

## INVITATION TO TENDER

**RETURN BIDS TO:**

**Bid Receiving / Agriculture and Agri-Food Canada**

Agriculture and Agri-Food Canada  
 Central Experimental Farm (CEF)  
 Bid Receiving (Main Entrance)  
 K. W. Neatby building (#20)  
 960 Carling Avenue  
 Ottawa, Ontario K1A 0C6

**TENDER TO:**

**Agriculture and Agri-Food 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 construction listed herein and on any attached sheets at the price(s) set out therefor.

Comments

Title Building 49 - Upgrade Chilled Water System		
Solicitation No. 19-1233		Date 2019-10-25
Client Reference No. CEF19 0027		
File No. 19-1233		
Solicitation Closes: Thursday, November 14, 2019, at 02:00 PM, Local Standard Time.		
F.O.B. <input type="radio"/> Plant <input checked="" type="radio"/> Destination <input type="radio"/> Other		
Address Enquiries to: Daniel Lafreniere		
Title: Senior Contracts Officer		
Email: daniel.lafreniere@canada.ca		
Telephone Number	Ext.	Fax Number
613 759-6876		
Destination Agriculture and Agri-Food Canada Central Experimental Farm (CEF) 960 Carling Ave. Ottawa, ON K1A 0C6		

**Instructions: See Herein**

Delivery Required	Delivery Offered	
Vendor / Firm Name and Address		
Telephone Number	Ext.	Fax Number
Name and title of person authorized to sign on behalf of Vendor / Firm (type or print)		
Signature _____		Date _____

**ISSUING OFFICE**

Agriculture and Agri-Food Canada  
 Integrated Services  
 960 Carling Ave.  
 Ottawa, ON  
 K1A 0C6



## SPECIAL INSTRUCTIONS TO BIDDERS (SI)

SI01	Bid Documents
SI02	Enquiries during the Solicitation Period
SI03	Mandatory Site Visit
S104	Revision of Bid
S105	Bid Results
SI06	Insufficient Funds
SI07	Bid Validity Period
SI08	Construction Documents
SI09	Web Sites
SI10	Personnel Security Requirements

### SI01 BID DOCUMENTS

- 1) The following are the bid documents:
  - (a) INVITATION TO TENDER - Page 1 form AAFC / AAC5323-E;
  - (b) SPECIAL INSTRUCTIONS TO BIDDERS form AAFC / AAC5301-E;
  - (c) GENERAL INSTRUCTIONS TO BIDDERS form AAFC / AAC5313-E;
  - (d) Clauses and Conditions identified in "CONTRACT DOCUMENTS";
  - (e) Drawings and Specifications;
  - (f) BID AND ACCEPTANCE form AAFC / AAC5320-E and any Appendices attached thereto; and,
  - (g) Any amendment issued prior to solicitation closing.

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

### SI02 ENQUIRIES DURING THE SOLICITATION PERIOD

- 1) Enquiries regarding this bid must be submitted in writing to the Contracting Officer named on the INVITATION TO TENDER - Page 1 as early as possible within the solicitation period. Except for the approval of alternative materials as described in G113 of the GENERAL INSTRUCTIONS TO BIDDERS, enquiries should be received no later than five (5) calendar days prior to the date set for solicitation closing to allow sufficient time to provide a response. Enquiries received after that time may not result in an answer being provided.
- 2) To ensure consistency and quality of the information provided to Bidders, the Contracting Officer shall examine the content of the enquiry and shall decide whether or not to issue an amendment.
- 3) All enquiries and other communications related to this bid sent throughout the solicitation period are to be directed ONLY to the Contracting Officer named on the INVITATION TO TENDER - Page 1. Non-compliance with this requirement during the solicitation period can, for that reason alone, result in disqualification of a bid.

### SI03 MANDATORY SITE VISIT

- 1) There will be a site visit on Tuesday, November, 5, 2019 at 10:00  AM  PM Local Standard Time.

## **SPECIAL INSTRUCTIONS TO BIDDERS (Continued)**

Interested bidders are to meet at:

K. W. Neatby Building (20) - Main Lobby  
960 Carling Ave. Ottawa, ON K1A 0C6

The site visit for this project is MANDATORY. The representative of the bidder will be required to sign the Site Visit Attendance Sheet at the site visit. Bids submitted by Bidders who have not signed the attendance sheet will not be accepted.

### **SI04 REVISION OF BID**

- 1) A bid may be revised by letter or facsimile in accordance with GI09 of the GENERAL INSTRUCTIONS TO BIDDERS. The facsimile number for receipt of revisions is

### **SI05 BID RESULTS**

- 1) Following bid closing, bid results may be obtained from the bid receiving office by email at [daniel.lafreniere@canada.ca](mailto:daniel.lafreniere@canada.ca)

### **SI06 INSUFFICIENT FUNDING**

- 1) In the event that the lowest compliant bid exceeds the amount of funding allocated for the Work, Canada in its sole discretion may:
  - (a) cancel the solicitation; or
  - (b) obtain additional funding and award the Contract to the Bidder submitting the lowest compliant bid; and/or
  - (c) negotiate a reduction in the bid price and/or scope of work of not more than 15% with the Bidder submitting the lowest compliant bid. Should an agreement satisfactory to Canada not be reached, Canada shall exercise option (a) or (b).

### **SI07 BID VALIDITY PERIOD**

- 1) Canada reserves the right to seek an extension to the bid validity period prescribed in Clause 4 of the 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 SI07 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 SI07 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 invitation to bid.
- 4) The provisions expressed herein do not in any manner limit Canada's rights in law or under GI10 of the GENERAL INSTRUCTIONS TO BIDDERS.

