budget figures are our opinion of a probable current dollar value of the work and are provided for approximate budget purposes only. Accurate figures can only be obtained by establishing a scope of work and receiving quotes from suitable

Time frames given for undertaking work represent our opinion of when to budget for the work. Failure of the item, or optimum repair/replacement process, may vary from our estimate.

### TERMINOLOGY:

**Class D Estimate:** The estimated costs provided for each event are Class 'D' Estimates. A Class 'D' estimate (used by PWGSC in construction costing and building projects) provides an indication of the total cost of the project, based on the user's functional requirements to the degree known at the time. It is based on both current cost data provided by PWGSC within the AVS tool and on cost data from additional sources (i.e., RS Means and historical cost data for similar work, suitably adjusted for such factors as: effect of inflation, location, risk, quality, size and time.) All related factors affecting cost are considered to the extent possible with the information available at the time of report preparation. Estimates are strictly rough order of magnitude indications of the projects total cost, with an expected degree of accuracy of about 25%. The estimated costs included within the report are in year 2012 dollars, and include the following: a General Contingency Fee of (15%), and Soft Costs

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related to Consultant and PWGSC fees (30%).

Event Classifications: Events in this BCR have been classified either Capital or Repair in accordance with the definitions provided by PWGSC in the 2009 BCR Standing Offer Terms of Reference.

Sub-Classifications of Events: Event sub-classes in this BCR have been assigned in accordance with the definitions provided by PWGSC in the 2009 BCR Standing Offer Terms of Reference.

Component Condition Ratings: Component condition ratings in this BCR have been assigned using the guidelines provided in the PWGSC 2009 BCR Standing Offer Terms of Reference.

Event Timing: The years in which events are budgeted refer to the fiscal year rather than a calendar year. For example, "2013" indicates the fiscal year April 1, 2013 to March 31, 2014.

#### Documentation:

The following documentation was provided by PWGSC, for review as part of the preparation of this BCR:

Bronze Door repairs report prepared by DFS Inc. Architecture Design and dated May 5, 2010 and May 30, 2011;

Asset Management Plan (AMP) dated November 10, 2006;

Envelope and Mechanical System Investigation report prepared by DFS Inc. Architecture Design and dated March 9, 2011;

Postal Station B history and heritage information dated 2009;

Guidelines for Hot Water Heating systems for buildings connected to Central Heating Plants in NCA, prepared by Professional and Technical Services Real Property Services National Capital operations PWGSC, dated July 2011;

Site Visit Report - Preliminary Condition Assessment Water Damages dated December 12, 2008;

Postal Station B middle repairs dated November 18, 2009;

Postal Station B building lintel distress investigation prepared by KIB Consultants Inc. dated February 2009;

Building envelope screening 2005-06 report prepared by PWGSC and dated March 2006;

Site Visit Report - Preliminary Condition Assessment, prepared by PWGSC dated January 20, 2009;

Postal Station B Building Envelope Screening 2008-2009 prepared by PWGSC dated March 2009;

BMP's 2009-2010, 2010-2011, 2011-2012, 2012-2013;

Indoor Air Quality reports dated 2005 and 2006

The following drawings were provided by PWGSC for review as part of this BCR process:

Asbestos Tracking Application dated July 2012;

Plan showing core area and stairwells, dated March 1976;

Postal Station B building masonry repairs 2008-09, prepared by PWGSC dated August 2008;

Postal Station B roof repairs 2008-09, prepared by PWGSC dated October 12, 2008;

Repair of Decorative Lintel at southeast Entrance prepared by KIB Consultants Inc. dated March 2009;

Mechanical Drawings Prepared by J.L. Richards & Associates Limited dated April 1974

Basement Piping plan prepared by External Engineering Corp. dated July 1998;

Basement under-Slab Piping prepared by External Engineering Corp. dated July 1998;

Partial Mechanical Piping plans 1st to 5th floors prepared by External Engineering Corp. dated July 1998;

Ground-Floor Mechanical Piping plan prepared by External Engineering Corp. dated July 1998;

Penthouse Mechanical Piping plan prepared by External Engineering Corp. dated July 1998;

Third-Floor Mechanical Piping plan prepared by External Engineering Corp. dated July 1998;

Electrical Single-Line Diagram prepared by PWGSC dated January 2012;

Accessibility Audit prepared by PWGSC dated March 2008;

Energy Audit Inspections 1999, 2000, 2001 & 2008 CAN'T OPEN FILES

Energy Audit Go Green report dated November 2008;

Service Contracts dated September 2011.

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## Building History

### Building History:

Postal Station 'B' is the only building constructed by the Federal Government in accordance with Jacques Greber's original master plan for the downtown core area. It was built in 1938/39 and provided accommodation for the Post Office Ministry. It was designed by W.E. Noffke, a well known Ottawa Architect.

The Post Office retains occupancy of the main floor retail space, while the upper floors are now occupied by the Privy Council Office.

There have been major renovations to the building in 1975, 1990-95, and in 1997.

### Heritage Characteristics and FHBRO Designation

The Historic Sites and Monuments Board identified this building along with the other buildings around Confederation Square of national historical and architectural importance. The building belongs to Public Works and Government Services Canada (PWGSC).

In Postal Station B, W.E. Noffke, a distinguished Ottawa architect of the period, found an elegant solution to a demanding symbolic program. The government of the day recognized this building as its major contribution to the enclosure of the newly-created Confederation Square. Its cornice heights and, to a degree, its bay rhythms were established by the adjoining Langevin Block; the roof was imposed by a political preference for the Chateau Style, or at least for large copper roofs. Noffke integrated these givens in a composition of Classical regularity with the honed-down surface treatment typical of the Art Deco sensibility. The building is an entirely convincing example of good architectural manners.

Postal Station B was intended to be the springing of a consistent façade to Elgin Street south to Laurier Avenue. The Lord Elgin Hotel is a direct response to this aim; the Lorne Building and the British High Commission are less direct responses to the same intention. Postal Station B also works well as the gateway to the Sparks Street Mall.

The bronze doors at Postal Station B were designed by the architect Werner Noffke and manufactured and installed in 1939 during the construction of the building. They represent an important part of the building's heritage value and contribute to the stately status of Confederation Square.

In 1984, The Historic Sites and Monuments Board identified Postal Station B and many of the buildings surrounding confederation square to be of national historical significance and architectural importance. Confederation Square itself was designated as a National Historic Site of Canada. In 1986, The Federal Heritage Building Review Office scored Postal Station B as Classified, its highest category for a heritage building, because it was a significant and creative work of architecture and because it makes an important contribution to the character of Confederation Square and the Sparks Street Mall.

The whole of the visible façades and roofs of the building, including windows and doors, architectural metals and fittings, and, of course, the lions which guard its doors, are essential to its heritage character. It is unlikely that any of these elements can be altered without seriously diminishing the whole.

The public interiors of the building were originally finished with a suitable richness of material and ornament. The qualities of this space have been eroded over the years by successive small changes. It would be appropriate for this process now to reverse itself. Postal Station 'B' is the only building constructed by the Federal Government in accordance with Jacques Greber's original master plan for the downtown core area. It was built in 1938/39 and provided accommodation for the Post Office Ministry. It was designed by W.E. Noffke, a well known Ottawa Architect.

The Post Office retains occupancy of the main floor retail space, while the upper floors are now occupied by the Privy Council Office.

There have been major renovations to the building in 1975, 1990-95, and in 1997.

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## BCR Executive Summary

### General

Postal Station 'B' was designed by Ottawa Architect W.E. Noffke as a central Post Office and office for the Postal Ministry. It was completed in 1939. The ground floor of the building is still occupied by Postal Station 'B' and the office floors are occupied by the Privy Council.

The site area is 942 m<sup>2</sup>, with a rentable area of 4,980 m<sup>2</sup> and a useable area of 4,025 m<sup>2</sup>. Postal Station 'B' is an 8-storey building, with a full basement and a 2-storey penthouse.

The mechanical and electrical service areas are in the basement; the building is fed steam and chilled water from the Cliff Central Heating and Cooling Plant via a tunnel from the Langevin Building, and the main electrical service is supplied from the switchboard in the Langevin Building.

### Site

Site components beyond the footprint of the building are limited to:

- The asphalt paved laneway, catchbasin drain on the north side of the building;
- The gate that is the northeast corner of the property;
- The entrance steps at the southeast corner drain.

Other site components include

- The main flagpole on the roof and smaller flagpoles;
- Windowwell drains;
- Underground utilities.

### Structure

The building has the cast-in-place reinforced concrete footings, foundations and basement walls, a cast-in-place slab-on-grade and a combination steel and one way reinforced concrete slab structure.

### Building Envelope

The following building envelope components are original and now about 73 years old and are part of the building's Classified" heritage designation

- The Queenstone cladding including the lion sculptures cladding on the north south and east elevations of the building;
- The bronze and painted steel windows;
- The three exterior bronze entrance on the south, southeast corner and east elevations;
- The copper roof;
- The clock on the southeast corner;
- the granite at the windowwells on the south and east elevations.

Other non-heritage

- Aluminum windows at the penthouse;
- Stainless steel doors;
- Steel entrance doors.

### Interior Finishes

Interior finishes consist of:

- Typical office finishes (carpeting, painted walls and acoustic lay-in-tile ceilings);
- Marble flooring and wall panels on the ground floor (main lobby and post office);
- Granite wainscoting in the typical floor lobbies;
- Ceramic tile in the washrooms;
- Painted gypsum board and lath and plaster ceilings;
- Terrazzo flooring in the basement corridors and stairwell "A";
- Vinyl tile flooring and miscellaneous areas;
- A combination of original; wood doors and newer wood slab doors;
- Steel doors at stairwells and service rooms.

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#### Vertical Transportation

The vertical transportation system consists of two (2) passenger and one (1) service/passenger elevator. The elevators were modernized by Otis Elevator in the year 2006.

The original relay logic elevator controllers and motor generators were replaced with new micro-processor based controllers and solid state DC SCR motor drives. The original DC gearless machines were retained. All new wiring was installed in the elevator machine room, hoistway and car top.

The original car and hall operating buttons were replaced with new heritage type car and hall fixtures. New closed looped car door operators were installed at this time.

The original freight elevator was completely removed and a new service/passenger elevator with Class C1 loading capabilities was installed in the original freight elevator hoistway.

The elevators will not require a modernization until the year 2025

#### Mechanical:

High-pressure steam and chilled water is provided from the Cliff Central Heating and Cooling Plant. High-pressure steam is reduced to low pressure in the basement mechanical room. Low-pressure steam is distributed throughout the building. A duplex condensate return pump and tank package returns condensate to the CHCP. Chilled water is pumped through coils in the main air handling unit for cooling the building.

#### Electrical:

A 600V feeder from the Main Distribution Switchboard in the Langevin Block, supplies the electrical service to Postal station 'B' from a 400A breaker.

The building's lighting systems varies throughout the building. The basement, the electrical and service rooms have fluorescent strip lights with 2xT8 lamps. The corridors have recessed and surface mounted fluorescent luminaires. There are some decorative wall mounted direct/indirect luminaires.

The fire alarm system is from Edwards and was installed in 2006. The annunciator panel is located at the main entrance. The system is equipped with smoke detectors, heat detectors, manual stations, fire fighters telephones and voice communication speakers, strobe lights and fireman's handsets.

Emergency power is provided by a 350 kW generator located in the mechanical room in the basement. The emergency generator provides backup power to building's electrical system. The control panel is located in the diesel room and the automatic transfer switch is a part of the main secondary switchboard.

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## ***Design Parameters & Deficiencies - current & future***

### Floor Loading

The compliance of the structural system to the current Code for load carrying capacity of floors and roofs could not be confirmed due to the non-availability of structural drawings. The structural system has safely supported the current occupancy loads for more than 73 years. Based on the NBC 2010 structural evaluation guidelines, a Level III floor and roof load study is recommended to review the structural condition and loading capacity of the floor and roof slabs refer to details in section 10.2A-010 Architectural and Structural.

### Heating Capacity:

The mechanical heating system has the capacity to accommodate current and future occupant loads. Conditions should be reviewed before any significant modifications are undertaken.

### Cooling Capacity:

A study with respect to temperature, humidity and air quality levels has recently been completed in 2005. The results indicate that the existing mechanical systems are capable of maintaining reasonable conditions at the building's present occupancy load. A significant increase in the building occupancy would likely have an impact on the ability of the building systems to maintain acceptable temperatures, humidity and air quality. Conditions should be reviewed before any significant modifications are undertaken.

### Electrical

The electrical systems satisfy the present FTE density. A major increase in the FTE may result in a distribution problem. Conditions should be reviewed before any significant modifications are undertaken.

### Vertical Transportation capacity

When the #1 and #2 elevators were modernized in 2006, Otis retained the original #72 gearless machines and installed new 411 controls with SCR DC solid state non-regenerative motor drives.

The elevators remain in excellent condition.

All elevators are protected with UP overspeed and uncontrolled movement of the car and counterweight.

The elevators comply with all barrier free design requirements.

The elevator machine room and secondary level equipment is not completely guarded to MOL and OHSA requirements.

Currently there is a plastic cover on the top of the controllers of elevators #1 and #2 to protect the controllers from water damage due to a leak in the machine room ceiling. A metal drip pan has been placed under the leaking area. However, if all leaks are corrected the plastic should be removed from the top of the controllers in order to prevent the chances of the plastic heating or melting from the heat of the electrical controllers.

The elevator maintenance log books were up to date at the time of this inspection.

### Washroom adequacy

The National Building Code (2010) was used to determine the adequacy of the washrooms within this building. (Division B 3-137).

Table 3.7.2.2B from the NBC 2005 defines the ratio of number of persons of each sex to minimum number of water closets for each sex as follows:

1 - 25 Minimum number of water closets for each sex = 1

26 - 50 Minimum number of water closets for each sex = 2

Over 50 Minimum number of water closets for each sex - 3 plus 1 each additional increment of 50 persons of each sex in excess of 50.

3.2.2.2 5) Urinals are permitted to be substituted for two thirds of the number of water closets required by this Article for males, except that if only 2 water closets are required for males, one urinal is permitted to be substituted for one of the water closets.

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Throughout the Building there are a combination of unisex, male and female washrooms. According to management, the building has a current occupancy of about 175 FTEs, with a possible increase provided the occupancy is changed to about 251 (based on 16 m2 of useable floor area per FTE). The building has a total of 37 toilets and 13 urinals. Based on these quantities, the washrooms can accommodate both the current and future occupancy loads to a maximum of 1,050 FTEs, which far exceeds the current occupancy load.

**Stairwell Size:**

Although technically the stairways do not meet the present code (low railings), they are of adequate width to serve the present population and the projected future growth.



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## Overview Architectural & Structural Condition

### Structure

The building's structural components are considered to be in "average" condition, based upon their anticipated life expectancy of at least 110 years. According to management, there are currently no water infiltration problems. A seismic assessment and a slab loading assessment is recommended and included within the report.

### Building Envelope

The Queenstone cladding, lion sculptures at the entrances and associated detailing on the south east and north elevations are one of the primary "classified" heritage characteristics of the building. A major intervention program is recommended in this BCR report to repair areas of deterioration and cracking and replace mortar joints. This will be a major undertaking requiring swingstage and/or scaffolding, which will likely have an impact on pedestrian traffic around the building. It is suggested that this work is carried out in conjunction with the restoration of other exterior heritage components such as the copper roof, copper entrance doors, copper windows on the first and second floors and the steel windows on the upper levels. Refurbishment and future repairs are provided for in 2015 and 2030 at a cost of \$1,370,816 and \$342,706 respectively.

The brick masonry on the west elevation is anticipated to have a life expectancy similar to the overall building. Repairs are anticipated in about 2015 to repair mortar joints etc. and are scheduled to coincide with other building envelope repairs at a cost of \$74,989. Additional general brick masonry repairs are anticipated in 2035 at a reduced cost of \$37,495.

### Windows

The building has three different types of windows including the classified heritage bronze windows on the 1st and 2nd floors and steel windows on the upper floors. There are a few newer aluminum framed windows on the penthouse area that are not classified.

At this time, replacement of the heritage windows with modern units is not considered an option. Major refurbishment is recommended for the bronze and steel windows to clean up any corrosion and restore the finishes with acceptable procedures and materials. The work associated with the bronze and steel windows is scheduled to begin in 2015 at a cost of \$492,218 and \$1,651,065 respectively. It is likely that this work will require temporary removal of at least some units, which will be better determined when the process is started.

More detailed information is available in the report and is based upon a recent report prepared by DFS Architects Inc.

As windows represent the majority of exterior wall penetrations, replacement of sealants is included with this component in 2015.

### Exterior doors

The three bronze entrance doors are also considered a classified heritage building component. Similar to the heritage windows, a major refurbishment is recommended. Temporary removal will be required so that they can be structurally restored and refinished in an off-site shop. While these doors are being repaired off-site, the existing or new inner stainless steel exterior doors will provide adequate security for the building. The stainless steel doors have also reached the end of their service life and should be upgraded at about the same time as the bronze doors. As this work should likely be done at the same time as other exterior envelope work, it is scheduled for about 2015 at an estimated cost of \$426,031 and \$61,842 for the bronze doors and stainless steel doors respectively.

There are a few exterior steel doors on the north elevation at grade level and at the penthouse. These doors are still functioning and replacement is considered on an as required basis. Replacement would be carried out as regular maintenance.

### Roofing

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The existing copper roofs are original and require repairs in order to extend their service life. Existing deficiencies include: failed solder joints, missing fasteners, bent flashings. Of the three options presented in a recent DFS Architects Inc. report on the building envelope, the major intervention option was recommended and included in this BCR. Based on estimated costs from the DFS report, restoration of the copper roofing is in the range of \$1,170,031. It is appropriate to carry out this work during other heritage restoration scheduled in about 2015. Eventually, replacement of the copper roof should be anticipated in order to maintain the integrity of the roof system and prevent any disruptions that might occur as a result of a significant roof failure causing water infiltration into the building. Based on estimated areas and AVS Tool unit costs including contingencies and soft costs, the estimated cost to replace the copper roofing in 2032 is \$2,684,700 before starting the roof refurbishment, the replacement cost should be confirmed with a contractor. If the two costs are still within the same range, perhaps replacement should be considered.

The flat roof is a modified bitumen system. At this time, there are no reported problems. Replacement is considered in about 2022 at a cost of \$433,381. Prior to replacing the roof, some repairs should be anticipated in about 2016 at approximate cost of \$36,784, to ensure that the roof is can achieve its expected service life.

## Interior Finishes

### Floor finishes

Replaceable floor finishes include carpeting, vinyl floor tile and ceramic tile.

Carpeting represents the majority of the floor finishes in the building. It is in varying condition, depending when it was last replaced as part of an office that up. On some floors, the carpeting is seen to be older. Replacement of 25% every three years is anticipated to start in about 2015 and re-occur on a 12 year cycle. The estimated cost per occurrence is \$109,263.

There are small areas of vinyl floor tile throughout the building and they should be initially replaced on a cycle similar to the carpeting.

Ceramic floor tiles in the washrooms will be replaced as part of washroom renovations. Tiles in the men's washrooms are old and are currently scheduled for replacement in 2015 as part of renovations for the men's washrooms. The floor tiles in the women's washrooms are much newer and are not anticipated to be replaced until about 2035 as part renovations for the women's washrooms.

Other areas in the building have terrazzo and marble finishes, which are believed to be original (1939). It is not anticipated that these floor finishes will be replaced within the next 30 years. However, refinishing of the softer marble finishes in the post office and main lobby areas is recommended in 2022 at a cost of about \$48,750.

### Wall finishes

The majority of the interior walls in the building are painted gypsum board or lath and plaster. The walls are expected to have a service life similar to the building structure i.e., 110 years. Any touchup patch repairs can be done at the same time as painting. Painting is scheduled on a same cycle as carpet replacement i.e., 25% every three years starting in 2015 and again on a 12 year cycle at a cost of about \$30,500 per occurrence.

The men's, unisex and women's washrooms have full height ceramic wall tiles. The tiles in the men's washrooms are scheduled for replacement as part of washroom renovations in 2015. The tiles in the unisex and women's washrooms are scheduled for replacement in 2035. .

Ceramic tile wainscoting occurs in stairwell "A". This could be considered a heritage component. If it is not, replacement is currently scheduled in 2019 at a cost of \$46,348.

### Ceiling Finishes

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The building has a combination of acoustic ceiling tiles, gypsum board ceilings, painted ceiling structures, plaster and lath ceilings and suspended acoustic panel ceilings.

The suspended acoustic panel ceilings occur in the office areas. It is estimated that they were last replaced in about 1985. Perhaps even sooner in 1975. They are considered to be in fair condition and are scheduled for replacement in 2015 at 25% every three years at a cost of \$123,711 per event. The next replacement is anticipated in about 24 years (instead of average theoretical expected life of 25 years), which will coincide with replacement of other interior finishes such as carpeting and painting.

The acoustic ceiling tiles located primarily in the post office and main lobby are known to contain asbestos. Special asbestos removal techniques will be required to remove this component. This will be disruptive to the occupants and may require temporary relocation. Replacement is anticipated in about 2026 at a cost of \$68,288.

It is anticipated that the gypsum board and plaster and lath ceilings will have a life expectancy similar to the building i.e., 110 years. They are in average to good condition. Only painting is anticipated within the next 30 years at a cost of \$5,250 every three years starting in 2015 and on a 12 year cycle to coincide with other painting.

Exposed painted ceiling structures are limited to service areas such as mechanical rooms. With all the ducting, conduits and piping at the ceiling level, complete painting of the ceiling structure above the ducting and piping is likely not feasible. In small areas where the ceiling structure is readily accessible, painting can be done either by maintenance staff on an as required basis or as part of some other painting project.

### **Overview Site Condition**

The gate located at the at the north laneway to Elgin Street is considered a security requirement, and as indicated by Property Management, the responsibility of the tenants.

Refinishing of the painted steel flagpole on the roof is anticipated in about 2014 as part of regular maintenance, in order to extend its life expectancy until it can be replaced at the same time as the modified bitumen roof in 2022 at a cost of \$5,575

Underground services are not the responsibility of the building.

The asphalt paving on the north side of the building is in good condition. Replacement is anticipated in 2025 at a cost of \$6,975.

### **Overview of Vertical & Horizontal Transportation Condition**

The vertical transportation system consists of two (2) passenger and one (1) service/passenger elevator. The elevators were modernized by Otis Elevator in the year 2006.

The original relay logic elevator controllers and motor generators were replaced with new micro-processor based controllers and solid state DC SCR motor drives. The original DC gearless machines were retained. All new wiring was installed in the elevator machine room, hoistway and car top. The original car and hall operating buttons were replaced with new heritage type car and hall fixtures. New closed looped car door operators were installed at this time.

The original freight elevator was completely removed and a new service/passenger elevator with Class C1 loading capabilities was installed in the original freight elevator hoistway.

The elevators will not require a modernization until the year 2025.

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## Overview of Mechanical Systems Condition

Most of the original building mechanical systems have been removed and renovated since construction with substantial upgrades in 1975. Upgrades included the installation of a new air handling system including ductwork, implementation of a VAV supply air system, minor revisions to the original steam heating system, and the addition of a sprinkler system in the basement.

Major revisions to the control system, including changing the pneumatic controls to DDC were completed in 1991. Heating/steam and chilled water are provided from the Cliff Central Heating and Cooling Plant (CHCP).

The heating and cooling systems are in fair condition. There are a number of components which are approaching the end of their service life and will require replacement: the VAV boxes, the main AHU, the exhaust fans, the humidification, the control valves, control dampers and control system. We recommend extending the sprinkler system to the entire building and correcting the code deficiencies of the standpipe system.

The following repairs/replacements are scheduled within the next 30-years:

- 03.1A-010-CHP Related Heat exchangers-good condition-Replace existing pressure reducing station in 2040
- 03.1A-020-Duct systems-fair condition- Replace VAV boxes in 2015
- 03.1A-020-Duct Systems- fair condition - Clean duct work systems in 2015
- 0.31A-020- Duct Systems- fair condition- Rebalance ductwork systems in 2015
- 03.1A-029- Central Station AHU- fair condition- Replace main air handling unit in 2015
- 03.1A-030- Ventilation Fans - fair condition - Replace exhaust and electrical room fans in 2015
- 03.1A-040 - Heating and Cooling Piping systems -fair condition-Replace flash tank in 2013
- 03.1A-040 - Heating and Cooling Piping systems -fair condition-replace heating and cooling valves in 2015
- 03.1A-040 - Heating and Cooling Piping systems -poor condition- Replace distribution piping in 2013
- 03.1A-045 - HVAC pumps - excellent condition - Replace condensate tanks in 2027
- 03.1A-060 - Terminal Units - fair condition - Replace terminal heating units in 2015
- 03.2A-010 - Controls, Electrical or Pneumatic - fair condition - replace pneumatic control dampers in 2015
- 03.2A-010 - Controls, Electrical or Pneumatic - fair condition - replace original pneumatic control valves in 2015
- 03.2a-010 - Controls, Electrical or Pneumatic - fair condition - replace pneumatic control s compressors in 2015
- 03.2A -020 - Direct Digital Controls - fair condition - replace obsolete DDC system in 2014
- 03.3-025C05 - Domestic Hot Water Tanks - average condition - replace hot water tank in 2016
- 03.3A-010 - Plumbing Piping - fair condition - install new backflow preventer in 2013
- 03.3A-010 - Plumbing Piping - fair condition - replace main plumbing system valves in 2021
- 03.3A-010 - Plumbing Piping - fair condition - replace roof drains in 2022
- 03.3A-015- Plumbing Fixtures and Accessories - fair condition - replace men's washroom fixtures in 2013
- 03.3A-015- Plumbing Fixtures and Accessories - fair condition - replace women's and accessible washroom

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fixtures in 2030

03.3A-020- Plumbing Pumps - average condition - replace domestic water booster pumps in 2021

03.3A-045 - Drinking Fountains - average condition - replace drinking fountains in 2020

03.5A-050 - Sprinkler System - average condition - provide complete building sprinkler coverage 2013

03.5A-060- Standpipe systems - fair condition - Replace standpipe system to comply with code in 2013

03.5A-060- Standpipe systems - fair condition - Replace standpipe booster pump in 2027

### **Overview of Electrical Systems Condition**

The overall condition of the electrical systems in Postal Station 'B' is average with components varying from fair to good conditions.

The following are the components that require replacement in the next 30 years:

4.2A-010 - Secondary Switchgear - Fair Condition. Replacement for the secondary switchgear is scheduled in 2015.

4.2A-011 - MCC - Good Condition. Replacement for the MCC is scheduled in 2042.

4.2A-020 - Secondary Transformer - Fair Condition. Replacement for older transformers is scheduled in 2015. Replacement for the newer transformers is scheduled in 2035.

4.2A-070 - Distribution Panels - Good Condition. Replacement scheduled in 2027.

4.3A-010 - General Lighting - Average Condition. Replacement scheduled in 2024.

4.3A-020 - Exit Lighting - Average Condition. Replacement scheduled in 2027.

4.3A-030 - Exterior Lighting - Fair Condition. Replacement scheduled in 2015.

4.3A-040 - Emergency Lighting - Fair Condition. Replacement scheduled 2015.

4.5A-010 - Fire Alarm System - Good Condition. Replacement scheduled in 2023.

4.5A-020 - Emergency Power System - Good Condition. Replacement scheduled in 2037.

4.7A-070 - Fan Powered Unit Electric Heaters - Average Condition. Replacement scheduled in 2020.

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## **Compliance with TBS Temp., Humidity & Ventilation Targets**

The mechanical systems are capable of providing ventilation in accordance with ASHRAE standards, although no tests were carried out to confirm this.

The Treasury Board's 'Use and Occupancy of Buildings Directive', section 17.3 Environmental Conditions defines the following for temperature, humidity and ventilation for buildings occupied by Public Service employees. To the extent practicable, the environmental conditions to be maintained in office buildings shall conform to the requirements specified in the following documents:

ASHRAE standard 55-1981, Thermal Environmental Conditions for Human Occupancy, and  
ASHRAE standard 62-1981, Ventilation for Acceptable Indoor Air Quality.

In office accommodation, air (dry bulb) temperatures during working hours should be maintained within the 20 degrees Celsius - 26 degrees Celsius range, which is the ideal temperature operating range.

Temperatures between 17 degrees Celsius and 20 degrees Celsius and above 26 degrees Celsius can be uncomfortable, and occupancy should not exceed 3 hours daily or 120 hours annually in each of these extremes. Temperatures above 26 degrees Celsius are deemed to be uncomfortable when the humidex reading at a given temperature equals 40 degrees Celsius or less. Temperatures shall be measured at desktop level in those spaces within workstations that would be occupied by employees while they are carrying out the major part of their normal duties. These conditions shall not be intentionally maintained, and should only result from occurrences over which departments have no direct control, such as weather extremes or equipment failures.

The Parcel report of July 2005 indicated that the ventilation was acceptable, the temperature was below the summer standard (cooler) in most cases, the humidity was above the standard in much of the test samples, the airborne dust particulates were within acceptable standards and the microbial testing was acceptable.

## **Regulatory Testing Confirmation**

Following is a list of equipment, which requires regulatory testing. Confirmation with respect to last date of testing is included. Any deficiencies with respect to testing are also reported.

### **Vertical Transportation**

Elevators - Frequency: Monthly - Last Inspection Date: November 2012 by Otis Elevator  
The elevator maintenance log books are up to date.

### **Mechanical**

NOTE: AT THE TIME OF DRAFT SUBMISSION, THIS INFORMATION WAS NOT PROVIDED. IT WILL BE INCLUDED IN THE FINAL REPORT

Fire Standpipe System - (FREQUENCY) - \*\*\*last inspection date\*\*\* by \*\*\*  
Fire Pumps - (FREQUENCY) - \*\*\*last inspection date\*\*\* by \*\*\*  
Fire Extinguishers - (FREQUENCY) - \*\*\*last inspection date\*\*\* by \*\*\*  
Emergency Generator - (FREQUENCY) - \*\*\*last inspection date\*\*\* by \*\*\*  
Sprinkler System - (FREQUENCY) - \*\*\*last inspection date\*\*\* by \*\*\*

### **Electrical**

Fire Alarm System - (Monthly) - last inspection date 10/02//2012 by Chubb Edwards.  
Emergency Power System - (Monthly) - last inspection date 10/15//2012 by PWGSC.  
Emergency Lighting - (Monthly) - last inspection date 10/15//2012 by PWGSC.

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## **Compliance with Accessibility Standards**

Accessibility upgrading of the base building elements was completed as part of PWGSC's 1990-95 Action Plan. As commercial lettings are exempt from the Treasury Board Real Property Accessibility (TBRPA) Standards, the Post Office operation on the ground floor was not included in the review.

There have been a number of compromises of the accessibility standards due the heritage nature of this building.

Barrier-free access is provided by the entrance doors on Sparks Street and on Elgin Street. In 2006, the two passenger elevators and the freight elevator were modernized and meet the current codes.

In March 2008, PWGSC Real Property Services undertook an accessibility audit for this building. The audit reviewed:

- Walkways;
- Parking;
- Building entrances;
- Vertical movement;
- Interior doors and corridors (base building)
- Washrooms;
- Drinking fountains;
- Public telephone/tactile signage
- Public areas;
- Building exemptions

The results identified:

- Building entrances - Identify entrance doors with tactile signage and repaint access symbol on the power door operators
- Vertical movement - Provide tactile signage indicating elevator number, ""(STA R) for the ground floor and audible signal to indicate buttons pressed.
- Interior doors and corridors - Relocate security mailboxes for cell phones etc. on the 3rd, 4th and 5th floors and a fire extinguisher on the 7th floor. They stick out too far. Adjust, if necessary, maximum door opening force, which should be no more than 22 N.
- Washrooms - Provide FIP (Federal Identification Program) tactile signage for 2nd floor washroom. Modify locking mechanism to unisex washroom. Adjust door closers on the 3rd, 4th and 5th floors. Secure toilet tank covers on 1st to 6th floors. Remount coat hooks, toilet tissue dispensers to the proper height.
- Drinking fountains - relocate fountains to achieve a knee of 680 mm to meet barrier free design standards.
- Public telephone/tactile signage - Provide tactile signage for 2nd floor washrooms and stairwell doors.

Estimated replacement cost \$45,056.

### **Vertical Transportation**

The elevators comply with Barrier Free Design Requirements

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## Overview of Seismic Screening

A preliminary Seismic Screening of the Postal Station B Building, was carried out according to National Research Council's (NRC) "Manual for Screening of Buildings for Seismic Investigation" as part of the 2001 BCR. The preliminary seismic screening is a rapid procedure for ranking buildings for detailed seismic evaluation and upgrade. The methodology is based on identifying the main features of any building affecting risk of seismic hazards and the importance of the building as determined by its use and occupancy. A numerical scoring system is used, which is related to the earthquake requirements of the National Building Code of Canada. It must be emphasized that this method is not an evaluation for seismic adequacy, but merely a screening procedure that is based on field inspection of the inside as well as the outside of the building and the inspection of the buildings drawings, if available. The seismic screening results in a "Seismic Priority Index" (SPI). This index allows for initial assessment of the building to determine if a detailed seismic evaluation and upgrade should be performed.

The work sheets for seismic screening of the Postal Station B Building was submitted to Public Works and Government Services Canada as part of the 2001 BCR reporting.

As no structural modifications have been made in the last five years, the previous seismic screening, as follows, remains valid:

- The building is located in Ottawa, Ontario, which is an area of significant seismic risk.
- The structure was designed prior to 1965, the time at which seismic design requirements started to be incorporated in the Building Codes.
- The structure is steel framed without defined lateral resistance system.
- The exterior masonry walls, which appear to provide some lateral load resistance, have substantial openings and are inadequate to provide some seismic resistance.
- Postal Station 'B' abuts the Langevin Building to the north and the Hope Building to the west. There is potential for the structures to pound each other during an earthquake, introducing additional lateral loads to the floor plates and columns.

The 2000/2001 seismic screening of the the Postal Station B Building resulted in a Seismic Priority Index (SPI) of 12.4. The manual for Seismic Screening provides the following guide for ranking buildings according to SPI:

- 0-10 Low Priority for more detailed investigation.
- 10-20 Medium Priority for more detailed investigation.
- 20-30 High Priority for more detailed investigation.
- +30 Potentially Hazardous.

Based on the above ranking system, this building is a medium priority for more detailed investigation.

A full Seismic Assessment was recommended and included for in the 2001 and 2006 BCR. However, it is yet to be completed. We have included for a Seismic Assessment as part of this BCR - see component 10.1A-040 Seismic Assessment. The seismic evaluation would assess the true measure of seismic risk of the building structure and also lead to the development of an effective seismic upgrade scheme. Also due to the nature of the Federal Government tenant in this building, this assessment should proceed.



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## Overview of Environmental Issues

The environmental performance of the Postal Station 'B' is good. There is asbestos and lead in the building fabric but these are recorded, tracked and managed by PWGSC. There is some confusion on the amount of energy use in the building.

### AIR EMISSIONS:

The building is supplied with steam and chilled water from the central plant and there are no laboratories; hence, there are minimal air emissions. There is an emergency diesel generator in the basement with exhaust at the roof level which is tested on a regular basis.

### ASBESTOS CONTAINING MATERIALS:

There are a number of places in Postal Station 'B' which contain asbestos:

- Pipe insulation and fittings in the centre core on each floor of the building;
- Pipe insulation and fittings in mechanical room B12;
- 300 mm x 300 mm glue on ceiling tiles in the Post Office retail space and in isolated various other locations.
- Trowel on fireproofing in the ceiling space throughout the building.
- Plaster for ceilings and walls.

The building management has an active asbestos control program and an Asbestos Tracking Application database indicating all locations of asbestos.

### ENERGY MANAGEMENT:

There has not been a recent energy audit of this building. The 2006 BCR indicated that the last one was conducted in 2002. This information is dated and likely does not reflect current energy consumption.

### ENVIRONMENTAL EMERGENCY RESPONSE PROCEDURES:

PWGSC has established an environmental management system in line with its Environmental Pledges and SDS program.

### HAZARDOUS MATERIALS:

Any hazardous materials are stored in a locked steel cabinets.

### INDOOR WORKING ENVIRONMENT:

The Parcel report of July 2005 indicated that the ventilation was acceptable, the temperatures were below the summer standard (cooler) in most cases, the humidity was above the standard in much of the test samples, the airborne dust particulates were within acceptable standards and the microbial testing was acceptable.

In January 2007 and July 2008, OGGO - environmental & sustainable development - PWGSC undertook selected indoor air quality measurements with the following results

- TVOC (total volatile organic compounds) results were within acceptable guidelines;
- Cyclohexanone and hexane were higher than normally found in office buildings. However, recommendations were not provided;
- Airborne microbial results were within acceptable guidelines;
- Stained ceiling tiles as a result of water infiltration should be replaced.

### LEAD CONTAINING MATERIALS:

Lead has been identified in paint for the exterior windows, as well as much of the interior paint. Lead is probably present in the solder used on domestic water lines and in caulking in the bell fittings for cast iron drainage. Lead is suspected to be present in the glazed tile in the washrooms.

### OZONE DEPLETING SUBSTANCES:

There are no halon systems in the building and cooling is provided by the Cliff Central Heating and Cooling Plant. There may be some ODS associated with the elevator machine room cooling systems and drinking fountains.

### PCB CONTAINING EQUIPMENT:

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All ballasts with PCBs were removed in 1993/94. There are no transformer containing PCBs on site.

**PESTICIDES:**

There are no trees, shrubs, grass, etc., on the property. An Integrated Pest Management contractor has a contract for pest control. This contractor review the site monthly and PWGSC reports that pesticides are not used.

**SOIL, WATER AND GROUNDWATER QUALITY:**

A Phase I Environmental Assessment indicated that the site is not contaminated.

**SOLID WASTE MANAGEMENT (NON-HAZARDOUS):**

There are presently recycling programs for fine paper, newsprint, glass, plastics, cardboard, cans and polystyrenes. Construction projects are screened to identify opportunities for reuse/recycling.

**STORAGE TANKS (ABOVE AND BELOW GROUND):**

There are no underground storage tanks at present and none have been noted in the past. There are two new double-walled diesel fuel tanks for the emergency generator in the basement, with secondary containment. A Phase I Environmental Assessment has been conducted and indicated that the site is not contaminated and recommended not to proceed with a Phase II Environmental Site Assessment.

**WASTEWATER MANAGEMENT:**

In the 2006 BCR information from an Environmental Report Card noted that the sanitary and storm drains are combined.

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## Overview of Project Grouping - requirement for swing space

### 2015 - WASHROOM RENOVATION (Mens)

01.5-013C10 - Washroom partitions.  
01.5-060C05 - Ceramic wall tiles.  
01.5-070C10 - Ceramic floor tiles.  
03.3A-015 - Plumbing Fixtures .

### 2015 Exterior Cladding Refurbishment

01.3-010C10 Ext.W - Brick, block back-up.  
01.3-010C65 Ext.W - Local stone, rough cut, solid  
01.3-060C20 Other-Specialties Doors  
01.3-070C05 Steel Windows  
01.3-070C15 Other-Specialties Windows  
01.3-075 Window Coverings  
01.4-010C15 Copper Roof  
01.4-020C05 Gutter

### 2015 Interior Finishes

01.5-050C15 Metal Doors  
01.5-060C15 Paint  
01.5-070C05 Carpeting  
01.5-070C60 Vinyl Floor Tile  
01.5-080C30 Suspended Acoustic Panel Ceiling  
01.5-080C37 Ceiling Paint  
01.5A-055 Interior Door Hardware

### 2035 - WASHROOM RENOVATION (womens & Accessible)

01.5-013C10 - Washroom partitions.  
01.5-060C05 - Ceramic wall tiles.  
01.5-070C10 - Ceramic floor tiles.  
03.3A-015 - Plumbing Fixtures .  
Upgrading of the above components are covered under 09.4S - Washroom Renovation.