## **SPECIAL INSTRUCTIONS TO BIDDERS (Continued)**

### **SI08 CONSTRUCTION DOCUMENTS**

- 1) The successful contractor will be provided with one paper copy of the sealed and signed plans, the specifications and the amendments upon acceptance of the offer. Additional copies, up to a maximum of one ( 1 ), will be provided free of charge upon request by the Contractor. Obtaining more copies shall be the responsibility of the Contractor including costs.

### **SI09 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>

Canadian economic sanctions

<http://www.international.gc.ca/sanctions/index.aspx?lang=eng>

### **SI10 PERSONNEL SECURITY REQUIREMENTS**

- 1) 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 following contract security requirements:
  - Personnel who are required to perform any part of the work must EACH hold a valid personnel security screening at the level of RELIABILITY STATUS, granted or approved by Agriculture and Agri-Food Canada. Until the security screening of the personnel has been completed satisfactorily by Agriculture and Agri-Food Canada, the Contractor/Subcontractor personnel MAY NOT perform contract work. Each of the proposed staff must complete "Security Clearance Form" (TBS 330-23E) upon request from Canada.

## GENERAL INSTRUCTIONS TO BIDDERS

- GI01 Completion of Bid
- GI02 Identity or Legal Capacity of the Bidder
- GI03 Applicable Taxes
- GI04 Capital Development and Redevelopment Charges
- GI05 Registry and Pre-qualification of Floating Plant
- GI06 Listing of Subcontractors and Suppliers
- GI07 Bid Security Requirements
- GI08 Submission of Bid
- GI09 Revision of Bid
- GI10 Rejection of Bid
- GI11 Bid Costs
- GI12 Compliance with Applicable Laws
- GI13 Approval of Alternative Materials
- GI14 Conflict of Interest – Unfair Advantage
- GI15 Integrity Provisions – Bid
- GI16 Code of Conduct for Procurement – Bid

### **GI01 COMPLETION OF BID**

- 1) The bid shall be:
  - (a) submitted on the BID AND ACCEPTANCE FORM provided by AAFC with the bid package or on a clear and legible reproduced copy of such BID AND ACCEPTANCE FORM that must be identical in content and format to the BID AND ACCEPTANCE FORM provided by AAFC;
  - (b) based on the Bid Documents listed in the Special Instructions to Bidders;
  - (c) correctly completed in all respects;
  - (d) signed, with an original signature, by a duly authorized representative of the Bidder; and
  - (e) accompanied by
    - (i) bid security as specified in GI07; and
    - (ii) any other document or documents specified elsewhere in the solicitation where it is stipulated that said documents are to accompany the bid.
- 2) Subject to paragraph 6) of GI10, any alteration to the pre-printed or pre-typed sections of the Bid and Acceptance Form, or any condition or qualification placed upon the bid shall be cause for disqualification. Alterations, corrections, changes or erasures made to statements or figures entered on the Bid and Acceptance Form by the Bidder shall be initialed by the person or persons signing the bid. Alterations, corrections, changes or erasures that are not initialed shall be deemed void and without effect.
- 3) Unless otherwise noted elsewhere in the Bid Documents, facsimile copies of bids are not acceptable.

## **GENERAL INSTRUCTIONS TO BIDDERS (Continued)**

### **GI02 IDENTITY OR LEGAL CAPACITY OF THE BIDDER**

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

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

### **GI03 APPLICABLE TAXES**

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

### **GI04 CAPITAL DEVELOPMENT AND REDEVELOPMENT CHARGES**

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

### **GI05 REGISTRY AND PRE-QUALIFICATION OF FLOATING PLANT**

- 1) Dredges or other floating plant to be used in the performance of the Work must be of Canadian registry. For dredges or other floating plant that are not of Canadian make or manufacture, the Bidder must obtain a certificate of qualification from Industry Canada and this certificate must accompany the bid. Plant so qualified by Industry Canada may be accepted on this project.

### **GI06 LISTING OF SUBCONTRACTORS AND SUPPLIERS**

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

### **GI07 BID SECURITY REQUIREMENTS**

- 1) The Bidder shall submit bid security with the bid in the form of a bid bond or a security deposit in an amount that is equal to not less than 10 percent of the bid amount. Applicable Taxes shall not be included when calculating the amount of any bid security that may be required. The maximum amount of bid security required with any bid is \$2,000,000.00.

## GENERAL INSTRUCTIONS TO BIDDERS (Continued)

- 2) A bid bond shall be in an approved form <http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=14494&section=text#appS>, properly completed, with original signature(s) and issued by an approved 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 GI07
  - (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 GI07, 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 GI07 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.

## GENERAL INSTRUCTIONS TO BIDDERS (Continued)

- 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 GI07 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 GI07 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



## **GENERAL INSTRUCTIONS TO BIDDERS (Continued)**

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.

### **GI08 SUBMISSION OF BID**

- 1) The Bid and Acceptance Form, duly completed, and the bid security shall be enclosed and sealed in an envelope provided by the Bidder, and shall be addressed and submitted to the office designated on the INVITATION TO TENDER Form for the receipt of bids. The bid must be received on or before the date and time set for solicitation closing.
- 2) Unless otherwise specified in the Special Instructions to Bidders
  - (a) the bid shall be in Canadian currency;
  - (b) exchange rate fluctuation protection is not offered; and
  - (c) any request for exchange rate fluctuation protection shall not be considered.
- 3) Prior to submitting the bid, the Bidder shall ensure that the following information is clearly printed or typed on the face of the bid envelope:
  - (a) Solicitation Number;
  - (b) Name of Bidder;
  - (c) Return address; and
  - (d) Closing Date and Time.
- 4) Timely and correct delivery of bids is the sole responsibility of the Bidder.