### Mechanical

Year 2013 - Fire Protection Upgrade  
03.5A-050 - Sprinkler System  
03.5A-060- Standpipe systems

### Year 2015- Ventilation and heating system replacement

03.1A-020-Duct systems  
03.1A-029- Central Station AHU  
03.1A-030- Ventilation Fans  
03.1A-040 - Heating and Cooling Piping systems  
03.2A-010 - Controls, Electrical or Pneumatic

### Electrical

Year 2015 - Equipment Obsolescence  
4.2A-010 - Secondary Switchgear  
4.3A-030 - Exterior Lighting  
4.3A-040 - Emergency Lighting

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## Code Compliance Summary

### BUILDING CODE:

In conjunction with this BCR report, Watson MacEwen Teramura Architects will provide a separate code review. The 2006 BCR provided the following information:

1. Allowable travel distance to the exits is further than allowed, requiring greater separation.
2. Safety on floor area is inadequate for disabled persons.

The above noted deficiencies may be resolved by installing sprinklers throughout the building.

3. Basement service room should not open into stairwell.
4. Stair "A" exit discharges through an unprotected lobby.
5. Stair "B" (as well as the Hope Building) discharges to the lane which has a locked gate after hours.
6. There are no fire alarm pull stations in the Post Office exterior entrances.
7. Fire hose cabinets are located more than 5 m from the stairwells.

### FIRE CODE:

1. Fire separations are compromised by inadequate fire stopping.
2. There are mechanical/electrical services installed in the stairwells which do not serve the stairwells.

### Vertical Transportation

The elevators comply with Barrier Free Design Requirements

### Mechanical

Fire Detection/Protection: Upon renovation the entire building should be sprinklered. Also a stand pipe is required for each stairwell.

### Electrical

#### Fire Detection/Protection:

The fire alarm system is code compliant.

#### Emergency doors/exits/lighting:

The emergency lighting is in fair condition and should be replaced in 2015. Exit lighting is in average condition and should be replaced in 2027.

#### Electrical power capacity:

All electrical equipment is code compliant with the load capacity.

#### Lighting:

All lighting equipment is code compliant

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## 00. Property

### 00.1site

#### 00.1-010 Site Improvements

##### 00.1-010C10 Fence & Gates

Element Instance: 00.1-010C10 Fence & Gates - Postal Station B Ottawa 4520394

<u>Details</u>	<u>Values</u>
Expected Life	20
Component Cost	0
Last Major Action Year	1939
Component Condition (For BCR use only)	Not Assessed
Quantity	1
Measurement unit/ Metric	ea

#### Component Description

There is a gate on the north side of the building (Elgin Street), adjacent to the Langevin Building. This gate consists of two ornamental steel, vertically hinged operable sections. This lane serves as a fire exit for Postal Station B as well as the Hope Building. We understand that this gate is closed and locked after hours, thereby preventing the occupants from Hope Building and the east stair (stair "B") of the Postal Station B from exiting through the gate to the street. However, there is an access door within the gate which has panic hardware allowing egress from the laneway to Elgin Street. Management indicated that the gate and access door are a security requirement and are the responsibility of PCO. As such, repairs, replacement and any possible code requirements will not be addressed as part of this BCR .

Element State: Not Assessed

ACL: ACL 2 - Check List

#### Assessment Criteria

#### Existence

#### Comments

Deterioration or damage to surfaces

Excessive movements

Loss of function

Physical damage or deterioration



Gate to laneway on East elevation

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#### 00.1-010C11 Flagpole

Element Instance: 00.1-010C11 Flagpole

<u>Details</u>	<u>Values</u>
Expected Life	25
Component Cost	5,709
Last Major Action Year	1996
Component Condition (For BCR use only)	Average
Quantity	5
Measurement unit/ Metric	ea

#### Component Description

There is a single painted steel flagpole on the roof of the building and four sloped wall mounted flagpoles at the 2nd floor level. The rooftop flagpole is braced with additional steel angles secured to the roof.

This component is of average quality.

**Component Condition &  
Anticipated Replacement  
Date**

Average Theoretical Expected Life: 25 years.  
2012: Expected Life not adjusted.  
Last Major Action Year: 1996.

This component is in average condition, based upon age and visual observations.

The painted steel flagpole on the roof is showing signs of surface rusting. Based on the 2006 BCR, the age of the flagpole in 2012 is estimated to be about 16 years old. The 2006 BCR indicated that the lower level of the flagpole was recently painted. Now, there is visual evidence of rusting through the paint. As the flagpole is located on the roof, the condition of the paint finish is not visible from ground level. The flagpole should be repainted as part of regular ongoing maintenance in about 2014 to maintain an acceptable appearance and protect the structural integrity of the flagpole and bracing until it can be replaced at the same time as the main modified bitumen roof in about 2022. A new flagpole should be aluminum to avoid corrosion and the requirement for cyclical repainting.

Replacement of the wall mounted flagpoles can be done as part of the operating budget at a cost below the \$5,000 threshold of this report.

**Element State:** Average

**ACL:** ACL 2 - Check List

**Assessment Criteria**

**Existence**

**Comments**

Deterioration or damage to surfaces

Excessive movements

Loss of function

Physical damage or deterioration



Close-up of flagpole base and bracing

**00.1-010C11 Flagpole Event #: 1**

**Brief Description**

Replace the rooftop flagpole

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

RP Component  
replacement or new

2022

\$5,709

N/A

Building Condition Report

**Event Description**

At the end of its service life, the roof top flagpole should be replaced. This will require the use of a crane.

**Event Justification &  
Strategy**

It is important to maintain the structural integrity of the rooftop flagpole. As it is not visible from the ground, appearance is a secondary consideration.

Replacement of the rooftop flagpole will require hoisting to and from the roof with a crane. The roof structure may not be adequate enough to secure the flagpole without additional bracing similar to the bracing provided for the existing flagpole. Except for the crane, there will be minimal disruption to pedestrians and building occupants. A new flagpole should be aluminum to avoid corrosion and the requirement for cyclical repainting.

**Implication of Event Deferral  
(Risks)**

Deferring replacement of the flagpole for a few years will likely have minimal impact on the structural integrity of the flagpole. However, it is a good idea to do this work at the same time as replacement of the existing modified bitumen roof. This will avoid additional roof modifications just for the flagpole.

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### 00.1A-045 Underground Utilities

Element Instance: 00.1A-045 Underground Utilities - Postal Station B Ottawa 4520394

<b>Details</b>	<b>Values</b>
Expected Life	50
Component Cost	0
Last Major Action Year	1939
Component Condition (For BCR use only)	Not Assessed
Quantity	3
Measurement unit/ Metric	ea

**Component Description** The Postal Station B is fed chilled water, steam and electrical power through an underground tunnel from the Langevin Building to the basement mechanical room. The chilled water and steam utilities are provided from the Central Heating and Cooling Plant. These utilities are considered common to the federal government buildings in the area. As such repair and maintenance are not considered as part of this BCR.

This component is of average quality.

**Element State:** Not Assessed **ACL:** ACL 2 - Check List

<b>Assessment Criteria</b>	<b>Existence</b>	<b>Comments</b>
Code compliance issues		
Damaged or inoperable control devices		
Damaged/corroded piping and fittings		
Does not meet service requirements		
Leakage		
Obsolete		

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### 00.1A-055 Signage

Element Instance: 00.1A-055 Signage - Postal Station B Ottawa 4520394

<b>Details</b>	<b>Values</b>
Expected Life	110
Component Cost	0
Last Major Action Year	1939
Component Condition (For BCR use only)	Average
Quantity	3
Measurement unit/ Metric	ea

**Component Description** The bilingual names "Post Office" and the Post Office Ministry are attached onto the stone facing of the building, as well as on the bronze panels above the doors. The signage is part of the heritage fabric of the building. There is no standard Public Works and Government Services bilingual signage indicating the present occupants of the upper office floors. This is typical for the Government buildings in this area. For this building, Management confirmed that the lack of official signage is also a security requirement.

This component is of above average quality.

**Component Condition & Anticipated Replacement Date** Average Theoretical Expected Life: 75 years (granite and bronze)  
2012: Theoretical life adjusted to 110 - anticipated life expectancy of the building.  
Last Major Action Year: 1939

This component is in average condition, based upon age, visual observations and revised service life. As this is considered part of the building's heritage designation, they will be maintained as part of the building envelope (01.3-010C65 Ext.W - Local stone, rough cut, solid). Replacement is not anticipated within 30 year horizon of this report.

**Element State:** Average **ACL:** ACL 2 - Check List

<u>Assessment Criteria</u>	<u>Existence</u>	<u>Comments</u>
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Defective sign illumination

Peeling of sign surface, text inc.

Physical damage

Sign text incorrect

Surface fading



Exterior "Post Office" signage

### 00.1A-070 Stormwater Management Systems

Element Instance: 00.1A-070 Stormwater Management Systems - Postal Station B Ottawa 4520394

Details	Values
Expected Life	30
Component Cost	0
Last Major Action Year	1997
Component Condition (For BCR use only)	Average
Quantity	15
Measurement unit/ Metric	ea

#### Component Description

There is a catch basin in the laneway adjacent to the north side of the building. There are drains in the window wells adjacent to the building on the east and south sides of the building abutting the sidewalk. There are also drains located on the roof and the gutter around the perimeter of the building at the 5th gutter floor.

#### Component Condition & Anticipated Replacement Date

This component is of average quality.

Average Theoretical Expected Life: 30 years

2012: Theoretical life adjusted to 40 - based upon their existing condition

Last Major Action Year: 1997.

This component is in average condition, based upon age, visual observations and revised service life.

The lane drainage was replaced in 2005, and is in excellent condition. Roof drains to not have flow restrictors, which can be added at the same time as the replacement of the modified bitumen roof in 2022.

The perimeter gutters at the upper level are in poor condition. They are addressed in section 01.4-020C05 Gutter. Management indicated that there are no problems with the drains associated with the window wells.

Anticipated replacement date of the stormwater system in 2045 to coincide with the second replacement of the asphalt paving. This is beyond the 30 year horizon of this report.

At this time, there is no indication of problems with the window well drains and repair is not provided.

Element State: Average

ACL: ACL 2 - Check List

<u>Assessment Criteria</u>	<u>Existence</u>	<u>Comments</u>
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Blocked piping



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Defective grading of ground surface  
Erosion of soil on slopes or at ditches & culverts  
Excess dirt and debris in catch basin  
Inadequate flow/capacity  
Visible catch basin deterioration (concrete)

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## 00.2 Paved Surface Systems

### 00.2A-011 Paved Roadways

Element Instance: 00.2A-011 Paved Roadways

#### Details

#### Values

Expected Life	20
Component Cost	6,975
Last Major Action Year	2005
Component Condition (For BCR use only)	Good
Quantity	70
Measurement unit/ Metric	m2

#### Component Description

There is a paved laneway to the north side of Postal Station B, with a gate and access to Elgin Street. This lane services the Hope Building as well as Postal Station B.

#### Component Condition & Anticipated Replacement Date

This component is of average quality.

Average Theoretical Expected Life: 20 years.

2012: Expected Life not adjusted.

Last Major Action Year: 2005.

This component is in good condition, based upon age, visual observations.

The laneway was repaved in 2005 at the same time as the replacement of the catchbasin in the laneway. At the time of review, there was no visual evidence of heaving or cracking. Replacement is anticipated in about 2025.

**Element State:** Good

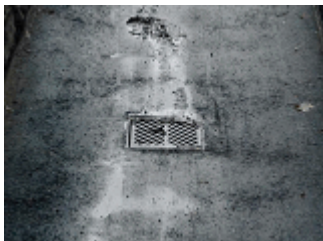
**ACL:** ACL 2 - Check List

#### Assessment Criteria

#### Existence

#### Comments

Damaged or inoperable drainage system  
Damaged or inoperable lighting  
Inadequately sloped to drains  
Local settlement  
Loss of asphalt binder material  
Potholes  
Rutting and flow of surface  
Surface cracking or spalling  
Uneven surface profile



North laneway

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**00.2A-011 Paved Roadways Event #: 1**

<b>Brief Description</b>	Replace asphalt paving			
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
RP Component replacement or new	2025	\$7,142	N/A	Building Condition Report
<b>Event Description</b>	Replace laneway asphalt paving.			
<b>Event Justification &amp; Strategy</b>	<p>Although the laneway does not provide general pedestrian or vehicle access to the building, it is an important means of emergency egress from both Postal Station B and Hope buildings. As such, it is important to keep the asphalt in serviceable condition in order to avoid potholes, large cracks and heaving that could be a safety hazard during an emergency exit.</p> <p>Although this work can be done during regular working hours, it would be better done during off hours in order to avoid blocking the laneway that in an emergency would be a hazard. Depending upon the condition of the asphalt at the time of replacement and elevation of the asphalt in relation to existing doors, an overlay of asphalt may be feasible. Otherwise, some or all of the existing asphalt may need to be removed.</p> <p>If the elevation of the catchbasin needs to be adjusted to accommodate the asphalt, it can be adjusted at the same time.</p>			
<b>Implication of Event Deferral (Risks)</b>	Deferring replacement of the asphalt may represent a hazard that could have an impact on the safe egress from the building.			

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**01. Architectural & Structural****01.1 Foundations****01.1A-010 Footings & Foundations**

Element Instance: 01.1A-010 Footings &amp; Foundations

<b>Details</b>	<b>Values</b>
Expected Life	110
Component Cost	0
Last Major Action Year	1939
Component Condition (For BCR use only)	Average
Quantity	737
Measurement unit/ Metric	m2

**Component Description** We understand from the 2006 BCR, the footings and foundations for the columns and walls are cast-in-place concrete, bearing on bedrock.

**Component Condition & Anticipated Replacement Date** This component is of average quality.

Average Theoretical Expected Life: 70 years  
2012:Theoretical Life adjusted to 110 - anticipated life expectancy of the building  
Last Major Action Year: 1939

The footings and foundations are in average condition, based upon age, and revised service life.

The footings and foundations were not visually reviewed. There were no indications of structural distress or deterioration reflected in the condition of the exterior cladding or interior drywall finishes. The concrete foundations are expected to have a service life in keeping with that of the building, which is beyond the 30 year horizon of this report.

<b>Element State:</b>	Average	<b>ACL:</b>	ACL 2 - Check List
<b>Assessment Criteria</b>		<b>Existence</b>	<b>Comments</b>
Bearings worn			
Corrosion			

This report was generated without using Virtual Events.

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Excessive cracking  
Excessive settlement  
Ingress of water  
Inoperable subdrainage  
Physical damage or deterioration

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### **01.1A-011 Basement Walls**

**Element Instance: 01.1A-011 Basement Walls**

#### **Details**

#### **Values**

Expected Life	110
Component Cost	0
Last Major Action Year	1939
Component Condition (For BCR use only)	Average
Quantity	737
Measurement unit/ Metric	m2

#### **Component Description**

The basement walls are cast-in-place reinforced concrete on concrete footings. They include the window well walls, the building walls and the walls under the laneway on the north side of the building

this component is of average quality.

#### **Component Condition & Anticipated Replacement Date**

Average Theoretical Expected Life: 70 years  
2012:Theoretical Life adjusted to 110 - anticipated life expectancy of the building  
Last Major Action Year: 1939

This component is in average condition, based upon age, and revised service life.

When viewed from the interior, the walls were intact and there was no evidence to stress. The 2006 BCR indicated some water infiltration in the mechanical room. Currently, there are no reported problems, although there is evidence of dry peeled paint that could indicate previous moisture problem. The basement walls are expected to have a service life in keeping with that of the building which is beyond the 30 year horizon of this report.

Other government buildings in the vicinity have had recent water infiltration problems. As this is not a reported problem with this building, an allowance for unforeseen moisture related problems is excluded from the report.

**Element State:** Average

**ACL:** ACL 2 - Check List

#### **Assessment Criteria**

#### **Existence**

#### **Comments**

Corrosion  
Excessive deflection  
Excessive movements or distortion  
Non code compliant  
Physical damage or deterioration  
Settlement or movement cracks  
Structurally unsound

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## **01.2 Superstructures**

### **01.2-010 Structural Framing**

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### 01.2-010C10 Frame - Concrete + Steel

Element Instance: 01.2-010C10 Frame - Concrete + Steel

<b>Details</b>	<b>Values</b>
Expected Life	110
Component Cost	0
Last Major Action Year	1939
Component Condition (For BCR use only)	Average
Quantity	4695
Measurement unit/ Metric	m2

**Component Description** The building is 8 stories in height with a 2 story mechanical penthouse. The upper three floor plates are smaller because of the steeply pitched roof. The 1st and 8th floor have concrete slabs, spanning one way, on to steel beams. The supporting steel beams rest on girders supported by steel columns. The 2nd to 7th floors have 100 mm concrete slabs on metal decking supported by open web joists on steel beams, supported by steel columns.

**Component Condition & Anticipated Replacement Date**

This component is of average quality.

Average Theoretical Expected Life: 70 years

2012: Theoretical life adjusted to 110 - anticipated life expectancy of the building.

Last Major Action Year: 1939

This component is in average condition, based upon age, visual observations and revised service life.

This component is expected to have a service life in keeping with that of the building, which is beyond the 30 year horizon of this report.

**Element State:** Average **ACL:** ACL 2 - Check List

<b><u>Assessment Criteria</u></b>	<b><u>Existence</u></b>	<b><u>Comments</u></b>
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Corrosion

Excessive deflection

Excessive movements or distortion

Non code compliant

Physical damage or deterioration

Settlement or movement cracks

Structurally unsound

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### 01.2-020 Floor Structure-Slab on Grade

#### 01.2-020C10 Slab on Grade - Concrete

Element Instance: 01.2-020C10 Slab on Grade - Concrete - Postal Station B Ottawa 4520394

<b>Details</b>	<b>Values</b>
Expected Life	110
Component Cost	0
Last Major Action Year	1939
Component Condition (For BCR use only)	Average
Quantity	737
Measurement unit/ Metric	m2

**Component Description** The basement floor is a cast-in-place concrete slab covered with a variety of finishes.

This component is of average quality.

**Component Condition &  
Anticipated Replacement  
Date**

Average Theoretical Expected Life: 70 years  
2012:Theoretical Life adjusted to 110 - anticipated life expectancy of the building  
Last Major Action Year: 1939

The slab on grade is in average condition, based upon age, and revised service life.

There is some wear showing in the painted floor of the basement mechanical room. It is expected to have a service life in keeping with that of the building which is beyond the 30 year horizon of this report.

**Element State:** Average

**ACL:** ACL 2 - Check List

**Assessment Criteria**

**Existence**

**Comments**

Corrosion

Excessive deflection

Excessive movements or distortion

Non code compliant

Physical damage or deterioration

Settlement or movement cracks

Structurally unsound

**01.2-030 Floor Structure-Slab above Grade**

**01.2-030C05 Slab above Grade - Concrete**

**Element Instance: 01.2-030C05 Slab above Grade - Concrete - Postal Station B Ottawa 4520394**

**Details**

**Values**

Expected Life	110
Component Cost	0
Last Major Action Year	1939
Component Condition (For BCR use only)	Average
Quantity	4695
Measurement unit/ Metric	m2

**Component Description**

The building is 8 stories in height with a 2 story mechanical penthouse. The upper three floor plates are smaller because of the steeply pitched roof. The 1st floor has a concrete slab spanning one way, on to steel beams. The supporting steel beams rest on girders supported by steel columns. The 2nd to 7th floors have 100 mm concrete slabs on metal decking supported by open web joists on steel beams supported by steel columns. The 7th floor is used for file storage.

**Component Condition &  
Anticipated Replacement  
Date**

This component is of average quality. This component is of average quality.

Average Theoretical Expected Life: 70 years  
2012:Theoretical Life adjusted to 110 - anticipated life expectancy of the building  
Last Major Action Year: 1939

The slabs-above-grade are in average condition, based upon age, and revised service life.

The interior finishes prevented an evaluation of the slabs. There are no reported problems. On the 7th floor an I&R assessment should be carried out to confirm the structural floor loading capacity to accommodate the filing cabinets (refer to 10.2A-010 Architectural & Structural). Unless a structural problem is identified, the slabs-above-grade are expected to have a service life in keeping with that of the building which is beyond the 30 year horizon of this report.

**Element State:** Average

**ACL:** ACL 2 - Check List

**Assessment Criteria**

**Existence**

**Comments**

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Corrosion  
Excessive deflection  
Excessive movements or distortion  
Non code compliant  
Physical damage or deterioration  
Settlement or movement cracks  
Structurally unsound

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### **01.2-040 Roof Structure**

#### **01.2-040C20 Roof Str-Steel Joist + concrete deck**

**Element Instance: 01.2-040C20 Roof Str-Steel Joist + concrete deck - Postal Station B Ottawa 4520394**

<b><u>Details</u></b>	<b><u>Values</u></b>
Expected Life	110
Component Cost	0
Last Major Action Year	1939
Component Condition (For BCR use only)	Average
Quantity	433
Measurement unit/ Metric	m2

**Component Description** The roof has a concrete slab spanning one way, on to steel beams. The supporting steel beams rest on girders supported by steel columns.

**Component Condition & Anticipated Replacement Date** This component is of average quality.  
Average Theoretical Expected Life: 70 years  
2012:Theoretical Life adjusted to 110 - anticipated life expectancy of the building  
Last Major Action Year: 1939  
  
The roof structure is in average condition, based upon age, and revised service life.  
  
The interior ceiling finishes and roof membranes prevent an evaluation. There are no reported problems. It is expected to have a service life in keeping with that of the building which is beyond the 30 year horizon of this report.

**Element State:** Average **ACL:** ACL 2 - Check List  
**Assessment Criteria** **Existence** **Comments**

Corrosion  
Excessive deflection  
Excessive movements or distortion  
Non code compliant  
Physical damage or deterioration  
Settlement or movement cracks  
Structurally unsound

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### **01.2-050 Miscellaneous Structures**

#### **01.2-050C15 Exterior Stairs**

**Element Instance: 01.2-050C15 Exterior Stairs - Postal Station B Ottawa 4520394**

<b><u>Details</u></b>	<b><u>Values</u></b>
Expected Life	110
Component Cost	0
Last Major Action Year	2012
Component Condition (For BCR use only)	Excellent

This report was generated without using Virtual Events.

Quantity	4
Measurement unit/ Metric	Risers
<b>Component Description</b>	Granite stairs with handrails leading up to the entrance to the Post Office are located at the southeast corner of the building. There are four curved risers. At the time of for this BCR, these stairs were undergoing repairs.
<b>Component Condition &amp; Anticipated Replacement Date</b>	<p>This component is of average quality.</p> <p>Average Theoretical Expected Life: 30 years.</p> <p>2012: Expected Life not adjusted.</p> <p>Last Major Action Year: 2012.</p> <p>This component is in excellent condition, based upon age and current major repairs.</p> <p>Upon completion of current repairs, these stairs will be in excellent condition with a remaining service life beyond the 30 year horizon of this report.</p>
<b>Element State:</b>	Excellent
<b>Assessment Criteria</b>	<b>ACL:</b> ACL 2 - Check List
	<b><u>Existence</u></b> <b><u>Comments</u></b>
Handrail missing, damaged or deteriorated	
Hazardous conditions	
Loss of structural integrity	
Major surface deterioration	
Minor surface deterioration	
Poor surface drainage	
Vegetation intrusion or overgrowth	
Visible settling or uplift	

### 01.3 Exterior Walls/Closures

#### 01.3-010 Exterior Concrete or Masonry Walls

##### 01.3-010C10 Ext.W - Brick, block back-up

Element Instance: 01.3-010C10 Ext.W - Brick, block back-up

<b>Details</b>	<b>Values</b>
Expected Life	90
Component Cost	0
Last Major Action Year	1939
Component Condition (For BCR use only)	Average
Quantity	623
Measurement unit/ Metric	m2

<b>Component Description</b>	<p>The west side of the building, that is not concealed by the adjacent Hope building, is clad with brick masonry.</p> <p>According to information provided in the 2006 BCR, the exterior wall construction consists of:</p> <ul style="list-style-type: none"> <li>- Gypsum,</li> <li>- Wood stud,</li> <li>- Vapour barrier,</li> <li>- 64 mm thick fibre insulation,</li> <li>- Plaster, on</li> <li>- Terra cotta back-up, and</li> <li>- Exterior brick masonry.</li> </ul> <p>The plaster, terra cotta and exterior cladding are original construction; the remaining interior elements were installed during the major retrofit in 1975.</p>
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**Component Condition & Anticipated Replacement Date**

This component is of average quality.  
 Average Theoretical Expected Life: 75 years  
 2012: Theoretical life adjusted to 110 - anticipated life expectancy of the building.  
 Last Major Action Year: 1939

This component is in average condition, based upon age, visual observations, revised service life and a comprehensive Envelope and Mechanical System Investigation Report undertaken by DFS Inc. Architecture and Design and dated May 9, 2011. The DFS report identified and developed the following three options for the Envelope repairs:

Option 1: Do Nothing, apart from biennial screening  
 Option 2: Short term, minor interventions including minor repair and maintenance work of the masonry, such as re- pointing and the repair of cracked joints.  
 Option 3: Long term, major interventions including significant re-pointing of the masonry, repair of cracked joints.

Major intervention was recommended in order to best maintain the integrity of the brick cladding..

Repairs are suggested in 2015 to coincide with other exterior cladding repairs. Some additional repairs in order to maintain the brick should be anticipated in about 2035.

<b>Element State:</b>	Average	<b>ACL:</b>	ACL 2 - Check List
<b>Assessment Criteria</b>		<b>Existence</b>	<b>Comments</b>
Blocked or ineffective internal drainage			
Deteriorated finishes			
Fastener damage or corrosion		X	
Functional defects			
Joints not properly sealed at wall penetrations			
Non code compliant			
Physical damage or deterioration			
Surface cracking or spalling			
Surface staining or discoloration		X	
Vapour barrier defects			
Water ingress			



Brick cladding on West elevation

**01.3-010C10 Ext.W - Brick, block back-up Event #: 1**

<b>Brief Description</b>	Repair brick cladding			
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
RP Component life extension	2015	\$76,789	high priority	Building Condition Report
<b>Event Description</b>	Repair west elevation brick cladding.			
<b>Event Justification &amp; Strategy</b>	In order to prevent further deterioration from moisture infiltration, repairs should be implemented in order to restore the integrity of the brick masonry.			



	Scaffolding or swingstaging will be erected and the brick masonry repair work can be performed alongside stone masonry repairs, structural, window and roofing work from the exterior. As the brick masonry cladding is located on the west elevation, this work will not have an impact on the occupants of the building other than perhaps some minor noise, which should be minimal. The work will need to be done during warmer weather in order to avoid costly winter protection.
<b>Implication of Event Deferral (Risks)</b>	Deferral may result in further deterioration of the joints and some water infiltration into the wall system and perhaps a building.

#### 01.3-010C10 Ext.W - Brick, block back-up Event #: 2

<b>Brief Description</b>	Repair brick cladding			
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
RP Component life extension	2035	\$38,395	N/A	Building Condition Report
<b>Event Description</b>	Repair west elevation brick cladding.			
<b>Event Justification &amp; Strategy</b>	In order to prevent deterioration from moisture infiltration, repairs should be implemented in order to maintain the integrity of the brick masonry.			
	Scaffolding or swingstaging will be erected and the brick masonry repair work can be performed alongside stone masonry repairs, structural, window and roofing work from the exterior. As the brick masonry cladding is located on the west elevation, this work will not have an impact on the occupants of the building other than perhaps some minor noise, which should be minimal. The work will need to be done during warmer weather in order to avoid costly winter protection.			
<b>Implication of Event Deferral (Risks)</b>	Deferral may result in further deterioration of the joints and some water infiltration into the wall system and perhaps a building.			

#### 01.3-010C40 Ext.W - Granite

Element Instance: 01.3-010C40 Ext.W - Granite

<b>Details</b>	<b>Values</b>
Expected Life	110
Component Cost	0
Last Major Action Year	1939
Component Condition (For BCR use only)	Average
Quantity	95
Measurement unit/ Metric	m2
<b>Component Description</b>	Granite stones are found in the transom panels between the windows, the black upright panels at the perimeter base windowwells at sidewalk level and at the entrance steps and floors of the vestibules.
	This component is of above average quality.
<b>Component Condition &amp; Anticipated Replacement Date</b>	Average Theoretical Expected Life: 75 years 2012: Theoretical life adjusted to 110 - anticipated life expectancy of the building. Last Major Action Year: 1939
	This component is in average condition, based upon age, visual observations, revised service life and a comprehensive Envelope and Mechanical System Investigation Report undertaken by DFS Inc.
	These large black granite stone transom panels have the occasional white lines, which cross the panels and are not post construction cracks. These cracks are ancient fissures that occurred within the geological period when the igneous activity that formed the stone stopped. These ancient geologic features are stable and strong, and not a deterioration issue in the context of our condition assessment.
	Upright black granite stones (type unknown) separate the window wells from the sidewalk. These stones have the occasional damage such as chips, cracks and dents,

This report was generated without using Virtual Events.

mostly from snow removal equipment. Although replacement is not anticipated within the 30 year horizon of this report, some repairs are anticipated starting in 2022.

**Element State:** Average

**ACL:** ACL 2 - Check List

**Assessment Criteria**

**Existence**

**Comments**

Blocked or ineffective internal drainage

Deteriorated finishes

Fastener damage or corrosion

Functional defects

Joints not properly sealed at wall penetrations

Non code compliant

Physical damage or deterioration

Surface cracking or spalling

Surface staining or discoloration

Vapour barrier defects

Water ingress

**01.3-010C40 Ext.W - Granite Event #: 1**

**Brief Description**

Repair exterior granite

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

RP Component life extension

2022

\$14,544

N/A

Building Condition Report

**Event Description**

Repair exterior granite components.

**Event Justification & Strategy**

The building's stone façades, are essential to the heritage character of the building.

Repairs in the form of Dutchmen inserts are required as well as the sealing of cracks. Cleaning may be required to maintain a good finish. If hairline cracks become evident in the future, it should be sealed with an appropriate sealant to prevent water infiltration and further expansion of the cracks. These repairs could be carried out at the same time as the stone repairs on the south and east elevations. Otherwise, they could be carried out separately. Depending on the extent of the repairs, exterior hoarding may be required, which will affect some pedestrian traffic around the building.

**Implication of Event Deferral (Risks)**

Provided the deficiencies remain minimal, deferral may have a minimal impact on the integrity of the granite panels. However, this component is a heritage feature of the building and should be maintained/repared proactively rather than reactively.

**01.3-010C65 Ext.W - Local stone, rough cut, solid**

**Element Instance: 01.3-010C65 Ext.W - Local stone, rough cut, solid**

**Details**

**Values**

Expected Life

85

Component Cost

0

Last Major Action Year

1939

Component Condition (For BCR use only)

Average

Quantity

1815

Measurement unit/ Metric

m2

**Component Description**

The exterior masonry walls are solid, implying a non-vented or drained air space and are clad with Queenstone Limestone of varying thickness (100mm, 150mm and 200mm). The exterior stone cladding is secured to a solid clay brick back-up wall (the number of wythes is unknown) with flat galvanized steel straps (3 x 25 mm) and round steel galvanized 6mm diameter bars. The interior back-up wall was originally finished with a 100mm terra-cotta block finished with plaster. According to information provided in the 2006 BCR, in 1975, additional 64 mm fiberglass insulation, vapour barrier, wood studs

**Component Condition &  
Anticipated Replacement  
Date**

and gypsum board finish were added over the original plaster finish.

The clock located on the southeast corner of the building has a mechanical mechanism. The clock has a fabricated bronze bezel supported on steel brackets attached to the interior masonry.

An electrified pigeon deterrent system is installed on the windowsills.

This component is of above average quality.

Average Theoretical Expected Life: 75 years

2012: Theoretical life adjusted to 110 - anticipated life expectancy of the building.

Last Major Action Year: 1939

This component is in average condition, based upon age, visual observations, revised service life and a comprehensive Envelope and Mechanical System Investigation Report undertaken by DFS Inc. Architecture and Design and dated May 9, 2011.

The DFS investigation included some test openings at more complex details, such as around steel columns and at masonry corners. Missing and ineffective masonry connectors or insufficient stone keying details were observed.

Lack of tying and stone keying at the northeast corner and at penthouse level have caused the masonry on both sides of the interface to move independently in the in-plane and out-of-plane directions. Cyclic seasonal thermal movement in the in-plane direction can cause the cracking of the joints. With the lack of proper masonry connectors, stone units are free to move outward. Masonry wall ties, seen during the exploratory openings, hang suspended in mid-air within the wall, neither attached to the steel beams nor to the back-up wall, which itself is partially discontinuous. Furthermore, stones may have no ties at all as confirmed by the exploratory opening at the penthouse.

Under seismic out-of-plane and wind loading, sections of masonry that are not properly tied to the steel structure or to the backup masonry, particularly at the northeast corner, could collapse in out-of-plane flexural failure. This appears to be an unsafe condition.

Evidence of previous repairs can be seen where mortar joints were cut with grinders. The mortar joints appeared to have been completely re-pointed at one time and are in fair condition, with no extensive signs of cracking or de-bonding.

The bulk of the masonry interventions is required along the top floors and at ground level. There is a high level of deterioration around the dormer windows, most probably due to their exposure to the elements and snow retention by the snowguards.

Several curve-shaped base units have cracked and some units were previously repaired. This is a repeated condition and is observed on about half the dormers.

At the roof dormers, fine cracking of the stone, cracked mortar joints and displaced stones were observed. The crack stones may have resulted from water infiltration and resulting rusting steel framing.

Spalling is evident at regular intervals along the cornice flashing drip edge. As indicated in the envelope report, this may have been caused by fasteners associated with the metal flashing.

There is a lack of flashings to deflect water at the base of the copper mansard roof at the junction of the dormer windows. This has resulted in copper stains along the stone walls below.

The electric anti-pigeon system is no longer functional and requires a complete

replacement, ideally at the same time as the restoration of other exterior building envelope components such as the Queenstone cladding.

Refurbishment of the Queenstone cladding will also include repairs around the clock located at the southeast corner of the building. Repair of the clock's mechanical mechanisms is anticipated at the same time in 2015.

The studs and nuts holding the perimeter of the bezel to the wall have failed. There has been no maintenance of the bronze surfaces and all are covered with active green corrosion. The hands are particularly vulnerable to continued corrosion as they are very thin in section. The appearance of the translucent white glass is not consistent, suggesting various replacements over the years. Over time, water infiltration at various joints and condensation have resulted

The DFS report identified and developed the following three options for the Envelope repairs:

Option 1: Do Nothing, apart from biennial screening

Option 2: Short term, minor interventions including minor repair and maintenance work of the masonry, such as re-pointing and the repair of cracked joints.

Option 3: Long term, major interventions including significant re-pointing of the masonry, repair of cracked joints, stone dismantling and rebuilding around dislodged stone units so as to insert wall ties and rehabilitate corroded or damaged steel beams and columns at the penthouse level

Major intervention was recommended in order to best maintain heritage exterior components of the building.

Replacement of the Queenstone cladding is not anticipated within the next 30 year horizon of the report, however major repairs are anticipated in about 2015. Thereafter, repairs are anticipated on a 15 year cycle to ensure that this component maintains its heritage characteristics and is in safe condition.

<b><u>Element State:</u></b>	Average	<b><u>ACL:</u></b>	ACL 2 - Check List
<b><u>Assessment Criteria</u></b>		<b><u>Existence</u></b>	<b><u>Comments</u></b>
Blocked or ineffective internal drainage			
Deteriorated finishes			
Fastener damage or corrosion			
Functional defects			
Joints not properly sealed at wall penetrations			
Non code compliant			
Physical damage or deterioration			
Surface cracking or spalling			
Surface staining or discoloration			
Vapour barrier defects			
Water ingress			

#### 01.3-010C65 Ext.W - Local stone, rough cut, solid Event #: 1

<b><u>Brief Description</u></b>	Replace pigeon deterrent system			
<b><u>Event Type</u></b>	<b><u>Event Year</u></b>	<b><u>Event Cost</u></b>	<b><u>Priority</u></b>	<b><u>Data Origin</u></b>
RP Component replacement or new	2015	\$111,503	high priority	Building Condition Report
<b><u>Event Description</u></b>	Replace pigeon deterrent system			

**Event Justification & Strategy**

The existing electrified pigeon deterrent system has failed.

Replacement with spike wire system. This can be done at the same time as refurbishment of the windows.

**Implication of Event Deferral (Risks)**

Deferring replacement of the existing system that has failed will result in continued problems with the pigeons.

**01.3-010C65 Ext.W - Local stone, rough cut, solid Event #: 2**

**Brief Description**

Refurbish Queenstone cladding

**Event Type**

RP Component life extension

**Event Year**

2015

**Event Cost**

\$1,403,716

**Priority**

high priority

**Data Origin**

Building Condition Report

**Event Description**

Refurbish Queenstone cladding.

**Event Justification & Strategy**

The building's stone façades, are essential to the heritage character of the building and must be preserved and repaired as required to ensure pedestrian safety.

Queenstone limestone is a unique building stone from Ontario with good physical characteristics that provide good weathering properties. The limestone quarries from which it was obtained are no longer operating, and procuring new material is currently near impossible. It is important to approach all significant damage or deterioration issues with intervention solutions that look to retain the original material whenever possible. Sometimes it is possible to obtain small portions of material from certain stone supply yards.

Some of the repairs will include:

- The plinth stones at ground level require minor repairs
- Certain stones need to be dressed back and refinished with a restoration mortar or require a Dutchman insert.
- The area around the clock requires repair work, such as gentle dressing back as described above and surface crack repairs mostly at joint junctions where minor stresses have occurred within adjacently bonded stones.
- Corner stones at the penthouse level require dismantling and rebuilding.

Full scaffolding will be erected and the masonry repair work can be performed alongside structural, window and roofing work from the exterior. However so as to ensure the building's continued functionality, the scaffolding may need to be erected in phases.

Work should be carried out during warmer weather so that winter protection is not required. Adequate pedestrian protection must be provided.

**Implication of Event Deferral (Risks)**

Deferring restoration of the Queenstone cladding will have an impact on this heritage component and pedestrian safety.

**01.3-010C65 Ext.W - Local stone, rough cut, solid Event #: 3**

**Brief Description**

Repair clock

**Event Type**

RP Component life extension

**Event Year**

2015

**Event Cost**

\$52,816

**Priority**

high priority

**Data Origin**

Building Condition Report

**Event Description**

Repair clock mechanical mechanism

**Event Justification & Strategy**

As part of the exterior cladding repairs, the clock, which is part of the buildings heritage characteristics requires repair.

These repairs can be carried out at the same time as other building envelope repairs.

**Implication of Event Deferral (Risks)**

Deferring repairs will affect the operation of the clock.

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**01.3-010C65 Ext.W - Local stone, rough cut, solid Event #: 4**

<b>Brief Description</b>	Refurbish Queenstone cladding			
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
RP Component life extension	2030	\$350,931	N/A	Building Condition Report
<b>Event Description</b>	Repair the Queenstone cladding to ensure this component is well-maintained.			
<b>Event Justification &amp; Strategy</b>	The building's stone façades, are essential to the heritage character of the building and must be preserved and repaired as required to ensure pedestrian safety.  Queenstone limestone is a unique building stone from Ontario with good physical characteristics that provide good weathering properties. The limestone quarries from which it was obtained are no longer operating, and procuring new material is currently near impossible. It is important to approach all significant damage or deterioration issues with intervention solutions that look to retain the original material whenever possible. Sometimes it is possible to obtain small portions of material from certain stone supply yards.  Full scaffolding will be erected and the masonry repair work can be performed alongside structural, window and roofing work from the exterior. However so as to ensure the building's continued functionality, the scaffolding may need to be erected in phases.  Work should be carried out during warmer weather so that winter protection is not required. Adequate pedestrian protection must be provided.			
<b>Implication of Event Deferral (Risks)</b>	Deferring restoration of the Queenstone cladding will have an impact on this heritage component.			