### **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 changes(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:

## GENERAL INSTRUCTIONS TO BIDDERS (Continued)

- (a) the Bidder, or any employee or subcontractor included as part of the bid, has been convicted under Section 121 ("Frauds on the government" & "Contractor subscribing to election fund"), 124 "Selling or purchasing office"), 380 ("Fraud committed against Her Majesty") or 418 ("Selling defective stores to Her Majesty") of the Criminal Code of Canada, or under 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*;
  - (b) the Bidder's bidding privileges are suspended or are in the process of being suspended;
  - (c) 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;
  - (d) the Bidder is bankrupt, or where for whatever reason, its activities are rendered inoperable for an extended period;
  - (e) 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;
  - (f) 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;
  - (g) 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)(g)(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

## **GENERAL INSTRUCTIONS TO BIDDERS (Continued)**

providing prices per unit or a combination of lump sum and 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 GI10, other than subparagraph 2)(g) of IT10, 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**

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

### **GI12 COMPLIANCE WITH APPLICABLE LAWS**

- 1) By submission of a bid, the Bidder certifies that the Bidder has the legal capacity to enter into a contract and is in possession of all valid licences, permits, registrations, certificates, declarations, filings, or other authorizations necessary to comply with all federal, provincial and municipal laws and regulations applicable to the submission of the bid and entry into any ensuing contract for the performance of the work.
- 2) For the purpose of validating the certification in paragraph 1) of GI12, a Bidder shall, if requested, provide a copy of every valid licence, permit, registration, certificate, declaration, filing or other authorization listed in the request, and shall provide such documentation within the time limit(s) set out in the said request.
- 3) Failure to comply with the requirements of paragraph 2) of GI12 shall result in disqualification of the bid.

### **GI13 APPROVAL OF ALTERNATIVE MATERIALS**

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

### **GI14 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:

## GENERAL INSTRUCTIONS TO BIDDERS (Continued)

- (a) if the Bidder, any of its subcontractors, any of their respective employees or former employees was involved in any manner in the preparation of the bid solicitation or in any situation of conflict of interest or appearance of conflict of interest;
  - (b) if the Bidder, any of its subcontractors, any of their respective employees or former employees had access to information related to the bid solicitation that was not available to other bidders and that would, in Canada's opinion, give or appear to give the Bidder an unfair advantage.
- 2) The experience acquired by a bidder who is providing or has provided the goods and services described in the bid solicitation (or similar goods or services) will not, in itself, be considered by Canada as conferring an unfair advantage or creating a conflict of interest. This bidder remains however subject to the criteria established above.
- 3) Where Canada intends to reject a bid under this section, the Contracting Authority will inform the Bidder and provide the Bidder an opportunity to make representations before making a final decision. Bidders who are in doubt about a particular situation should contact the Contracting Authority before bid closing. By submitting a bid, the Bidder represents that it does not consider itself to be in conflict of interest nor to have an unfair advantage. The Bidder acknowledges that it is within Canada's sole discretion to determine whether a conflict of interest, unfair advantage or an appearance of conflict of interest or unfair advantage exists.

### GI15 INTEGRITY PROVISIONS - BID

- 1) Ineligibility and Suspension Policy (the "Policy"), and all related Directives, are incorporated by reference into, and form a binding part of the procurement process. The Supplier must comply with the Policy and Directives, which can be found at [Ineligibility and Suspension Policy](#).
- 2) Under the Policy, charges and convictions of certain offences against a Supplier, its affiliates or first tier subcontractors, and other circumstances, will or may result in a determination by Public Works and Government Services Canada (PWGSC) that the Supplier is ineligible to enter, or is suspended from entering into a contract with Canada. The list of ineligible and suspended Suppliers is contained in PWGSC's Integrity Database. The Policy describes how enquiries can be made regarding the ineligibility or suspension of Suppliers.
- 3) In addition to all other information required in the procurement process, the Supplier must provide the following:
  - a. by the time stated in the Policy, all information required by the Policy described under the heading "Information to be Provided when Bidding, Contracting or Entering into a Real Property Agreement"; and
  - b. with its bid / quote / proposal, a complete list of all foreign criminal charges and convictions pertaining to itself, its affiliates and its proposed first tier subcontractors that, to the best of its knowledge and belief, may be similar to one of the listed offences in the Policy. The list of foreign criminal charges and convictions must be submitted using an Integrity Declaration Form, which can be found at [Declaration form for procurement](#).
- 4) Subject to subsection 5, by submitting a bid / quote / proposal in response a request by AAFC, the Supplier certifies that:
  - a. it has read and understands the [Ineligibility and Suspension Policy](#),

## GENERAL INSTRUCTIONS TO BIDDERS (Continued)

- b. it understands that certain domestic and foreign criminal charges and convictions, and other circumstances, as described in the Policy, will or may result in a determination of ineligibility or suspension under the Policy;
  - c. it is aware that Canada may request additional information, certifications, and validations from the Supplier or a third party for purposes of making a determination of ineligibility or suspension;
  - d. it has provided with its bid / quote / proposal a complete list of all foreign criminal charges and convictions pertaining to itself, its affiliates and its proposed first tier subcontractors that, to the best of its knowledge and belief, may be similar to one of the listed offences in the Policy;
  - e. none of the domestic criminal offences, and other circumstances, described in the Policy that will or may result in a determination of ineligibility or suspension, apply to it, its affiliates and its proposed first tier subcontractors; and
  - f. it is not aware of a determination of ineligibility or suspension issued by PWGSC that applies to it.
- 5) Where a Supplier is unable to provide any of the certifications required by subsection 4, it must submit with its bid/ quote / proposal a completed Integrity Declaration Form, which can be found at [Declaration form for procurement](#).
- 6) Canada will declare non-responsive any bid / quote / proposal in respect of which the information requested is incomplete or inaccurate, or in respect of which the information contained in a certification or declaration is found by Canada to be false or misleading in any respect. If Canada establishes after award of the Contract that the Supplier provided a false or misleading certification or declaration, Canada may terminate the Contract for default. Pursuant to the Policy, Canada may also determine the Supplier to be ineligible for award of a contract for providing a false or misleading certification or declaration.