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**01.3-060 Exterior Doors****01.3-060C10 Steel Doors****Element Instance: 01.3-060C10 Steel Doors - Postal Station B Ottawa 4520394**

<b>Details</b>	<b>Values</b>
Expected Life	45
Component Cost	0
Last Major Action Year	1980
Component Condition (For BCR use only)	Average
Quantity	6
Measurement unit/ Metric	ea
<b>Component Description</b>	There are three single steel exit doors on the ground floor leading into the north lane, a double steel delivery door to the North lane and a steel roof access door.  This component is of average quality.
<b>Component Condition &amp; Anticipated Replacement Date</b>	Average Theoretical Expected Life: 45 years 2012: Theoretical life not adjusted (based upon their existing condition) Last Major Action Year: 1980 (based upon their existing condition)  This component is in average condition, based upon age, visual observations and majority of doors. The roof access door is newer and in good condition.  Based on their current condition, the remaining service life of the grade level older steel doors is about 13 years. A couple of doorframes have some corrosion at the bottom. It seems that these doors are not used on a regular basis. It is anticipated that they will be repaired/replaced on an as required basis as part of the operating budget at an anticipated cost of less than the \$5,000 per occurrence, which is below the threshold of this report.
<b>Element State:</b>	Average
<b>Assessment Criteria</b>	<b>ACL:</b> ACL 2 - Check List <b>Existence</b> <b>Comments</b>

This report was generated without using Virtual Events.

Air penetration	
Broken or cracked glass	
Physical damage or deterioration	X
Unsafe conditions	

### 01.3-060C20 Other-Specialties Doors

Element Instance: 01.3-060C20 Other-Specialties Doors

Details	Values
Expected Life	45
Component Cost	0
Last Major Action Year	1939
Component Condition (For BCR use only)	Average
Quantity	3
Measurement unit/ Metric	ea

#### Component Description

The three bronze entrances of Postal Station B are fabricated with several different copper alloys. These include structural shapes, rolled sheet, extruded sections, cast decorations, fasteners and hardware.

The doors, jambs and transoms are all custom made pieces (standard for the period), pintle hinges and hardware. These doors, jambs and transoms all have flushed off fasteners, indicating that the assemblies were built and finished in place, as opposed to being completed offsite and simply installed into the openings. The doors, jambs and transoms all have a heavy layer of lacquer, wax and pigment in various combinations and thicknesses. These have been applied over time as short term maintenance efforts.

Although there is no visual evidence, the supporting framework of the door frames is assumed to be structural steel.

The two inner doors of the southeast entrance are polished brass with single glazing. The inner doors on the south and east elevations are stainless steel with single glazing.

#### Component Condition & Anticipated Replacement Date

Average Theoretical Expected Life: 45 years  
2012: Theoretical life adjusted to 110 - anticipated life expectancy of the building.  
Last Major Action Year: 1939

This component is in average condition, based upon age, visual observations and revised service life and a comprehensive Bronze Door Repairs Report undertaken by DFS Inc. Architecture and Design and dated May 5, 2010.

Some of the observed deficiencies include:

#### Three Bronze Doors

- The heavy lacquer, wax and pigments of various combinations and thicknesses have dulled the original bronze finish;
- The contrasting finish on the vestibule metal ceilings has dulled and is less contrasting than originally intended;
- The south and east entrance doors are jammed open, likely due to a heaved/rising floor slab;
- Threshold fasteners are loose, missing or ineffective resulting in a bowed threshold;
- Where protective coatings have failed, some copper corrosion and pitting is evident;
- Different types of weatherstripping have been applied to the doors over time. Multiple fastener holes have resulted in corrosion.

#### Southeast Bronze Interior Door

- The polished brass finish is tarnished;
- There is impact and abrasion damage;



- 
- South and east Stainless Steel Interior Doors
- Hinge hardware is near the end of its service life;
  - Steel fastening screws are rusted;
  - The doors have single glazing;
  - Sealants are heavily applied;
  - The frames have surface corrosion and pitting;
  - The overhead transom is bulging at the centre.

The DFS report identified and developed the following three options for the repair of the heritage bronze doors:

Option 1 involves cleaning the doors with a detergent and water pressure wash and coating them with wax to slow the corrosion and temporarily reduce their rate of deterioration. The doors will be fixed in the open position. This option requires the same treatment every two or three years and leaves areas which require repair untreated.

Option 2 involves stripping the doors, removing surface corrosion and re- applying the patina and new coats of lacquer and wax. Again, the doors will be fixed in the open position. Again, regular maintenance will be required and will leave various required repairs and replacements untreated.

Option 3 corrects all problems related to the doors' structure, finishes and hardware and offers the doors the longest life span. It involves removing all doors from the building and bringing them to a workshop, where they can be stripped, disassembled and repaired. All hardware, hinges, doorstops and weather stripping will be replaced, rebuilt or repaired. The bulging problem behind the transom panels would be corrected and the door coatings, corrosion, patina and all metals would be restored. The east and west stainless inner door sets would also be replaced with copies of those at the southeast entrance.

As these doors are a major heritage component of the building, Option 3 was recommended. The exterior doors are maintained. The frames are intact. Only the Main Postal Station entrance doors located on the southeast corner operate on a regular basis. Currently, the stairs and associated foundations that provide access to the southeast entrance are under repair. The repairs are intended to stabilize the stairs and prevent movement that currently affects the operation of the bronze doors. The bronze doors were refurbished in 1992/93 and the exterior swing doors were repaired in 1991/92. With diligent maintenance repairs, it is expected that these exterior doors, which are a heritage component of the building, can remain in service beyond the 30 year horizon of this report. However, restoration of these doors is anticipated in about 2015. Replacement of the stainless steel doors is also anticipated. This can be done in either 2015 with the other doors or could be postponed until later. Currently, replacement is planned for 2015.

<b>Element State:</b>	Average	<b>ACL:</b>	ACL 2 - Check List
<b><u>Assessment Criteria</u></b>		<b><u>Existence</u></b>	<b><u>Comments</u></b>
Air penetration			
Broken or cracked glass			
Physical damage or deterioration			
Unsafe conditions			





Bronze and stainless steel entrance doors.

#### 01.3-060C20 Other-Specialties Doors Event #: 1

<b>Brief Description</b>	Replace stainless steel doors			
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
RP Component replacement or new	2015	\$48,796	medium priority	Building Condition Report

**Event Description** Replace the stainless steel doors at the south and east entrances.

**Event Justification & Strategy** The stainless steel doors have reached the end of their service life and should be replaced on an individual basis and at the same time as the exterior bronze door in order to maintain sufficient access to the rest of the building.

Temporary hoarding will be required during the restoration. There will be some disruption to the building occupants. This work would be better done during the warmer weather.

#### 01.3-060C20 Other-Specialties Doors Event #: 2

<b>Brief Description</b>	Refurbish bronze doors			
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
RP Component life extension	2015	\$436,256	medium priority	Building Condition Report

**Event Description** Refurbished bronze entrance doors

**Event Justification & Strategy** The building's the imposing bronze doors are essential to the heritage character of the building and must be preserved.

Restorations include installation of temporary hoarding and the following:  
Bronze Doors

- Off-site restoration of the doors including dismantling, replacement of hardware, refinishing/restoration of all metals;
- Correct any transom and frame distortion;
- Fix the doors in the open position.

Each entranceway should be repaired on an individual basis in order to maintain sufficient access to the rest of the building. During the restoration, there will be some disruption to the building occupants.

This work would be better done during the warmer weather. .

**Implication of Event Deferral (Risks)** As these bronze doors are a heritage component of the building, deferring repair and maintenance will result in further deterioration.

### 01.3-070 Windows

#### 01.3-070C01 Aluminum Windows

Element Instance: 01.3-070C01 Aluminum Windows - Postal Station B Ottawa 4520394

<b>Details</b>	<b>Values</b>
Expected Life	50
Component Cost	0
Last Major Action Year	2000
Component Condition (For BCR use only)	Excellent

This report was generated without using Virtual Events.

Quantity	15
Measurement unit/ Metric	m2
<b>Component Description</b>	There are six aluminum framed windows in the two levels of the mechanical penthouse. The lower portion of each window is a slider.
<b>Component Condition &amp; Anticipated Replacement Date</b>	<p>This component is of average quality.</p> <p>Average Theoretical Expected Life: 50 years.</p> <p>2012: Expected Life not adjusted.</p> <p>Last Major Action Year: 2000.</p> <p>These windows are relatively new and are considered in excellent condition based upon age. Replacement is not anticipated before about 2050, which is beyond the 30 year horizon of this report.</p>
<b>Element State:</b>	Excellent
<b>Assessment Criteria</b>	<p><b>ACL:</b> ACL 2 - Check List</p> <p><b>Existence</b>      <b>Comments</b></p>
Air penetration	
Broken or cracked glazing	
Deteriorated surface or integral glass treatments	
Deterioration of frame finishes	
Frame deterioration	
Hardware damage	
Operable glass inoperative	
Unsafe conditions	
Water penetration	

### 01.3-070C05 Steel Windows

Element Instance: 01.3-070C05 Steel Windows

<b>Details</b>	<b>Values</b>
Expected Life	50
Component Cost	0
Last Major Action Year	1939
Component Condition (For BCR use only)	Average
Quantity	497
Measurement unit/ Metric	m2
<b>Component Description</b>	<p>Original rolled steel framed, double glazed with a 6 mm gap, double hung windows exist at the following locations:</p> <ul style="list-style-type: none"> <li>- 2nd floor to the 7th floor (PWGSC nomenclature), on the north and west elevations;</li> <li>- North elevation ground floor, the first floor, and the basement.</li> </ul> <p>Fixed and operable wood and metal retrofit windows have been installed inside the original steel windows as an energy conservation measure.</p> <p>All steel windows (with the exception of those on the west elevation) have heavy aluminum extrusions acting as a sill over the stone.</p> <p>This component is of average quality.</p> <p>Average Theoretical Expected Life: 50 years</p> <p>2012: Theoretical life adjusted to 110 - anticipated life expectancy of the building.</p> <p>Last Major Action Year: 1939</p> <p>This component is in average condition, based upon age, visual observations, revised service life and a comprehensive Envelope and Mechanical System Investigation Report undertaken by DFS Inc. Architecture and Design and dated May 9, 2011.</p>
<b>Component Condition &amp; Anticipated Replacement Date</b>	

This report was generated without using Virtual Events.

Corrosion has resulted from failure and loss of paint. At various corrosion locations, the underlying galvanized finish has deteriorated resulting in corrosion of the underlying steel. Although there was no perforation or pitting of the steel. Over time, many of glazed units were replaced. During the 2011 review, it was indicated that about 10% of the glazed units were cracked.

Most of existing aluminum sills are corroded over their entire surface.

The DFS report identified and developed the following three options for the Envelope repairs:

Option 1: Do Nothing, apart from biennial screening.

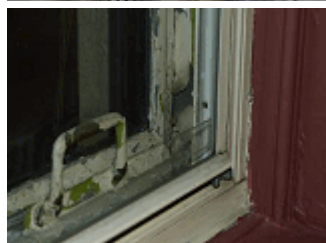
Option 2:: Short term minor interventions including minor repair and maintenance work of the steel windows including replacement of glazing, replacement of sealants and removal of corrosion to facilitate painting.

Option 3: Long term major interventions including removal and off-site treatment, replacement of weather stripping and sealants, replace or rebuild hardware, removal of corrosion, proper surface preparation and refinishing.

Major intervention was recommended in order to best maintain exterior heritage components of the building.

In order to maintain this heritage component, refurbishment is suggested rather than replacement. This will include replacement of all sealants that should preferably be carried out at the same time as refurbishment of other building envelope components starting in about 2015. Future replacement of sealants is anticipated in about 2030.

<b><u>Element State:</u></b>	Average	<b><u>ACL:</u></b>	ACL 2 - Check List
<b><u>Assessment Criteria</u></b>		<b><u>Existence</u></b>	<b><u>Comments</u></b>
Air penetration			
Broken or cracked glazing		X	
Deteriorated surface or integral glass treatments			
Deterioration of frame finishes		X	
Frame deterioration			
Hardware damage		X	
Operable glass inoperative		X	
Unsafe conditions			
Water penetration			



Interior of steel windows on upper floors.

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**01.3-070C05 Steel Windows Event #: 1**

<b>Brief Description</b>	Restore/replace steel windows			
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
RP Component replacement or new	2015	\$1,690,691	medium priority	Building Condition Report
<b>Event Description</b>	As the 131 steel windows are now at the end of their service life, they should be restored to suit the heritage requirements of FHBRO. The paint contains lead and proper methods must be used.			
<b>Event Justification &amp; Strategy</b>	Justification The original steel windows on the upper floors of the building are essential to the heritage character of the building and must be preserved.  Access will be required to both the interior and exterior of all windows. The most efficient plan would be to propose that the immediate space in front of the windows be vacated for the duration of the treatment. A temporary partition would be erected at a distance of one meter from the window. This could be done on a floor by floor basis or over an entire elevation. However, considering that the mechanical work should be scheduled for when the building does not require heating and will to a large extent disrupt the occupants, it might be preferable to perform the window conservation work and mechanical work at the same time, as they will both take advantage of the temporary partitioning.  Prior to the 2011 investigation, replacement of the framing was recommended. With the replacement of sealants and appropriate refinishing of the framing, the windows could be refurbished. However, if acceptable by FHBRO, it may be feasible to install new double glazed prefinished aluminum windows that are similar in appearance to the existing windows. The interior finish on the frames would be similar to the exterior prefinished aluminum and not be painted.  If aluminum windowsills can be removed to a workshop environment, they can be stripped, re-surfaced and re-anodized black. Otherwise, they can be replaced with prefinished aluminum. During refurbishment of the steel framing, it would be appropriate to remove the existing glazing and replace it with new.			
<b>Implication of Event Deferral (Risks)</b>	Deferral will postpone the restoration of the steel windows which are considered to be part of the building's heritage exterior cladding.			

**01.3-070C05 Steel Windows Event #: 2**

<b>Brief Description</b>	Replace window sealants			
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
RP Component life extension	2030	\$117,198	N/A	Building Condition Report
<b>Event Description</b>	Replace the window and door perimeter sealants at the end of their service life.			
<b>Event Justification &amp; Strategy</b>	A typical commercial sealant has a life of 15 years and it should be replaced at that time. This work should be done during clement weather.			
<b>Implication of Event Deferral (Risks)</b>	As the sealant fails, this will allow water into the building which may cause further damage. This may lead to tenant dissatisfaction.			

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**01.3-070C15 Other-Specialties Windows****Element Instance: 01.3-070C15 Other-Specialties Windows**

<b>Details</b>	<b>Values</b>
Expected Life	40
Component Cost	0
Last Major Action Year	1939
Component Condition (For BCR use only)	Average
Quantity	127
Measurement unit/ Metric	m2

This report was generated without using Virtual Events.

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**Component Description**

The 10 large windows on the ground floor and the 12 large windows on the 1st floor of the Sparks Street and Elgin Street elevations, are bronze framed fixed and casement windows with single glazed units. The windows on the 1st floor have an additional wood framed, single-glazed unit inside the bronze windows.

**Component Condition & Anticipated Replacement Date**

Average Theoretical Expected Life: 40 years

2012: Theoretical life adjusted to 110 - anticipated life expectancy of the building.

Last Major Action Year: 1939

This component is in average condition, based upon age, visual observations and revised service life.

Information related to this component is based upon visual review during the review for the BCR and a comprehensive Envelope and Mechanical System Investigation Report undertaken by DFS Inc. Architecture and Design and dated May 9, 2011.

The Bronze windows are in sound physical condition with no irreparable loss or damage to corrosion, distortion, etc. The main problem with the bronze windows is the lack of maintenance and poorly executed repairs that have been performed over time. Dried lubricants for the operating windows, dirt and corrosion as a result of failed protective coating and condensation. Regularly maintained protective coating is recommended. All hardware appears to be sound and intact and preservation/repair is appropriate. During the cleaning off the bronze framing, removal of the glazing was recommended. .

If special blast resistant glazing is required, it is anticipated that it will be addressed separately from this BCR

The DFS report identified and developed the following three options for the Envelope repairs:

Option 1: Do Nothing, apart from biennial screening

Option 2: Short term, minor interventions including minor repair and maintenance work on the bronze windows including: replacement of miscellaneous glazing, replacement of sealants, removal of corrosion to facilitate a lacquer finish and replacement of missing parts.

Option 3: Long term, major interventions including removal and off-site treatment of the windows, site removal of corrosion on fixed frames, replacement of weather stripping and sealants, replace or rebuild hardware, installation of a patina finish and a protective urethane coating.

As bronze windows are a heritage component of the building, option 3 was recommended in the DFS report. Replacement is not anticipated within the 30 year horizon of this report, however, refurbishment is anticipated in of about 2015.

**Element State:**

Average

**ACL:** ACL 2 - Check List

**Assessment Criteria****Existence****Comments**

Air penetration

Broken or cracked glazing

Deteriorated surface or integral glass treatments

Deterioration of frame finishes

Frame deterioration

Hardware damage

Operable glass inoperative

Unsafe conditions

Water penetration



Exterior of heritage bronze windows on first and second floors

### 01.3-070C15 Other-Specialties Windows Event #: 1

<b>Brief Description</b>	Refurbish heritage bronze windows			
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
RP Component life extension	2015	\$504,031	medium priority	Building Condition Report
<b>Event Description</b>	Refurbish the heritage bronze windows on the first and second floors.			
<b>Event Justification &amp; Strategy</b>	<p>The building's bronze windows are essential to the heritage character of the building and must be preserved..</p> <p>Access will be required to both the interior and exterior of all windows. The most efficient plan would be to vacate the area immediately in front of the windows for the duration of the window refurbishment. A temporary partition would be erected at a distance of one meter from the window. This could be done on a floor by floor basis or over an entire elevation. However considering that the mechanical work should be scheduled for when the building does not require heating and will to a large extent disrupt the occupants, it might be preferable to perform the window conservation work and Mechanical work at the same time, especially as these two types of projects generally take longer than other types of repair work.</p>			
<b>Implication of Event Deferral (Risks)</b>	The bronze windows are a heritage feature of the building. Deferring repairs may result in more problems and further deterioration.			

### 01.3A-065 Exterior Door Hardware

Element Instance: 01.3-065 Exterior Door Hardware

<b>Details</b>	<b>Values</b>
Expected Life	15
Component Cost	0
Last Major Action Year	1985
Component Condition (For BCR use only)	Fair
Quantity	9
Measurement unit/ Metric	ea
<b>Component Description</b>	<p>The exterior door hardware includes barrier free operation on the Sparks Street entrance; special hardware as part of the heritage components and standard building hardware for the steel doors, including "panic" push bars on exit doors.</p> <p>This component is of average quality.</p>
<b>Component Condition &amp; Anticipated Replacement Date</b>	<p>Average Theoretical Expected Life: 15 years</p> <p>2012: Theoretical life adjusted to 30 - based upon their existing condition</p> <p>Last Major Action Year: 1985 (based upon anticipated remaining service life of the exterior heritage doors.</p> <p>This component is in fair condition, based upon age, visual observations, revised service life and the majority of the hardware being associated with the exterior heritage doors.</p> <p>Replacement of the hardware on the heritage doors is included with the heritage doors in about 2015 (refer to 01.3-060C20 Other-Specialties Doors). Hardware on the steel doors will be replaced on an as required basis, as part of regular maintenance.</p>
<b>Element State:</b>	<p>Fair</p> <p><b>ACL:</b> ACL 2 - Check List</p>

<u>Assessment Criteria</u>	<u>Existence</u>	<u>Comments</u>
Fading Colours		
Hardware damage		
Inoperative panic hardware, to close & latch		
Unsafe and security breached		

### 01.3A-075 Window Coverings

Element Instance: 01.3-075 Window Coverings

<u>Details</u>	<u>Values</u>
Expected Life	15
Component Cost	40,719
Last Major Action Year	1975
Component Condition (For BCR use only)	Fair
Quantity	497
Measurement unit/ Metric	m2

**Component Description** There are no window coverings on the ground floor windows. There are Venetian blinds on the office windows, with 25 mm horizontal slats.

**Component Condition & Anticipated Replacement Date** This component is of average quality.  
Average Theoretical Expected Life: 15 years  
2012: The existing window coverings have exceeded the typical expected life. For the purpose of determining the Component Condition, the component life at replacement is anticipated to be 2015 to coincide with window replacement. The Expected Life in Details has not been adjusted, as replacement equipment may have a normal service life.  
Last Major Action Year: 1975

This component is in fair condition, based upon age, visual observations and revised service life.

Replacement is anticipated in 2015.

**Element State:** Fair

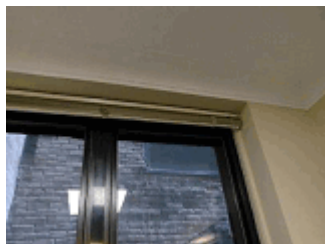
**ACL:** ACL 2 - Check List

<u>Assessment Criteria</u>	<u>Existence</u>	<u>Comments</u>
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Ineffective or inoperative

Obsolete

Physical damage or deterioration



#### 01.3-075 Window Coverings Event #: 1

<b>Brief Description</b>	Replace window coverings			
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
RP Component replacement or new	2015	\$40,719	medium priority	Building Condition Report
<b>Event Description</b>	Replace the office window blinds after the window replacement program.			

This report was generated without using Virtual Events.



**Event Justification & Strategy**

**Implication of Event Deferral (Risks)**



The window coverings have reached the end of their service life. They should be replaced at the same time as the windows are refurbished.

Deferring replacement of the window coverings will result in tenant dissatisfaction from poor aesthetic appearance.

Typical office blind.

**01.4 Roofing**

**01.4-010 Roof Coverings**

**01.4-010C15 Copper Roof**

Element Instance: 01.4-010C15 Copper Roof

**Details**

**Values**

Expected Life	50
Component Cost	2,684,700
Last Major Action Year	1939
Component Condition (For BCR use only)	Fair
Quantity	927
Measurement unit/ Metric	m2

**Component Description**

The north, south and east elevations have a steep sloped mansard roof between the roof parapet and two-storeys down. Drawings indicate that the mansard roof has: standing seam copper sheets; underlay; wood sheathing; and nailers over a 64 mm sloped lightweight concrete slab. The mansard roof has a standing seam copper roof which is believed to be original. There are barred snow guards at the base of the mansard roof. The mansard roof is set in from the building walls to form a drainage trough at the 5th storey level. The trough has snow-melting cables and internal area drains. The elevator penthouse has a spire roof with similar standing seam copper sheets.

**Component Condition & Anticipated Replacement Date**

This component is of above average quality.

Average Theoretical Expected Life: 50 years

2012: Theoretical life adjusted to 95 - based upon their existing condition

Last Major Action Year: 1939.

This component is in fair condition, based upon age, visual observations, revised service life and a comprehensive Envelope and Mechanical System Investigation Report undertaken by DFS Inc. Architecture and Design and dated May 9, 2011.

The original copper flashing, at a number of locations along the masonry string courses, needs to be replaced. The standing seam copper membrane roofs are original and thus about 73 years old. Holes and punctures are evident in the copper panels. Bent connections and batten edges possibly due to ice/snow removal techniques were observed and require straightening. Cracked solder joints and open seams were seen at various locations. The edge detail around the dormers is lacking a deflector to direct water away from the masonry wall. This condition has led to copper staining of the masonry as well as damage to the mortar joints.

The flashing at the 5th level gutter are in a variety of materials, such as pre-painted steel, copper and lead-coated copper. They are not original and could be over 25 years old. Refer to section 01.4-020C05 Gutter.

The copper and lead-coated copper flashing that protects the upper masonry surface at



the dormer level exhibits various problems. The joints have been soldered, impeding thermal expansion of the metal, and the cap flashing has not been interlocked with the base flashing. Missing fasteners were also evident. The membrane in the gutter has started to deteriorate (refer to 01.4-020C05 Gutter for details). Sealants in the gutters are missing or have failed. At numerous locations, the original copper flashings are bent and ripped at various locations and detached in some areas, allowing water to run down the walls and creating staining. Some flashings have been replaced.

The DFS report identified and developed the following three options for the Envelope repairs:

Option 1: Do Nothing;

Option 2: Short term, minor interventions including localized repairs and replacement of parapet plywood, membrane and flashing, filling of holes and repair of damage seams, cleaning of 6th floor gutters.

Option 3: Long term, major interventions including feeling of holes in the copper, repairing the standard seams, replacement of the gutter system, insertion of flashing to deflect water away from the masonry walls.

Major intervention was recommended in order to best maintain heritage exterior components of the building.

In order to maintain the integrity of the copper roofing, repairs are anticipated within the next three years in about 2015. Replacement could be possible within the 30 year horizon of this report and has been provided for in 2032.

**Element State:** Fair

**ACL:** ACL 2 - Check List

**Assessment Criteria**

**Existence**

**Comments**

Damaged openings or specialties

Damaged, deteriorated or inadequate roofing material

X

Inadequately sloped to drains

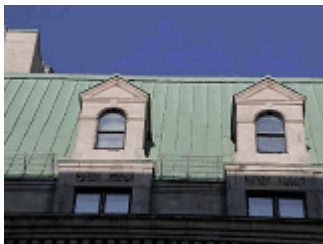
Inherent environmental defects

Insufficient roof drains

Leakage

Non code compliant

Water penetration



Slope copper mansard roof with snow guards on the bottom

**01.4-010C15 Copper Roof Event #: 1**

**Brief Description**

Refurbish copper roof

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

RP Component life extension

2015

\$1,170,031

high priority

Building Condition Report

**Event Description**

Refurbish the copper roof.

**Event Justification & Strategy**

The building's copper roofs are essential to the heritage character of the building and must be preserved. Repair of the snow guards is included.

	Repairs will be carried out from scaffolding during warmer weather months in order to reduce hazardous slipping during potentially icy conditions. The scaffolding will interfere with pedestrian traffic around the building. This work can be done as part of other restoration projects including the Queenstone and brick cladding and copper and steel windows.
<b>Implication of Event Deferral (Risks)</b>	Deferring the repairs may result in future water infiltration problems and require additional interior repairs as well as more costly roof repairs.

#### 01.4-010C15 Copper Roof Event #: 2

<b>Brief Description</b>	Replace copper roofing			
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
RP Component replacement or new	2032	\$2,684,700	N/A	Building Condition Report
<b>Event Description</b>	At the end of its service life, remove and replace all copper roofing in Postal Station B, including the mechanical penthouse, the mansard roof and details at the 5th floor level (PWGSC nomenclature).			
<b>Event Justification &amp; Strategy</b>	The building's copper roofs are essential to the heritage character of the building and the new roof should maintain the heritage appearance.			

	Replacement will be carried out from scaffolding during warmer weather months in order to reduce hazardous slipping during potentially icy conditions. The scaffolding will interfere with pedestrian traffic around the building. As the anticipated replacement time approaches, it may be feasible to adjust the replacement timing in order to coordinate with other associated building envelope work i.e., replacement of sealants. At this time, it will be appropriate to replace the snow guards.
<b>Implication of Event Deferral (Risks)</b>	Deferring the replacement of the copper roof system may result in future water infiltration problems and require additional interior repairs as well as more costly roof repairs.

#### 01.4-010C15 Copper Roof Event #: 3

<b>Brief Description</b>	Replace snow guards			
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
RP Component replacement or new	2032	\$240,210	N/A	Building Condition Report
<b>Event Description</b>	Install new snow guards at the same time as a new copper roof			
<b>Event Justification &amp; Strategy</b>	Snow guards are essential to protect pedestrians from snow and ice sliding off the copper roof.			
	Replacement will be carried out at the same time as installation of the new copper roof.			
<b>Implication of Event Deferral (Risks)</b>	Deferring replacement of snow guards is a safety hazard.			

### 01.4-010C20 Elast./Mod. Bitumen, 1 ply membrane Rf

Element Instance: 01.4-010C20 Elast./Mod. Bitumen, 1 ply membrane Rf

<b>Details</b>	<b>Values</b>
Expected Life	20
Component Cost	443,381
Last Major Action Year	1997
Component Condition (For BCR use only)	Average
Quantity	629
Measurement unit/ Metric	m2

<b>Component Description</b>	The main roof and the stairwell roof are flat construction. There are two raised areas on the main roof that are believed to be skylight curbs. The skylight openings have been roofed over. These roofs have an exposed modified bitumen rolled roofing system that was installed in approximately 1997, according to the 2006 BCR. The roof drains do not have flow restrictors, which control the discharge of water from the roof. The perimeter membrane flashing is protected by sheet metal flashing. There is a lower flat roof over a
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portion of the ground floor on the west side of the building abutting the Hope Building that has an exposed modified bitumen roofing system.

This component is of average quality.

Average Theoretical Expected Life: 20 years

2012: Theoretical life adjusted to 25 - based upon their existing condition

Last Major Action Year: 1997

**Component Condition &  
Anticipated Replacement  
Date**

This component is in average condition, based upon age, visual observations and revised service life.

The membrane running along the roof stops half way up the parapet wall where the steel flashing ends and there is no membrane underneath the copper parapet wall flashing. Incompatible materials and dried out wood further compromise the performance of the roof. These parapet membrane extensions will be carried out at the same time as repair of the copper roof (01.4-010C15 Copper Roof) . At this time, it is not anticipated that the parapet membrane will be replaced during the replacement of the modified bitumen flat roof.

Management indicated that there are no current problems with the roof system. Prior to replacement in about 2022, some maintenance repairs should be anticipated in about 2017, in order that the roof system can achieve the 25 year extended life expectancy.

**Element State:** Average

**ACL:** ACL 2 - Check List

**Assessment Criteria**

**Existence**

**Comments**

Damaged openings or specialties

Damaged, deteriorated or inadequate roofing material

Inadequately sloped to drains

Inherent environmental defects

Insufficient roof drains

Leakage

Non code compliant

Water penetration



Modified bitumen roof

**01.4-010C20 Elast./Mod. Bitumen, 1 ply membrane Rf Event #: 1**

**Brief Description**

Extend parapet flashings

**Event Type**

RP Component life extension

**Event Year**

2015

**Event Cost**

\$55,120

**Priority**

high priority

**Data Origin**

Building Condition Report

**Event Description**

Extend modified bitumen parapet up the top half of the parapet.

**Event Justification &  
Strategy**

To ensure proper water tightness at the parapet, the underlying modified bitumen membrane should extend up and over the top of the parapet.

This work will require removal of the copper flashing in order to extend the membrane. Depending upon the condition of the existing copper, it may not be feasible to reuse the copper. In such case, new copper flashing will be required. The new copper flashing

**Implication of Event Deferral (Risks)**

may have to be replaced again, when the entire copper roof is replaced. Currently only the copper flashing protects the top of the parapet. Replacement of the copper roof is not anticipated until 2032. Deferring extending the membrane over the top of the parapet may result in water infiltration over the next 20 years. This could be disruptive to the occupants.

**01.4-010C20 Elast./Mod. Bitumen, 1 ply membrane Rf Event #: 2**

**Brief Description**

Repair modified bitumen roof

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

RP Component life extension

2017

\$36,784

high priority

Building Condition Report

**Event Description**

Repair modified bitumen roofing

**Event Justification & Strategy**

Prior to the anticipated replacement of the modified bitumen flat roof, some repairs may be required in orders that the roof system may achieve its anticipated life expectancy.

**Implication of Event Deferral (Risks)**

Deferring repairs may shorten the anticipated life expectancy of the roof system.

**01.4-010C20 Elast./Mod. Bitumen, 1 ply membrane Rf Event #: 3**

**Brief Description**

Replace roofing system

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

RP Component replacement or new

2022

\$433,381

N/A

Building Condition Report

**Event Description**

Replace the modified bitumen roofing system at the end of its service life. The area includes the flat roof portion of the penthouse, the main flat roof areas and the lower roof adjacent to the Hope Building.

**Event Justification & Strategy**

All components should be replaced at the end of their service life. This work will be best done during warmer weather. There will be some disruption to pedestrian traffic around the building, but minimal impact on the building occupants.

**Implication of Event Deferral (Risks)**

There will be increased maintenance costs and the possibility of damage to the building and its contents. Potential tenant dissatisfaction.

**01.4-020 Roof Specialties**

**01.4-020C05 Gutter**

Element Instance: 01.4-020C05 Gutter

**Details**

**Values**

Expected Life

30

Component Cost

0

Last Major Action Year

1990

Component Condition (For BCR use only)

Fair

Quantity

85

Measurement unit/ Metric

m

**Component Description**

There is a lined, masonry gutter on the north, east and south of the building at the floor level of the 5th floor (PWGSC nomenclature). This gutter controls the run off from the mansard roof.

**Component Condition & Anticipated Replacement Date**

This component is of average quality.

Average Theoretical Expected Life: 30 years

2012: Theoretical life not adjusted

Last Major Action Year: 1990

This component is in fair condition, based upon age, visual observations and revised service life.

The following observations are based on the 2011 DFS Architects Inc. building envelope report

- The membrane is in poor condition;
- The flashings are damaged at various locations;
- The heating cable is not fully operational;
- To drains are personally block.

Although replacement of the gutter structure is not anticipated, refurbishment of these components is anticipated in 2015.

**Element State:** Fair

**ACL:** ACL 2 - Check List

**Assessment Criteria**

**Existence**

**Comments**

Biological growth/contamination

Blocked or ineffective internal drainage

Blocked piping

Corrosion

Damage at joints

Deteriorated finishes

Dirt in operating subcomponents

**01.4-020C05 Gutter Event #: 1**

**Brief Description**

Repair gutter at 5th level

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

RP Component life extension

2015

\$101,891

medium priority

Building Condition Report

**Event Description**

Repair gutter around the 5th floor perimeter including:

- Removal and replacement of modified bitumen membrane and copper flashing;
- removal and capping of mechanical drains from the exterior and interior

**Event Justification & Strategy**

The gutter drains need to be repaired. This work can be carried out at the same time as copper roof.

**Implication of Event Deferral (Risks)**

Deferring this work will result in continued deterioration of the various components..

**01.5 Interior Construction**

**01.5-010 Masonry Partitions**

**01.5-010C01 Concrete Block Partition**

**Element Instance: 01.5-010C01 Concrete Block Partition - Postal Station B Ottawa 4520394**

**Details**

**Values**

Expected Life

110

Component Cost

0

Last Major Action Year

1939

Component Condition (For BCR use only)

Average

Quantity

750

Measurement unit/ Metric

m2

**Component Description**

There are concrete block partitions in the basement, in stairwell "B" and in service rooms on all floors.

**Component Condition & Anticipated Replacement Date**

This component is of average quality.

Average Theoretical Expected Life: 75 years

2012: Theoretical life adjusted to 110 - anticipated life expectancy of the building.

Last Major Action Year: 1939

This component is in average condition, based upon age, visual observations and revised service life. There are no visual cracks or deterioration. At a few locations in the basement, peeled paint was evident, but there was no active or reported water

This report was generated without using Virtual Events.

infiltration. However, Property Management indicated that water infiltration is a problem at other nearby buildings that they have had to address. Currently, possible future repairs are not included.

There are many openings in fire-rated concrete block walls, which do not have adequate fire stopping. This diminishes the fire rating of the assembly. This condition also occurs at openings in plaster and tile wall assemblies (refer to sections 01.5-060C10 Lath & Plaster Walls and 01.5-010C15 Tile Partition).

In the last BCR, inspections and repairs were scheduled on an 10-year cycle commencing in 2007, to correct code deficiencies. According to current Management comments and visual observations, these deficiencies were not previously corrected. Repair of the deficiencies are now scheduled in 2014. Replacement of the block partitions, which now have a life expectancy similar to the building, is not anticipated within the 30 year horizon of this report.

**Element State:** Average

**ACL:** ACL 2 - Check List

**Assessment Criteria**

**Existence**

**Comments**

Deteriorated finishes

Functional defects

Non code compliant

X

Physical damage or deterioration

Unsafe conditions

**01.5-010C01 Concrete Block Partition - Postal Station B Ottawa 4520394 Event #: 1**

**Brief Description**

Repair fire stopping in interior walls

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

RF Fire and Safety  
Code

2014

\$52,325

high priority

Building Condition Report

**Event Description**

Repair fire stopping in fire rated wall assemblies.

**Event Justification & Strategy**

Repair of fire stops throughout the building is important to maintaining acceptable fire ratings.

Prior to undertaking the repairs, an I&R is recommended to identify locations that have deficient fire stopping (refer to 10.2A-010 Architectural & Structural). The repairs can be implemented on a floor by floor basis. At some locations, some disruption to the occupants should be expected. This work could be done during off hours to reduce interruptions. Escorts will be required.

Once this work is complete, all new openings must have the fire stopping replaced by the contractor doing the work and reviewed by Property Management.

**Implication of Event Deferral (Risks)**

Deferring replacement of the fire stop is a potential safety hazard and violation of Fire and Safety Code.

**01.5-010C15 Tile Partition**

**Element Instance: 01.5-010C15 Tile Partition - Postal Station B Ottawa 4520394**

**Details**

**Values**

Expected Life

110

Component Cost

0

Last Major Action Year

1939

Component Condition (For BCR use only)

Average

Quantity

1000

Measurement unit/ Metric

m2

**Component Description**

The original partitions were tile with a plaster finish and much of the original remains.

**Component Condition &  
Anticipated Replacement  
Date**

This component is of average quality.  
Average Theoretical Expected Life: 50 years  
2012: Theoretical life adjusted to 110 - anticipated life expectancy of the building.  
Last Major Action Year: 1939

This component is in average condition, based upon age, visual observations and revised service life. There is no visible signs of distress or cracking. Unless there is a major retrofit, repairs or replacement are beyond the next 30 year horizon of this report. Violations of fire rating in openings that require fire rating should be repaired. This is included under component 01.5-010C01 Concrete Block Partitions.

Anticipated replacement date of this component is not anticipated within the 30 year horizon of this report.

**Element State:** Average

**ACL:** ACL 2 - Check List

**Assessment Criteria**

**Existence**

**Comments**

Deteriorated finishes  
Functional defects  
Non code compliant  
Physical damage or deterioration  
Unsafe conditions

**01.5-012 Frame Partitions**

**01.5-012C01 Gypsum Board Partition with Studs**

**Element Instance:** 01.5-012C01 Gypsum Board Partition with Studs

**Details**

**Values**

Expected Life	60
Component Cost	0
Last Major Action Year	1975
Component Condition (For BCR use only)	Good
Quantity	4225
Measurement unit/ Metric	m2

**Component Description**

Interior walls above the ground floor, if not concrete block or tile/plaster, are steel stud and gypsum board. According to available information, the walls on the office levels were upgraded in 1975 with insulation and painted drywall finishes

**Component Condition &  
Anticipated Replacement  
Date**

This component is of average quality.  
Average Theoretical Expected Life: 60 years  
2012: Theoretical life adjusted to 110 - anticipated life expectancy of the building.  
Last Major Action Year: 1975

This component is in good condition, based upon age, visual observations and revised service life.  
These walls have a life expectancy similar to the building. Their replacement or repair is not anticipated unless there is a major retrofit or an unknown requirement. Any minor repairs will be incorporated in component 01.5-060C15 - Paint. Fire stopping in wall penetrations, which is a code violations is included in component 01.5-010C01 Concrete Block Partitions. The remaining life expectancy is greater than the next 30 year horizon of this report.

**Element State:** Good

**ACL:** ACL 2 - Check List

**Assessment Criteria**

**Existence**

**Comments**

Deteriorated finishes  
Functional defects



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Non code compliant  
Physical damage or deterioration  
Unsafe conditions

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### **01.5-013 Special Partitions**

#### **01.5-013C10 Washroom Partitions**

**Element Instance: 01.5-013C1 0 Washroom Partitions**

<b>Details</b>	<b>Values</b>
Expected Life	20
Component Cost	0
Last Major Action Year	1975
Component Condition (For BCR use only)	Fair
Quantity	30
Measurement unit/ Metric	ea

**Component Description** There are painted steel, floor mounted washroom partitions in the men's washrooms and ceiling hung partitions in the women's washrooms on all floors of the building.

**Component Condition & Anticipated Replacement Date** This component is of average quality.  
Average Theoretical Expected Life: 20 years  
2012: The existing partitions in the male washrooms have exceeded the typical expected life. For the purpose of determining the Component Condition, the component life at replacement is anticipated to be 40 years. The Expected Life in Details has not been adjusted, as replacement equipment may have a normal service life.  
Last Major Action Year: 1975 (male washrooms)

The male washroom partitions are in fair based upon age, visual observations and revised service life of the partitions. Until the male washrooms are renovated, this component is considered in fair condition overall. Like the flooring and walls in the male washrooms, the partitions are aged and dated. There is visual evidence of rusting on the hinges. Modernization of the men's washroom partitions is included as part of component 09.4S Washroom Renovation scheduled in 2015.

The partitions in the women's washrooms are modern and in good condition. According to the 2006 BCR, these partitions were replaced in about 2002. Replacement of these partitions is anticipated in the female washroom renovations in about 2040. Refer to 09.4S Washroom Renovation. Until then, the partitions in the female washrooms can be refurbished, if required on an individual basis, as part of regular maintenance at the cost less \$5,000.

**Element State:** Fair

**ACL:** ACL 2 - Check List

**Assessment Criteria**

**Existence**

**Comments**

Deteriorated finishes  
Functional defects  
Non code compliant  
Physical damage or deterioration  
Unsafe conditions

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### **01.5-050 Interior Doors**

#### **01.5-050C10 Hardwood Doors**

**Element Instance: 01.5-050C10 Hardwood Doors**

<b>Details</b>	<b>Values</b>
Expected Life	110

This report was generated without using Virtual Events.



Component Cost	144,600
Last Major Action Year	1939
Component Condition (For BCR use only)	Fair
Quantity	100
Measurement unit/ Metric	ea

#### **Component Description**

The typical office and the core service/washroom doors on the upper floors are wood. There is a combination of original doors that have upper glazed panels and newer solid wood doors without glazing. There are approximately 25 wood doors on a typical floor. About 2/3 of the wood doors are original. The original doors have knob handles and the newer doors have a combination of knob and lever handles. The doors to the service rooms and pipe chases in the male washrooms on each floor are original, without glazing and not fire rated. Replacement of these doors is included in section 01.5-050C15 Metal Doors.

#### **Component Condition & Anticipated Replacement Date**

Average Theoretical Expected Life: 50 years

2012: The older partially glazed wood doors are believed to be original and have exceeded the typical expected life for a wood door. For the purpose of determining the Component Condition, the component life at replacement is anticipated to be 90 years. The Expected Life in Details has not been adjusted, as replacement equipment may have a normal service life.

Last Major Action Year: 1939 (older/likely original partially glazed wood doors).

This component is in fair condition, based upon age of the original partially glazed wood doors, visual observations and revised service life. With a 90 year revised expected life, either replacement or repair/refurbishment of the original wood/glazed doors that do not need to be fire rated is anticipated in 2029. The fire rating requirement will be assessed as part of the fire and life safety I and R included in section 10.2A-010 Architectural and Structural.

**Element State:** Fair

**ACL:** ACL 2 - Check List

#### **Assessment Criteria**

#### **Existence**

#### **Comments**

Broken or cracked glass

Functional defects

Non code compliant

Physical damage or deterioration

### **01.5-050C10 Hardwood Doors Event #: 1**

#### **Brief Description**

Refurbish Hardwood doors

#### **Event Type**

Event Year

Event Cost

Priority

Data Origin

RP Component life extension

2029

\$148,070

N/A

Building Condition Report

#### **Event Description**

Refurbish original hardwood doors. If they are not considered a heritage component of the building, perhaps they will be replaced with newer solid hardwood doors. The allowance provided covers either option. This excludes non-rated wood doors for the service rooms and pipe chases, which will be replaced with fire rated doors, covered in section 01.5-050C15 Metal Doors.

#### **Event Justification & Strategy**

The older partially glazed wood doors reflect the heritage of the building. So far, most of these doors have been maintained, but eventually may need to be either completely refurbished or replaced with solid wood doors to match the newer doors. Before they are replaced, their heritage characteristics should be reviewed by FHBRO.

#### **Implication of Event Deferral (Risks)**

If the doors are refurbished, they will likely be temporarily removed for refurbishment off-site. During replacement, installation of temporary doors may not be required.

As long as the doors are functioning properly, deferral should have minimal impact.

## 01.5-050C15 Metal Doors

Element Instance: 01.5-050C15 Metal Doors

<b>Details</b>	<b>Values</b>
Expected Life	60
Component Cost	113,200
Last Major Action Year	1975
Component Condition (For BCR use only)	Average
Quantity	50
Measurement unit/ Metric	ea

**Component Description** The interior stairwell doors, the basement doors, the access to exit doors, delivery doors, and service elevator doors are metal. There are some glazed openings in the metal doors.

**Component Condition & Anticipated Replacement Date**

This component is of average quality.

Average Theoretical Expected Life: 60 years.

2012: Expected Life not adjusted.

Last Major Action Year: 1975 (last reported major renovation).

This component is in average condition, based upon age and visual observations. Replacement is anticipated in 2035, based upon a 60 year life expectancy. Random doors that fail before 2035 would likely be replaced on an individual basis from the operating budget. Where observed, metal doors are rated at appropriate locations such as stairwells.

The previous BCR identified a code violation for a basement room that is accessed from the basement landing of the west stairwell. This room only contains a sump pump and is usually locked. At this time, it is not seen as a code violation, as access is restricted and would not restrict egress during an emergency evacuation.

Replacement of the non-rated wood doors associated with service rooms and pipe chases is recommended in 2015 (refer to 01.5-050C10 Hardwood Doors).

**Element State:** Average

**ACL:** ACL 2 - Check List

**Assessment Criteria**

**Existence**

**Comments**

Broken or cracked glass

Functional defects

Non code compliant

Physical damage or deterioration

### 01.5-050C15 Metal Doors Event #: 1

**Brief Description**

Install fire rated doors

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

RP Component replacement or new

2015

\$57,958

medium priority

Building Condition Report

**Event Description**

Replace non-rated original wood doors in service rooms and pipe chases.

**Event Justification & Strategy**

Despite any heritage requirements, doors to service rooms and pipe chases must be replaced with an appropriate rated assembly. Some of these doors will have to be custom-made to fit the opening width.

**Implication of Event Deferral (Risks)**

Deferring replacement of the non-rated wood doors for the service rooms and pipe chases is a code violation.

### 01.5-050C15 Metal Doors Event #: 2

**Brief Description**

Replace metal doors

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

This report was generated without using Virtual Events.

RP Component replacement or new	2035	\$57,958	N/A	Building Condition Report
<b>Event Description</b>	Replace existing metal doors.			
<b>Event Justification &amp; Strategy</b>	The steel doors are located at stairwells and service rooms as well as other locations. Many of these doors are located in high traffic areas and should be kept in good operating condition.			
	In this BCR, replacement of all steel doors is anticipated at the same time. In future BCRs, their replacement may be spread over a number of years. Doors that fail on an individual basis and require replacement may be replaced as part of regular maintenance. If the replacement is carried out during regular office hours, the occupants will experience some disruption. Replacement after hours would be more appropriate. Security escorts will be required.			
<b>Implication of Event Deferral (Risks)</b>	As the steel doors approach their anticipated life expectancy, deferring replacement may be possible depending upon the condition of the doors at that time.			

### 01.5-050C25 Specialties- Doors

Element Instance: 01.5-050C25 Specialties- Doors

<b>Details</b>	<b>Values</b>
Expected Life	45
Component Cost	0
Last Major Action Year	1985
Component Condition (For BCR use only)	Not Assessed
Quantity	1
Measurement unit/ Metric	ea

**Component Description** According to property management the revolving door and the associated glazed partition is a security component and the responsibility of the tenant. .

This component is of average quality.

<b>Element State:</b>	Not Assessed	<b>ACL:</b>	ACL 2 - Check List
<b>Assessment Criteria</b>	<b>Existence</b>	<b>Comments</b>	
Broken or cracked glass			
Functional defects			
Non code compliant			
Physical damage or deterioration			

### 01.5-060 Interior Wall Finishes

#### 01.5-060C05 Ceramic Wall Tile

Element Instance: 01.5-060C05 Ceramic Wall Tile - Postal Station B Ottawa 4520394

<b>Details</b>	<b>Values</b>
Expected Life	40
Component Cost	0
Last Major Action Year	1939
Component Condition (For BCR use only)	Fair
Quantity	676
Measurement unit/ Metric	m2

**Component Description** Ceramic tile wall finishes are located in the washrooms on all floors, stair 'A' wainscoting, and some wainscoting on the ground floor service areas.

This component is of average quality.

**Component Condition & Anticipated Replacement Date** Average Theoretical Expected Life: 40 years  
2012: Theoretical life adjusted to 80 - based upon their existing condition  
Last Major Action Year: 1939

This report was generated without using Virtual Events.

This component is in fair condition, based upon age, visual observations and revised service life.

The ceramic wall tiles in the stairwell "A" ( wainscoting) and men's washrooms are believed to be original. The ceramic wall tiles in the women's and unisex washrooms were replaced according to the 2006 BCR in about 1995. Refurbishment of the washrooms is anticipated in about 2035.

The ceramic wall tiles in the men's washroom are dated and have exceeded their expected life. Replacement is scheduled in 2015 as part of male washroom renovations (09.4S, Washroom Renovation).

The ceramic tile wainscoting is also believed to be original. Unless it is considered a heritage feature associated with the stairwell, replacement should be anticipated, especially if there is a major interior restoration project. Replacement is provided in 2019.

**Element State:** Fair

**ACL:** ACL 2 - Check List

**Assessment Criteria**

**Existence**

**Comments**

Excessive cracking and spalling

Water damage

**01.5-060C05 Ceramic Wall Tile - Postal Station B Ottawa 4520394 Event #: 1**

**Brief Description**

Replace ceramic tile wainscoting

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

RP Component  
replacement or new

2019

\$55,210

N/A

Building Condition Report

**Event Description**

Replace wainscoting in stairwell "A".

**Event Justification & Strategy**

Replacement of the wainscoting in stairwell "A" will improve the aesthetic appearance of the stairwell. Prior to replacement, the heritage status of this wainscoting needs to be confirmed.

This work will need to be done during off hours or on weekends in order to avoid blocking the stairwell during regular working hours. It will be important to keep the stairwell functional during regular working hours in order to maintain acceptable egress in an emergency and facilitate movement between floors.

**Implication of Event Deferral (Risks)**

Deferring replacement of the wainscoting will only affect the aesthetic appearance in the stairwell. By this time, the majority of the occupants are used to its current appearance.

**01.5-060C10 Lath & Plaster Wall**

**Element Instance: 01.5-060C10 Lath & Plaster Wall**

**Details**

**Values**

Expected Life

60

Component Cost

0

Last Major Action Year

1939

Component Condition (For BCR use only)

Average

Quantity

1050

Measurement unit/ Metric

m2

**Component Description**

The original base building walls on all floors are lath and plaster. Some of these walls are now hidden (e.g., the exterior walls). The plaster walls remain in stairwell "A", some of the original core elements and some office walls.

This component is of average quality.

**Component Condition &  
Anticipated Replacement  
Date**

Average Theoretical Expected Life: 60 years  
2012: Theoretical life adjusted to 110 - anticipated life expectancy of the building.  
Last Major Action Year: 1939

This component is in average condition, based upon age, visual observations and revised service life. Removal and replacement with lath and plaster partitions or major repairs are not anticipated within the 30 year horizon of this report. According to an asbestos investigation, the plaster contains some asbestos. However, it is contained and not considered friable. If the walls are removed as part of a restoration project, asbestos abatement will have to be undertaken during the removal. These walls have a life expectancy of 110 years and replacement is not anticipated within the 30 year horizon of this report. It is anticipated that they will remain in their present condition, unless the building undergoes a major renovation.

**Element State:** Average

**ACL:** ACL 2 - Check List

**Assessment Criteria**

**Existence**

**Comments**

Algae/biological growth/mould

Sagging and settlement - water penetration

Stains and discolouration

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**01.5-060C15 Paint**

**Element Instance: 01.5-060C15 Paint**

**Details**

**Values**

Expected Life	12
Component Cost	146,000
Last Major Action Year	2009
Component Condition (For BCR use only)	Good
Quantity	6000
Measurement unit/ Metric	m2

**Component Description**

The interior walls are, in general, painted drywall, or concrete block. There is some use of prefinished vinyl covered wallboard in the office areas.

This component is of average quality.

**Component Condition &  
Anticipated Replacement  
Date**

Average Theoretical Expected Life: 10 years  
2012: Theoretical life adjusted to 12 - based upon their existing condition and anticipated expected life.  
Last Major Action Year: 2009

This component is in good condition, based upon age, visual observations and revised service life.

Painting on the second floor was recently replaced. Painting on the four secure floors (7,5,4 and 3) is in newer condition than the remaining floors. Allowance has been made to replace paint on two floors every three years. Any vinyl clad walls will also be painted instead of replaced. This provides for total replacement every 12 years. Replacement will start in 2015.

**Element State:** Good

**ACL:** ACL 2 - Check List

**Assessment Criteria**

**Existence**

**Comments**

Damaged surface

Excessive peeling or flaking

Fading Colours

**01.5-060C15 Paint Event #: 1**

**Brief Description**

Repaint interior walls

This report was generated without using Virtual Events.

<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
RP Component replacement or new	2015	\$37,376	medium priority	Building Condition Report
<b>Event Description</b>	Paint interior walls on a floor by floor basis.			
<b>Event Justification &amp; Strategy</b>	Painting is important in order to maintain good appearances and thus a high level of tenant satisfaction.			
<b>Implication of Event Deferral (Risks)</b>	In this building, security requirements are high and some floors have high profile occupants. Proper contractor security clearances and security escorts will be required. Replacement will need to be done during off hours and/or weekends. Ideally, temporary swingspace would be beneficial, especially for relocation of secure files. In order to minimize disruptions, painting can be done at the same time as replacement of other interior finishes such as carpet flooring and/or ceiling tiles.			
	Over time, the paint will fade and chip. This will reduce the overall appearance of the work area and will result in tenant dissatisfaction. However, if the paint finish is still in acceptable condition at the end of its anticipated life expectancy, postponing replacement for a couple of years would likely be acceptable.			
01.5-060C15 Paint Event #: 2				
<b>Brief Description</b>	Repaint interior walls			
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
RP Component replacement or new	2018	\$37,376	medium priority	Building Condition Report
<b>Event Description</b>	Paint interior walls on a floor by floor basis.			
<b>Event Justification &amp; Strategy</b>	Painting is important in order to maintain good appearances and thus a high level of tenant satisfaction.			
<b>Implication of Event Deferral (Risks)</b>	In this building, security requirements are high and some floors have high profile occupants. Proper contractor security clearances and security escorts will be required. Replacement will need to be done during off hours and/or weekends. Ideally, temporary swingspace would be beneficial, especially for relocation of secure files. In order to minimize disruptions, painting can be done at the same time as replacement of other interior finishes such as carpet flooring and/or ceiling tiles.			
	Over time, the paint will fade and chip. This will reduce the overall appearance of the work area and will result in tenant dissatisfaction. However, if the paint finish is still in acceptable condition at the end of its anticipated life expectancy, postponing replacement for a couple of years would likely be acceptable.			
01.5-060C15 Paint Event #: 3				
<b>Brief Description</b>	Repaint interior walls			
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
RP Component replacement or new	2021	\$37,376	N/A	Building Condition Report
<b>Event Description</b>	Paint interior walls on a floor by floor basis.			
<b>Event Justification &amp; Strategy</b>	Painting is important in order to maintain good appearances and thus a high level of tenant satisfaction.			
<b>Implication of Event Deferral (Risks)</b>	In this building, security requirements are high and some floors have high profile occupants. Proper contractor security clearances and security escorts will be required. Replacement will need to be done during off hours and/or weekends. Ideally, temporary swingspace would be beneficial, especially for relocation of secure files. In order to minimize disruptions, painting can be done at the same time as replacement of other interior finishes such as carpet flooring and/or ceiling tiles.			
	Over time, the paint will fade and chip. This will reduce the overall appearance of the work area and will result in tenant dissatisfaction. However, if the paint finish is still in acceptable condition at the end of its anticipated life expectancy, postponing			

This report was generated without using Virtual Events.

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replacement for a couple of years would likely be acceptable.

**01.5-060C15 Paint Event #: 4**

**Brief Description**

Repaint interior walls

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

RP Component  
replacement or new

2024

\$37,376

N/A

Building Condition Report

**Event Description**

Paint interior walls on a floor by floor basis.

**Event Justification & Strategy**

Painting is important in order to maintain good appearances and thus a high level of tenant satisfaction.

**Implication of Event Deferral (Risks)**

In this building, security requirements are high and some floors have high profile occupants. Proper contractor security clearances and security escorts will be required. Replacement will need to be done during off hours and/or weekends. Ideally, temporary swingspace would be beneficial, especially for relocation of secure files. In order to minimize disruptions, painting can be done at the same time as replacement of other interior finishes such as carpet flooring and/or ceiling tiles.

Over time, the paint will fade and chip. This will reduce the overall appearance of the work area and will result in tenant dissatisfaction. However, if the paint finish is still in acceptable condition at the end of its anticipated life expectancy, postponing replacement for a couple of years would likely be acceptable.

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**01.5-060C30 Special Wall Finishes**

**Element Instance: 01.5-060C30 Special Wall Finishes - Postal Station B Ottawa 4520394**

**Details**

**Values**

Expected Life	110
Component Cost	0
Last Major Action Year	1939
Component Condition (For BCR use only)	Average
Quantity	145
Measurement unit/ Metric	m2

**Component Description**

The floors Ground to 7 (or 1 to 8), have marble wainscoting in the "public" lobby areas. There is extensive use of travertine, marble and black granite on the Post Office walls. The lobby has some stainless steel wall panels.

**Component Condition & Anticipated Replacement Date**

This component is of average quality.

Average Theoretical Expected Life: 60 years

2012: Theoretical life adjusted to 110 - anticipated life expectancy of the building.

Last Major Action Year: 1939

This component is in average condition, based upon age, visual observations and revised service life.

There are a few small damaged areas. However, finding closely matching replacement material may be very difficult. It may be appropriate to leave these areas as is rather than repairing them with a noticeably different material. Replacement of these various wall components is not anticipated within the 30 year horizon of this report. As a heritage component, they could remain as is for the life of the building.

**Element State:** Average

**ACL:** ACL 2 - Check List

**Assessment Criteria**

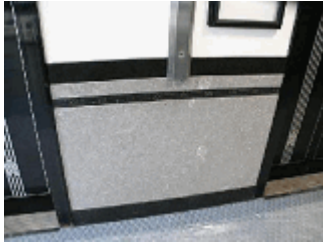
**Existence**

**Comments**

Discolouration or staining

Physical damage or deterioration of finish





Typical lobby (each floor)



Post Office interior.



Post Office interior.

## 01.5-070 Floor Finishes

### 01.5-070C05 Carpeting

Element Instance: 01.5-070C05 Carpeting

#### Details

#### Values

Expected Life	12
Component Cost	437,052
Last Major Action Year	2009
Component Condition (For BCR use only)	Average
Quantity	3612
Measurement unit/ Metric	m2

#### Component Description

There is some carpeting in the basement offices, and the tenant office floors are more than 95% carpet.

#### Component Condition & Anticipated Replacement Date

This component is of average quality.

Average Theoretical Expected Life: 10 years

2012: Theoretical life adjusted to 12 - based upon their existing condition

Last Major Action Year: 2006 (based on secure floors)

This component is in average condition, based upon age, visual observations and revised service life.

Carpeting on the second floor was recently replaced. Carpating on the four secure floors (7,5,4 and 3) is in newer condition than the remaining floors. Allowance has been made to replace two floors of the flooring every three years (including carpet and minor components of vinyl and vinyl tile floors). This provides for total replacement every 12 years. Replacement will start in 2015 to coincide with painting (01.5-060C15 Paint).

**Element State:** Average

**ACL:** ACL 2 - Check List

#### Assessment Criteria

#### Existence

#### Comments

Excessive wear

Stains, tears and poor seam condition



**01.5-070C05 Carpeting Event #: 1**

<b>Brief Description</b>	Replace 25% of carpet floor finish			
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
RP Component replacement or new	2015	\$111,885	medium priority	Building Condition Report
<b>Event Description</b>	Replace carpeting in the office areas.			
<b>Event Justification &amp; Strategy</b>	Replacement of carpet is important in order to maintain good appearance and thus a high level of tenant satisfaction.			
<b>Implication of Event Deferral (Risks)</b>	<p>In this building, security requirements are high and some floors have high profile occupants. Proper contractor security clearances and security escorts will be required. Replacement will need to be done during off hours and/or weekends. Ideally, temporary swingspace would be beneficial, especially for relocation of secure files.</p> <p>Over time, the carpet will become worn and stained. There may be some loose seams resulting in tripping hazards. This will result in tenant dissatisfaction. However, if the carpeting is still in acceptable condition at the end of its anticipated life expectancy, postponing replacement for a couple of years would likely be acceptable.</p>			

**01.5-070C05 Carpeting Event #: 2**

<b>Brief Description</b>	Replace 25% of carpet floor finish			
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
RP Component replacement or new	2018	\$111,885	medium priority	Building Condition Report
<b>Event Description</b>	Replace carpeting in the office areas.			
<b>Event Justification &amp; Strategy</b>	Replacement of carpet is important in order to maintain good appearance and thus a high level of tenant satisfaction.			
<b>Implication of Event Deferral (Risks)</b>	<p>In this building, security requirements are high and some floors have high profile occupants. Proper contractor security clearances and security escorts will be required. Replacement will need to be done during off hours and/or weekends. Ideally, temporary swingspace would be beneficial, especially for relocation of secure files.</p> <p>Over time, the carpet will become worn and stained. There may be some loose seams resulting in tripping hazards. This will result in tenant dissatisfaction. However, if the carpeting is still in acceptable condition at the end of its anticipated life expectancy, postponing replacement for a couple of years would likely be acceptable.</p>			

**01.5-070C05 Carpeting Event #: 3**

<b>Brief Description</b>	Replace 25% of carpet floor finish			
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
RP Component replacement or new	2021	\$111,885	N/A	Building Condition Report
<b>Event Description</b>	Replace carpeting in the office areas.			
<b>Event Justification &amp; Strategy</b>	Replacement of carpet is important in order to maintain good appearance and thus a high level of tenant satisfaction.			
<b>Implication of Event Deferral (Risks)</b>	<p>In this building, security requirements are high and some floors have high profile occupants. Proper contractor security clearances and security escorts will be required. Replacement will need to be done during off hours and/or weekends. Ideally, temporary swingspace would be beneficial, especially for relocation of secure files.</p> <p>Over time, the carpet will become worn and stained. There may be some loose seams resulting in tripping hazards. This will result in tenant dissatisfaction. However, if the carpeting is still in acceptable condition at the end of its anticipated life expectancy, postponing replacement for a couple of years would likely be acceptable.</p>			

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**01.5-070C05 Carpeting Event #: 4**

<b>Brief Description</b>	Replace 25% of carpet floor finish			
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
RP Component replacement or new	2024	\$111,885	N/A	Building Condition Report
<b>Event Description</b>	Replace carpeting in the office areas.			
<b>Event Justification &amp; Strategy</b>	Replacement of carpet is important in order to maintain good appearance and thus a high level of tenant satisfaction.			
<b>Implication of Event Deferral (Risks)</b>	<p>In this building, security requirements are high and some floors have high profile occupants. Proper contractor security clearances and security escorts will be required. Replacement will need to be done during off hours and/or weekends. Ideally, temporary swingspace would be beneficial, especially for relocation of secure files.</p> <p>Over time, the carpet will become worn and stained. There may be some loose seams resulting in tripping hazards. This will result in tenant dissatisfaction. However, if the carpeting is still in acceptable condition at the end of its anticipated life expectancy, postponing replacement for a couple of years would likely be acceptable.</p>			

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**01.5-070C10 Ceramic Floor Tile****Element Instance: 01.5-070C10 Ceramic Floor Tile - Postal Station B Ottawa 4520394**

<b>Details</b>		<b>Values</b>
Expected Life		30
Component Cost		0
Last Major Action Year		1939
Component Condition (For BCR use only)		Fair
Quantity		325
Measurement unit/ Metric		m2
<b>Component Description</b>	There is ceramic floor tile in the washrooms on all the floors.	
<b>Component Condition &amp; Anticipated Replacement Date</b>	This component is of average quality.	
	Average Theoretical Expected Life: 40 years	
	2012: Theoretical life adjusted to 75 - men's washroom only	
	Last Major Action Year: 1939	
	This component is in fair condition, based upon age, visual observations and revised service life.	
	The ceramic floor tiles in the men's washroom are believed to be original. The ceramic floor tiles in the women's and unisex washrooms were replaced, according to the 2006 BCR, in about 1995.	
	The ceramic wall tiles in the men's washroom are dated and have exceeded their expected life. Replacement is scheduled in 2015 as part of male washroom renovations (09.4S, Washroom Renovation). The ceramic floor tiles in the women's and unisex washrooms will reach their theoretical expected life of 40 years in about 2035. An event is provided in section 09.4S, Washroom Renovation for the renovations of these washrooms.	
<b>Element State:</b>	Fair	<b>ACL:</b> ACL 2 - Check List
<b><u>Assessment Criteria</u></b>	<b><u>Existence</u></b>	<b><u>Comments</u></b>
Broken tiles		
Cracks and spalling		
Excessive wear		
Loose tiles or debonded areas		

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This report was generated without using Virtual Events.

Stains and discolouration  
Tile damage at floor joints

### 01.5-070C30 Marble Floor

Element Instance: 01.5-070C30 Marble Floor

<b>Details</b>	<b>Values</b>
Expected Life	50
Component Cost	0
Last Major Action Year	1939
Component Condition (For BCR use only)	Average
Quantity	325
Measurement unit/ Metric	m2

**Component Description** Marble flooring is located on the ground floor in the postal box area off Elgin Street, (covered in winter carpet); in the public area of the Post Office, in the vestibules and in the elevator lobby on both sides of the security barrier.

**Component Condition & Anticipated Replacement Date** This component is of above average quality.  
Average Theoretical Expected Life: 50 years  
2012: Theoretical life adjusted to 110 - anticipated life expectancy of the building.  
Last Major Action Year: 1939

This component is in average condition, based upon age, visual observations and revised service life.

Much of the flooring was hidden under winter roll-up carpet. The 2006 BCR indicated that the marble was refinished around 1992. The marble flooring has a remaining service life beyond the 30 year horizon of this report, provided that the finish is maintained. We recommend refinishing the marble in 2022

**Element State:** Average **ACL:** ACL 2 - Check List

<b>Assessment Criteria</b>	<b>Existence</b>	<b>Comments</b>
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Debonding of assembly from substrate  
Discolouration or staining  
Excessive wear  
Physical damage or deterioration of finish

#### 01.5-070C30 Marble Floor Event #: 1

<b>Brief Description</b>		Refinish ground floor marble		
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
RP Component life extension	2022	\$49,920	N/A	Building Condition Report
<b>Event Description</b>				
<b>Event Justification &amp; Strategy</b>				
<b>Implication of Event Deferral (Risks)</b>				

### 01.5-070C35 Painted Concrete Floor

Element Instance: 01.5-070C35 Painted Concrete Floor

<b>Details</b>	<b>Values</b>
Expected Life	10

This report was generated without using Virtual Events.

Component Cost	15,950			
Last Major Action Year	2003			
Component Condition (For BCR use only)	Fair			
Quantity	725			
Measurement unit/ Metric	m2			
<b>Component Description</b>	Painted concrete floors exist in the basement and elevator machine rooms and penthouse areas.			
	This component is of average quality.			
<b>Component Condition &amp; Anticipated Replacement Date</b>	Average Theoretical Expected Life: 10 years. 2012: Expected Life not adjusted. Last Major Action Year: 2003 (based on observed conditions).			
	This component is in fair condition, based upon age and visual observations.			
	Although maintenance of painted floor finishes can be done on an as required basis as part of the operating budget at a cost below the \$5,000 threshold on an as required basis, an event is provided in 2014 to paint the concrete floors.			
<b>Element State:</b>	Fair			
<b>Assessment Criteria</b>	<b>ACL:</b> ACL 2 - Check List			
	<b>Existence</b> <b>Comments</b>			
Discolouration or staining				
Excessive peeling or flaking				
Excessive wear				
<b>01.5-070C35 Painted Concrete Floor Event #: 1</b>				
<b>Brief Description</b>	Paint concrete floors			
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
RP Component replacement or new	2014	\$16,333	medium priority	Building Condition Report
<b>Event Description</b>	Paint concrete floors			
<b>Event Justification &amp; Strategy</b>	Aged, damaged or deteriorated painted floor finishes in service rooms gives an appearance of poor maintenance.			
	This work can be done with minimal interruption. Ideally, it should be done during off hours or on weekends to ensure minimal interruption to maintenance staff.			
<b>Implication of Event Deferral (Risks)</b>	Deferral will have minimal impact on the building occupants as they have little access to these rooms			

### 01.5-070C60 Vinyl Floor Tile

Element Instance: 01.5-070C60 Vinyl Floor Tile

<b>Details</b>	<b>Values</b>
Expected Life	20
Component Cost	40,050
Last Major Action Year	2000
Component Condition (For BCR use only)	Average
Quantity	450
Measurement unit/ Metric	m2
<b>Component Description</b>	There is vinyl floor tile or sheet vinyl in service rooms in the basement, ground floor and in minor areas of the typical office floors (such as a kitchenette and a computer room).
	This component is of average quality.
<b>Component Condition &amp; Anticipated Replacement Date</b>	Average Theoretical Expected Life: 20 years. 2012: Expected Life not adjusted. Last Major Action Year: 2000 (based on visual observations).

This report was generated without using Virtual Events.

This component is in average condition, based upon age and visual observations.

On occupied floors, where feasible, replacement of vinyl flooring should coincide with the carpet event - see component 01.5-070C05 - Carpet. Replace about a third of the vinyl flooring every three years, starting in 2015 and then every 20 years thereafter.

**Element State:** Average

**ACL:** ACL 2 - Check List

**Assessment Criteria**

**Existence**

**Comments**

Cracks

Excessive wear

Inherent environmental defects

Loose tiles or debonded areas

Physical damage or deterioration

Stains and discolouration

**01.5-070C60 Vinyl Floor Tile Event #: 1**

**Brief Description** Replace 33% vinyl floor tile

<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
RP Component replacement or new	2015	\$13,670	medium priority	Building Condition Report

**Event Description** Replace vinyl floor tile.

**Event Justification & Strategy** Replacement of the vinyl flooring will maintain tenant satisfaction and an acceptable aesthetic appearance.

**Implication of Event Deferral (Risks)** In this building, security requirements are high and some floors have high profile occupants. Proper contractor security clearances and security escorts will be required. Replacement will need to be done during off hours and/or weekends. Over time, the vinyl flooring will wear. However if the tile is still in acceptable condition at the end of its anticipated life expectancy, postponing replacement for a few years should be acceptable.

**01.5-070C60 Vinyl Floor Tile Event #: 2**

**Brief Description** Replace 33% vinyl floor tile

<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
RP Component replacement or new	2018	\$13,670	medium priority	Building Condition Report

**Event Description** Replace vinyl floor tile.

**Event Justification & Strategy** Replacement of the vinyl flooring will maintain tenant satisfaction and an acceptable aesthetic appearance.

In this building, security requirements are high and some floors have high profile occupants. Proper contractor security clearances and security escorts will be required. Replacement will need to be done during off hours and/or weekends.

**Implication of Event Deferral (Risks)** Over time, the vinyl flooring will wear. However if the tile is still in acceptable condition at the end of its anticipated life expectancy, postponing replacement for a few years should be acceptable.

**01.5-070C60 Vinyl Floor Tile Event #: 3**

**Brief Description** Replace 33% vinyl floor tile

<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
RP Component replacement or new	2021	\$13,670	N/A	Building Condition Report

**Event Description** Replace vinyl floor tile.

This report was generated without using Virtual Events.

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**Event Justification & Strategy**

Replacement of the vinyl flooring will maintain tenant satisfaction and an acceptable aesthetic appearance.

**Implication of Event Deferral (Risks)**

In this building, security requirements are high and some floors have high profile occupants. Proper contractor security clearances and security escorts will be required. Replacement will need to be done during off hours and/or weekends.

Over time, the vinyl flooring will wear. However if the tile is still in acceptable condition at the end of its anticipated life expectancy, postponing replacement for a few years should be acceptable.

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**01.5-070C65 Terrazzo Floor**

Element Instance: 01.5-070C65 Terrazzo Floor

**Details****Values**

Expected Life	50
Component Cost	0
Last Major Action Year	1939
Component Condition (For BCR use only)	Average
Quantity	330
Measurement unit/ Metric	m2

**Component Description**

Terrazzo flooring is located in the service elevator lobbies, the basement corridors, the ground floor corridors, stairway 'A', and isolated areas of the typical office floors.

**Component Condition & Anticipated Replacement Date**

This component is of average quality.

Average Theoretical Expected Life: 50 years

2012: Theoretical life adjusted to 110 - anticipated life expectancy of the building.

Last Major Action Year: 1939

This component is in average condition, based upon age, visual observations and revised service life. There is no visual evidence of significant cracking or other deterioration. Replacement is not anticipated within the 30 year horizon of this report.

**Element State:** Average

**ACL:** ACL 2 - Check List

**Assessment Criteria****Existence****Comments**

Cracks and spalling

Damage at joints

Excessive wear

Hollow sounding areas

Physical damage or deterioration

Stains and discolouration



Terrazzo flooring in basement corridor.

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**01.5-080 Ceiling Finishes****01.5-080C05 Acoustic Tile Ceiling**

Element Instance: 01.5-080C05 Acoustic Tile Ceiling

**Details****Values**

Expected Life	30
Component Cost	99,382

This report was generated without using Virtual Events.

Last Major Action Year	1975			
Component Condition (For BCR use only)	Average			
Quantity	450			
Measurement unit/ Metric	m2			
<b>Component Description</b>	There are 30 cm x 30 cm acoustic ceiling tiles in the Post Office retail space on the Ground Floor and in a number of minor locations on the upper floors. These tiles are noted in the Designated Substance Report as being a material containing asbestos.			
<b>Component Condition &amp; Anticipated Replacement Date</b>	<p>This component is of average quality.</p> <p>Average Theoretical Expected Life: 30 years</p> <p>2012: Theoretical life adjusted to 50 - based on their existing condition</p> <p>Last Major Action Year: 1975 (approximate based on observed condition)</p> <p>This component is in average condition, based upon age, visual observations and revised service life. These tiles are without significant deficiencies or deterioration. Replacement is included in 2025.</p>			
<b>Element State:</b>	Average			
<b>Assessment Criteria</b>	<b>ACL:</b> ACL 2 - Check List			
	<b>Existence</b> <b>Comments</b>			
Broken tiles				
Debonding - fastener failure				
Loss of acoustical quality				
Stains and discolouration				
<b>01.5-080C05 Acoustic Tile Ceiling Event #: 1</b>				
<b>Brief Description</b>	Replace 30 cm x 30 cm ceiling tiles			
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
RE Asbestos	2025	\$99,382	N/A	Building Condition Report
<b>Event Description</b>	Remove and replace the 30 cm x 30 cm glue-on ceiling tiles. Use approved methods as these tiles contain asbestos.			
<b>Event Justification &amp; Strategy</b>	These components should be replaced at the end of their service life. Removal cost will be high due to asbestos content and requirement for special containment during the removal.			
<b>Implication of Event Deferral (Risks)</b>	As the ceiling tiles are noted to have asbestos, special asbestos containment will be necessary during the removal. The post office areas will likely need to be closed during the removal and replacement process.			
	Deferring replacement may be an option. Provided that the ceiling tiles are not damaged, painting may be a viable option instead of removing and replacing the tiles with another ceiling finish.			

### 01.5-080C10 Gypsum Board Ceiling

Element Instance: 01.5-080C10 Gypsum Board Ceiling - Postal Station B Ottawa 4520394

<b>Details</b>	<b>Values</b>
Expected Life	40
Component Cost	0
Last Major Action Year	2000
Component Condition (For BCR use only)	Good
Quantity	325
Measurement unit/ Metric	m2
<b>Component Description</b>	There are painted gypsum board ceilings in the lobbies, the women's and barrier-free washrooms, and some service areas.
	This component is of average quality.

This report was generated without using Virtual Events.



**Component Condition &  
Anticipated Replacement  
Date**

Average Theoretical Expected Life: 40 years  
2012: Theoretical life adjusted to 110 - anticipated life expectancy of the building.  
Last Major Action Year: 1975 (except women and accessible washrooms in about 2000)

This component is in good condition, based upon age, visual observations and revised service life. The ceiling in the main lobby may be replaced if it is appropriate as part of a lobby renovation (09.2S Lobby Renovations). The gypsum board ceilings in both the men's, women's and accessible washrooms may be replaced as part of washroom renovations (09.4S Washroom Renovation).

**Element State:** Good

**ACL:** ACL 2 - Check List

**Assessment Criteria**

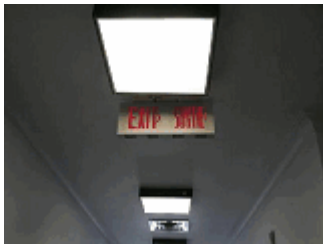
**Existence**

**Comments**

Algae/biological growth/mould

Sagging and settlement - water damage

Stains and discolouration



**01.5-080C20 Painted Ceiling Structures**

**Element Instance: 01.5-080C20 Painted Ceiling Structures**

<b><u>Details</u></b>	<b><u>Values</u></b>
Expected Life	15
Component Cost	0
Last Major Action Year	1995
Component Condition (For BCR use only)	Average
Quantity	450
Measurement unit/ Metric	m2

**Component Description**

Exposed areas of painted ceiling structures are located in the service areas.

This component is of average quality.

**Component Condition &  
Anticipated Replacement  
Date**

Average Theoretical Expected Life: 15 years  
2012: The existing paint finishes have exceeded the typical expected life. For the purpose of determining the Component Condition, the component life at replacement is anticipated to be about 25 years. The Expected Life in Details has not been adjusted, as replacement paint finishes may have a normal service life.  
Last Major Action Year: 1995 (based on observed conditions).

This component is in average condition, based upon age, visual observations and revised service life.

In many of the service areas, a good portion of the ceiling structure is concealed by mechanical and electrical conduits etc. In these areas, painting the ceiling structure will be very difficult and may not be feasible. In areas where the ceiling structure is more exposed, minor painting can be carried out as part of regular maintenance and could start as early as 2015. Painting events are not provided.

**Element State:** Average

**ACL:** ACL 2 - Check List

**Assessment Criteria**

**Existence**

**Comments**

Damaged surface

Excessive peeling or flaking



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Fading Colours  
Stains and discolouration  
Water penetration

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### **01.5-080C25 Plaster & Lath Ceiling**

**Element Instance: 01.5-080C25 Plaster & Lath Ceiling**

<b>Details</b>	<b>Values</b>
Expected Life	60
Component Cost	0
Last Major Action Year	1939
Component Condition (For BCR use only)	Average
Quantity	125
Measurement unit/ Metric	m2

**Component Description** Some original lath and plaster ceilings remain in the Post Office retail space, and interior stair "A". This plaster most likely contains asbestos, as reported in the Asbestos Report.

This component is of average quality.