Ineligibility and Suspension Policy - <http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html>

Declaration form for procurement - <http://www.tpsgc-pwgsc.gc.ca/ci-if/declaration-eng.html>

## GI16 CODE OF CONDUCT FOR PROCUREMENT - BID

- 1) The Code of Conduct for Procurement provides that Bidders must respond to bid solicitations in an honest, fair and comprehensive manner, accurately reflect their capacity to satisfy the requirements set out in the bid solicitation and resulting contract, submit bids and enter into contracts only if they will fulfill all obligations of the Contract. By submitting a bid, the Bidder is certifying that it is complying with the Code of Conduct for Procurement. Failure to comply with the Code of Conduct for Procurement may render the bid non-responsive.

## MAJOR WORKS - CONTRACT DOCUMENTS

### SC01 CONTRACT DOCUMENTS

- 1) The following are the contract documents:
  - (a) Contract page when signed by Canada;
  - (b) Duly completed Bid and Acceptance Form and any Appendices attached thereto;
  - (c) Drawings and Specifications;
  - (d) AAFC General Conditions form AAFC / AAC5321-E:
    - (i) GC1 General Provisions
    - (ii) GC2 Administration of the Contract
    - (iii) GC3 Execution and Control of the Work
    - (iv) GC4 Protective Measures
    - (v) GC5 Terms of Payment
    - (vi) GC6 Delays and Changes in the Work
    - (vii) GC7 Default, Suspension or Termination of Contract
    - (viii) GC8 Dispute Resolution
    - (ix) GC9 Contract Security
    - (x) GC10 Insurance
  - (e) Supplementary Conditions, if any;
  - (f) Insurance Terms form AAFC / AAC5315-E;
  - (g) Any amendment issued or any allowable bid revision received before the date and time set for solicitation closing;
  - (h) Any amendment incorporated by mutual agreement between Canada and the Contractor before acceptance of the bid; and
  - (i) Any amendment or variation of the contract documents that is made in accordance with the General Conditions.
- 2) The language of the contract documents shall be the language of the Bid and Acceptance Form submitted.

### SC02 ACCEPTANCE AND CONTRACT

- 1) 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 referred to in SC01 CONTRACT DOCUMENTS.



**MAJOR WORKS – GENERAL CONDITIONS**

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**MAJOR WORKS GENERAL CONDITIONS FORM AAFC 5321:**

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GC3	EXECUTION AND CONTROL OF THE WORK	2016-01-01
GC4	PROTECTIVE MEASURES	Original
GC5	TERMS OF PAYMENT	2016-05-01
GC6	DELAYS AND CHANGES IN THE WORK	Original
GC7	DEFAULT, SUSPENSION OR TERMINATION OF CONTRACT	Original
GC8	DISPUTE RESOLUTION	2016-05-01
GC9	CONTRACT SECURITY	2016-05-01
GC10	INSURANCE	<b>Original</b>

**GC1 GENERAL PROVISIONS**

- GC1.1 INTERPRETATION
  - GC1.1.1 Headings and References
  - GC1.1.2 Terminology
  - GC1.1.3 Application of Certain Provisions
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- GC1.16 ASSIGNMENT
- GC1.17 NO BRIBE
- GC1.18 CERTIFICATION - CONTINGENCY FEES
- GC1.19 INTERNATIONAL SANCTIONS
- GC1.20 INTEGRITY PROVISIONS – CONTRACT
- GC1.21 CODE OF CONDUCT FOR PROCUREMENT - CONTRACT

**GC1.1 (2016-05-01) INTERPRETATION**

**GC1.1.1 Headings and References**

- 1) The headings in the contract documents, other than those in the drawings and specifications, form no part of the Contract but are inserted for convenience of reference only.
- 2) A reference made to a part of the Contract by means of numbers preceded by letters is a reference to the particular part of the Contract that is identified by that combination of letters and numbers and to any other part of the Contract referred to therein.
- 3) A reference to a paragraph or subparagraph followed by an identifying number, letter or combination thereof is, unless specifically stated otherwise, a reference to the paragraph or subparagraph that forms part of the clause within which the reference is made.

**GC1.1.2 Terminology**

In the Contract, unless the context otherwise requires:

“Administrative Agreement”



is a negotiated agreement with the Minister of AAFC as provided for in the Ineligibility and Suspension Policy.

“Affiliate”

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

- (i) one controls or has the power to control the other, or
- (ii) a third party has the power to control both.

"Applicable Taxes"

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

"Canada", "Crown", "Her Majesty"

means Her Majesty the Queen in right of Canada;

"Contract"

means the contract documents referred to as such therein and every other document specified or referred to in any of them as forming part of the Contract, all as amended by agreement of the parties;

"Contract Amount"

means the amount set out in the Contract to be payable to the Contractor for the Work, subject to the terms and conditions of the Contract, exclusive of Applicable Taxes;

"Contract Security"

means any security given by the Contractor to Canada in accordance with the Contract;

"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.