**Component Condition & Anticipated Replacement Date** Average Theoretical Expected Life: 40 years  
2012: Theoretical life adjusted to 110 - anticipated life expectancy of the building.  
Last Major Action Year: 1939

This component is in average condition, based upon age, visual observations and revised service life. Replacement of the plaster and lath ceilings is not anticipated within the 30 year horizon of this report, unless there is a major renovation or the need to remove the ceilings in order to carry out repair or replacement of a building component concealed by the ceiling. Since the ceiling plaster contains asbestos, asbestos abatement will need to be included as part of any repair or replacement process that requires removal of any lath and plaster ceilings.

**Element State:** Average **ACL:** ACL 2 - Check List

<b>Assessment Criteria</b>	<b>Existence</b>	<b>Comments</b>
----------------------------	------------------	-----------------

Algae/biological growth/mould

Sagging and settlement - water penetration

Stains and discolouration



Plaster ceiling details in the Ground Floor Post Office retail.

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### **01.5-080C30 Suspended Acoustic Panel Ceiling**

**Element Instance: 01.5-080C30 Suspended Acoustic Panel Ceiling**

<b>Details</b>	<b>Values</b>
Expected Life	24
Component Cost	494,844
Last Major Action Year	1985
Component Condition (For BCR use only)	Fair
Quantity	3612
Measurement unit/ Metric	m2

**Component Description** There is a suspended acoustic tile ceiling in a T bar grid throughout the office areas and in the mens' washrooms. The office areas are 600 x 600 mm tile and the washrooms

This report was generated without using Virtual Events.

are 600 x 1200 mm tile.

This component is of average quality.

Average Theoretical Expected Life: 24 years.

2012: Expected Life not adjusted.

Last Major Action Year: 1985 (based upon existing condition).

**Component Condition &  
Anticipated Replacement  
Date**

This component is in fair condition, based upon age and visual observations. On each floor, there are some tiles damaged either from multiple relocations or electrical jiffy poles that are no longer required. Replacement of the tiles is suggested to start at the same time as carpet replacement in 2015 and continue on a three-year cycle similar to the carpeting until the ceiling tiles are replaced. Future replacement will be on a 24 year cycle to coincide with the second series of carpet replacement.

**Element State:** Fair

**ACL:** ACL 2 - Check List

**Assessment Criteria**

**Existence**

**Comments**

Algae/biological growth/mould

Corrosion

Missing panels or suspension elements

Sagging and settlement - water damage

Stains and discolouration

X

**01.5-080C30 Suspended Acoustic Panel Ceiling Event #: 1**

**Brief Description**

Replace 25% suspended acoustic ceilings

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

RP Component  
replacement or new

2015

\$126,680

medium priority

Building Condition Report

**Event Description**

As required, replace the grid and/or retile areas to suit the tenant and conditions.

**Event Justification &  
Strategy**

Eventual replacement of suspended ceiling tiles is necessary to maintain good appearances and thus a high level of tenant satisfaction.

**Implication of Event Deferral  
(Risks)**

In this building, security requirements are high and some floors have high profile occupants. Proper contractor security clearances and security escorts will be required. Replacement will need to be done during off hours and/or weekends. Ideally, temporary swingspace would be beneficial, especially for relocation of secure files. In order to minimize disruptions, replacement of suspended acoustic ceiling tiles can be done at the same time as replacement of other interior finishes such as carpet flooring.

Over time, ceiling tiles will show their age. This will reduce the overall appearance of the work area and will result in tenant dissatisfaction. However, if the acoustic ceiling tiles are still in acceptable condition at the end of its anticipated life expectancy, postponing replacement of the ceiling tiles for a couple of years should be acceptable. If delayed, this work will no longer coincide with replacement of other components.

**01.5-080C30 Suspended Acoustic Panel Ceiling Event #: 2**

**Brief Description**

Replace 25% suspended acoustic ceilings

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

RP Component  
replacement or new

2018

\$126,680

medium priority

Building Condition Report

**Event Description**

As required, replace the grid and/or retile areas to suit the tenant and conditions.

**Event Justification &  
Strategy**

Eventual replacement of suspended ceiling tiles is necessary to maintain good appearances and thus a high level of tenant satisfaction.

In this building, security requirements are high and some floors have high profile occupants. Proper contractor security clearances and security escorts will be required. Replacement will need to be done during off hours and/or weekends. Ideally, temporary

**Implication of Event Deferral  
(Risks)**

swingspace would be beneficial, especially for relocation of secure files. In order to minimize disruptions, replacement of suspended acoustic ceiling tiles can be done at the same time as replacement of other interior finishes such as carpet flooring.

Over time, ceiling tiles will show their age. This will reduce the overall appearance of the work area and will result in tenant dissatisfaction. However, if the acoustic ceiling tiles are still in acceptable condition at the end of its anticipated life expectancy, postponing replacement of the ceiling tiles for a couple of years should be acceptable. If delayed, this work will no longer coincide with replacement of other components.

**01.5-080C30 Suspended Acoustic Panel Ceiling Event #: 3**

**Brief Description**

Replace 25% suspended acoustic ceilings

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

RP Component  
replacement or new

2021

\$126,680

N/A

Building Condition Report

**Event Description**

As required, replace the grid and/or retile areas to suit the tenant and conditions.

**Event Justification &  
Strategy**

Eventual replacement of suspended ceiling tiles is necessary to maintain good appearances and thus a high level of tenant satisfaction.

**Implication of Event Deferral  
(Risks)**

In this building, security requirements are high and some floors have high profile occupants. Proper contractor security clearances and security escorts will be required. Replacement will need to be done during off hours and/or weekends. Ideally, temporary swingspace would be beneficial, especially for relocation of secure files. In order to minimize disruptions, replacement of suspended acoustic ceiling tiles can be done at the same time as replacement of other interior finishes such as carpet flooring.

Over time, ceiling tiles will show their age. This will reduce the overall appearance of the work area and will result in tenant dissatisfaction. However, if the acoustic ceiling tiles are still in acceptable condition at the end of its anticipated life expectancy, postponing replacement of the ceiling tiles for a couple of years should be acceptable. If delayed, this work will no longer coincide with replacement of other components.

**01.5-080C30 Suspended Acoustic Panel Ceiling Event #: 4**

**Brief Description**

Replace 25% suspended acoustic ceilings

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

RP Component  
replacement or new

2024

\$126,680

N/A

Building Condition Report

**Event Description**

As required, replace the grid and/or retile areas to suit the tenant and conditions.

**Event Justification &  
Strategy**

Eventual replacement of suspended ceiling tiles is necessary to maintain good appearances and thus a high level of tenant satisfaction.

**Implication of Event Deferral  
(Risks)**

In this building, security requirements are high and some floors have high profile occupants. Proper contractor security clearances and security escorts will be required. Replacement will need to be done during off hours and/or weekends. Ideally, temporary swingspace would be beneficial, especially for relocation of secure files. In order to minimize disruptions, replacement of suspended acoustic ceiling tiles can be done at the same time as replacement of other interior finishes such as carpet flooring.

Over time, ceiling tiles will show their age. This will reduce the overall appearance of the work area and will result in tenant dissatisfaction. However, if the acoustic ceiling tiles are still in acceptable condition at the end of its anticipated life expectancy, postponing replacement of the ceiling tiles for a couple of years should be acceptable. If delayed, this work will no longer coincide with replacement of other components.

**01.5-080C37 Ceiling Paint**

**Element Instance: 01.5-080C37 Ceiling Paint - Postal Station B Ottawa 4520394**

**Details**

**Values**

Expected Life

12

Component Cost

21,000

Last Major Action Year

2006

This report was generated without using Virtual Events.

Component Condition (For BCR use only)  
Quantity  
Measurement unit/ Metric

Average  
1000  
m2

**Component Description**

The ceilings are painted in some of the service areas, the lobbies , some washrooms, the stairwells, and the Post Office.

**Component Condition & Anticipated Replacement Date**

This component is of average quality.

Average Theoretical Expected Life: 10 years

2012: Theoretical life adjusted to 12 - based upon their existing condition

Last Major Action Year: 2006

This component is in average condition, based upon age, visual observations and revised service life.

The second-floor ceiling was recently painted. Painting on the four secure floors (7,5,4 and 3) is in newer condition than the remaining floors. Allowance has been provided to replace 25% of the paint every three years. . This provides for total replacement every 12 years. Replacement will start in 2015.

**Element State:** Average

**ACL:** ACL 2 - Check List

**Assessment Criteria**

**Existence**

**Comments**

Damaged surface

Excessive peeling or flaking

Fading Colours

**01.5-080C37 Ceiling Paint - Postal Station B Ottawa 4520394 Event #: 1**

**Brief Description**

Paint ceilings (25%)

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

RP Component  
replacement or new

2015

\$5,376

medium priority

Building Condition Report

**Event Description**

Paint ceilings and coordinate with other painting.

**Event Justification & Strategy**

Painting is important in order to maintain good appearances and thus a high level of tenant satisfaction.

**Implication of Event Deferral (Risks)**

In this building, security requirements are high and some floors have high profile occupants. Proper contractor security clearances and security escorts will be required. Replacement will need to be done during off hours and/or weekends. In order to minimize disruptions, painting can be done at the same time as replacement of other interior finishes such as carpet flooring and general painting.

Over time, the paint will fade. This will reduce the overall appearance of the work area and will result in tenant dissatisfaction. However, if the paint finish is still in acceptable condition at the end of its anticipated life expectancy, postponing replacement for a couple of years would be acceptable. However, the replacement might no longer coincide with the replacement of other finishes. This would result in more interruptions.

**01.5-080C37 Ceiling Paint - Postal Station B Ottawa 4520394 Event #: 2**

**Brief Description**

Paint ceilings (25%)

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

RP Component  
replacement or new

2018

\$5,376

medium priority

Building Condition Report

**Event Description**

Paint ceilings and coordinate with other painting.

**Event Justification & Strategy**

Painting is important in order to maintain good appearances and thus a high level of tenant satisfaction.

In this building, security requirements are high and some floors have high profile

**Implication of Event Deferral  
(Risks)**

occupants. Proper contractor security clearances and security escorts will be required. Replacement will need to be done during off hours and/or weekends. In order to minimize disruptions, painting can be done at the same time as replacement of other interior finishes such as carpet flooring and general painting.

Over time, the paint will fade. This will reduce the overall appearance of the work area and will result in tenant dissatisfaction. However, if the paint finish is still in acceptable condition at the end of its anticipated life expectancy, postponing replacement for a couple of years would be acceptable. However, the replacement might no longer coincide with the replacement of other finishes. This would result in more interruptions.

**01.5-080C37 Ceiling Paint - Postal Station B Ottawa 4520394 Event #: 3**

**Brief Description**

Paint ceilings (25%)

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

RP Component  
replacement or new

2021

\$5,376

N/A

Building Condition Report

**Event Description**

Paint ceilings and coordinate with other painting.

**Event Justification &  
Strategy**

Painting is important in order to maintain good appearances and thus a high level of tenant satisfaction.

**Implication of Event Deferral  
(Risks)**

In this building, security requirements are high and some floors have high profile occupants. Proper contractor security clearances and security escorts will be required. Replacement will need to be done during off hours and/or weekends. In order to minimize disruptions, painting can be done at the same time as replacement of other interior finishes such as carpet flooring and general painting.

Over time, the paint will fade. This will reduce the overall appearance of the work area and will result in tenant dissatisfaction. However, if the paint finish is still in acceptable condition at the end of its anticipated life expectancy, postponing replacement for a couple of years would be acceptable. However, the replacement might no longer coincide with the replacement of other finishes. This would result in more interruptions.

**01.5-080C37 Ceiling Paint - Postal Station B Ottawa 4520394 Event #: 4**

**Brief Description**

Paint ceilings (25%)

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

RP Component  
replacement or new

2024

\$5,376

N/A

Building Condition Report

**Event Description**

Paint ceilings and coordinate with other painting.

**Event Justification &  
Strategy**

Painting is important in order to maintain good appearances and thus a high level of tenant satisfaction.

**Implication of Event Deferral  
(Risks)**

In this building, security requirements are high and some floors have high profile occupants. Proper contractor security clearances and security escorts will be required. Replacement will need to be done during off hours and/or weekends. In order to minimize disruptions, painting can be done at the same time as replacement of other interior finishes such as carpet flooring and general painting.

Over time, the paint will fade. This will reduce the overall appearance of the work area and will result in tenant dissatisfaction. However, if the paint finish is still in acceptable condition at the end of its anticipated life expectancy, postponing replacement for a couple of years would be acceptable. However, the replacement might no longer coincide with the replacement of other finishes. This would result in more interruptions.

**01.5A-055 Interior Door Hardware**

Element Instance: 01.5A-055 Interior Door Hardware

**Details**

**Values**

Expected Life	50
Component Cost	135,450
Last Major Action Year	1975
Component Condition (For BCR use only)	Average

This report was generated without using Virtual Events.

Quantity  
Measurement unit/ Metric

150  
ea

**Component Description**

The typical doors in this building have mixed knob and lever handle locksets/latchsets; panic hardware on the access to exit doors; automatic operation on the barrier free doors.

**Component Condition & Anticipated Replacement Date**

This component is of average quality.

Average Theoretical Expected Life: 20 years

2012: Theoretical life adjusted to 50 - based upon their existing condition

Last Major Action Year: 1975

This component is in average condition, based upon age, visual observations and revised service life.

Interior door hardware consists of quality mortise type lock/latchsets, hinges, push and pull plates and some panic hardware. The remaining service life of this component should coincide with the anticipated replacement of wood and metal doors in 2015 (non-rated doors) 2029 (wood doors) and 2035 (steel doors) as discussed in sections 01.5-050C10 Hardwood Doors and 01.5-050C15 Metal Doors

**Element State:** Average

**ACL:** ACL 2 - Check List

**Assessment Criteria**

**Existence**

**Comments**

Inoperative panic hardware, to close & latch

Major deterioration & damage

Unsafe and security breached



Typical service room hardware.



Typical panic door hardware.

**01.5A-055 Interior Door Hardware Event #: 1**

**Brief Description**

Install hardware for non-rated doors

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

RP Component  
replacement or new

2015

\$23,117

medium priority

Building Condition Report

**Event Description**

Install hardware for non-rated metal doors to coincide with replacement of these doors.

**Event Justification & Strategy**

It is appropriate to replace door hardware when the doors are replaced. This will ensure a better match of hardware.

**Implication of Event Deferral (Risks)**

Deferring replacement of hardware, after the doors are replaced, may result in replacement on a door by door basis.

**01.5A-055 Interior Door Hardware Event #: 2**

**Brief Description**

Install hardware for wood doors

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

This report was generated without using Virtual Events.



RP Component replacement or new	2029	\$92,467	N/A	Building Condition Report
<b>Event Description</b>		Install hardware for wood doors to coincide with replacement of these doors.		
<b>Event Justification &amp; Strategy</b>		It is appropriate to replace door hardware when the doors are replaced. This will ensure a better match of hardware.		
<b>Implication of Event Deferral (Risks)</b>		Deferring replacement of hardware, after the doors are replaced, may result in replacement on a door by door basis.		
<b>01.5A-055 Interior Door Hardware Event #: 3</b>				
<b>Brief Description</b>		Install hardware for metal doors		
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
RP Component replacement or new	2035	\$23,117	N/A	Building Condition Report
<b>Event Description</b>		Install hardware for remaining metal doors at the end of their life expectancy and to coincide with replacement of these doors.		
<b>Event Justification &amp; Strategy</b>		It is appropriate to replace door hardware when the doors are replaced. This will ensure a better match of hardware.		
<b>Implication of Event Deferral (Risks)</b>		Deferring replacement of hardware, after the doors are replaced, may result in replacement on a door by door basis.		

### 01.5A-110 Interior Stairs

Element Instance: 01.5A-110 Interior Stairs

Details	Values
Expected Life	110
Component Cost	0
Last Major Action Year	1975
Component Condition (For BCR use only)	Average
Quantity	16
Measurement unit/ Metric	flts

<b>Component Description</b>	There are two stairwells servicing all occupied floors of the building.
	<p>Stair "A", (the west stairwell) is original to the building. The stairs are reinforced concrete with terrazzo finish and embedded metal anti-skid strips with ceramic tile wainscoating. Stair "A" serves from the basement to the penthouse and provides access to the roof. This stair exits onto the north lane or through the Sparks Street entrance.</p> <p>Stair "B" (the north-east stairwell) was installed at a later date and has concrete block walls. The stairs are painted metal with steel pan risers and concrete filled metal treads. Stair "B" serves from the basement to the uppermost occupied floor, and exists onto the lane on the north side of the building. The floor landings are vinyl tile.</p> <p>This component is of average quality.</p>
<b>Component Condition &amp; Anticipated Replacement Date</b>	<p>Average Theoretical Expected Life: 75 years</p> <p>2012: Theoretical life adjusted to 110 - anticipated life expectancy of the building.</p> <p>Last Major Action Year: 1975</p>
	<p>This component is in average condition, based upon age, visual observations and revised service life.</p> <p>The stairs have a remaining service life beyond the 30 year horizon of the report.</p> <p>Stair "A" is in violation of the code with underheight guardrails and has horizontal mid-rails that are a potential climbing hazard. The heritage designation of this building may allow some leeway as stair "A" is part of the original design. Modification of the railings is recommended in 2015.</p> <p>Maintenance of the finishes in the stairwells is included in component 01.5-060C15 -</p>

This report was generated without using Virtual Events.

Paint.

**Element State:** Average

**ACL:** ACL 2 - Check List

**Assessment Criteria**

**Existence**

**Comments**

Corrosion

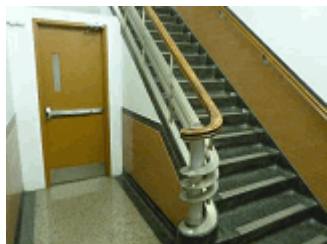
Damaged walking surfaces

Handrail damaged or non code compliant

Structurally unsound

Surface finishes deteriorated

Uneven surfaces, tripping hazard



Stairwell "B"

**01.5A-110 Interior Stairs Event #: 1**

**Brief Description**

Replace stair railings

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

RF Building  
Code/Canada  
Labour Code

2015

\$36,405

low priority

Building Condition Report

**Event Description**

Replaced stair railings to meet code requirements.

**Event Justification & Strategy**

The existing stair railings do not meet current code height requirements.

This work will require a little and replacement of the railings. Disruption is anticipated. In order to minimize disruption, this work should be carried out at the same time as other interior renovations.

**Implication of Event Deferral (Risks)**

With FHBRO and/or acceptance by proper authorities, replacement may be deferred or not carried out.

**01.6 Miscellaneous Items**

**01.6A-010 Building Signage (Interior)**

Element Instance: 01.6A-010 Building Signage (Interior) - Postal Station B Ottawa 4520394

**Details**

**Values**

Expected Life	10
Component Cost	44,000
Last Major Action Year	2008
Component Condition (For BCR use only)	Good
Quantity	2000
Measurement unit/ Metric	m2

**Component Description**

There are mandatory building signs provided for exiting, stairwell nomenclature, service rooms, elevator notices, and procedures. There are normal washroom, service room,

This report was generated without using Virtual Events.



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barrier free and tenant office signs. Tactile signage is provided for the washrooms only.

This component is of average quality.

Average Theoretical Expected Life: 10 years.

2012: Theoretical life not adjusted.

Last Major Action Year: 2008- based upon their existing condition.

This component is in good condition, based upon age, visual observations and revised service life. Although all the interior signage does not have tactile markings, the interior signage has a modern, consistent design.

Replacement is anticipated in 2018.

**Component Condition &  
Anticipated Replacement  
Date**

Good

**ACL:** ACL 2 - Check List

**Assessment Criteria**

**Existence**

**Comments**

Corrosion

Deterioration of paint finish & surfaces

Excessive wear

Non code compliant

Non operable equipment

Poorly secured and supported

Unsafe and structurally unsound

**01.6A-010 Building Signage (Interior) - Postal Station B Ottawa 4520394 Event #: 1**

**Brief Description**

Replace building interior signage

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

RP Component

2018

\$45,056

medium priority

Building Condition Report

replacement or new

**Event Description**

Design a sign replacement program for this building, including tactile signage, and replace all the interior signs.

**Event Justification &  
Strategy**

There are requirements for tactile signage in TBS policy. This high profile building should comply with the tactile signage requirement and should also have updated signs.

**Implication of Event Deferral  
(Risks)**

Some of the issues are code/policy related to allow for full access to the building for disabled persons. Some of the signage issues are design oriented.

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**01.6A-025 Fixed or Permanent Furnishing (Millwork)**

**Element Instance: 01.6A-025 Fixed or Permanent Furnishing (Millwork) - Postal Station B Ottawa 4520394**

**Details**

**Values**

Expected Life

20

Component Cost

0

Last Major Action Year

0

Component Condition (For BCR use only)

Average

Quantity

0

Measurement unit/ Metric

ea

**Component Description**

There is a manned security desk at the Sparks Street entrance lobby. There is restricted access to the building through the revolving door (see component 01.5-050C25). The desk and chair are similar to typical office furniture.

This component is of average quality.

**Component Condition &  
Anticipated Replacement  
Date**

Average Theoretical Expected Life: 20 years.

2012: Expected Life not adjusted.

Last Major Action Year: 2000.

This component is in average condition, based upon age and visual observations.

This report was generated without using Virtual Events.

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Replacement is anticipated in 2020, as part of regular ongoing maintenance and likely at a cost less than \$1000.

<b>Element State:</b>	Average	<b>ACL:</b>	ACL 2 - Check List
<b><u>Assessment Criteria</u></b>		<b><u>Existence</u></b>	<b><u>Comments</u></b>
Corrosion			
Deterioration of paint finish & surfaces			
Excessive wear			
Non code compliant			
Non operable equipment			
Poorly secured and supported			
Unsafe and structurally unsound			

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### 01.6A-037 Ladders

**Element Instance: 01.6A-037 Ladders - Postal Station B Ottawa 4520394**

<b><u>Details</u></b>	<b><u>Values</u></b>
Expected Life	60
Component Cost	0
Last Major Action Year	1980
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	ea

**Component Description** There is one painted steel roof ladder leading from the main roof to the flat roof over the service elevator machine room. The top portion of the ladder is enclosed with a grab rail at the top.

**Component Condition & Anticipated Replacement Date** This component is of average quality.  
Average Theoretical Expected Life: 30 years  
2012: Theoretical life adjusted to 75 - based upon their existing condition  
Last Major Action Year: 1980 (based on 2006 BCR estimate)

This component is in good condition, based upon age, visual observations and revised service life. Regular maintenance painting is required to ensure that the ladder is able to achieve its adjusted anticipated life.

Replacement is anticipated in 2055.

<b>Element State:</b>	Good	<b>ACL:</b>	ACL 2 - Check List
<b><u>Assessment Criteria</u></b>		<b><u>Existence</u></b>	<b><u>Comments</u></b>
Corrosion			
Deterioration of paint finish & surfaces			
Excessive wear			
Non code compliant			
Non operable equipment			
Poorly secured and supported			
Unsafe and structurally unsound			

---

### 01.6A-055 Window Washing Device Anchors

**Element Instance: 01.6A-055 Window Washing Device Anchors**

<b><u>Details</u></b>	<b><u>Values</u></b>
Expected Life	30

This report was generated without using Virtual Events.

Component Cost	0
Last Major Action Year	1994
Component Condition (For BCR use only)	Good
Quantity	10
Measurement unit/ Metric	ea

**Component Description** The roof has suspended access tie-back anchors. The plans indicate that the anchors are bolted through the slab.  
There is a roof anchor diagram by Keller Engineering Assoc., stamped by D.C. Gibson and dated March 28, 1994.

**Component Condition & Anticipated Replacement Date**

This component is of average quality.  
Average Expected Life: 30 years.  
2012: Theoretical life adjusted to 50 years.  
Last Major Action Year: 1994

The roof anchors are in good condition based upon age and revised service life.

Roof anchors, that are tied into the structure with a through bolt connection, require re-certification every year. However, they are expected to have a remaining service life beyond the 30 year horizon of this report, unless otherwise indicated during an annual review. No inspection reports were provided.

Annual inspection and re-certification of roof anchors is expected to be part of normal maintenance.

Individual anchor replacement will be based upon results of annual inspection and would be carried out as needed, as normal maintenance. Replacement of the suspended access devices is not expected within the 30 year horizon of the report.

**Element State:** Good

**ACL:** ACL 2 - Check List

**Assessment Criteria**

**Existence**

**Comments**

Corrosion

Deterioration of paint finish & surfaces

Excessive wear

Non code compliant

Non operable equipment

Poorly secured and supported

Unsafe and structurally unsound

## 02. Conveying Systems

### 02.1 Conveying Systems - V & H Movement

#### 02.1A-010 Elevators

Element Instance: 02.1A-010 Elevators

<b>Details</b>	<b>Values</b>
Expected Life	25
Component Cost	1,215,606
Last Major Action Year	2006
Component Condition (For BCR use only)	Good
Quantity	3
Measurement unit/ Metric	ea

**Component Description** Otis Elevator modernized both elevators in 2006. The passenger elevators have the following characteristics.

---

TSSA Installation No's: 10105 & 10106  
Capacity: 1136 kg.  
Speed: 2.54 m/s  
Controller: Otis 411 Microprocessor Solid State  
Motor Drive: Otis Solid State SCR  
Number of Floors Served: 9  
Car Door Type: Centre - Opening  
Car Door Width: 1066 mm  
Car Door Operator: Otis Closed Loop  
Emergency Recall: Automatic  
Emergency Power: Automatic  
Maintenance Contractor: Otis

In 2006 Otis Elevator installed a complete new Overhead Geared Traction Service/Passenger Elevator as described below.

TSSA Installation No: 10107  
Capacity: 1590 kg.  
Speed: .76 m/s  
Class Of Loading: C1  
Geared Machine: Hollister Whitney No. 54OH  
Motor Drive: VVVF  
Controller: Otis 411  
Number of Floors Served: 9  
Hoistway Door Type: Single Slide  
Hoistway Door Width: 1066 mm  
Hoistway Door Operator: GAL  
Emergency Recall: Automatic  
Emergency Power: Automatic  
Maintenance Contractor: Otis

This component is of good quality.

**Component Condition &  
Anticipated Replacement  
Date**

When the #1 and #2 elevators were modernized in 2006, Otis retained the original #72 gearless machines and installed new 411 controls with SCR DC solid state non-regenerataive motor drives. The original heritage type cab interiors were retained and refurbished to new condition.

The elevators remain in good condition, based on age and condition.

All elevators are protected with UP overspeed and uncontrolled movement of the car and counterweight.

The elevators comply with all barrier free design requirements.

The elevator machine room and secondary level equipment is not completely guarded to MOL and OHSA requirements.

Currently there is a plastic cover on the top of the controllers of elevators #1 and #2 to protect the controllers from water damage due to a leak in the machine room ceiling. A metal drip pan has been placed under the leaking area. However, if all leaks are corrected the plastic should be removed from the top of the controllers in order to prevent the chances of the plastic heating or melting from the heat of the electrical controllers.

The elevator maintenance log books were up to date at the time of this inspection.

There is a small accumulation of water in the elevator pits for elevators #1 and #2. Some of the pit equipment is showing signs of rust and should be thoroughly inspected

by the elevator contractor and wire brushed and painted to prevent additional rusting. A budget cost for this billable maintenance work would be approximately \$5,000 - \$8,000. The elevator pits must be kept dry at all times.

The theoretical expected life is 20 years.

The elevators will require a complete modernization in the year: 2025.

If a major retrofit of the complete building is anticipated in the near future and significant energy conservation is being considered, we would recommend that the original Otis DC gearless machines be completely replaced with energy efficient AC permanent magnet gearless machines for elevators #1 and #2. Also, new AC regenerative solid state motor drives would be required to compliment the AC gearless machines.

**Element State:** Good

**ACL:** ACL 2 - Check List

**Assessment Criteria**

**Existence**

**Comments**

Damaged cab appearance finishes, interior & exterior  
Hydraulic oil leaks  
Inadequate capacity  
Inadequate speed  
Levelling over/undershoot  
Obsolete drive  
Obsolete or problematic controls  
Poor Door operation  
Worn mechanical components

New service elevator machinery.



**02.1A-010 Elevators Event #: 1**

**Brief Description**

Guard machine room & secondary level equipment

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

This report was generated without using Virtual Events.

RP Component replacement or new	2013	\$87,260	high priority	Building Condition Report
<b>Event Description</b>		Provide guarding for the elevator machine room and secondary level equipment to comply with OHSA and MOL requirements for all three elevators		
<b>Event Justification &amp; Strategy</b>		Replace the original crank off safeties under passenger elevators #1 and #2 with new safeties that release when moving the elevator in the up direction. The elevator machine room and secondary level equipment is not properly guarded.  In order to reset the safeties on passenger elevators #1 and #2, it requires the services of two elevator technicians and is time consuming and would delay the removal of trapped passengers from the elevator.  The existing maintenance contractor should carry out this work		
<b>Implication of Event Deferral (Risks)</b>		Reduced level of safety for the elevator technicians and inspectors and non-compliance with MOL and OHSA requirements.		
<b>02.1A-010 Elevators Event #: 2</b>				
<b>Brief Description</b>		Modernize the elevators		
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
RP Equipment Obsolescence	2025	\$1,244,781	N/A	Building Condition Report
<b>Event Description</b>		Completely modernize the elevators due to obsolescence of the control and drive equipment		
<b>Event Justification &amp; Strategy</b>		The elevators will have reached the end of its useful life expectancy and will require a complete modernization.  The elevators will be out of service for approximately 10 - 12 weeks for modernization. The modernization project would be put out to public tender to obtain competitive pricing.  Only one elevator at a time will be removed from service for modernization.		
<b>Implication of Event Deferral (Risks)</b>		Reduced level of safety and reliability.		

### 03. Mechanical

#### 03.1 HVAC

##### 03.1A-010 CHP Related Heat Exchangers

Element Instance: 03.1A-010 CHP Related Heat Exchangers

<b>Details</b>	<b>Values</b>
Expected Life	30
Component Cost	28,371
Last Major Action Year	1975
Component Condition (For BCR use only)	Good
Quantity	2
Measurement unit/ Metric	ea

**Component Description** High-pressure steam is provided from the Cliff Central Heating and Cooling Plant (CHCP). High-pressure steam is reduced to low pressure (15 psi) in the basement mechanical room. Low-pressure steam is distributed throughout the building. A low pressure steam header provides steam to the air handling unit heating coil as well as the various steam reheat coils located in various zones. A duplex condensate return pump and tank package returns condensate to the CHCP.

This component is of average quality.

**Component Condition &  
Anticipated Replacement  
Date**

The primary heating equipment is in good condition.

Average Theoretical Expected Life: 30 years  
2012: Expected Life not adjusted.  
Last Major Action Year: 2010

This component is in good condition based upon age and visual observation.  
Replacement is anticipated in 2040.

**Element State:** Good

**ACL:** ACL 2 - Check List

**Assessment Criteria**

**Existence**

**Comments**

Corrosion

Damaged insulation and cover

Improper adjustments and incorrect settings

Inadequate capacity

Inefficient operation

Leakage

Poorly maintained

Retubing required

**03.1A-010 CHP Related Heat Exchangers Event #: 1**

**Brief Description**

Replace existing pressure reducing station.

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

RP Component  
replacement or new

2040

\$28,371

N/A

Building Condition Report

**Event Description**

Remove existing pressure reducing station and replace with new.

**Event Justification &  
Strategy**

Equipment deteriorates with use, eventually requiring replacement. Replacement would result in temporary loss in heat during work. For this reason summer replacement is recommended to minimize discomfort.

**Implication of Event Deferral  
(Risks)**

Failure to replace the steam pressure reducing station will increase maintenance, reduce heating system reliability and capacity. Possible loss of building heat.

**03.1A-020 Duct Systems**

**Element Instance: 03.1A-020 Duct Systems**

**Details**

**Values**

Expected Life

40

Component Cost

486,450

Last Major Action Year

1975

Component Condition (For BCR use only)

Fair

Quantity

4980

Measurement unit/ Metric

m2

**Component Description**

All ductwork systems are constructed of galvanized sheet metal. A single Air-Care built-up air-handling unit provides the primary air supply to the entire building. This unit provides high-pressure, variable air volume (VAV) supply air to the zoned VAV terminal units located on the office floors.

Primary supply air is distributed to each floor, where VAV box terminals that are controlled by individual zone thermostats, modulate the supply air volume to meet the zone-cooling load.

Sanitary exhaust ductwork extends from each washroom area to a single centrifugal exhaust fan.

This component is of average quality.

This report was generated without using Virtual Events.

**Component Condition &  
Anticipated Replacement  
Date**

VAV Boxes  
Average Theoretical Expected Life: 40 years  
2012: Expected Life not adjusted  
Last Major Action Year: 1975

This component is in fair condition based on age and visual condition.  
Replacement is anticipated in 2015.

Regular cleaning on a 20-year cycle and rebalancing on a 15-year cycle should be completed.

Ductwork should typically last the life of the building.

**Element State:** Fair

**ACL:** ACL 2 - Check List

**Assessment Criteria**

**Existence**

**Comments**

Algae/biological growth/mould

Damaged Insulation and cover

Damaged ductwork, supports, hangers

Damaged guide vanes, grilles, diffusers, louvres,  
etc

Excessive dust and debris

X

Noisy operation

Seized dampers

**03.1A-020 Duct Systems Event #: 1**

**Brief Description**

Replace VAV boxes.

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

RP Component  
replacement or new

2015

\$402,782

medium priority

Building Condition Report

**Event Description**

Remove and replace the existing VAV boxes.

**Event Justification &  
Strategy**

Equipment has reached the end of its anticipated service life. This event would create a lot of noise and disruption. It should be completed on a floor by floor basis in conjunction with other renovations.

**Implication of Event Deferral  
(Risks)**

Failure to replace VAV boxes at the end of the life cycle will increase maintenance, reduce system reliability and capacity. Increase poor environmental temperature control.

**03.1A-020 Duct Systems Event #: 2**

**Brief Description**

Clean ductwork systems.

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

RP Component life  
extension

2015

\$37,001

medium priority

Building Condition Report

**Event Description**

Dirt accumulates in ductwork, eventually requiring cleaning. Ductwork should be cleaned on a regular basis. Approximately every 20 years.

**Event Justification &  
Strategy**

Failure to clean ductwork can potentially increase air contamination in the building, reducing indoor air quality. Ductwork should be cleaned at the same time as VAV replacement to reduce disruption to the office space.

**Implication of Event Deferral  
(Risks)**

Failure to clean ductwork can potentially increase air contamination in the building, reducing indoor air quality.

**03.1A-020 Duct Systems Event #: 3**

**Brief Description**

Rebalance ductwork systems.

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

RP Component life  
extension

2015

\$58,316

medium priority

Building Condition Report



<b>Event Description</b>	Rebalance ductwork systems. Air systems should be rebalanced on a regular basis. Approximately every 15 years.
<b>Event Justification &amp; Strategy</b>	Air balancing conditions vary as the system operates, eventually requiring rebalancing. The date the system was previously balanced is unknown. Rebalancing should be done at the same time as the VAV replacement to reduce disruptions to the office space.
<b>Implication of Event Deferral (Risks)</b>	Failure to balance air and water systems will reduce efficiency, increase energy consumption and reduce control of indoor environmental conditions.

### 03.1A-029 Central Station AHU

Element Instance: 03.1A-029 Central Station AHU

<b>Details</b>	<b>Values</b>
Expected Life	25
Component Cost	205,529
Last Major Action Year	1975
Component Condition (For BCR use only)	Fair
Quantity	1
Measurement unit/ Metric	ea

**Component Description**

A single Air-Care built-up air-handling unit provides the primary air supply to the entire building. This unit provides high-pressure, variable air volume (VAV) supply air to the zoned VAV terminal units located on the office floors. VAV operation is achieved through the use of static pressure controlled variable inlet vanes located on the supply fan. A unit mounted chilled water cooling coil and a low-pressure steam coil provides primary air conditioning and heating to the building. Dual Leitch pumps provide cooling coil circulation. Humidification and filtration are provided within each unit. Fresh air enters the mixing plenums where temperature is controlled through modulation of the return air dampers. This unit is capable of supplying fresh air at a rate of 0-100%, providing free cooling operation as well as ventilation in accordance with ASHRAE standards. This was not confirmed with air flow tests. Supply air temperature is reset from the building return air temperature. This unit has a dedicated return fan. This air-handling system was installed during the 1975 building renovations.

Primary supply air is distributed to each floor, where VAV box terminals that are controlled by individual zone thermostats, modulate the supply air volume to meet the zone-cooling load. Each zone VAV terminal operates in conjunction with the associated steam or electric reheat coils or perimeter heating radiation for that zone.

This component is of average quality.

#### **Component Condition & Anticipated Replacement Date**

Central AHU  
Average Theoretical Expected Life: 25 years  
2012: Theoretical life adjusted to 40 years based upon their existing condition  
Last Major Action Year: 1975

This component is in fair condition, based upon age, visual observation and revised service life.

Replacement is anticipated in 2015.

<b>Element State:</b>	Fair	<b>ACL:</b>	ACL 2 - Check List
<b>Assessment Criteria</b>		<b>Existence</b>	<b>Comments</b>
Corrosion			
Damaged Insulation and cover		X	
Damaged housing and/or plenums			
Damaged or seized dampers			
Dirty coils or radiator fins			
Excessive noise			

This report was generated without using Virtual Events.

Excessive vibration  
Inoperative  
Poor efficiency  
Refrigerant leakage

X



Main AHU.



Supply Air Fan.



Access Section Inside AHU.

#### 03.1A-029 Central Station AHU Event #: 1

##### Brief Description

Replace main Air-Care air handling unit.

##### Event Type

Event Year

Event Cost

Priority

Data Origin

RP Component  
replacement or new

2015

\$205,259

high priority

Building Condition Report

##### Event Description

Remove existing Air-Care air handling unit and replace with new.

##### Event Justification & Strategy

Equipment deteriorates with use, eventually requiring replacement. Replacing the AHU will result in a loss of ventilation so it should be scheduled during a holiday break or another time of minimal occupancy.

##### Implication of Event Deferral (Risks)

Failure to replace air handling units at the end of the life cycle will increase maintenance, reduce system reliability and capacity.

#### 03.1A-030 Ventilation Fans

##### Element Instance: 03.1A-030 Ventilation Fans

##### Details

##### Values

Expected Life	30
Component Cost	57,729
Last Major Action Year	1975
Component Condition (For BCR use only)	Fair
Quantity	9
Measurement unit/ Metric	ea

##### Component Description

A large general exhaust fan reduces building pressurization, as well as providing sanitary exhaust and electrical room ventilation. Separate exhaust fans should be provided for each of these systems.

A propeller exhaust fan supplies ventilation to the elevator machine room.

This report was generated without using Virtual Events.

A series of small exhaust fans give limited ventilation to the basement. A dedicated exhaust system has been provided for the basement photo developing area. This system exhausts directly to the exterior of the building.

This component is of average quality.

Ventilation Fans

Average Theoretical Expected Life: 30 years

2012: Theoretical life adjusted to 40 years based upon their existing condition

Last Major Action Year: 1975

This component is in fair condition, based upon age, visual observation and revised service life.

Replacement is anticipated in 2015.

Building pressurization and sanitary exhaust should not be achieved with a single fan. Separate fans should be provided.

The remaining ventilation fans are typically replaced as part of the maintenance budget. The associated replacement costs are below the threshold of this report.

**Component Condition & Anticipated Replacement Date**

**Element State:** Fair

**ACL:** ACL 2 - Check List

**Assessment Criteria**

**Existence**

**Comments**

Corrosion

Excessive dirt and dust

X

Excessive noise

Excessive vibration

Inoperative

Physical damage

Poor efficiency

X



Sanitary Exhaust Fan.

**03.1A-030 Ventilation Fans Event #: 1**

**Brief Description**

Replace sanitary exhaust and electrical room ventilation fans.

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

RP Component replacement or new

2015

\$57,729

high priority

Building Condition Report

**Event Description**

Remove existing exhaust/ventilation fans and replace with new.