"Certificate of Completion"

means a certificate issued by Canada when the Work reaches Completion;

"Certificate of Measurement"

means a certificate issued by Canada certifying the correctness of the final quantities, prices per unit and values of labour, Plant and Material performed, used and supplied by the Contractor for the construction of the part of the Work to which a Unit Price Arrangement applies;

"Certificate of Substantial Performance"

means a certificate issued by Canada when the Work reaches Substantial Performance;

“Control”

means:

- a) direct control, such as where:
  - (i) a person controls a body corporate if securities of the body corporate to which are attached more than 50 percent of the votes that may be cast to elect directors of the body corporate are beneficially owned by the person and the votes attached to those securities are sufficient, if exercised, to elect a majority of the directors of the body corporate;

- (ii) a person controls a corporation that is organized on a cooperative basis if the person and all of the entities controlled by the person have the right to exercise more than 50 percent of the votes that may be cast at an annual meeting or to elect the majority of the directors of the corporation;
  - (iii) a person controls an unincorporated entity, other than a limited partnership, if more than 50 percent of the ownership interests, however designated, into which the entity is divided are beneficially owned by that person and the person is able to direct the business and affairs of the entity;
  - (iv) the general partner of a limited partnership controls the limited partnership; and
  - (v) a person controls an entity if the person has any direct or indirect influence that, if exercised, would result in control in fact of the entity.
- b) deemed control, such as where:  
a person who controls an entity is deemed to control any entity that is controlled, or deemed to be controlled, by the entity
- c) indirect control, such as where:  
a person is deemed to control, within the meaning of paragraph (a) or (b), an entity where the aggregate of:
- (i) any securities of the entity that are beneficially owned by that person, and
  - (ii) any securities of the entity that are beneficially owned by any entity controlled by that person

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

**"Departmental Representative"**

means the person designated in the Contract, or by written notice to the Contractor, to act as the Departmental Representative for the purposes of the Contract, and includes a person, designated and authorized in writing by the Departmental Representative to the Contractor;

**"herein", "hereby", "hereof", "hereunder"**

and similar expressions refer to the Contract as a whole and not to any particular section or part thereof;

**"Ineligibility"**

means a person not eligible to contract with Canada;

**"Lump Sum Arrangement"**

means that part of the Contract that prescribes a lump sum as payment for performance of the Work to which it relates;

**"Material"**

includes all commodities, articles, machinery, equipment, fixtures and things required to be furnished in accordance with the Contract for incorporation into the Work;

**"person"**

also includes, unless there is an express stipulation in the Contract to the contrary, any partnership, proprietorship, firm, joint venture, consortium or corporation;

**"Plant"**

includes all tools, implements, machinery, vehicles, structures, equipment, articles and things that are necessary for the performance of the Contract, other than Material and those tools customarily provided by a tradesperson in practicing a trade;

**"Subcontractor"**

means a person having a direct contract with the Contractor, subject to GC3.6

**"Subcontracting"**, to perform a part or parts of the Work, or to supply Material customized for the Work;

**"Superintendent"**

means the employee or representative of the Contractor designated by the Contractor to act pursuant to GC2.6, "Superintendent";

**"Supplementary Conditions"**

means the part of the Contract that amends or supplements the General Conditions;

**"Supplier"**

means a person having a direct contract with the Contractor to supply Plant or Material not customized for the Work;

**"Suspension"**

means a determination of temporary ineligibility by the Minister of AAFC;

**"Total Estimated Cost", "Revised Estimated Cost", "Increase (Decrease)"**

on Page 1 of the Contract or Contract Amendment means an amount used for internal administrative purposes only that comprises the Contract Amount, or the revised Contract Amount, or the amount that would increase or decrease the Contract Amount and the Applicable Taxes as evaluated by the Contracting Authority, and does not constitute tax advice on the part of Canada;

**"Unit Price Arrangement"**

means that part of the Contract that prescribes the product of a price per unit of measurement multiplied by a number of units of measurement for performance of the Work to which it relates;

**"Unit Price Table"**

means the table of prices per unit set out in the Contract;

**"Work"**

means, subject only to any express stipulation in the Contract to the contrary, everything that is necessary to be done, furnished or delivered by the Contractor to perform the Contract in accordance with the contract documents; and

**"Working Day"**

means a day other than a Saturday, Sunday, or a statutory holiday that is observed by the construction industry in the area of the place of the Work.

**GC1.1.3 Application of Certain Provisions**

- 1) Any provisions of the Contract that are expressly stipulated to be applicable only to a Unit Price Arrangement are not applicable to any part of the Work to which a Lump Sum Arrangement applies.
- 2) Any provisions of the Contract that are expressly stipulated to be applicable only to a Lump Sum Arrangement are not applicable to any part of the Work to which a Unit Price Arrangement applies.

#### **GC1.1.4 Substantial Performance**

- 1) The Work shall be considered to have reached Substantial Performance when
  - a) the Work or a substantial part thereof has passed inspection and testing and is, in the opinion of Canada, ready for use by Canada or is being used for the intended purposes; and
  - b) the Work is, in the opinion of Canada, capable of completion or correction at a cost of not more than
    - (i) 3 percent of the first \$500,000;
    - (ii) 2 percent of the next \$500,000; and
    - (iii) 1 percent of the balanceof the Contract Amount at the time this cost is calculated.
- 2) Where the Work or a substantial part thereof is ready for use or is being used for the purposes intended and
  - a. the remainder of the Work or a part thereof cannot be completed by the time specified in the Contract, or as amended in accordance with GC6.5, "Delays and Extension of Time", for reasons beyond the control of the Contractor; or
  - b. Canada and the Contractor agree not to complete a part of the Work within the specified time;

the cost of that part of the Work that was either beyond the control of the Contractor to complete or Canada and the Contractor have agreed not to complete by the time specified, shall be deducted from the value of the Contract referred to in subparagraph 1)(b) of GC1.1.4 and the said cost shall not form part of the cost of the Work remaining to be done in determining Substantial Performance.

#### **GC1.1.5 Completion**

The Work shall be deemed to have reached Completion when all labour, Plant and Material required have been performed, used or supplied, and the Contractor has complied with the Contract and all orders and directions made pursuant thereto, all to the satisfaction of Canada.

#### **GC1.2 (2016-05-01) CONTRACT DOCUMENTS**

The following discusses contract documents

##### **GC1.2.1 General**

- 1) The contract documents are complementary, and what is required by any one shall be as binding as if required by all.