Replace sanitary exhaust and electrical room ventilation fans. Separate sanitary and building pressurization fans should be provided.

Equipment deteriorates with use, eventually requiring replacement.

Separate sanitary and building pressurization fans should be provided.

Ventilation fan replacement can be scheduled at the same time as the VAV replacement, and duct work cleaning. During fan replacement bathroom exhaust will be interrupted.

**Event Justification & Strategy**

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**Implication of Event Deferral  
(Risks)**

Failure to replace ventilation fans at the end of the life cycle will reduce system increase maintenance and reduce reliability.

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**03.1A-040 Heating & Cooling Piping Systems**

**Element Instance: 03.1A-040 Heating & Cooling Piping Systems**

**Details**

**Values**

Expected Life	40
Component Cost	1,685,175
Last Major Action Year	1975
Component Condition (For BCR use only)	Fair
Quantity	4980
Measurement unit/ Metric	m2

**Component Description**

High-pressure steam is provided from the Cliff Central Heating and Cooling Plant (CHCP). High-pressure steam is reduced to low pressure (15 psi) in the basement mechanical room. An old flash tank is also in place in the mechanical room. Low-pressure steam at 3.5 psi is distributed throughout the building. A low pressure steam header provides steam to the air handling unit heating coil as well as the various steam reheat coils located in various zones. A new duplex condensate return pump and tank package returns condensate to the CHCP. A

Chilled water is provided from the Cliff CHCP. Additional chilled water circulation pumps are not required, adequate pressure and differential is provided from the CHCP.

Low-pressure steam is distributed throughout the building to perimeter heating terminal units including convectors, radiators and cabinet heaters. Steam reheat coils located in the ductwork supply heat to the ground and basement levels. Steam unit heaters provide heat in the various mechanical and service spaces.

Schedule 40 steel piping distributes low pressure steam and chilled water throughout the building.

This component is of average quality.

**Component Condition &  
Anticipated Replacement  
Date**

Mechanical Heating and Cooling piping  
Average Theoretical Expected Life: 40 years  
2012: Theoretical Life not adjusted.  
Last Major Action Year: 1980

This component is in fair condition, based upon age and visual observations.  
Replacement is anticipated in 2020.

Heating Distribution Piping  
Average Theoretical Expected Life: 40 years  
2012: Theoretical Life not adjusted.  
Last Major Action Year: 1940

This component is in poor condition, based upon age and visual observations. The steam distribution pipes are extremely old and should be replaced immediately. X-rays of the pipe show that it is extremely thin. Pipe failure is common throughout the building. Replacement is anticipated in 2013.

The heating and cooling piping and associated valves are in fair condition due to their age. No piping leaks were noted in the mechanical rooms. With a typical life of 40 years, the main heating and cooling system valves have a remaining service life of approximately 3 years. They are scheduled for replacement in 2015.

Building piping systems should typically last the life of the building. However, it is advantageous to review the piping wall thickness to ensure significant deterioration is not

occurring. This review is scheduled for 2013 and is included under the whole building expenditures section of this report.

The steam traps appear to be leaking and require maintenance.

The steam piping is covered in asbestos in some sections.

The flash tank was installed in 1975. It has reached the end of its service life and requires replacement in 2013.

**Element State:** Fair

**ACL:** ACL 2 - Check List

**Assessment Criteria**

**Existence**

**Comments**

Biological growth/contamination

Corrosion

X

Damaged piping and/or fittings

X

Lack of backflow prevention

Leakage

X

Scaling

**03.1A-040 Heating & Cooling Piping Systems Event #: 1**

**Brief Description**

Replace Heating Distribution Piping

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

CP Component  
replacement or new

2013

\$1,563,471

medium priority

Building Condition Report

**Event Description**

Remove and replace the existing steam distribution piping throughout the building.

The cost for this event is an estimation based on the opinion of the consultant using 2012 pricing data.

**Event Justification & Strategy**

Components deteriorate with use and require replacement. Replacement of the steam piping will require extensive renovation and should coincide with other major work, perhaps on a floor by floor basis.

**Implication of Event Deferral (Risks)**

Failure to replace steam distribution piping will increase mean a decrease in heating system reliability. It will also mean an increase in leaks and potential property damage.

**03.1A-040 Heating & Cooling Piping Systems Event #: 2**

**Brief Description**

Replace Flash tank

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

RP Component  
replacement or new

2013

\$3,736

medium priority

Building Condition Report

**Event Description**

Remove and replace the existing steam flash tank.

The cost for this event is an estimation based on the opinion of the consultant using 2012 pricing data.

**Event Justification & Strategy**

Components deteriorate with use and require replacement. Co-ordination with the CHCP will be required to complete the work. There may be an interruption to steam supply so work should be completed during the summer months.

**Implication of Event Deferral (Risks)**

Failure to replace the flash tank will increase maintenance, and reduce heating system reliability.

**03.1A-040 Heating & Cooling Piping Systems Event #: 3**

**Brief Description**

Replace main heating and cooling system valves.

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

RP Component  
replacement or new

2015

\$117,968

medium priority

Building Condition Report

<b>Event Description</b>	Replace main heating and cooling system valves.
<b>Event Justification &amp; Strategy</b>	Components deteriorate with use, eventually requiring replacement. Valves should be replaced on a systematic basis, perhaps a given number each year. Cooling valves should be replaced during the winter, and heating valves during the summer.
<b>Implication of Event Deferral (Risks)</b>	Failure to replace heating and cooling valves at the end of their life cycle will increase maintenance, reduce heating and cooling system reliability and reduce the capability to isolate sections of the heating or cooling system.

### 03.1A-045 HVAC Pumps

Element Instance: 03.1A-045 HVAC Pumps

<b>Details</b>	<b>Values</b>
Expected Life	25
Component Cost	56,252
Last Major Action Year	2012
Component Condition (For BCR use only)	Excellent
Quantity	20
Measurement unit/ Metric	hp

**Component Description** High-pressure steam is provided from the Cliff Central Heating and Cooling Plant (CHCP). High-pressure steam is reduced to low pressure (15 psi) in the basement mechanical room. Low-pressure steam is distributed throughout the building at 3.5 psi. A low pressure steam header provides steam to the air handling unit heating coil as well as the various steam reheat coils located in various zones. A new duplex condensate return pump and tank package returns condensate to the CHCP.

Chilled water is provided from the Cliff CHCP. Additional chilled water circulation pumps are not required, adequate pressure and differential is provided from the CHCP.

**Component Condition & Anticipated Replacement Date** This component is of average quality.  
HVAC Pumps  
Average Theoretical Expected Life: 25 years  
2012: Expected life not adjusted.  
Last Major Action Year: 2012

This component is in excellent condition, based upon its age and visual observations. The condensate tanks and pumps were replaced in 2012. The condensate piping that was replaced with the installation of the new tank and pumps was left uninsulated.

Replacement is anticipates in 2037.

**Element State:** Excellent

**ACL:** ACL 2 - Check List

#### Assessment Criteria

#### Existence

#### Comments

Damaged impeller  
Excessive vibration  
Inoperative  
Insufficient seal and packing protection  
Leakage  
Misaligned or bent shaft  
Noisy operation  
Reduced discharge pressure  
Worn wearing rings

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**03.1A-045 HVAC Pumps Event #: 1**

<b>Brief Description</b>	Replace condensate tank and pumps.			
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
RP Component replacement or new	2037	\$54,252	N/A	Building Condition Report
<b>Event Description</b>	Remove and replace condensate tank and duplex pumps.			
<b>Event Justification &amp; Strategy</b>	Equipment deteriorates with use, eventually requiring replacement. Replacement of the condensate pumps and tanks should be done during the summer to reduce the impact of an interruption to steam heating.			
<b>Implication of Event Deferral (Risks)</b>	Failure to replace condensate tanks and associated pumps at the end of their life cycle will increase maintenance, reduce heating system reliability.			

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**03.1A-060 Terminal Units****Element Instance: 03.1A-060 Terminal Units**

<b>Details</b>	<b>Values</b>																										
Expected Life	35																										
Component Cost	51,800																										
Last Major Action Year	1975																										
Component Condition (For BCR use only)	Fair																										
Quantity	5																										
Measurement unit/ Metric	ea																										
<b>Component Description</b>	Terminal steam unit heaters provide heat in the various mechanical and service spaces. Electric fan coil heaters with self-actuating thermostats provide heat for the ground floor lobby.																										
<b>Component Condition &amp; Anticipated Replacement Date</b>	This component is of average quality. Terminal Units Average Theoretical Expected Life: 30 years 2012: Theoretical life adjusted to 40 years based upon their existing condition Last Major Action Year: 1975  This component is in fair condition, based upon age, visual observation and revised service life.  Replacement is anticipated in 2015.																										
<b>Element State:</b>	Fair																										
<b>Assessment Criteria</b>	<b>ACL:</b> ACL 2 - Check List <table><tr><td><b>Existence</b></td><td><b>Comments</b></td></tr><tr><td>Biological growth/contamination</td><td></td></tr><tr><td>Corrosion</td><td></td></tr><tr><td>Damaged or seized dampers</td><td></td></tr><tr><td>Dirty cabinet grilles</td><td></td></tr><tr><td>Dirty coils or radiator fins</td><td></td></tr><tr><td>Excessive vibration</td><td></td></tr><tr><td>Filters dirty (Unit Ventilators)</td><td></td></tr><tr><td>Inadequate capacity</td><td></td></tr><tr><td>Inoperative</td><td></td></tr><tr><td>Leakage</td><td></td></tr><tr><td>Noisy operation (forced flow, univents, unit heaters)</td><td>X</td></tr><tr><td>Physical damage</td><td></td></tr></table>	<b>Existence</b>	<b>Comments</b>	Biological growth/contamination		Corrosion		Damaged or seized dampers		Dirty cabinet grilles		Dirty coils or radiator fins		Excessive vibration		Filters dirty (Unit Ventilators)		Inadequate capacity		Inoperative		Leakage		Noisy operation (forced flow, univents, unit heaters)	X	Physical damage	
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Inoperative																											
Leakage																											
Noisy operation (forced flow, univents, unit heaters)	X																										
Physical damage																											



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Poor efficiency

Scaling

### 03.1A-060 Terminal Units Event #: 1

**Brief Description** Replace steam terminal heating units.

<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
RP Component replacement or new	2015	\$53,043	medium priority	Building Condition Report

**Event Description** Remove and replace the existing steam terminal units. Most units are accessible and can be replaced with low impact on the building occupancy.

**Event Justification & Strategy** Components deteriorates with use, eventually requiring replacement.

**Implication of Event Deferral (Risks)** Failure to replace steam heating terminal units at the end of their life cycle will increase maintenance, reduce heating system reliability and capacity at various heater locations.

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## 03.2 Control Systems

### 03.2A-010 Controls, Electrical or Pneumatic

Element Instance: 03.2A-010 Controls, Electrical or Pneumatic

<b>Details</b>	<b>Values</b>
Expected Life	20
Component Cost	97,137
Last Major Action Year	1991
Component Condition (For BCR use only)	Fair
Quantity	25
Measurement unit/ Metric	pt

**Component Description** The original control system installed in 1975 was stand-alone pneumatic. The pneumatic actuation portion of the controls system remains in service today. Direct Digital Control (DDC) was added to enhance the control system in 1991. The DDC system provides control to the main air handling system only, including temperature sensing, damper and valve modulation. These systems are monitored and controlled at the system front end.

The zone VAV and radiation controls remain pneumatic. These systems are not monitored or controlled from the system front end.

The pneumatic control compressors were replaced in 2000. Each compressor is provided with a suitable dryer. Compressed air from these units is supplied to the Hope Building.

The controls components are of average quality.

**Component Condition & Anticipated Replacement Date** Controls compressors  
Average Theoretical Expected Life:15 years  
2012: Expected Life not adjusted  
Last Major Action Year:2000

This component is in fair condition, based upon age and visual observations. Replacement is anticipated in 2015.

Pneumatic control dampers and valves  
Average Theoretical Expected Life:20 years  
2012: Expected Life adjusted to 40 years - based upon their existing condition  
Last Major action year: 1975

This component is in fair condition, base upon age, visual observations and revised service life.



Replacement is anticipated in 2015.

Replacement of the DDC portion of the control system is included under component 03.2A-020 Direct Digital Controls.

**Element State:** Fair

**ACL:** ACL 2 - Check List

**Assessment Criteria**

**Existence**

**Comments**

Auxiliary equipment not operating

Broken or stuck valves

Clogged Filter

Compressor malfunction

Damaged or broken thermostats, humidistats, devices X

Damaged wiring X

Dryer not operating/too much moisture in line

Improper point setting

Lack of point capacity

Lack of user training

Leakage

Outdated software X

Poor graphics abilities X

Regulator not set correctly

Separator not drained

Software operation problems



Control System Panel.

**03.2A-010 Controls, Electrical or Pneumatic Event #: 1**

**Brief Description**

Replace original pneumatic control dampers.

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

RP Component life extension

2015

\$21,586

medium priority

Building Condition Report

**Event Description**

Replace original pneumatic control dampers on main air handling unit.

**Event Justification & Strategy**

Automatic control dampers on main air handling units. Equipment deteriorates with use, eventually requiring replacement. This event will result in a temporary loss of control of the air handler, shut down may be required.

**Implication of Event Deferral (Risks)**

Failure to replace dampers at the end of the life cycle will increase maintenance, reduce control system reliability and capacity. Possible inability to maintain temperature setpoints.



Pneumatic Control Damper

### 03.2A-010 Controls, Electrical or Pneumatic Event #: 2

#### Brief Description

Replace pneumatic controls compressors.

#### Event Type

RP Component life extension

#### Event Year

2015

#### Event Cost

\$21,586

#### Priority

medium priority

#### Data Origin

Building Condition Report

#### Event Description

Controls compressors will require replacement at the end of their anticipated service lives.

#### Event Justification & Strategy

Controls compressors were installed in approximately 2000. Equipment deteriorates with use, eventually requiring replacement. Compressor replacement should be done over night or during weekend to minimize impact on the building occupants.

#### Implication of Event Deferral (Risks)

Failure to replace compressors at the end of the life cycle will increase maintenance, reduce control system reliability and capacity. Inability to maintain temperature setpoints.

Controls Air Compressor.



### 03.2A-010 Controls, Electrical or Pneumatic Event #: 3

#### Brief Description

Replace original pneumatic control valves.

#### Event Type

RP Component life extension

#### Event Year

2015

#### Event Cost

\$53,965

#### Priority

medium priority

#### Data Origin

Building Condition Report

#### Event Description

Replace original pneumatic control valves.

#### Event Justification & Strategy

Automatic control valves on main air handling units. Equipment deteriorates with use, eventually requiring replacement. Replacing the control valves will result in a temporary loss of heating and should be scheduled during summer months.

#### Implication of Event Deferral (Risks)

Failure to replace valves at the end of the life cycle will increase maintenance, reduce control system reliability and capacity.

Pneumatic Control Valve



### 03.2A-020 Direct Digital Control

Element Instance: 03.2A-020 Direct Digital Control

#### Details

#### Values

Expected Life

20

Component Cost

403,354

This report was generated without using Virtual Events.

Last Major Action Year	1991
Component Condition (For BCR use only)	Fair
Quantity	150
Measurement unit/ Metric	pt

**Component Description** Direct Digital Control (DDC) was added to enhance the control system in 1991. The DDC system provides control to the main air handling system only, including temperature sensing, damper and valve modulation. These systems are monitored and controlled at the system front end.

**Component Condition & Anticipated Replacement Date** This component is of average quality.  
DDC  
Average Theoretical Expected Life: 20 years  
2012: Theoretical life adjusted to 23 years based upon existing condition  
Last Major Action Year: 1991

This component is in fair condition, based upon age visual observations and revised service life. Although the DDC still performs its functions to satisfaction, it is obsolete and does not offer the control required of a modern day system.  
This system should be replaced during a complete renovation of the control system.  
Replacement is anticipated in 2014.

**Element State:** Fair **ACL:** ACL 2 - Check List

**Assessment Criteria** **Existence** **Comments**

Auxiliary equipment not operating

Broken or stuck valves

Clogged Filter

Compressor malfunction

Damaged or broken thermostats, humidistats, devices

Damaged wiring

Dryer not operating/too much moisture in line

Improper point setting

Lack of point capacity

Lack of user training

Leakage

Outdated software X

Poor graphics abilities X

Regulator not set correctly

Separator not drained

Software operation problems

### 03.2A-020 Direct Digital Control Event #: 1

**Brief Description** Replace the DDC control system.

<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
RP Equipment Obsolescence	2014	\$403,353	low priority	Building Condition Report

**Event Description** Replace the DDC control system with a system that offers more information about the building and more control points to help with building operation.

Includes control valves, actuators, wiring, and installation.

**Event Justification & Strategy**

Control system technology becomes obsolete, eventually requiring replacement. Replacing the DDC is a big operation and is best done at the same time as major renovations to the mechanical system.

**Implication of Event Deferral (Risks)**

Failure to replace obsolete control system at the end of the life cycle will increase maintenance, reduce control system reliability and capacity.

**03.3 Plumbing**

**03.3-025 Tanks**

**03.3-025C05 Domestic Hot Water Tanks**

Element Instance: 03.3-025C05 Domestic Hot Water Tanks

<b>Details</b>	<b>Values</b>
Expected Life	15
Component Cost	8,479
Last Major Action Year	2001
Component Condition (For BCR use only)	Average
Quantity	180
Measurement unit/ Metric	ltr

**Component Description**

Domestic hot water is supplied through the use of two separate systems. During summer operation two 40 gallon Giant electric domestic water heaters provide the building with domestic hot water. Each tank has a 4.5 Kw heating element. During the winter months, a 25-30 year old Brade steam to domestic hot water converter is utilised. A single Armstrong circulator provides domestic hot water recirculation.

**Component Condition & Anticipated Replacement Date**

This component is of average quality.

Water Heater

Average Theoretical Expected Life: 15 years

2012: Theoretical Life not adjusted.

Last Major Action Year: 2001

This component is in average condition, based upon age and visual observations. Replacement is anticipated in 2016.

**Element State:** Average

**ACL:** ACL 2 - Check List

**Assessment Criteria**

**Existence**

**Comments**

Burner in poor condition

Corrosion

Damaged service connections

Improper adjustments and incorrect settings

Inadequate capacity

Leakage

Physical damage

Scaling and sediment



Electric Domestic Water Heaters.


**03.3-025C05 Domestic Hot Water Tanks Event #: 1**

**Brief Description**

Replace electric water heaters.

This report was generated without using Virtual Events.

<i>Event Type</i>	<i>Event Year</i>	<i>Event Cost</i>	<i>Priority</i>	<i>Data Origin</i>
RP Component replacement or new	2016	\$8,479	medium priority	Building Condition Report
<i>Event Description</i>	The electric water heater will require replacement at the end of their anticipated service lives. Replace the electric water heaters in 2016.			
<i>Event Justification &amp; Strategy</i>	Equipment deteriorates with use, eventually requiring replacement. Replacing water heaters one at a time eliminates the loss of hot water to the building.			
<i>Implication of Event Deferral (Risks)</i>	Failure to replace water heaters at the end of the life cycle will increase maintenance, reduce hot water system reliability.			
	Domestic Hot Water Tanks			



### 03.3A-010 Plumbing Piping

Element Instance: 03.3A-010 Plumbing Piping

<b>Details</b>	<b>Values</b>
Expected Life	40
Component Cost	88,332
Last Major Action Year	2001
Component Condition (For BCR use only)	Fair
Quantity	1
Measurement unit/ Metric	ea

<b>Component Description</b>	<p>City water is supplied to the building; the water meter is located on the basement level. The domestic water service is separated from the water service to the sprinkler and fire standpipe systems inside the building.</p> <p>The domestic water system is provided with an Armstrong booster pump package. Three pumps and Tornatech controller make-up this package.</p> <p>The majority of the water piping is copper and is insulated.</p> <p>Sanitary drainage and sump pumps discharge to a combined municipal sewer.</p> <p>There are roof drains on multiple levels that discharge to a combined municipal sewer. Sanitary drain and vent piping is cast iron and copper.</p> <p>The storm drainage piping is cast iron.</p> <p>Dual submersible sump pumps located in the basement mechanical room drain the building foundation. These pumps have been recently replaced.</p> <p>Submersible sump pumps provide drainage to the elevator pit.</p> <p>This component is of average quality.</p>
<b>Component Condition &amp; Anticipated Replacement Date</b>	<p>Plumbing Piping</p> <p>Average Theoretical Expected Life: 40 years</p> <p>2012: Theoretical Life not adjusted.</p> <p>Last Major Action Year: 2001</p> <p>This component is in fair condition, based upon age and visual observations. The plumbing piping typically will last the life of the building and does not require replacement</p>

within 30 years. An ultrasonic study to confirm the thickness of the piping is recommended.  
Replacement is anticipated in 2016.

With a typical life cycle of 25 years, the roof drains would be replaced as part of renewal of the roof in 2016.

Regular maintenance should be performed on the roof drains to ensure there are no clogs that could lead to a build up of water on the roof.

The water entrance does not meet code. A backflow preventer should be installed after the water meter to fix this code issue.

**Element State:** Fair

**ACL:** ACL 2 - Check List

**Assessment Criteria**

**Existence**

**Comments**

Biological growth/contamination

Clogged drain

X

Corrosion

Damaged Insulation and cover

Damaged piping and/or fittings

Damaged valves

Lack of backflow prevention

X

Leakage

Scaling

**03.3A-010 Plumbing Piping Event #: 1**

**Brief Description**

Install New backflow Preventer

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

RP Component  
replacement or new

2013

\$4,899

medium priority

Building Condition Report

**Event Description**

Install a new backflow preventer on the domestic water system.

**Event Justification & Strategy**

This event is needed to bring the system up to code. This event should be performed during a weekend or holiday break to minimize the impact of a loss of water supply to the building.

**Implication of Event Deferral (Risks)**

Failure to install a backflow preventer could result in contamination of the municipal water supply.

**03.3A-010 Plumbing Piping Event #: 2**

**Brief Description**

Replace main plumbing system valves.

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

RP Component  
replacement or new

2021

\$73,482

N/A

Building Condition Report

**Event Description**

Replace main plumbing system valves.

**Event Justification & Strategy**

The cost for this event is an estimation based on the opinion of the consultant using 2012 pricing data.

Components deteriorate with use, eventually requiring replacement. This event should be performed during a weekend or holiday break to minimize the impact of a loss of water supply to the building.

**Implication of Event Deferral (Risks)**

Failure to replace valves at the end of their life cycle will increase maintenance, reduce plumbing system reliability, capacity and capability to isolate section of the system.

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**03.3A-010 Plumbing Piping Event #: 3**

<b>Brief Description</b>	Replace roof drains			
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
RP Component replacement or new	2022	\$9,951	N/A	Building Condition Report
<b>Event Description</b>	Age of the existing roof drains is unknown. Replace roof drains. This work should be scheduled in conjunction with future roof replacement in 2022.			
<b>Event Justification &amp; Strategy</b>	The cost for this event is an estimation based on the opinion of the consultant using 2012 pricing data.			
<b>Implication of Event Deferral (Risks)</b>	Roof drains deteriorates with use, eventually requiring replacement. Roof drain replacement should coincide with roof replacement. Failure to replace roof drains at the end of the life cycle will increase maintenance, increase potential for leaks.			

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**03.3A-015 Plumbing Fixtures and Accessories****Element Instance: 03.3A-015 Plumbing Fixtures and Accessories**

<b>Details</b>	<b>Values</b>
Expected Life	30
Component Cost	305,913
Last Major Action Year	1995
Component Condition (For BCR use only)	Fair
Quantity	107
Measurement unit/ Metric	ea
<b>Component Description</b>	Women's and barrier-free Plumbing fixtures were replaced in 1995 during building renovations. Toilets and urinals are flush valve in the main washrooms. Lavatories are vitreous china with two handle fittings.  Handicapped accessible washrooms have been provided. Handicapped fixtures are complete with trim installed in accordance with the handicapped accessibility requirements, including offset P-traps and blade handles. Refrigerated handicapped accessible drinking fountains have been installed. This system has a central domestic water chiller located in the basement.  The domestic water system is provided with a booster pump package.  The fixtures are of average quality.
<b>Component Condition &amp; Anticipated Replacement Date</b>	Average Theoretical Expected Life: 30 years 2012: Theoretical Life not adjusted. Last Major Action Year: 1995  This component is in fair condition, based upon age and visual observations. The women's washrooms were recently renovated and in better condition than the men's washrooms. Anticipated replacement dates in 2015 and 2036 to coincide with Architectural renovations.

<b>Element State:</b>	Fair	<b>ACL:</b>	ACL 2 - Check List
<b>Assessment Criteria</b>		<b>Existence</b>	<b>Comments</b>
Corrosion			
Leakage			
Outdated		X	
Physical damage		X	
Staining		X	

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This report was generated without using Virtual Events.



Handicapped Accessible Drinking Fountain.

### 03.3A-015 Plumbing Fixtures and Accessories Event #: 1

**Brief Description**

Replace plumbing fixtures mens washrooms.

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

RP Component  
replacement or new

2015

\$165,822

medium priority

Building Condition Report

**Event Description**

With a typical life cycle of 30 year the plumbing fixtures in the men's washrooms have an anticipated replacement date of 2015. Remove existing fixtures and replace with new.

**Event Justification & Strategy**

Plumbing fixtures and trim deteriorate with use, eventually requiring replacement.

Typically this replacement is completed in conjunction with significant washroom renovations.

**Implication of Event Deferral (Risks)**

Failure to replace plumbing fixtures and trim at the end of their life cycle will increase maintenance, reduce sanitary hygiene.

Men's washroom water closet



Men's washroom lavatory

### 03.3A-015 Plumbing Fixtures and Accessories Event #: 2

**Brief Description**

Replace plumbing fixtures womens & accessible washrooms

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

RP Component  
replacement or new

2036

\$140,091

N/A

Building Condition Report

**Event Description**

With a typical life cycle of 30 year the plumbing fixtures in the women's and accessible washrooms have an anticipated replacement date of 2036. Remove existing fixtures and replace with new.

**Event Justification & Strategy**

Plumbing fixtures and trim deteriorate with use, eventually requiring replacement.

Typically this replacement is completed in conjunction with significant washroom renovations.

**Implication of Event Deferral (Risks)**

Failure to replace plumbing fixtures and trim at the end of their life cycle will increase maintenance, reduce sanitary hygiene.





Women's washroom water closet

### 03.3A-020 Plumbing Pumps

Element Instance: 03.3A-020 Plumbing Pumps

#### Details

Details	Values
Expected Life	20
Component Cost	46,692
Last Major Action Year	2001
Component Condition (For BCR use only)	Average
Quantity	1
Measurement unit/ Metric	ea

#### Component Description

The building domestic cold water system is provided with an Armstrong domestic water booster package. Three pumps and a Tornatech controller make up the package. The booster package was installed in 2001. The domestic hot water system is provided with an inline recirculation pump. Duplex storm water sump pumps provide storm and foundation drainage.

This equipment is of average quality.

#### Component Condition & Anticipated Replacement Date

Domestic Water Booster  
Average Theoretical Expected Life: 20 years  
2012: Theoretical Life not adjusted.  
Last Major Action Year: 2001

This component is in average condition, based upon age and visual observations. Replacement is anticipated in 2021.

The recirculation pump was replaced in 2010 and is in good condition.

The replacement costs associated with the sump pumps falls below the threshold of this study.

#### Element State:

Average

ACL: ACL 2 - Check List

#### Assessment Criteria

#### Existence

#### Comments

- Corrosion
- Excessive noise
- Excessive vibration
- Inefficient operation
- Leakage
- Physical damage



Domestic water booster package

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**03.3A-020 Plumbing Pumps Event #: 1**

<b>Brief Description</b>	Replace domestic water booster pumps.			
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
RP Component replacement or new	2021	\$46,692	N/A	Building Condition Report
<b>Event Description</b>	Replace domestic water booster pumps. Remove existing domestic water booster package and replace with a new booster pump package.			
<b>Event Justification &amp; Strategy</b>	Equipment deteriorates with use, eventually requiring replacement. Cyclical pump replacement reduces the impact on building operation. However, if replacing the whole pump package at once then schedule work during periods of low occupancy, such as weekends or holiday breaks.			
<b>Implication of Event Deferral (Risks)</b>	Failure to replace the domestic water booster pumps will increase maintenance, reduce system reliability and capacity. Potential loss of domestic water pressure.			

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**03.3A-045 Drinking Fountain****Element Instance: 03.3A-045 Drinking Fountain**

<b>Details</b>	<b>Values</b>
Expected Life	25
Component Cost	77,100
Last Major Action Year	1995
Component Condition (For BCR use only)	Average
Quantity	10
Measurement unit/ Metric	ea

**Component Description** There are refrigerated handicapped accessible drinking fountains in the handicapped accessible washrooms. This system has a central domestic water chiller located in the basement.

**Component Condition & Anticipated Replacement Date** This component is of average quality.  
Average Theoretical Expected Life: 25 years  
2012: Theoretical Life not adjusted.  
Last Major Action Year: 1995

This component is in average condition, based upon age and visual observations.  
Replacement is anticipated in 2020.

<b>Element State:</b>	Average	<b>ACL:</b>	ACL 2 - Check List
<b>Assessment Criteria</b>		<b>Existence</b>	<b>Comments</b>
Corrosion			
Excessive noise			
Leakage			
Outdated			
Physical damage			
Staining			

**03.3A-045 Drinking Fountain Event #: 1**

<b>Brief Description</b>	Replace refrigerated drinking fountains			
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
RP Component replacement or new	2020	\$78,950	N/A	Building Condition Report
<b>Event Description</b>	Replace refrigerated drinking fountains.			
	Remove existing refrigerated drinking fountains and replace with new.			

<b>Event Justification &amp; Strategy</b>	Equipment deteriorates eventually requiring replacement. This event could be scheduled to coincide with renovations to nearby washrooms.
<b>Implication of Event Deferral (Risks)</b>	Failure to replace the drinking fountains at the end of their life cycle will increase maintenance and potentially loose availability of refrigerated drinking water.

### 03.4 Special Systems

#### 03.4A-060 Diesel Generator Fuel Supply Systems

Element Instance: 03.4A-060 Diesel Generator Fuel Supply Systems

<b>Details</b>	<b>Values</b>
Expected Life	30
Component Cost	0
Last Major Action Year	2001
Component Condition (For BCR use only)	Average
Quantity	2
Measurement unit/ Metric	ea

**Component Description** A diesel-powered generator provides emergency power to the building. This unit was replaced in 2001. The existing double walled diesel storage tanks are provided with containment. Each tank is capable of holding 1135L of diesel fuel.

This component is of average quality.

**Component Condition & Anticipated Replacement Date** The diesel fuel supply system is in average condition. The tank and fuel supply systems are typically replaced at the same time as the Genset. See the electrical portion of this report for anticipated replacement date of the generator and tank.

**Element State:** Average **ACL:** ACL 2 - Check List

**Assessment Criteria** **Existence** **Comments**

Corrosion

Fuel leakage

Inadequate capacity

Physical damage



Diesel Storage Tanks.

### 03.5 Fire Protection

#### 03.5A-050 Sprinkler Systems

Element Instance: 03.5A-050 Sprinkler Systems

<b>Details</b>	<b>Values</b>
Expected Life	35
Component Cost	525,490
Last Major Action Year	1975
Component Condition (For BCR use only)	Average
Quantity	4980
Measurement unit/ Metric	m2

**Component Description** The entire building is presently not sprinklered. Sprinkler coverage is provided in the basement level only. The installation of sprinklers should be completed to provide complete building coverage. Installation of a sprinkler system should be coordinated with other repairs and upgrades in the building, as it will impact elements such as ceilings, asbestos, lighting, etc.

**Component Condition & Anticipated Replacement Date**

This component is of average quality.  
Average Theoretical Expected Life: 35 years  
2012: Theoretical Life not adjusted.  
Last Major Action Year: 1991

This component is in average condition, based upon age and visual observations.  
Consideration should be given to fully sprinklering the building as part of any significant building interior renovation.

An event has been included in 2013 to upgrade the existing sprinkler system.

**Element State:** Average

**ACL:** ACL 2 - Check List

**Assessment Criteria**

**Existence**

**Comments**

Corrosion

Damaged heads

Inadequate coverage

Inadequate pressure

Lack of test documentation

Leakage

**03.5A-050 Sprinkler Systems Event #: 1**

**Brief Description**

Provide complete building sprinkler coverage.

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

CP Component replacement or new

2013

\$525,490

high priority

Building Condition Report

**Event Description**

Provide complete building sprinkler coverage. The building is only provided with sprinkler coverage at the basement level.

**Event Justification & Strategy**

Consideration should be given to the installation of sprinklers as part of any significant interior building renovations.

Greater building and occupant protection is provided to a fully sprinkled building. Sprinkler installation should coincide with any other major building renovations to minimize the impact on occupants.

**Implication of Event Deferral (Risks)**

Complete loss in the event of a significant fire.

**03.5A-060 Standpipe Systems**

**Element Instance: 03.5A-060 Standpipe Systems**

**Details**

**Values**

Expected Life

20

Component Cost

278,780

Last Major Action Year

2002

Component Condition (For BCR use only)

Fair

Quantity

2

Measurement unit/ Metric

ea

**Component Description**

Water for fire protection enters the building at the basement level. Fire protection and domestic water service separate inside the building.

New Armstrong fire booster pumps were installed in 2002. The package consists of two ULC listed 50 HP booster pumps, a Jockey pump and Tornatech controllers. There is a leak on one of the pumps resulting in some rusting of the pump. Periodic fire hose replacement is required.

This component is of average quality.

**Component Condition &  
Anticipated Replacement  
Date**

Average Theoretical Expected Life: 20 years  
2012: Theoretical Life not adjusted.  
Last Major Action Year: 2002

This component is in fair condition, based upon age and visual observations. The Armstrong booster pump is in fair condition but has a leak which is causing corrosion and should have its seal replaced. The system is tested periodically. Replacement is anticipated in 2027.

An event is scheduled in 2013 to correct existing code deficiencies with the system. There should be one stand pipe per stairwell located close to the stairwell.

Ultrasonic testing should be completed to confirm that pipe wall thickness is not deteriorating. This will not be required if the system is replaced.

Fire hoses should be replaced every 20 years. The cost associated with fire hose replacement falls below the cost threshold of this report.

**Element State:** Fair

**ACL:** ACL 2 - Check List

**Assessment Criteria**

**Existence**

**Comments**

Corrosion

X

Fire hose cabinets in poor condition

Inadequate coverage

Inadequate pressure

Lack of test documentation

Leakage

Missing hoses



Fire Booster Pumps.

**03.5A-060 Standpipe Systems Event #: 1**

**Brief Description**

Replace standpipe system to comply with code

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

CF National Codes

2013

\$189,952

very high priority

Building Condition Report

**Event Description**

There are deficiencies noted with the present system; there should be two risers, one for each stairwell and they should be located closer to each stairwell. A consultant should do a study on the code requirements to resolve a location for each riser.

**Event Justification &  
Strategy**

This is a code compliance issue. Any renovation to the standpipe system will require this to be addressed. This will require work on every floor and should coincide with other major renovations.

**Implication of Event Deferral  
(Risks)**

There is some degree of risk for the occupants with only one central hose station.

**03.5A-060 Standpipe Systems Event #: 2**

**Brief Description**

Replace standpipe booster pump.

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

RP Component  
replacement or new

2027

\$88,828

N/A

Building Condition Report

<b>Event Description</b>	Remove existing standpipe booster pump package and replace with new.
<b>Event Justification &amp; Strategy</b>	Equipment deteriorates with use, eventually requiring replacement. This work should be completed during a period of minimal occupancy.
<b>Implication of Event Deferral (Risks)</b>	Failure to replace standpipe booster pump will increase maintenance, reduce system reliability and capacity, and reduce standpipe system effectiveness.

### 03.5A-070 Portable Fire Extinguishers

Element Instance: 03.5A-070 Portable Fire Extinguishers

<b>Details</b>	<b>Values</b>
Expected Life	30
Component Cost	0
Last Major Action Year	1995
Component Condition (For BCR use only)	Average
Quantity	50
Measurement unit/ Metric	ea

**Component Description** Multi-purpose portable fire extinguishers are located throughout the building and in the fire hose cabinets.

This component is of average quality.

**Component Condition & Anticipated Replacement Date** The building fire extinguishers are in average condition and are checked on a regular basis. The extinguishers are replaced or recharged on an as required basis as part of an existing maintenance program.

**Element State:** Average **ACL:** ACL 2 - Check List

**Assessment Criteria** **Existence** **Comments**

Inadequate coverage  
Inappropriate location  
Lack of test documentation  
Units not adequately charged



Portable Fire Extinguisher.

## 04. Electrical

### 04.1 Main Service Electrical

#### 04.1A-010 Primary Switch Gear

Element Instance: 04.1A-010 Primary Switch Gear

<b>Details</b>	<b>Values</b>
Expected Life	30
Component Cost	1
Last Major Action Year	1997
Component Condition (For BCR use only)	Not Assessed
Quantity	1
Measurement unit/ Metric	sum

**Component Description** A 600V feeder from the Main Distribution Switchboard in the Langevin Block, supplies the electrical service to Postal station 'B' from a 400A breaker.

Because this equipment is in the Langevin Block, it could not be inspected at the time of

<b>Component Condition &amp; Anticipated Replacement Date</b>	visit.		
	This component is not assessed.		
	Replacement for this component should be assessed in the building condition report for the Langevin Block.		
<b>Element State:</b>	Not Assessed	<b>ACL:</b>	ACL 2 - Check List
<b><u>Assessment Criteria</u></b>		<b><u>Existence</u></b>	<b><u>Comments</u></b>
Clearance requirements not met			
Enclosure corrosion			
Equipment obsolete			
Inaccessible			
Inadequate labelling			
Infra red test documentation not available			
Inoperable devices			
Loose connections			
Other code related issues			

## 04.2 Secondary Service Electrical

### 04.2A-010 Secondary Switchgear

Element Instance: 04.2A-010 Secondary Switchgear

<b>Details</b>	<b>Values</b>
Expected Life	30
Component Cost	464,974
Last Major Action Year	1975
Component Condition (For BCR use only)	Fair
Quantity	1
Measurement unit/ Metric	sum

**Component Description** The 600V distribution is located in the basement electrical room. It consists of a 800Amp - 347/600V switchboard (manufactured by ITE).  
The kW hour demand meter indicated a peak reading of 300kW.

Breakers are identified with the PWGSC PMSS numbers and are as follows:

- 05-123-02 - 225A 3 pole MCC
- 05-123-03 - 100A 3 pole Panel 'A'
- 05-123-04 - 100A 3 pole
- 05-123-05 - 100A 3 pole Heating panel
- 05-123-06 - 200A 3 pole Panel 'F'
- 05-123-07 - 70A 3 pole

The 600V Distribution feeders supply panels in the main electrical room and panels on levels 1, 2, 4 and 6

Main electrical room - Heating panel, Panel F, Transformer 01

Mechanical room - MCC

Diesel room - Automatic Transfer Switch

Level 1 Electrical room - Panel A

Level 2 Electrical room - Panel B

Level 4 Electrical room - Panel C

Level 6 Electrical room - Panel D

These panels supply the 347Volt lighting circuits and also 120/208Volt transformers which supply the branch circuits panels

**Component Condition & Anticipated Replacement Date**

This component is of average quality.  
 This component is estimated to have been installed in 1975.

No rattling or any unusual noises were reported and the equipment seemed to be properly functioning at the time of the visit.

Average Theoretical Expected Life: 30 years.  
 2012: Theoretical life adjusted to 40 - anticipated life expectancy of equipment.

Replacement of all the secondary switchboards in phase I is anticipated in 2015.

This component is in fair condition based on the age of the equipment and visual inspection.