- 2) References in the contract documents to the singular shall be considered to include the plural as the context requires.
- 3) Nothing contained in the contract documents shall create a contractual relationship between Canada and any Subcontractor or Supplier, their subcontractors or suppliers, or their agents or employees.

**GC1.2.2 Order of Precedence**

- 1) In the event of any discrepancy or conflict in the contents of the following documents, such documents shall take precedence and govern in the following order:
  - a) any amendment or variation of the contract documents that is made in accordance with the General Conditions;
  - b) any amendment issued prior to tender closing;
  - c) Supplementary Conditions;
  - d) General Conditions;
  - e) the duly completed Bid and Acceptance Form when accepted;
  - f) drawings and specifications.

later dates shall govern within each of the above categories of documents.

- 2) In the event of any discrepancy or conflict in the information contained in the drawings and specifications, the following rules shall apply:
  - a) specifications shall govern over drawings;
  - b) dimensions shown in figures on a drawings shall govern where they differ from dimensions scaled from the same drawings; and
  - c) drawings of larger scale govern over those of smaller scale.

**GC1.2.3 Security and Protection of Documents and Work**

- 1) The Contractor shall guard and protect contract documents, drawings, information, models and copies thereof, whether supplied by Canada or the Contractor, against loss or damage from any cause.
- 2) The Contractor shall keep confidential all information provided to the Contractor by or on behalf of Canada in connection with the Work, and all information developed by the Contractor as part of the Work, and shall not disclose any such information to any person without the written permission of Canada, except that the Contractor may disclose to a subcontractor, authorized in accordance with the Contract, information necessary to the performance of a subcontract. This section does not apply to any information that
  - a) is publicly available from a source other than the Contractor; or

- b) is or becomes known to the Contractor from a source other than Canada, except any source that is known to the Contractor to be under an obligation to Canada not to disclose the **information**.
- 3) When the Contract, the Work, or any information referred to in paragraph 2) is identified as top secret, secret, confidential, or protected by Canada, the Contractor shall, at all times, take all measures reasonably necessary for the safeguarding of the material so identified, including such measures as may be further specified elsewhere in the Contract or provided, in writing, from time to time by Canada.
- 4) Without limiting the generality of paragraphs 2) and 3) of GC1.2.3, when the Contract, the Work, or any information referred to in paragraph 2) is identified as top secret, secret, confidential, or protected by Canada, Canada shall be entitled to inspect the Contractor's premises and the premises of its subcontractors or suppliers and any other person at any tier, for security purposes at any time during the term of the Contract, and the Contractor shall comply with, and ensure that any such subcontractors or suppliers comply with all written instructions issued by Canada dealing with the material so identified, including any requirement that employees of the Contractor and its subcontractors and suppliers and any other person at any tier execute and deliver declarations relating to reliability screenings, security clearances and other procedures.
- 5) The Contractor shall safeguard the Work and the Contract, the specifications, drawings and any other information provided by Canada to the Contractor, and shall be liable to Canada for any loss or damage from any causes.

**GC1.3 STATUS OF THE CONTRACTOR**

- 1) The Contractor is engaged under the Contract as an independent contractor.
- 2) The Contractor, its subcontractors and suppliers and any other person at any tier and their employees are not engaged by the Contract as employees, servants or agents of Canada.
- 3) For the purposes of the contract the Contractor shall be solely responsible for any and all payments and deductions required to be made by law including those required for Canada or Quebec Pension Plans, Employment Insurance, Worker's Compensation, provincial health or insurance plans, and Income Tax.

**GC1.4 (2016-05-01) RIGHTS AND REMEDIES**

- 1) Except as expressly provided in the Contract, the duties and obligations imposed by the Contract and the rights and remedies available thereunder shall be in addition to and not a limitation of any duties, obligations, rights, and remedies otherwise imposed or available by law.

**GC1.5 (2016-05-01) TIME OF THE ESSENCE**

- 1) Time is of the essence of the Contract.

**GC1.6 INDEMNIFICATION BY THE CONTRACTOR**

- 1) 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.

- 2) The Contractor shall indemnify and save Canada harmless from and against all claims, demands, losses, costs, damages, actions, suits, or proceedings 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, its subcontractors and suppliers and any other person at any tier, in performing the Work.
- 3) For the purposes of paragraph 2) of GC1.6, "activities" means any act improperly carried out, any omission to carry out an act and any delay in carrying out an act.

#### **GC1.7 (2016-05-01) INDEMNIFICATION BY CANADA**

- 1) Subject to the [Crown Liability and Proceedings Act](#), the [Patent Act](#), and any other law that affects Canada's rights, powers, privileges or obligations, Canada shall indemnify and save the Contractor harmless from and against all claims, demands, losses, costs, damage, actions, suits or proceedings arising out of the Contractor's activities under the Contract that are directly attributable to
  - a) a lack of or a defect in Canada's title to the Work site if owned by Canada, whether real or alleged; or
  - b) an infringement or an alleged infringement by the Contractor of any patent of invention or any other kind of intellectual property occurring while the Contractor was performing any act for the purposes of the Contract employing a model, plan or design or any other thing related to the Work that was supplied by Canada to the Contractor.

#### **GC1.8 (2016-05-01) LAWS, PERMITS AND TAXES**

- 1) The Contractor shall comply with all federal, provincial and municipal laws and regulations applicable to the performance of the Work or any part thereof including, without limitation, all laws concerning health and the protection of the environment, and shall require compliance therewith by all of its subcontractors and suppliers at any tier as if the Work were being performed for an owner other than Canada. The Contractor shall furnish evidence of compliance with such laws and regulations to Canada at such times as Canada may reasonably request.
- 2) Unless stipulated otherwise in the Contract, the Contractor shall obtain and maintain all permits, certificates, licences, registrations and authorizations required for the lawful performance of the Work.
- 3) Prior to the commencement of the Work at the site, the Contractor shall tender to a municipal authority an amount equal to all fees and charges that would be lawfully payable to that municipal authority in respect of building permits as if the Work were being performed for an owner other than Canada.
- 4) Within 10 days of making a tender pursuant to paragraph 3) of GC1.8, the Contractor shall notify Canada of the amount properly tendered and whether or not the municipal authority has accepted that amount.

- 5) If the municipal authority has not accepted the amount tendered, the Contractor shall pay that amount to Canada within 6 days after the time stipulated in paragraph 4) of GC1.8.
- 6) For the purposes of this clause, "municipal authority" means any authority that would have jurisdiction respecting permission to perform the Work if the owner were not Canada.
- 7) Notwithstanding the residency of the Contractor, the Contractor shall pay any applicable tax arising from or related to the performance of the Work under the Contract.
- 8) In accordance with the Statutory Declaration referred to in paragraph 4) of GC5.5, "Substantial Performance of the Work", a Contractor who has neither residence nor place of business in the province or territory in which work under the Contract is being performed shall provide Canada with proof of registration with the provincial sales tax authorities in the said province.
- 9) For the purpose of the payment of any Applicable Taxes or the furnishing of security for the payment of any Applicable Taxes arising from or related to the performance of the Work, and notwithstanding the provision that all Material, Plant and interest of the Contractor in all real property, licences, powers and privileges, become the property of Canada after the time of purchase in accordance with GC3.10, "Material Plant and Real Property Become Property of Canada", the Contractor shall be liable, as a user or consumer, for the payment or for the furnishing of security for the payment of any Applicable Taxes payable, at the time of the use or consumption of that Material, Plant or interest of the Contractor in accordance with the relevant legislation.
- 10) Federal government departments and agencies are required to pay Applicable Taxes.
- 11) Applicable Taxes will be paid by Canada as provided in the request for payment. It is the sole responsibility of the Contractor to charge Applicable Taxes at the correct rate in accordance with applicable legislation. The Contractor agrees to remit to appropriate tax authorities any amounts of Applicable Taxes paid or due.
- 12) The Contractor is not entitled to use Canada's exemptions from any tax, such as provincial sales taxes, unless otherwise specified by law. The Contractor must pay applicable provincial sales tax, ancillary taxes, and any commodity tax, on taxable goods or services used or consumed in the performance of the Contract (in accordance with applicable legislation), including for material incorporated into real property.
- 13) In those cases where Applicable Taxes, customs duties, and excise taxes are included in the Contract Amount, the Contract Amount will be adjusted to reflect any increase, or decrease, of Applicable Taxes, customs duties, and excise taxes that will have occurred between bid submission and contract award. However, there will be no adjustment for any change to increase the Contract Amount if public notice of the change was given before bid submission date in sufficient detail to have permitted the Contractor to calculate the effect of the change.
- 14) Tax Withholding of 15 Percent – Canada Revenue Agency  
Pursuant to the [Income Tax Act](#), 1985, c. 1 (5th Supp.) and the [Income Tax Regulations](#), Canada must withhold 15 percent of the amount to be paid to the Contractor in respect of services provided in Canada if the Contractor is not a resident of Canada, unless the Contractor obtains a valid waiver from the Canada Revenue Agency. The amount withheld will be held on account for the Contractor in respect to any tax liability which may be owed to Canada.

#### GC1.9 WORKERS' COMPENSATION



- 1) Prior to commencement of Work, at the time of Substantial Performance of the Work, and prior to issuance of the Certificate of Completion, the Contractor shall provide evidence of compliance with workers' compensation legislation applicable to the place of the Work, including payments due thereunder.
- 2) At any time during the term of the Contract, when requested by Canada, the Contractor shall provide such evidence of compliance by the Contractor, its subcontractors and any other person at any tier and any other person performing part of the Work who is required to comply with such legislation.

**GC1.10 NATIONAL SECURITY**

- 1) If Canada determines that the Work is of a class or kind that involves national security, Canada may order the Contractor to
  - (a) provide Canada with any information concerning persons employed or to be employed by the Contractor for purposes of the Contract; and
  - (b) remove any person from the site of the Work if, in the opinion of Canada, that person may be a risk to the national security;and the Contractor shall comply with the order.
- 2) In all contracts with persons who are to be employed in the performance of the Contract, the Contractor shall make provision for the performance of any obligation that may be imposed upon the Contractor under paragraph 1) of GC1.10.

**GC1.11 (2016-05-01) UNSUITABLE WORKERS**

- 1) Canada shall instruct the Contractor to remove from the site of the Work any person employed by the Contractor for purposes of the Contract who, in the opinion of Canada, is incompetent or is guilty of improper conduct, and the Contractor shall not permit a person who has been removed to return to the site of the Work.

**GC1.12 PUBLIC CEREMONIES AND SIGNS**

- 1) The Contractor shall not permit any public ceremony in connection with the Work without the prior consent of Canada.
- 2) The Contractor shall not erect nor permit the erection of any sign or advertising on the Work or its site without the prior consent of Canada.

**GC1.13 (2016-05-01) CONFLICT OF INTEREST**

- 1) It is a term of the Contract that no individual, for whom the post-employment provisions of the Conflict of Interest and Post-Employment Code for Public Office Holders or the Values and Ethics Code for the Public Service apply, shall derive a direct benefit from the Contract unless that individual is in compliance with the applicable post-employment provisions.

**GC1.14 AGREEMENTS AND AMENDMENTS**

- 1) The Contract constitutes the entire and sole agreement between the parties with respect to the subject matter of the Contract and supersedes all previous negotiations, communications and other agreements, whether written or oral, relating to it, unless they are incorporated by reference in the Contract. There are no terms, covenants, representations, statements or conditions binding on the parties other than those contained in the Contract.
- 2) The failure of either party at any time to require performance by the other party of any provision hereof shall not affect the right thereafter to enforce such provision. Nor shall the waiver by either party of any breach of any covenant, term or condition hereof be taken to be held to be a waiver of any further breach of the same covenant, term or condition.
- 3) The Contract may be amended only as provided for in the Contract.