**Element State:** Fair

**ACL:** ACL 2 - Check List

**Assessment Criteria**

**Existence**

**Comments**

Enclosure corrosion  
 Equipment obsolete  
 Inaccessible  
 Inadequate labelling  
 Inoperable devices  
 Loose connections



Secondary Switchgear - Panel Z - Main Breaker 400A



Secondary Switchgear - Panel Z Distribution breakers

**04.2A-010 Secondary Switchgear Event #: 1**

**Brief Description**

Replace the Secondary Switchgear

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

RP Component replacement or new

2015

\$476,133

high priority

Building Condition Report

**Event Description**

Remove and replace the 800Amp - 347/600V switchboard located in the Main Electrical room

**Event Justification & Strategy**

Deficiency Type - Replace at end of service life

This event would improve the availability and maintainability of the distribution system. It must be integrated with the new transformer replacement.

Replacement should be done during off hours in order to cause the least disturbance for the tenants

**Implication of Event Deferral (Risks)**

Unreliable normal power distribution and possible failures of supply.



## 04.2A-011 MCC

Element Instance: 04.2A-011 MCC

### Details

### Values

Expected Life	40
Component Cost	178,278
Last Major Action Year	1997
Component Condition (For BCR use only)	Good
Quantity	2
Measurement unit/ Metric	sum

### Component Description

There is one (1) motor control centres located in the mechanical room in the basement.

MCC 05-386-01 is two sections wide Siemens MCC model #8PG02. It servers the mechanical equipment such as exhaust fans and AC units.

This component is of average quality.

### Component Condition & Anticipated Replacement Date

This component is estimated to have been replaced in 1997. The equipment is well maintained and functioned as designed.

Average Theoretical Expected Life: 45 years.  
2012: Theoretical life not adjusted.

The equipment is in good condition based on visual inspection and the age of the equipment.

Replacement is anticipated in 2042.

**Element State:** Good

**ACL:** ACL 2 - Check List

### Assessment Criteria

### Existence

### Comments

Control problems  
Enclosure corrosion  
Equipment obsolete  
Inaccessible  
Inadequate labelling  
Inoperable devices  
Loose connections

X



MCC 05-386-01

## 04.2A-011 MCC Event #: 1

### Brief Description

Replace the MCC

### Event Type

Event Year

Event Cost

Priority

Data Origin

RP Component  
replacement or new

2042

\$182,557

N/A

Building Condition Report

### Event Description

Replace the MCC, distributed motor protection and control with a new unit.

### Event Justification & Strategy

Deficiency Type - Replace at end of service life

Replacement may be staggered over a few years. The work should be done during off hours to reduce disruption to the tenants.

This report was generated without using Virtual Events.

**Implication of Event Deferral  
(Risks)**

Unreliable motor control and protection. Continued operation of obsolete equipment, increased maintenance and higher risks of failure.

**04.2A-020 Secondary Transformer**

Element Instance: 04.2A-020 Secondary Transformer

**Details**

**Values**

Expected Life	30
Component Cost	164,152
Last Major Action Year	2005
Component Condition (For BCR use only)	Fair
Quantity	12
Measurement unit/ Metric	ea

**Component Description**

There are 12 x 600-120/208V, 3-phase, 4-wire distribution systems which originate at dry-type transformers throughout the building.

The dry-type transformers are split, where some are on normal power, and the remaining on emergency power.

This component is of average quality.

**Component Condition &  
Anticipated Replacement  
Date**

Some of the transformers have been replaced in recent years. It is estimated that several transformers were replaced in 2005.

The remaining transformers were installed in 1975. They are functioning properly, but should be replaced in the near future.

Average Theoretical Expected Life: 30 years.

2012: Theoretical life adjusted to 40 years for transformers installed in 1975

2012: Theoretical life not adjusted for transformers installed in 2005.

Remaining Service Life:

The transformers installed in 1975 have a remaining service life of 3 years, and are in fair condition.

The transformers installed in 2005 have a remaining service life of 23 years, and are in excellent condition.

This component is in fair condition based on the age of the older units and anticipated life expectancy.

**Element State:** Fair

**ACL:** ACL 2 - Check List

**Assessment Criteria**

**Existence**

**Comments**

Corrosion  
Dirty coils or radiator fins  
Equipment obsolete  
Inadequate space for ventilation  
Oil leakage  
Unbalanced load



Older Secondary Transformer



Older Secondary Transformer

#### 04.2A-020 Secondary Transformer Event #: 1

##### **Brief Description**

Replace the transformers installed in 1975

##### **Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

RP Component  
replacement or new

2015

\$84,046

high priority

Building Condition Report

##### **Event Description**

Replace dry-type transformers installed in 1975 that have reached the end of their service life.

##### **Event Justification & Strategy**

The component should be replaced at the end of its service life to avoid loss of power to the tenants.

Each secondary transformer provide power to a portion of the building. Replacing the transformer units should be done during off-hours in order to cause the least disturbance to the tenants.

##### **Implication of Event Deferral (Risks)**

Event deferral may lead to an increased risk of failure and loss of power to tenants.

#### 04.2A-020 Secondary Transformer Event #: 2

##### **Brief Description**

Replace the transformers installed in 2005

##### **Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

RP Component  
replacement or new

2035

\$84,046

N/A

Building Condition Report

##### **Event Description**

Replace dry-type transformers installed in 2005 that have reached the end of their service life.

##### **Event Justification & Strategy**

The component should be replaced at the end of its service life to avoid loss of power to the tenants.

Each secondary transformer provide power to a portion of the building. Replacing the transformer units should be done during off-hours in order to cause the least disturbance to the tenants.

##### **Implication of Event Deferral (Risks)**

Event deferral may lead to an increased risk of failure and loss of power to tenants.

#### 04.2A-070 Distribution Panels

Element Instance: 04.2A-070 Distribution Panels

##### **Details**

##### **Values**

Expected Life	30
Component Cost	210,770
Last Major Action Year	2002
Component Condition (For BCR use only)	Good
Quantity	35

This report was generated without using Virtual Events.

Measurement unit/ Metric	ea		
<b>Component Description</b>	600/ 347V and the 120/208V Distribution:  Main electrical room - 600V Panel Z, Transformer 01 - Supplying 120/208V Panels BP1 and BP2 Main electrical room - 600V Panel F, Transformer 02 - Supplying 120/208V Panels A and B Ground floor (Postal Station 'B')  Level 1 Electrical room - 600V 4W Panel A - Transformer 08(15kVA) - Supplying 120/208V Panel M Level 2 Electrical room - 600V 4W Panel B- Transformer 07(30kVA) - Supplying 120/208V Panels N,V and Level 3 Electrical room - Panel 3X. Level 4 Electrical room - 600V 4W Panel C- Transformer 05(30kVA) - Supplying 120/208V Panel P and P-A Level 6 Electrical room - 600V 4W Panel D- Transformer 08(30kVA) - Supplying 120/208V Panel R, R1 Penthouse and R1-A on the roof.  These panels (A,B,C,D) supply the 347Volt lighting circuits and also 120/208Volt Transformers which supply the branch circuits panels The lighting circuits are wired through Relay panel controlled by low voltage switches.  This component is of average quality. The 600/347V and 120/208V equipment has been recently upgraded from 1997 to 2002. Some 120/208V panels have recently been upgraded to 72 circuit panels to provide additional circuit capacity. The equipment is well maintained and functioning as designed.  Average Theoretical Expected Life: 30 years. 2012: Expected Life not adjusted.  The panels are in good condition based on age and physical inspection. Replacement is anticipated in 2027.		
<b>Component Condition &amp; Anticipated Replacement Date</b>			
<b>Element State:</b>	Good	<b>ACL:</b>	ACL 2 - Check List
<b>Assessment Criteria</b>		<b>Existence</b>	<b>Comments</b>
Enclosure corrosion			
Equipment obsolete			
Functional defects			
Inaccessible			
Inadequate labelling			
Inoperable devices			
Loose connections			





Panel G  
600V Distribution Panel

**04.2A-070 Distribution Panels Event #: 1**

<b>Brief Description</b>		Replace distribution panels		
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
RP Component replacement or new	2027	\$215,828	N/A	Building Condition Report
<b>Event Description</b>		Replace all distribution panels in the building with new panels.		
<b>Event Justification &amp; Strategy</b>		Deficiency Type - Replace at end of service life  Replacement may be staggered over a few years. The work should be done during off hours to reduce disruption to the tenants.		
<b>Implication of Event Deferral (Risks)</b>		Continued operation of obsolete equipment, increased in maintenance cost.		

**04.3 Lighting Fixtures**

**04.3A-010 General Lighting**

Element Instance: 04.3A-010 General Lighting

<b>Details</b>	<b>Values</b>
Expected Life	30
Component Cost	743,625
Last Major Action Year	1994
Component Condition (For BCR use only)	Average
Quantity	1125
Measurement unit/ Metric	ea
<b>Component Description</b>	<p>Post Office: Customer Area: Recessed strip fixtures with acrylic lens in the architectural cove 2 x 32-Watt T8 lamps with opaque acrylic lens. Employee Area: Pendant suspended luminaires 2 x 32-Watt T8 lamps. Fixture Windsor type with out metal louver.</p> <p>Utility areas including Electrical rooms, Telephone closets, Mechanical spaces: Industrial fluorescent strip fixtures with 2 x 32-Watt T8 lamps; 347-Volt ballast; chain hung, wrap around lens type, suspended pendant.</p> <p>Office areas: 600 x 1200 fluorescent fixture recessed in T-Bar ceiling with acrylic lens in hinged frame with 2 x 32-Watt T8 lamps.</p> <p>Basement areas: Fluorescent strip fixtures with 2 x 32-Watt T8 lamps, 347-Volt ballast.</p> <p>Stairs:: 300 x 1200 architectural fixtures with 1 x 32-Watt T8 lamps,with white opaque lens.</p> <p>Washrooms: Fluorescent strip fixtures recessed mounted in cove, 300 x 1200 fixtures.</p>

Corridors:  
600 x 600 recessed fluorescent fixtures with acrylic lens in hinged frame with 2 x 32-Watt 'U' T8 lamps.

Switching:  
Low voltage switches are centrally located on each floor. Utility areas are provided with local switching.

Branch Wiring:  
Branch wiring consists of armoured cable fed from electrical closets to fixtures fed from the electrical closets to the fixtures.  
Fixtures are 347 Volts.

This component is of average quality.  
The lighting was retro fitted in 1994.  
The lighting fixtures are clean and well maintained. Some fixtures were burnt out during the site visit. Replacement for these fixtures is part of the regular building maintenance.

Average Theoretical Expected Life: 30 years.  
2012: Expected Life not adjusted.

The physical condition of this component is average based on the age of the majority of the fixtures.

Replacement is anticipated in 2024.

**Component Condition & Anticipated Replacement Date**

**Element State:** Average

**ACL:** ACL 2 - Check List

**Assessment Criteria**

**Existence**

**Comments**

Control problems  
Damaged fixtures  
Failed ballasts  
Inadequate lighting levels  
Inefficient operation  
Obsolete fixtures



**04.3A-010 General Lighting Event #: 1**

**Brief Description**

Replace Interior lighting

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

RP Component replacement or new

2024

\$761,472

N/A

Building Condition Report

This report was generated without using Virtual Events.

<b>Event Description</b>	Replace light fixtures and any lighting control panel at the end of service life.
<b>Event Justification &amp; Strategy</b>	The component should be replaced at the end of its service life.
	The replacement of the general lighting throughout the building should be done during off hours in order not to disturb the tenants.
	Coordinate this project with the interior refurbishment project.
<b>Implication of Event Deferral (Risks)</b>	Poor lighting and increased maintenance could occur as a result of deferring this event.

#### 04.3A-020 Exit Lighting

Element Instance: 04.3A-020 Exit Lighting

<b>Details</b>	<b>Values</b>
Expected Life	30
Component Cost	96,480
Last Major Action Year	1977
Component Condition (For BCR use only)	Average
Quantity	160
Measurement unit/ Metric	ea

<b>Component Description</b>	Bilingual Exit lights consist of "EXIT SORTIE" signs, located throughout the building.
	The signs are internally illuminated and are visible from the exit approach. At the time of the site visit all exit lights were in good working order.
	This component is of average quality.
<b>Component Condition &amp; Anticipated Replacement Date</b>	The exit signs have all been replaced in 1997. Maintenance on this component is up kept throughout the building.
	Coverage of the exit lighting is adequate and according to code requirements.
	Average Theoretical Expected Life: 30 years. 2012: Expected Life not adjusted.
	Although the exit lights were installed in 1997, this component is in average condition based on visual inspection.
	Replacement is anticipated in 2027.

<b>Element State:</b>	Average	<b>ACL:</b>	ACL 2 - Check List
<b>Assessment Criteria</b>		<b>Existence</b>	<b>Comments</b>
Failed lamps			
Inadequate coverage			
Obsolete fixtures			
Physical damage			



04.3A-020 Exit Lighting Event #: 1

Brief Description		Replace the Exit / Sortie signs		
Event Type	Event Year	Event Cost	Priority	Data Origin

This report was generated without using Virtual Events.

RP Component replacement or new	2027	\$98,796	N/A	Building Condition Report
<b>Event Description</b>	Replace the exit lighting through the building with new LED type fixtures.			
<b>Event Justification &amp; Strategy</b>	The component should be replaced at the end of its service life. The exit signs are fed from the emergency lighting battery packs. Along with the emergency lighting replacement, the exit lighting should be changed in phases to ensure tenants can safely evacuate the building in case of an emergency.			
<b>Implication of Event Deferral (Risks)</b>	Insufficient coverage of exit lights in certain areas can lead to safety issues. Event deferral could lead to a reduction in the safety of the occupants within the building. Signs may fail. Maintenance costs may increase.			

#### 04.3A-030 Exterior Lighting

Element Instance: 04.3A-030 Exterior Lighting

<b>Details</b>	<b>Values</b>
Expected Life	15
Component Cost	20,790
Last Major Action Year	2000
Component Condition (For BCR use only)	Fair
Quantity	15
Measurement unit/ Metric	ea

**Component Description** Exterior lighting consists of flood lighting grouped in pairs, located at the second level of the building, one facing up and a smaller flood light facing down.

The lights are aimed to illuminate the facade, high lighting the architectural features.

This component is of average quality.

**Component Condition & Anticipated Replacement Date** Based on a visual inspection, It is estimated the exterior lighting was replaced in 2000.

The luminaires are operational and appear well maintained. A few fixtures seem to be burnt out. Replacement for this fixtures is part of the regular maintenance by the building technicians. No event is required to replace the fixtures.

Average Theoretical Expected Life: 15 years.

2012: Expected life not adjusted

Replacement is anticipated in 2015.

The equipment is in fair condition based on visual inspection and the age of the equipment.

**Element State:** Fair

**ACL:** ACL 2 - Check List

#### Assessment Criteria

#### Existence

#### Comments

Corrosion

Damaged fixtures

Failed lamps

Inadequate lighting levels

Obsolete fixtures

#### 04.3A-030 Exterior Lighting Event #: 1

**Brief Description** Remove and replace the building floodlights.

<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
RP Component replacement or new	2015	\$21,289	medium priority	Building Condition Report



<b>Event Description</b>	Replace exterior lighting with new fixtures. Carry on with maintenance, replace lamps and ballasts as required.
<b>Event Justification &amp; Strategy</b>	Deficiency Type - Replace at end of service life.  The exterior lighting can be replaced all at the same time, as it will not interfere with the tenants.
<b>Implication of Event Deferral (Risks)</b>	Higher maintenance costs and poor fixture performance.  Spares and service may become expensive or unavailable.  Units remain in place beyond normal life may not provide adequate lighting levels.  There will be reduced site lighting. This may be a security problem.

#### **04.3A-040 Emergency Lighting**

##### **Element Instance: 04.3A-040 Emergency Lighting**

<b>Details</b>	<b>Values</b>
Expected Life	15
Component Cost	39,660
Last Major Action Year	1997
Component Condition (For BCR use only)	Fair
Quantity	60
Measurement unit/ Metric	ea

<b>Component Description</b>	The majority of the emergency lighting is provided by general lighting tied to the emergency power system.  This heading will deal with the battery emergency lights. There is battery pack emergency lighting in the electrical and mechanical areas of the building.  This component is of average quality.
<b>Component Condition &amp; Anticipated Replacement Date</b>	Based on visual inspection, it is estimated that the battery packs and remote heads were installed in 1997.  The battery packs are tested monthly as part of the regular maintenance of the building systems.  Average Theoretical Expected Life: 18 years. 2012: Theoretical life not adjusted  Based on this assessment of age, this component is rated to be in fair condition.  Replacement for this component is anticipated in 2015.

**Element State:** Fair

**ACL:** ACL 2 - Check List

##### **Assessment Criteria**

##### **Existence**

##### **Comments**

Battery - failure to hold charge  
Damaged fixtures  
Failed lamps  
Inadequate coverage



#### 04.3A-040 Emergency Lighting Event #: 1

<b>Brief Description</b>	Replace the emergency battery lighting			
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
RP Component replacement or new	2015	\$40,612	high priority	Building Condition Report
<b>Event Description</b>	Replace emergency lighting throughout the building with new battery packs and remote heads.			
<b>Event Justification &amp; Strategy</b>	The component should be replaced at the end of its service life.			
<b>Implication of Event Deferral (Risks)</b>	The emergency lighting should be changed in partial phases to ensure tenants can safely evacuate the building in case of an emergency. Event deferral may lead to increased maintenance, and increased risk of failure. Event deferral may lead to a reduction in tenant safety within the building in case of an emergency.			

### 04.4 Electrical Service Ground

#### 04.4A-010 Grounding Systems

Element Instance: 04.4A-010 Grounding Systems

<b>Details</b>	<b>Values</b>
Expected Life	2037
Component Cost	1
Last Major Action Year	1997
Component Condition (For BCR use only)	Good
Quantity	4980
Measurement unit/ Metric	m2
<b>Component Description</b>	There is a building grounding system throughout the building and the electrical equipment is connected to the ground grid.
<b>Component Condition &amp; Anticipated Replacement Date</b>	This component is of average quality. The grounding system was replaced with the replacement of the electrical distribution system in 1997.  With the proper regular maintenance, this type of equipment can have an extended life of 50 years.  Average Theoretical Expected Life: 40 years. 2012: Theoretical life adjusted to 50 years.  This component is in good condition based on the age of the equipment.  Replacement is anticipated in 2047. As this is beyond the report term, no event is included.

<b>Element State:</b>	Good	<b>ACL:</b>	ACL 2 - Check List
<b>Assessment Criteria</b>		<b>Existence</b>	<b>Comments</b>
Damaged conductors			
Inadequate capacity			

This report was generated without using Virtual Events.

## 04.5 Electrical Systems

### 04.5A-010 Fire Alarm System

Element Instance: 04.5A-010 Fire Alarm System

#### Details

#### Values

Expected Life	17
Component Cost	348,600
Last Major Action Year	2006
Component Condition (For BCR use only)	Good
Quantity	4980
Measurement unit/ Metric	m2

#### Component Description

The building is provided with an Edwards single stage system. The system is microprocessor based and is also provided with an annunciator panel in the main lobby. The annunciator terminal provides for additional zone information and allows for zone bypassing using software.

Initiating devices are:

- pull stations
- smoke detectors-
- duct smoke detectors
- heat detectors

Alarm devices are bells and one strobe light was observed.

Interlocks with pull stations and magnetic strikes and possible interlocks with ventilation systems.

This component is of average quality.

The fire alarm system was replaced in 2006.

#### Component Condition & Anticipated Replacement Date

Placement and application of fire alarm manual and automatic detection devices generally appears to meet Code requirements.

Average Theoretical Expected Life: 17 years.

2012: Expected life not adjusted

Replacement is anticipated in 2023.

The equipment is in good condition based on visual inspection and the age of the equipment.

**Element State:** Good

**ACL:** ACL 2 - Check List





Annunciator panel in the main lobby

#### 04.5A-010 Fire Alarm System Event #: 1

##### **Brief Description**

Replace Fire Alarm System

##### **Event Type**

Event Year

Event Cost

Priority

Data Origin

RP Component  
replacement or new

2023

\$356,966

N/A

Building Condition Report

##### **Event Description**

Replace the fire alarm system with new state of the art equipment.

##### **Event Justification & Strategy**

Replacement of the component is required at it's end of service life.

It is recommended to replace the fire alarm system in partial phases. This ensures, in case of an emergency, most of the fire alarm system is functional and active to ensure the safety of the tenants.

The new system must be installed and commissioned prior to removal of the existing system. Staged construction with work on off hours can reduce disruption to the building.

##### **Implication of Event Deferral (Risks)**

Event deferral may lead to a reduction in safety for the building's occupants and the evacuation may be delayed in the case of an emergency.  
Risk of death, injury, health or safety.

Component remaining in service beyond normal life may not be reliable in case of an emergency.

#### 04.5A-020 Emergency Power System

##### Element Instance: 04.5A-020 Emergency Power System

##### **Details**

##### **Values**

Expected Life	35
Component Cost	1,297,523
Last Major Action Year	2002
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	sum

##### **Component Description**

437.5kVA/350kW Cummins diesel generator

Fully automatic

Emergency distribution 600/ 347V and the 120/208V: described below:

Generator room - fire pump circuit breaker - fire pump controller. (fire pump controller has a normal power supply from the main electrical room in the Langevin Building)

Generator room - circuit breaker - Automatic transfer switch - normal power fed from Panel Z

- Automatic transfer switch - emergency power

Supplying 600V to panel EE-1

Panel EE-1 and transformer 600/120-208 supplying panel EE-2 (diesel room)

Panel EE-1 and transformer 600/120-208 supplying panel EM-5 (fifth floor electrical room)

Panel EE-1 to panel EE

Panel EE to EE-3 600/120-208 transformer supplying panel EE-3A (fire pump room)  
 Panel EE to EE-M 600/120-208 transformer supplying panel E (third floor electrical room)  
 Panel EE to Splitter in the penthouse (elevator room)  
 Splitter to 600/120-208 30kVA transformer supplying new 42 circuit panel (penthouse electrical room).

This component is of average quality.

The emergency generator, transfer switches and distribution are well maintained.

The new base building generator and associated equipment were installed in 2002.

Average Theoretical Expected Life: 35 years.

2012: Theoretical life not adjusted

Replacement is anticipated in 2037.

The equipment is in good condition based on visual inspection and the age of the equipment.

**Component Condition &  
Anticipated Replacement  
Date**

**Element State:** Good

**ACL:** ACL 2 - Check List

**Assessment Criteria**

**Existence**

**Comments**

Enclosure corrosion

Functional defects

Inaccessible

Inadequate flow/capacity

Inadequate labelling

Inoperable devices

Loose connections

Non code compliant

Not operating



437.5kVA/350Kw Cummins diesel generator

**04.5A-020 Emergency Power System Event #: 1**

**Brief Description**

Replace Emergency Power System

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

RP Component  
replacement or new

2037

\$1,328,664

N/A

Building Condition Report

**Event Description**

Provide new emergency generator units with control panel, transfer switch and accessories.

**Event Justification &  
Strategy**

Replacement of generator is required at the end of its service life.

During the replacement of the existing generator, it is recommended to provide a temporary mobile generator and connect to the the existing switchboard to ensure emergency power is available in the event of a power failure.

Once the new generator is installed, disconnect the mobile generator, and connect the

**Implication of Event Deferral  
(Risks)**

new generator to the electrical system.  
Deferring the replacement of old equipment at the end of life could potentially be a safety hazard during an emergency and could lead to reduced reliability and increased maintenance costs.

**04.7 Electrical Heating Systems**

**04.7A-070 Fan Powered Unit Electric Heaters**

Element Instance: 04.7A-070 Fan Powered Unit Electric Heaters

<b>Details</b>	<b>Values</b>
Expected Life	20
Component Cost	41,923
Last Major Action Year	2000
Component Condition (For BCR use only)	Average
Quantity	7
Measurement unit/ Metric	ea

**Component Description** Unit heaters are located in the mechanical rooms, the basement electrical room, the diesel room and the elevator rooms.

**Component Condition &  
Anticipated Replacement  
Date**

This component is of average quality.  
It is estimated, based on a visual inspection, that the units appear to have been installed around 2000. The normal life expectancy is 20 years.  
Average Theoretical Expected Life: 20 years.  
2012: Theoretical life not adjusted - anticipated life expectancy of equipment.  
The equipment is in average condition based on visual inspection and the age of the equipment.  
Replacement is anticipated in 2020.

**Element State:** Average

**ACL:** ACL 2 - Check List

**Assessment Criteria**

**Existence**

**Comments**

Corrosion  
Damaged cabinet  
Damaged or seized dampers  
Damaged wiring  
Dirty cabinet grilles  
Excessive vibration  
Filters dirty (Unit Ventilators)  
Inoperative  
Noisy operation (forced flow, univents, unit heaters)

**04.7A-070 Fan Powered Unit Electric Heaters Event #: 1**

<b>Brief Description</b>		Replace unit heaters		
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
RP Component replacement or new	2020	\$42,929	N/A	Building Condition Report
<b>Event Description</b>		Remove and replace unit heaters at the end of their service life.		
<b>Event Justification &amp; Strategy</b>		The fan powered heaters have reached the end of their service life and should be replaced.		

Replacement of these units can be done one-by-one during regular hours as they do not

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**Implication of Event Deferral  
(Risks)**

affect the workers in the office space.

When a component is used beyond its service life, there may be increased maintenance costs and unreliable service.

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**09. Renovations**

**09.2S Lobby Renovation**

**Element Instance: 09.2S Lobby Renovation**

<b>Details</b>	<b>Values</b>
Expected Life	20
Component Cost	0
Last Major Action Year	1975
Component Condition (For BCR use only)	Average
Quantity	1
Measurement unit/ Metric	ea

**Component Description**

There are three entrance lobbies to the building. The main entrance lobby for the Post Office is located at the southeast corner of the building with a secondary entrance to the Post Office boxes at the northeast corner on Elgin Street. The entrance to the elevator lobby, which provides access to the office floors, is located at the southwest corner of the building, on Sparks Street.

**Component Condition &  
Anticipated Replacement  
Date**

This component is of average quality.

Average Theoretical Expected Life: 20 years

2012: Theoretical life adjusted to 60 - based upon their existing condition

Last Major Action Year: 1975

The finishes within the entrance lobbies, which include painting, marble, etc. are in average condition and replacement of these components is addressed in other sections of the report. No evidence of chipped or broken marble stones were observed. They provide a consistent appearance, which helps maintain the historical characteristics of the building.

At this time, a lobby renovation is not anticipated within the 30 year horizon of the report. Painting and refinishing the marble flooring is covered elsewhere in the report.

**Element State:**

Average

**ACL:** ACL 2 - Check List



Lobby and revolving door

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**09.4S Washroom Renovation**

**Element Instance: 09.4S Washroom Renovation**

<b>Details</b>	<b>Values</b>
Expected Life	40
Component Cost	226,232
Last Major Action Year	1995
Component Condition (For BCR use only)	Good
Quantity	110
Measurement unit/ Metric	m2

**Component Description**

This report was generated without using Virtual Events.

**Component Condition & Anticipated Replacement Date**

There are three washrooms on each floor above the ground floor; one women's; one men's and one unisex barrier free. There are two washrooms on the ground floor, and one in the basement. The women's washrooms have ceramic tiled floors and walls, painted ceilings, one sink and two stalls. The men's washrooms have ceramic tiled floors, painted walls and acoustic tiled ceilings. The unisex barrier free washrooms and the ground floor washrooms have ceramic tiled floors and walls and painted ceilings. According to the 2006 BCR, the women's and unisex washrooms were completely renovated in about 1995.

Average Theoretical Expected Life: 40 years.  
 2012: Expected Life not adjusted.  
 Last Major Action Year: 1995 (women's and unisex washrooms)

The women's and unisex washrooms on each floor are modern and the finishes remain intact and in good condition. The men's washrooms, the washrooms on the ground floor and in the basement remain in fair condition; however, the finishes are dated. They are clean and well maintained. The ceramic tiles are level with no visible cracking. The women's washrooms were recently renovated and the barrier free unisex washrooms were renovated in about 1995.

Renovation of the men's washrooms is anticipated in 2015 and the women's and unisex washrooms in about 2035.

**Element State:** Good **ACL:** ACL 2 - Check List



Typical men's washroom.



Typical women's washroom.



Typical barrier free washroom.

**09.4S Washroom Renovation Event #: 1**

<b>Brief Description</b>	Renovate men's washrooms			
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
RP Component replacement or new	2015	\$117,103	medium priority	Building Condition Report

<b>Event Description</b>	Renovate the men's washrooms.
<b>Event Justification &amp; Strategy</b>	The men's washrooms are out of date compared to the unisex and women's washrooms.



		The washrooms will be modernized on a floor by floor basis in order to maintain access to other men's washrooms.		
<b>Implication of Event Deferral (Risks)</b>		Deferral will have an impact on tenant satisfaction.		
<b>09.4S Washroom Renovation Event #: 2</b>				
<b>Brief Description</b>		Renovate unisex and women's washrooms		
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
RP Component replacement or new	2035	\$114,558	N/A	Building Condition Report
<b>Event Description</b>		Women's and unisex washrooms are located on the ground to 7th floor. They are finished with: <ul style="list-style-type: none"><li>- Ceramic tile floors;</li><li>- Full height ceramic tile walls;</li><li>- Finished metal partitions;</li><li>- Vanities;</li><li>- Painted gypsum ceilings;</li><li>- Washroom accessories.</li></ul>		
<b>Event Justification &amp; Strategy</b>		Eventually, the washrooms will reach the end of their theoretical expected life. Maintaining washrooms in a relatively modernized, acceptable condition and appearance is important to maintaining tenant satisfaction.		
		The washrooms will be modernized on a floor by floor basis in order to maintain access to other men's washrooms.		
<b>Implication of Event Deferral (Risks)</b>		Deferral will have an impact on tenant satisfaction.		

## 10. Whole Building Expenditures

### 10.1 Audit and Assessments

#### 10.1A-010 AMP

Element Instance: 10.1A-010 AMP

<b>Details</b>	<b>Values</b>
Expected Life	5
Component Cost	15,000
Last Major Action Year	2006
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	ea

**Component Description** An Asset Management Plan (AMP) is a report that outlines strategy for managing an asset over its useful life.

**Component Condition & Anticipated Replacement Date** An AMP was last done in 2006. An AMP is scheduled in 2017 .

**Element State:** Excellent **ACL:** ACL 2 - Check List

#### 10.1A-010 AMP Event #: 1

<b>Brief Description</b>		Complete an AMP		
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
R Whole Building Expenditures	2017	\$15,360	medium priority	Building Condition Report
<b>Event Description</b>		Complete an AMP as mandated and specified by PWGSC.		

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**Event Justification & Strategy**

PWGSC, as the service agency responsible for allocating all office accommodation to its tenant departments, is accountable for effectively acquiring and efficiently managing office space.

In addressing this mandate, PWGSC undertakes a series of cyclical evaluations of current and proposed accommodation. These evaluations are performed in order to find the total life cycle cost, which is used to determine the most appropriate management strategy for retention, disposal, maintenance and/or retrofit/renewal of these facilities to satisfy current and future client requirements. These cyclical evaluations include Asset Management Plans, on a 5-year cycle.

**Implication of Event Deferral (Risks)**

Violation of PWGSC mandate.

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**10.1A-015 Building Condition Report**

Element Instance: 10.1A-015 Building Condition Report

<b>Details</b>	<b>Values</b>
Expected Life	5
Component Cost	30,000
Last Major Action Year	2006
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	ea

**Component Description**

A Building Condition Report (BCR) is a report that outlines the condition of each component of a building as well as expected expenditures over a 30-year horizon.

**Component Condition & Anticipated Replacement Date**

A BCR was last completed in 2006. A BCR is scheduled in 2017.

**Element State:** Excellent

**ACL:** ACL 2 - Check List

**10.1A-015 Building Condition Report Event #: 1****Brief Description**

Complete a BCR

<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
R Whole Building Expenditures	2017	\$30,720	medium priority	Building Condition Report

**Event Description**

Complete a BCR as mandated and specified by PWGSC.

**Event Justification & Strategy**

PWGSC, as the service agency responsible for allocating all office accommodation to its tenant departments, is accountable for effectively acquiring and efficiently managing office space.

In addressing this mandate, PWGSC undertakes a series of cyclical evaluations of current and proposed accommodation. These evaluations are performed in order to find the total life cycle cost, which is used to determine the most appropriate management strategy for retention, disposal, maintenance and/or retrofit/renewal of these facilities to satisfy current and future client requirements. These cyclical evaluations include Building Condition Reports, on a 5-year cycle.

**Implication of Event Deferral (Risks)**

Violation of PWGSC mandate.

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**10.1A-020 Appraisal**

Element Instance: 10.1A-020 Appraisal

<b>Details</b>	<b>Values</b>
Expected Life	5
Component Cost	11,000
Last Major Action Year	2017

This report was generated without using Virtual Events.

Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	ea
<b>Component Description</b>	An Appraisal is an estimate of the market value of the property, based on highest and best use and that of the land if vacant, completed by a professional in that field. It is done in conjunction with the Asset Management Plan.
<b>Component Condition &amp; Anticipated Replacement Date</b>	PWGSC Theoretical service life: 5 years.  An Appraisal was last completed in 2006. An AMP is scheduled in conjunction with the 2017 AMP.
<b>Element State:</b>	Excellent <b>ACL:</b> ACL 2 - Check List

**10.1A-020 Appraisal Event #: 1**

<b>Brief Description</b>	Complete an Appraisal			
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
R Whole Building Expenditures	2017	\$11,264	medium priority	Building Condition Report
<b>Event Description</b>	Complete an Appraisal as mandated and specified by PWGSC. This should be done in conjunction with the AMP.			
<b>Event Justification &amp; Strategy</b>	PWGSC, as the service agency responsible for allocating all office accommodation to its tenant departments, is accountable for effectively acquiring and efficiently managing office space.  In addressing this mandate, PWGSC undertakes a series of cyclical evaluations of current and proposed accommodation. These evaluations are performed in order to find the total life cycle cost, which is used to determine the most appropriate management strategy for retention, disposal, maintenance and/or retrofit/renewal of these facilities to satisfy current and future client requirements. These cyclical evaluations include an Appraisal to complete the Asset Management Plan, on a 5-year cycle.			
<b>Implication of Event Deferral (Risks)</b>	Violation of PWGSC mandate.			

### 10.1A-025 Indoor Air Quality

Element Instance: 10.1A-025 Indoor Air Quality

<b>Details</b>	<b>Values</b>
Expected Life	5
Component Cost	8,500
Last Major Action Year	2005
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	ea
<b>Component Description</b>	An Indoor Air Quality (IAQ) report reviews samples of air supplied to the occupied areas with respect to ASHRAE guidelines for temperature and humidity, carbon dioxide and contaminants. There should also be a review of occupants' complaints.
<b>Component Condition &amp; Anticipated Replacement Date</b>	The last IAQ was completed in July 2005. The Parcel report of July 2005, indicated that the ventilation was acceptable, the temperatures were below the summer standard (cooler) in most cases, the humidity was above the standard in much of the test samples, the airborne dust particulates were within acceptable standards and the microbial testing was acceptable. Specific air quality studies were made in 2007 and 2008. Information is provided in the executive summary sections of this report. The next indoor air quality assessment is scheduled for 2017.
<b>Element State:</b>	Excellent <b>ACL:</b> ACL 2 - Check List

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**10.1A-025 Indoor Air Quality Event #: 1**

<b>Brief Description</b>	Complete an Indoor Air Quality Audit			
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
R Whole Building Expenditures	2017	\$8,704	medium priority	Building Condition Report
<b>Event Description</b>	Following a review of occupant complaints; test air samples throughout the building and complete an IAQ report.			
<b>Event Justification &amp; Strategy</b>	PWGSC, as the service agency responsible for allocating all office accommodation to its tenant departments, is accountable for effectively acquiring and efficiently managing office space.  In addressing this mandate, PWGSC undertakes a series of cyclical evaluations of current and proposed accommodation. These evaluations are performed in order to find the total life cycle cost, which is used to determine the most appropriate management strategy for retention, disposal, maintenance and/or retrofit/renewal of these facilities to satisfy current and future client requirements. These cyclical evaluations include testing and reporting on indoor air quality to ensure that standards are being met. These reports are completed on a 5-year cycle.			
<b>Implication of Event Deferral (Risks)</b>	Testing IAQ is essential to ensure that Treasury Board Standards are being met with respect to the ASHRAE guidelines for temperature and humidity, carbon dioxide and contaminants.			

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**10.1A-030 Accessibility Audit****Element Instance: 10.1A-030 Accessibility Audit**

<b>Details</b>	<b>Values</b>
Expected Life	5
Component Cost	25,000
Last Major Action Year	2008
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	ea
<b>Component Description</b>	An Accessibility Audit is a complete audit of all base building components, to review compliance with Code and Treasury Board Standards for Accessibility. It is understood that in heritage designated buildings, all efforts are made where possible to bring a building into compliance, however approved "exceptions" may exist.
<b>Component Condition &amp; Anticipated Replacement Date</b>	An Accessibility Audit was completed in 2008. The following summary of findings is provided: details are provided in the Compliance with Accessibility Standards section.  The next Accessibility Audit is scheduled for 2017.
<b>Element State:</b>	Excellent <b>ACL:</b> ACL 2 - Check List

**10.1A-030 Accessibility Audit Event #: 1**

<b>Brief Description</b>	Complete an Accessibility Audit			
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
R Whole Building Expenditures	2017	\$25,600	medium priority	Building Condition Report
<b>Event Description</b>	Complete an Accessibility Audit. Review the building to identify any outstanding accessibility issues.			
<b>Event Justification &amp; Strategy</b>	PWGSC, as the service agency responsible for allocating all office accommodation to its tenant departments, is accountable for effectively acquiring and efficiently managing office space.  In addressing this mandate, PWGSC undertakes a series of cyclical evaluations of			

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current and proposed accommodation. These evaluations are performed in order to find the total life cycle cost, which is used to determine the most appropriate management strategy for retention, disposal, maintenance and/or retrofit/renewal of these facilities to satisfy current and future client requirements. These cyclical evaluations include a review of accessibility, on a 5-year cycle.

**Implication of Event Deferral  
(Risks)**

The building will not comply with Treasury Board regulations.

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**10.1A-035 Threat and Risk Assessment**

Element Instance: 10.1A-035 Threat and Risk Assessment

<b>Details</b>	<b>Values</b>
Expected Life	5
Component Cost	7,000
Last Major Action Year	1939
Component Condition (For BCR use only)	Fair
Quantity	1
Measurement unit/ Metric	ea

**Component Description** A Threat and Risk Assessment covers the assets and activities under the control of PWGSC. It includes the building, the grounds, the building life support systems, the spaces occupied by PWGSC or their designates and the main elements of the building systems including HVAC, structural, communications, power, elevators and common spaces. It is usually completed just prior to the completion of a BCR.

**Component Condition & Anticipated Replacement Date** .Halsall requested documentation, including any recent Threat and Risk Assessment reports. An assessment was not made available for review. An assessment is scheduled in 2016 prior to the next BCR.

**Element State:** Fair **ACL:** ACL 2 - Check List

**10.1A-035 Threat and Risk Assessment Event #: 1**

<b>Brief Description</b>	Complete a Threat and Risk Assessment Update			
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
R Whole Building Expenditures	2016	\$7,168	medium priority	Building Condition Report

**Event Description** Complete a Threat and Risk Assessment update.

**Event Justification & Strategy** PWGSC, as the service agency responsible for allocating all office accommodation to its tenant departments, is accountable for effectively acquiring and efficiently managing office space.

In addressing this mandate, PWGSC undertakes a series of cyclical evaluations of current and proposed accommodation. These evaluations are performed in order to find the total life cycle cost, which is used to determine the most appropriate management strategy for retention, disposal, maintenance and/or retrofit/renewal of these facilities to satisfy current and future client requirements. These cyclical evaluations include a Threat and Risk Assessment on a 5-year cycle. Given the nature of the tenant and the nature and importance of their work, an assessment should be carried out.

**Implication of Event Deferral (Risks)** Deferral could put departmental operations at risk.

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**10.1A-040 Seismic Assessment**

Element Instance: 10.1A-040 Seismic Assessment

<b>Details</b>	<b>Values</b>
Expected Life	5
Component Cost	35,000
Last Major Action Year	1939

This report was generated without using Virtual Events.

Component Condition (For BCR use only)	Fair
Quantity	1
Measurement unit/ Metric	ea

**Component Description**

A Seismic Assessment of a building is a detailed assessment following an NRC format in order to establish criteria for future development.

**Component Condition & Anticipated Replacement Date**

The 2000/2001 Seismic Screening of the Postal Station B Building determined that it has a medium priority for more detailed investigation.

A full Seismic Assessment was recommended and included for as part of that BCR. This assessment was not done.

As no structural modifications have been made in the last five years, the previous seismic screening, as follows, remains valid:

- The building is located in Ottawa, Ontario, which is an area of significant seismic risk.
- The structure was designed prior to 1965, the time at which seismic design requirements started to be incorporated in Building Codes.
- The structure is steel framed without definable lateral resistance system.
- The exterior masonry walls, which appear to provide some lateral load resistance, have substantial openings and are inadequate to provide seismic resistance.
- Postal Station "B" abuts the Langevin Building to the north and the Hope Building to the west. There is a potential for the structures to pound each other during an earthquake, introducing additional lateral loads to the floor plates and columns.

We recommend that a Seismic Assessment be done in 2014.

**Element State:** Fair

**ACL:** ACL 2 - Check List

**10.1A-040 Seismic Assessment Event #: 1**

**Brief Description**

Complete a Seismic Assessment

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

R Whole Building Expenditures

2014

\$35,840

medium priority

Building Condition Report

**Event Description**

Complete a detailed seismic assessment of the building. A detailed assessment includes:

A review of the building's main structural resistance system and elements; A detailed structural analysis taking into account the proposed alterations and building occupancy; A gathering and review of exiting plans and other documentation on the building; Performing relevant on-site investigations and a condition survey of existing elements; Involvement of a geotechnical engineer to address a condition survey of existing elements; Review of functional components (i.e. non-structural elements) as it relates to operational and life safety requirements. These include canopies, partitions, roof parapets, mechanical and electrical systems, ceilings and cladding. Submission of a seismic assessment report including an evaluation of the sufficiency of the main building structure expressed as a percentage of the NBC value.

The seismic screening of the Postal Station "B" resulted in a seismic priority index of 12.4. It is recommended that further seismic evaluation of the Postal Station "B" be carried out to determine the true measure of seismic risk of the building structure, and develop an effective seismic upgrade scheme, and to address the potential life safety seismic hazard the building structures poses. Commission a seismic evaluation to determine the true measure seismic risk of the Postal Station "B".

**Event Justification & Strategy**

The building owner should be knowledgeable about the work that may be required to update the building seismically. This will allow changes to be incorporated as part of any major building renovations. This is a high profile client and given the nature of their work, this assessment should be carried out in the near future.

<b>Implication of Event Deferral (Risks)</b>	This is a high profile tenant, and departmental operations could be at risk upon building failure.
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### 10.1A-045 Energy Audit

Element Instance: 10.1A-045 Energy Audit

<b>Details</b>	<b>Values</b>
Expected Life	5
Component Cost	24,000
Last Major Action Year	1995
Component Condition (For BCR use only)	Fair
Quantity	1
Measurement unit/ Metric	ea

**Component Description** An Energy Audit is a complete review of all energy use in a facility, and a comparison of the results with energy conservation performance indices. It also includes recommendations for further action/study.

**Component Condition & Anticipated Replacement Date** PWGSC Theoretical service life: 5 years.

An Energy Audit was recommended and included for in both the 2000 and 2006 BCR's. This was not completed. We recommend that an Energy Audit be carried out in 2014, prior to the next BCR in 2015.

**Element State:** Fair **ACL:** ACL 2 - Check List

### 10.1A-045 Energy Audit Event #: 1

<b>Brief Description</b>	Complete an Energy audit			
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
R Whole Building Expenditures	2014	\$23,552	medium priority	Building Condition Report

**Event Description** Complete an Energy Audit as mandated and specified by PWGSC.

**Event Justification & Strategy** PWGSC, as the service agency responsible for allocating all office accommodation to its tenant departments, is accountable for effectively acquiring and efficiently managing office space. In addressing this mandate, PWGSC undertakes a series of evaluations on the entire use of energy in a building and the potential for cost effective reduction in energy costs.

**Implication of Event Deferral (Risks)** An Energy Audit should reveal the potential to save energy costs. Deferral may mean continued excessive and more costly use of energy in the building.

### 10.1A-050 Environmental Audit

Element Instance: 10.1A-050 Environmental Audit

<b>Details</b>	<b>Values</b>
Expected Life	5
Component Cost	20,000
Last Major Action Year	2006
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	ea

**Component Description** The purpose of an Environmental Audit is to identify potential environmental concerns associated with PWGSC operations. These issues are reviewed related to Federal, Provincial and Municipal legislation and regulation/policies. The Audit provides recommendations for action plans to ensure compliance.

**Component Condition & Anticipated Replacement Date** PWGSC Theoretical service life: 5 years.

There is a Designated Substance Report dated February 2006. There is also an Environmental Report Card dated March 2004, which is being updated in 2006. An



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Asbestos Management Plan is available for review.  
An environmental audit is provided for in 2014, prior to the next BCR in 2015.

**Element State:** Good **ACL:** ACL 2 - Check List

#### 10.1A-050 Environmental Audit Event #: 1

<b>Brief Description</b>		R Whole Building Expenditures [10.1A-050 Environmental Audit]		
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
R Whole Building Expenditures	2014	\$20,480	medium priority	Building Condition Report
<b>Event Description</b>		Complete a comprehensive Environmental Audit as mandated and specified by PWGSC. This should include an Asbestos Management Plan, if this has not been recently updated.		
<b>Event Justification &amp; Strategy</b>		PWGSC, as the service agency responsible for allocating all office accommodation to its tenant departments, is accountable for effectively acquiring and efficiently managing office space.  In addressing this mandate, PWGSC undertakes a series of cyclical evaluations of current and proposed accommodation. These evaluations are performed in order to find the total life cycle cost, which is used to determine the most appropriate management strategy for retention, disposal, maintenance and/or retrofit/renewal of these facilities to satisfy current and future client requirements. These cyclical evaluations include a review of environmental issues, on an as-required basis.		
<b>Implication of Event Deferral (Risks)</b>		Violation of PWGSC mandate.		

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#### 10.1A-055 Functionality Assessment

Element Instance: 10.1A-055 Functionality Assessment

<b>Details</b>		<b>Values</b>
Expected Life		5
Component Cost		7,500
Last Major Action Year		2006
Component Condition (For BCR use only)		Excellent
Quantity		1
Measurement unit/ Metric		ea
<b>Component Description</b>		A Functionality Report is a formal report that follows a PWGSC format. It reports on the various functions of a building and its management and how it relates to the occupants.
<b>Component Condition &amp; Anticipated Replacement Date</b>		PWGSC Theoretical service life: 5 years.  The 2006 BCR indicated that a Functionality Assessment was underway as part of the AMP, and will be issued in 2006. This was not made available for this BCR. The next one is scheduled in 2014.
<b>Element State:</b>	Excellent	<b>ACL:</b> ACL 2 - Check List

#### 10.1A-055 Functionality Assessment Event #: 1

<b>Brief Description</b>		Complete and Update Functionality Assessment		
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
R Whole Building Expenditures	2014	\$7,680	medium priority	Building Condition Report
<b>Event Description</b>		Complete an Update Functionality Assessment as mandated and specified by PWGSC.		
<b>Event Justification &amp; Strategy</b>		PWGSC, as the service agency responsible for allocating all office accommodation to its tenant departments, is accountable for effectively acquiring and efficiently managing office space.		

This report was generated without using Virtual Events.



In addressing this mandate, PWGSC undertakes a series of cyclical evaluations of current and proposed accommodation. These evaluations are performed in order to find the total life cycle cost, which is used to determine the most appropriate management strategy for retention, disposal, maintenance and/or retrofit/renewal of these facilities to satisfy current and future client requirements. This includes a Functionality Assessment on a 5-year cycle.

As the use of the Postal Station B Building is not expected to change in the near future, we recommend an update to the 2006 audit in 2014 prior to the 2015 BCR

**Implication of Event Deferral (Risks)**

Violation of PWGSC mandate.

**10.1A-056 Serviceability Assessment**

**Element Instance: 10.1A-056 Serviceability Assessment**

<b>Details</b>	<b>Values</b>
Expected Life	5
Component Cost	7,500
Last Major Action Year	2000
Component Condition (For BCR use only)	Average
Quantity	1
Measurement unit/ Metric	ea

**Component Description** This assessment determines an asset's ability to support a tenant's functionality requirements, and is normally carried out after a functionality assessment.

**Component Condition & Anticipated Replacement Date** PWGSC Theoretical service life: 5 years.

Halsall requested documentation, including any recent Serviceability Assessment. A Serviceability Assessment report was not available for review. A Serviceability Assessment should be completed in 2014, once the next Functionality Assessment has been completed.

**Element State:** Average **ACL:** ACL 2 - Check List

**10.1A-056 Serviceability Assessment Event #: 1**

<b>Brief Description</b>	Complete a Serviceability Assessment			
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
R Whole Building Expenditures	2014	\$7,680	medium priority	Building Condition Report

**Event Description** Complete a Serviceability Assessment as mandated and specified by PWGSC.

**Event Justification & Strategy** PWGSC, as the service agency responsible for allocating all office accommodation to its tenant departments, is accountable for effectively acquiring and efficiently managing office space.

In addressing this mandate, PWGSC undertakes a series of cyclical evaluations of current and proposed accommodation. These evaluations are performed in order to find the total life cycle cost, which is used to determine the most appropriate management strategy for retention, disposal, maintenance and/or retrofit/renewal of these facilities to satisfy current and future client requirements. These cyclical evaluations include a Serviceability Assessment, on a 5-year cycle.

**Implication of Event Deferral (Risks)** Violation of PWGSC mandate.

**10.1A-060 Telecommunications Infrastructure Audit**

**Element Instance: 10.1A-060 Telecommunications Infrastructure Audit**

<b>Details</b>	<b>Values</b>
Expected Life	5

Component Cost	0
Last Major Action Year	0
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	ea

**Component Description** A Telecommunications Infrastructure Audit is an evaluation of requirements for telephone, computer, etc in a building, based on PWGSC standard requirements. It is usually carried out just prior to the completion of a BCR.

**Component Condition & Anticipated Replacement Date** PWGSC Theoretical service life: 5 years.

Halsall requested documentation, including any recent Telecommunication Infrastructure Audit. A Telecommunications Infrastructure Audit was not made available for review.

We understand that the telecommunications infrastructure is under the control of the tenant and that PWGSC does not control this.

**Element State:** Excellent **ACL:** ACL 2 - Check List

### 10.1A-065 Water Quality Audit

Element Instance: 10.1A-65 Water Quality Audit

Details	Values
Expected Life	5
Component Cost	0
Last Major Action Year	0
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	ea

**Component Description** A Water Quality Audit is an assessment of the general water quality as an environmental health and safety due diligence measure. Samples are measured for metals/lead, bacteria and general chemistry.

**Component Condition & Anticipated Replacement Date** PWGSC Theoretical service life: 5 years.

The last Water Quality Audit was completed in March 2005. The results of the potable water testing conducted at the Postal Station B Building indicated that the concentrations of the parameters were below the limits set in the Guidelines for Canadian Drinking Water Quality (GCDWQ, 2004) and the Ontario Drinking Water Quality Standards (ODWQS, 2003).

We recommend a Water Quality Audit in 2014, prior to the next BCR in 2015. This can be done as part of the operating budget at a cost below the \$5,000 threshold of this report.

**Element State:** Excellent **ACL:** ACL 2 - Check List

### 10.2 Level Three Studies

Element Instance: 10.2A-010 Architectural & Structural

Details	Values
Expected Life	40
Component Cost	12,000
Last Major Action Year	39
Component Condition (For BCR use only)	Not Assessed
Quantity	1
Measurement unit/ Metric	ea

**Component Description** This Level 3 study is to assess the condition of the fire stopping throughout the building

<b>Component Condition &amp; Anticipated Replacement Date</b>	As noted in section 01.3-010C10 Ext.W - Brick, block back-up significant fire stopping repairs are required. A detailed assessment should be provided			
<b>Element State:</b>	Not Assessed	<b>ACL:</b>	ACL 2 - Check List	

#### 10.2A-010 Architectural & Structural Event #: 1

<b>Brief Description</b>	R Whole Building Expenditures [10.2A-010 Architectural & Structural ]			
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
R Whole Building Expenditures	2014	\$12,288	low priority	Building Condition Report
<b>Event Description</b>	Carry out an I&R to review the extent of the fire stopping.			
<b>Event Justification &amp; Strategy</b>	At many locations, there is insufficient fire stopping. A study will determine the extent of the necessary repairs. This study will be done before repairs are undertaken.			
<b>Implication of Event Deferral (Risks)</b>	Deferring the I&R will prevent an accurate assessment prior to the repairs.			

#### 10.2A-010 Architectural & Structural

Element Instance: 10.2A-010 Architectural & Structural

<b>Details</b>	<b>Values</b>
Expected Life	20
Component Cost	35,000
Last Major Action Year	1995
Component Condition (For BCR use only)	Fair
Quantity	1
Measurement unit/ Metric	ea
<b>Component Description</b>	This Level 3 Study is to carry out a Roof and Floor Condition and Loading Study at the building.
<b>Component Condition &amp; Anticipated Replacement Date</b>	A Roof and Floor Condition and Loading Study, including structural calculations, is to be carried out in 2014. The study is recommended due to the age of the building and lack of original structural drawings. Refer to: - 01.2-030C05 Slab above Grade - Concrete - 01.2-040C20 Roof Str-Steel Joist + concrete deck
<b>Element State:</b>	Fair <b>ACL:</b> ACL 2 - Check List

#### 10.2A-010 Architectural & Structural Event #: 1

<b>Brief Description</b>	Floor and roof loading study			
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
R Whole Building Expenditures	2014	\$35,840	medium priority	Building Condition Report
<b>Event Description</b>	Carry out a Roof and Floor Condition and Loading Level 3 Study to evaluate the building structure. Carry out the assessment in accordance with paragraphs 18 and 19 of Commentary "L" in the NBC-2010 User's Guide.			
<b>Event Justification &amp; Strategy</b>	PWGSC, as the service agency responsible for allocating all office accommodation to its tenant departments, is accountable for effectively acquiring and efficiently managing office space. In addressing this mandate, PWGSC undertakes a series of evaluations of a building to confirm its adequacy to carry its intended loading. Reporting is carried out on an as-required basis. Paragraph 18 and 19 of Commentary L, in the User's Guide - NBC 2010, provides structural evaluation guidelines, based on past performance. Paragraph 18 states: "18. Buildings or components designed and built to earlier codes than the benchmark codes or standards, or designed and built in accordance with good			

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construction practice when no codes applied, may be considered to have demonstrated satisfactory capacity to resist loads other than earthquake provided: - careful examination by a professional engineer does not expose any evidence of significant damage, distress or deterioration; - the structural system is reviewed, including examination of critical details and checking them for load transfer; - the building has demonstrated satisfactory performance for 30 years or more; - there have been no changes within the past 30 years that could significantly increase the loads on the building or affect its durability, and no such changes are contemplated."

Managing office space. In addressing this mandate, PWGSC undertakes a series of evaluations of a building to confirm its adequacy to carry its intended loading. Reporting is carried out on an as-required basis.

Paragraph 18 and 19 of Commentary L, in the User's Guide - NBC 2010, provides structural evaluation guidelines, based on past performance.

Paragraph 18 states: "18. Buildings or components designed and built to earlier codes than the benchmark codes or standards, or designed and built in accordance with good construction practice when no codes applied, may be considered to have demonstrated satisfactory capacity to resist loads other than earthquake provided: - careful examination by a professional engineer does not expose any evidence of significant damage, distress or deterioration; - the structural system is reviewed, including examination of critical details and checking them for load transfer; - the building has demonstrated satisfactory performance for 30 years or more; - there have been no changes within the past 30 years that could significantly increase the loads on the building or affect its durability, and no such changes are contemplated."

**Implication of Event Deferral  
(Risks)**

A Roof and Floor Condition and Loading Level 3 Study should reveal the potential of structure limitations in the building. Deferral may mean a safety concern with regards to the condition and/or capacity of the floor or roof structure

**Element Instance: 10.2A-010 Architectural & Structural**

<b>Details</b>	<b>Values</b>
Expected Life	10
Component Cost	30,000
Last Major Action Year	1990
Component Condition (For BCR use only)	Fair
Quantity	1
Measurement unit/ Metric	ea

**Component Description**

This Level 3 Study is to carry out a Fire and Life Safety Study at the building

**Component Condition &  
Anticipated Replacement  
Date**

A Fire and Life Safety Study, including a detailed review of the site conditions and maintenance of fire separations is to be carried out in 2014. The study is recommended due to the age of the building, the impact of ongoing repairs and maintenance of fire separations and egress, and the lack of current fire and life safety study.

**Element State:** Fair

**ACL:** ACL 2 - Check List

**10.2A-010 Architectural & Structural Event #: 1**

<b>Brief Description</b>	Level 3 fire and life safety study			
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
R Whole Building Expenditures	2014	\$30,720	medium priority	Building Condition Report
<b>Event Description</b>	Carry out a Fire and Life Safety Level 3 Study			
<b>Event Justification &amp; Strategy</b>	PWGSC, as the service agency responsible for allocating all office accommodation to its tenant departments, is accountable for effectively acquiring and efficiently managing office space. In addressing this mandate, PWGSC undertakes a series of evaluations of a building to confirm its fire and life safety aspects to reduce safety concerns for its tenants. Reporting is carried out on an as-required basis.			

<b>Implication of Event Deferral (Risks)</b>	A Fire and Life Safety Study should reveal any concerns in this regard in the building. Deferral may cause a safety concern to exist in the building related to fire and life safety.
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**Element Instance: 10.2A-010 Architectural & Structural**

<b>Details</b>	<b>Values</b>
Expected Life	5
Component Cost	35,000
Last Major Action Year	2010
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	ea

**Component Description** A Level 3 study is a detailed, professional study of a building component, leading to recommendations to PWGSC for further action.

This Level 3 Study is to carry out a Masonry Wall Study at the building to determine the condition of the connection anchors between the steel structural framing and the Queenstone cladding.

**Component Condition & Anticipated Replacement Date** A recent report prepared by DFS Architects Inc. (refer to 01.3-010C65 Ext.W - Local stone, rough cut, solid) indicated a problem with the connection anchors securing the Queenstone cladding to the structural framing. The DFS study was not conclusive as only a few openings were made.

**Element State:** Excellent **ACL:** ACL 2 - Check List

**10.2A-010 Architectural & Structural Event #: 1**

<b>Brief Description</b>	Queenstone anchorage assessment			
<b>Event Type</b>	<b>Event Year</b>	<b>Event Cost</b>	<b>Priority</b>	<b>Data Origin</b>
R Whole Building Expenditures	2014	\$35,840	medium priority	Building Condition Report

**Event Description** Carry out an assessment of the connection anchors securing the Queenstone cladding to the structural framing.

**Event Justification & Strategy** The DFS study was not conclusive as only a few openings were made.

Prior to the extensive restoration of the Queenstone cladding, the condition of the connections should be assessed. Based on this assessment, the extent of the repairs required for the connections will be determined.

Swingstaging or scaffolding will be required to review the exterior conditions. Interior openings will most likely be necessary. Some disruptions should be anticipated. This work could be done during evenings. Security escorts will be necessary.

**Implication of Event Deferral (Risks)** Deferring this study will prevent a proper assessment of the connections between the structural framing and the Queenstone cladding. After the extensive repairs in 2015, connection repairs will be more complicated and expensive.

**Element Instance: 10.2A-010 Architectural & Structural**

<b>Details</b>	<b>Values</b>
Expected Life	15
Component Cost	50,000
Last Major Action Year	2010
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	ea

**Component Description** Carry out a study of the building envelope to determine existing conditions and required refurbishment procedures.

**Component Condition & Anticipated Replacement Date**

After the anticipated 2015 refurbishment of the exterior envelope including Queenstone, brick masonry cladding, bronze and steel windows and entrance doors, it is anticipated that these components of the building envelope will be restored to good condition. A study will determine the condition of these components in the future. This is scheduled for about 2030.

**Element State:** Excellent

**ACL:** ACL 2 - Check List

**10.2A-010 Architectural & Structural Event #: 1**

**Brief Description**

Building envelope assessment

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

R Whole Building Expenditures

2030

\$51,200

N/A

Building Condition Report

**Event Description**

Provide an assessment of the exterior building envelope.

**Event Justification & Strategy**

Heritage building envelope components must be well-maintained.

This study will ensure that the condition of the heritage envelope components are documented so that if required, appropriate refurbishment can be provided.

**Implication of Event Deferral (Risks)**

Deferring a study, may have an impact on the condition of these heritage components.

**10.2A-020 Mechanical**

**Element Instance: 10.2A-020 Mechanical**

**Details**

**Values**

Expected Life

5

Component Cost

0

Last Major Action Year

0

Component Condition (For BCR use only)

Excellent

Quantity

0

Measurement unit/ Metric

Cool tons

**Element State:** Excellent

**ACL:** ACL 2 - Check List

**10.2A-020 Mechanical Event #: 1**

**Brief Description**

Conduct an ultra sound survey to confirm piping integrity.

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

R Whole Building Expenditures

2012

\$70,115

medium priority

Building Condition Report

**Event Description**

Where exposed, the plumbing system piping is in good condition. The majority of the system is inaccessible for visual review.

Conduct an ultra sound survey to confirm piping integrity.

Removal and Replacement: \$ 40,000

Consultant Fee (12%): \$ 4,800

General Contingency (15%): \$ 6,720

PWGSC Fee (15%): \$ 7,728

Subtotal: \$ 59,248

GST (7%): \$ 4,147

Total cost (rounded to the nearest thousand): \$ 63,000

**Event Justification & Strategy**

Conduct an ultrasound survey of the storm, sanitary and domestic water piping to confirm integrity.

Early detection of significant piping wall deterioration will aid in preventing future failure.

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**Implication of Event Deferral  
(Risks)**

Possible future failure.

**10.2A-020 Mechanical Event #: 2**

**Brief Description**

Complete ultra sonic testing on HV

**Event Type**

**Event Year**

**Event Cost**

**Priority**

**Data Origin**

R Whole Building  
Expenditures

2012

\$35,614

medium priority

Building Condition Report

**Event Description**

Building piping systems should typically last the life of the building. However, it is advantageous to review the piping wall thickness to ensure significant deterioration is not occurring.

Removal and Replacement: \$ 20,000

Consultant Fee (12%): \$ 2,400

General Contingency (15%): \$ 3,360

PWGSC Fee (15%): \$ 3,864

Subtotal: \$ 29,624

GST (7%): \$ 2,074

Total cost (rounded to the nearest thousand): \$ 32,000

**Event Justification &  
Strategy**

Preventative testing to ensure significant piping deterioration is not occurring.

**Implication of Event Deferral  
(Risks)**

Potential for undetected deterioration to occur and result in a significant pipe break.

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PWGSC/TPSGC 5 Year Spreadsheet

Asset	Element Instance	Brief Description	Year	Priority	Value	Cost	Cumulative Cost	Approved
Postal Station B	03.1A-045	HVAC Replace condens	2037	N/A	-1.00	\$54,252	\$54,252	Not Approved
Postal Station B	04.5A-020	Emerg Replace Emerger	2037	N/A	-1.00	\$1,328,664	\$1,382,916	Not Approved
Postal Station B	03.1A-010	CHP F Replace existing	2040	N/A	-1.00	\$28,371	\$1,411,287	Not Approved

This report was generated without using Virtual Events.



PWGSC/TPSGC 25 Year Spreadsheet									
Asset	Element	Instance	Brief Description	Year	Priority	Value	Cost	Cumulative Cost	Approved
Postal Station B	(03.5A-060 Stand	ip	Replace standpip	2013	very high priority	95.99	\$189,952	\$189,952	Not Approved
Postal Station B	(01.5-010C01 Cor		Repair fire stoppi	2014	high priority	73.49	\$52,325	\$242,277	Not Approved
Postal Station B	(03.5A-050 Sprink		Provide complete	2013	high priority	71.19	\$525,490	\$767,767	Not Approved
Postal Station B	(04.3A-040 Emerg		Replace the emer	2015	high priority	71.19	\$40,612	\$808,379	Not Approved
Postal Station B	(02.1A-010 Elevat		Guard machine rc	2013	high priority	68.19	\$87,260	\$895,639	Not Approved
Postal Station B	(04.2A-010 Secon		Replace the Secc	2015	high priority	68.19	\$476,133	\$1,371,772	Not Approved
Postal Station B	(04.2A-020 Secon		Replace the trans	2015	high priority	65.19	\$84,046	\$1,455,818	Not Approved
Postal Station B	(03.1A-029 Centra		Replace main Air	2015	high priority	65.19	\$205,259	\$1,661,077	Not Approved
Postal Station B	(01.4-010C15 Coç		Refurbish copper	2015	high priority	63.69	\$1,170,031	\$2,831,108	Not Approved
Postal Station B	(01.4-010C20 Ela		Extend parapet fl	2015	high priority	63.69	\$55,120	\$2,886,228	Not Approved
Postal Station B	(01.4-010C20 Ela		Repair modified b	2017	high priority	63.69	\$36,784	\$2,923,012	Not Approved
Postal Station B	(03.1A-030 Ventil		Replace sanitary	2015	high priority	62.19	\$57,729	\$2,980,741	Not Approved
Postal Station B	(01.3-010C65 Ext.		Repair clock	2015	high priority	60.69	\$52,816	\$3,033,557	Not Approved
Postal Station B	(01.3-010C65 Ext.		Replace pigeon d	2015	high priority	60.69	\$111,503	\$3,145,060	Not Approved
Postal Station B	(01.3-010C10 Ext.		Repair brick clad	2015	high priority	60.69	\$76,789	\$3,221,849	Not Approved
Postal Station B	(01.3-010C65 Ext.		Refurbish Queens	2015	high priority	60.69	\$1,403,716	\$4,625,565	Not Approved
Postal Station B	(03.1A-040 Heatin		Replace Heating	2013	medium priority	59.19	\$1,563,471	\$6,189,036	Not Approved
Postal Station B	(03.1A-040 Heatin		Replace Flash tar	2013	medium priority	59.19	\$3,736	\$6,192,772	Not Approved
Postal Station B	(03.1A-040 Heatin		Replace main hea	2015	medium priority	59.19	\$117,968	\$6,310,740	Not Approved
Postal Station B	(03.1A-020 Duct S		Rebalance ductw	2015	medium priority	59.19	\$58,316	\$6,369,056	Not Approved
Postal Station B	(03.1A-020 Duct S		Replace VAV box	2015	medium priority	59.19	\$402,782	\$6,771,838	Not Approved
Postal Station B	(03.1A-020 Duct S		Clean ductwork s	2015	medium priority	59.19	\$37,001	\$6,808,839	Not Approved
Postal Station B	(03.2A-010 Contrc		Replace original p	2015	medium priority	57.69	\$53,965	\$6,862,804	Not Approved
Postal Station B	(03.2A-010 Contrc		Replace original p	2015	medium priority	57.69	\$21,586	\$6,884,390	Not Approved
Postal Station B	(03.2A-010 Contrc		Replace pneumati	2015	medium priority	57.69	\$21,586	\$6,905,976	Not Approved
Postal Station B	(04.3A-030 Exteric		Remove and repl	2015	medium priority	57.69	\$21,289	\$6,927,265	Not Approved
Postal Station B	(03.1A-060 Termir		Replace steam te	2015	medium priority	56.19	\$53,043	\$6,980,308	Not Approved
Postal Station B	(01.4-020C05 Gut		Repair gutter at 5	2015	medium priority	56.19	\$101,891	\$7,082,199	Not Approved
Postal Station B	(03.3-025C05 Dor		Replace electric v	2016	medium priority	56.19	\$8,479	\$7,090,678	Not Approved
Postal Station B	(03.3A-010 Plumb		Install New backfl	2013	medium priority	54.69	\$4,899	\$7,095,577	Not Approved
Postal Station B	(03.3A-015 Plumb		Replace plumbing	2015	medium priority	54.69	\$165,822	\$7,261,399	Not Approved
Postal Station B	(09.4S Washroom		Renovate men's \	2015	medium priority	53.19	\$117,103	\$7,378,502	Not Approved
Postal Station B	(01.3-070C05 Ste		Restore/replace s	2015	medium priority	53.19	\$1,690,691	\$9,069,193	Not Approved
Postal Station B	(01.3-070C15 Oth		Refurbish heritag	2015	medium priority	53.19	\$504,031	\$9,573,224	Not Approved
Postal Station B	(01.6A-010 Buildir		Replace building	2018	medium priority	53.19	\$45,056	\$9,618,280	Not Approved
Postal Station B	(01.3-060C20 Oth		Refurbish bronze	2015	medium priority	51.69	\$436,256	\$10,054,536	Not Approved
Postal Station B	(01.3-060C20 Oth		Replace stainless	2015	medium priority	51.69	\$48,796	\$10,103,332	Not Approved
Postal Station B	(01.5A-055 Interio		Install hardware f	2015	medium priority	50.19	\$23,117	\$10,126,449	Not Approved
Postal Station B	(01.5-050C15 Met		Install fire rated d	2015	medium priority	50.19	\$57,958	\$10,184,407	Not Approved
Postal Station B	(10.1A-050 Enviro		R Whole Building	2014	medium priority	49.73	\$20,480	\$10,204,887	Not Approved
Postal Station B	(10.1A-035 Threat		Complete a Threa	2016	medium priority	49.73	\$7,168	\$10,212,055	Not Approved
Postal Station B	(10.1A-030 Acces		Complete an Acc	2017	medium priority	49.73	\$25,600	\$10,237,655	Not Approved
Postal Station B	(01.5-070C05 Car		Replace 25% of c	2015	medium priority	48.69	\$111,885	\$10,349,540	Not Approved
Postal Station B	(01.5-070C60 Vin		Replace 33% vin	2015	medium priority	48.69	\$13,670	\$10,363,210	Not Approved
Postal Station B	(01.5-070C05 Car		Replace 25% of c	2018	medium priority	48.69	\$111,885	\$10,475,095	Not Approved
Postal Station B	(01.5-070C60 Vin		Replace 33% vin	2018	medium priority	48.69	\$13,670	\$10,488,765	Not Approved
Postal Station B	(10.1A-025 Indoor		Complete an Indc	2017	medium priority	48.23	\$8,704	\$10,497,469	Not Approved

Postal Station B (01.5-080C30	Sus Replace 25% sus	2015	medium priority	47.19	\$126,680	\$10,624,149	Not Approved
Postal Station B (01.5-080C37	Ceil Paint ceilings (25'	2015	medium priority	47.19	\$5,376	\$10,629,525	Not Approved
Postal Station B (01.5-080C30	Sus Replace 25% sus	2018	medium priority	47.19	\$126,680	\$10,756,205	Not Approved
Postal Station B (01.5-080C37	Ceil Paint ceilings (25'	2018	medium priority	47.19	\$5,376	\$10,761,581	Not Approved
Postal Station B (10.1A-040	Seism Complete a Seisr	2014	medium priority	46.73	\$35,840	\$10,797,421	Not Approved
Postal Station B (10.1A-045	Energy Complete an Ene	2014	medium priority	46.73	\$23,552	\$10,820,973	Not Approved
Postal Station B (01.5-070C35	Pair Paint concrete flo	2014	medium priority	45.69	\$16,333	\$10,837,306	Not Approved
Postal Station B (01.5-060C15	Pair Repaint interior w	2015	medium priority	45.69	\$37,376	\$10,874,682	Not Approved
Postal Station B (01.3-075	Window Replace window (	2015	medium priority	45.69	\$40,719	\$10,915,401	Not Approved
Postal Station B (01.5-060C15	Pair Repaint interior w	2018	medium priority	45.69	\$37,376	\$10,952,777	Not Approved
Postal Station B (10.2A-020	Mech& Complete ultra sc	2012	medium priority	45.23	\$35,614	\$10,988,391	Not Approved
Postal Station B (10.2A-020	Mech& Conduct an ultra :	2012	medium priority	45.23	\$70,115	\$11,058,506	Not Approved
Postal Station B (10.2A-010	Archit& Queenstone anch	2014	medium priority	45.23	\$35,840	\$11,094,346	Not Approved
Postal Station B (10.2A-010	Archit& Floor and roof loa	2014	medium priority	45.23	\$35,840	\$11,130,186	Not Approved
Postal Station B (10.2A-010	Archit& Level 3 fire and lil	2014	medium priority	45.23	\$30,720	\$11,160,906	Not Approved
Postal Station B (10.1A-055	Functi& Complete and Up	2014	medium priority	43.73	\$7,680	\$11,168,586	Not Approved
Postal Station B (10.1A-056	Servic Complete a Servi	2014	medium priority	43.73	\$7,680	\$11,176,266	Not Approved
Postal Station B (10.1A-010	AMP Complete an AMF	2017	medium priority	43.73	\$15,360	\$11,191,626	Not Approved
Postal Station B (10.1A-020	Apprai Complete an App	2017	medium priority	43.73	\$11,264	\$11,202,890	Not Approved
Postal Station B (10.1A-015	Buildir Complete a BCR	2017	medium priority	43.73	\$30,720	\$11,233,610	Not Approved
Postal Station B (03.2A-020	Direct Replace the DDC	2014	low priority	37.39	\$403,353	\$11,636,963	Not Approved
Postal Station B (10.2A-010	Archit& R Whole Building	2014	low priority	36.23	\$12,288	\$11,649,251	Not Approved
Postal Station B (01.5A-110	Interio Replace stair raili	2015	low priority	21.99	\$36,405	\$11,685,656	Not Approved
Postal Station B (01.5-060C05	Cer Replace ceramic	2019	N/A	-1.00	\$55,210	\$11,740,866	Not Approved
Postal Station B (03.3A-045	Drinkir Replace refrigera	2020	N/A	-1.00	\$78,950	\$11,819,816	Not Approved
Postal Station B (04.7A-070	Fan P& Replace unit heat	2020	N/A	-1.00	\$42,929	\$11,862,745	Not Approved
Postal Station B (01.5-080C30	Sus Replace 25% sus	2021	N/A	-1.00	\$126,680	\$11,989,425	Not Approved
Postal Station B (03.3A-020	Plumb Replace domestic	2021	N/A	-1.00	\$46,692	\$12,036,117	Not Approved
Postal Station B (01.5-070C60	Viny Replace 33% viny	2021	N/A	-1.00	\$13,670	\$12,049,787	Not Approved
Postal Station B (01.5-070C05	Car Replace 25% of c	2021	N/A	-1.00	\$111,885	\$12,161,672	Not Approved
Postal Station B (01.5-060C15	Pair Repaint interior w	2021	N/A	-1.00	\$37,376	\$12,199,048	Not Approved
Postal Station B (01.5-080C37	Ceil Paint ceilings (25'	2021	N/A	-1.00	\$5,376	\$12,204,424	Not Approved
Postal Station B (03.3A-010	Plumb Replace main plu	2021	N/A	-1.00	\$73,482	\$12,277,906	Not Approved
Postal Station B (03.3A-010	Plumb Replace roof drai	2022	N/A	-1.00	\$9,951	\$12,287,857	Not Approved
Postal Station B (01.3-010C40	Ext. Repair exterior gr	2022	N/A	-1.00	\$14,544	\$12,302,401	Not Approved
Postal Station B (00.1-010C11	Fla& Replace the roof	2022	N/A	-1.00	\$5,709	\$12,308,110	Not Approved
Postal Station B (01.4-010C20	Ela& Replace roofing s	2022	N/A	-1.00	\$433,381	\$12,741,491	Not Approved
Postal Station B (01.5-070C30	Mar Refinish ground fl	2022	N/A	-1.00	\$49,920	\$12,791,411	Not Approved
Postal Station B (04.5A-010	Fire Al Replace Fire Alar	2023	N/A	-1.00	\$356,966	\$13,148,377	Not Approved
Postal Station B (01.5-070C05	Car Replace 25% of c	2024	N/A	-1.00	\$111,885	\$13,260,262	Not Approved
Postal Station B (01.5-060C15	Pair Repaint interior w	2024	N/A	-1.00	\$37,376	\$13,297,638	Not Approved
Postal Station B (01.5-080C37	Ceil Paint ceilings (25'	2024	N/A	-1.00	\$5,376	\$13,303,014	Not Approved
Postal Station B (01.5-080C30	Sus Replace 25% sus	2024	N/A	-1.00	\$126,680	\$13,429,694	Not Approved
Postal Station B (04.3A-010	Gener Replace Interior li	2024	N/A	-1.00	\$761,472	\$14,191,166	Not Approved
Postal Station B (01.5-080C05	Aco Replace 30 cm x	2025	N/A	-1.00	\$99,382	\$14,290,548	Not Approved
Postal Station B (02.1A-010	Elevat Modernize the ele	2025	N/A	-1.00	\$1,244,781	\$15,535,329	Not Approved
Postal Station B (00.2A-011	Paved Replace asphalt p	2025	N/A	-1.00	\$7,142	\$15,542,471	Not Approved
Postal Station B (04.2A-070	Distrib Replace distributi	2027	N/A	-1.00	\$215,828	\$15,758,299	Not Approved
Postal Station B (04.3A-020	Exit Li Replace the Exit /	2027	N/A	-1.00	\$98,796	\$15,857,095	Not Approved

Postal Station B ( 03.5A-060 Standp	2027	N/A	-1.00	\$88,828	\$15,945,923	Not Approved
Postal Station B ( 01.5-050C10 Har Refurbish Hardw	2029	N/A	-1.00	\$148,070	\$16,093,993	Not Approved
Postal Station B ( 01.5A-055 Interio Install hardware f	2029	N/A	-1.00	\$92,467	\$16,186,460	Not Approved
Postal Station B ( 01.3-010C65 Ext. Refurbish Queens	2030	N/A	-1.00	\$350,931	\$16,537,391	Not Approved
Postal Station B ( 10.2A-010 Archite Building envelope	2030	N/A	-1.00	\$51,200	\$16,588,591	Not Approved
Postal Station B ( 01.3-070C05 Ste Replace window :	2030	N/A	-1.00	\$117,198	\$16,705,789	Not Approved
Postal Station B ( 01.4-010C15 Co Replace snow gu	2032	N/A	-1.00	\$240,210	\$16,945,999	Not Approved
Postal Station B ( 01.4-010C15 Co Replace copper r	2032	N/A	-1.00	\$2,684,700	\$19,630,699	Not Approved
Postal Station B ( 01.5A-055 Interio Install hardware f	2035	N/A	-1.00	\$23,117	\$19,653,816	Not Approved
Postal Station B ( 01.3-010C10 Ext. Repair brick clad	2035	N/A	-1.00	\$38,395	\$19,692,211	Not Approved
Postal Station B ( 01.5-050C15 Met Replace metal do	2035	N/A	-1.00	\$57,958	\$19,750,169	Not Approved
Postal Station B ( 04.2A-020 Secon Replace the trans	2035	N/A	-1.00	\$84,046	\$19,834,215	Not Approved
Postal Station B ( 09.4S Washroom Renovate unisex	2035	N/A	-1.00	\$114,558	\$19,948,773	Not Approved
Postal Station B ( 03.3A-015 Plumb Replace plumbing	2036	N/A	-1.00	\$140,091	\$20,088,864	Not Approved

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