**GC1.15 (2016-05-01) SUCCESSION**

- 1) The Contract shall inure to the benefit of and be binding upon the parties hereto and their lawful heirs, executors, administrators, successors and, subject to GC1.16, "Assignment", permitted assigns.

**GC1.16 (2016-05-01) ASSIGNMENT**

- 1) The Contractor shall not make any assignment of the Contract, either in whole or in part, without the written consent of Canada.

**GC1.17 (2016-05-01) NO BRIBE**

- 1) The Contractor represents and covenants that no bribe, gift, benefit, nor other inducement has been nor shall be paid, given, promised or offered directly or indirectly to any official or employee of Canada or to a member of the family of such a person, with a view to influencing the entry into the Contract or the administration of the Contract.

**GC1.18 CERTIFICATION - CONTINGENCY FEES**

- 1) In this clause
  - (a) "contingency fee" means any payment or other compensation that is contingent upon or is calculated upon the basis of a degree of success in soliciting or obtaining a Government contract or negotiating the whole or any part of its terms;
  - (b) "employee" means a person with whom the Contractor has an employer/employee relationship; and
  - (c) "person" includes an individual or a group of individuals, a corporation, a partnership, an organization and an association and, without restricting the generality of the foregoing, includes any individual who is required to file a return with the registrar pursuant to section 5 of the [Lobbying Act](#) R.S.C. 1985 c.44 (4th Supplement) as the same may be amended from time to time.
- 2) The Contractor certifies that it has not directly or indirectly paid nor agreed to pay and covenants that it shall not directly or indirectly pay nor agree to pay a contingency fee for the solicitation, negotiation or obtaining of the Contract to any person other than an employee acting in the normal course of the employee's duties.

- 3) All accounts and records pertaining to payments of fees or other compensation for the solicitation, obtaining or negotiation of the Contract shall be subject to the accounts and audit provisions of the Contract.
- 4) If the Contractor certifies falsely under this section or is in default of the obligations contained therein, Canada may either take the Work out of the Contractor's hands in accordance with the provisions of the Contract or recover from the Contractor by way of reduction to the Contract Amount or otherwise, the full amount of the contingency fee.

#### **GC1.19 INTERNATIONAL SANCTIONS**

- 1) Persons and companies in Canada, and Canadians outside of Canada are bound by economic sanctions imposed by Canada. As a result, the Government of Canada cannot accept delivery of goods or services that originate, either directly or indirectly, from the countries or persons subject to **economic sanctions** (<http://www.international.gc.ca/sanctions/index.aspx?lang=eng>)
- 2) It is a condition of the Contract that the Contractor not supply to the Government of Canada any goods or services which are subject to economic sanctions.
- 3) By law, the Contractor must comply with changes to the regulations imposed during the life of the Contract. During the performance of the Contract should the imposition of sanctions against a country or person or the addition of a good or service to the list of sanctioned goods or services cause an impossibility of performance for the Contractor, the Contractor may request that the Contract be terminated in accordance with GC7.3 TERMINATION OF CONTRACT.

#### **GC1.20 (2016-05-01) INTEGRITY PROVISIONS – CONTRACT**

- 1) The Ineligibility and Suspension Policy (the "Policy") and all related Directives are incorporated into, and form a binding part of the Contract. The Contractor must comply with the provisions of the Policy and Directives, which can be found on Public Works and Government Services Canada's website at Ineligibility and Suspension Policy. (<http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html>).

#### **GC1.21 (2016-05-01) CODE OF CONDUCT FOR PROCUREMENT - CONTRACT**

- 1) The Contractor agrees to comply with the Code of Conduct (<http://www.tpsgc-pwgsc.gc.ca/app-acq/cndt-cndct/contexte-context-eng.html>) for Procurement and to be bound by its terms for the period of the Contract.

**GC2 ADMINISTRATION OF THE CONTRACT**

- GC2.1 DEPARTMENTAL REPRESENTATIVE'S AUTHORITY
- GC2.2 INTERPRETATION OF CONTRACT
- GC2.3 NOTICES
- GC2.4 SITE MEETINGS
- GC2.5 REVIEW AND INSPECTION OF WORK
- GC2.6 SUPERINTENDENT
- GC2.7 NON-DISCRIMINATION IN HIRING AND EMPLOYMENT OF LABOUR
- GC2.8 ACCOUNTS AND AUDITS

**GC2.1 (2016-05-01) DEPARTMENTAL REPRESENTATIVE'S AUTHORITY**

**"Technical Authority" shall be recognized as the Departmental representative and designated at time of award of contract and shall perform the following:**

- a) is responsible for all matters concerning the technical content of the work under the contract;**
- b) authorized to issue notices, instructions, and changes within the scope of the Work, relevant to the contract.**
- c) accept on behalf of Canada any notice, order or other communication from the contractor relating to the Work**
- d) within a reasonable time, review and respond to submissions made by the Contractor in accordance with the requirements of the Contract**

**The** technical authority has no authority to authorize changes to the Contract terms and conditions of the Contract.

"Contracting Authority" shall be recognized as the authority delegated by the Minister of AAFC to enter into contracts, amend the contracts and is responsible for all matters concerning and interpretation of the terms and conditions of the Contract.

The contracting authority is responsible for the management of the Contract and any changes to the Contract terms **and conditions must be authorized in writing by the Contracting Authority.**

**GC2.2 INTERPRETATION OF CONTRACT**

- 1) If, at any time before Canada has issued a Certificate of Completion, any question arises between the parties about whether anything has been done as required by the Contract or about what the Contractor is required by the Contract to do, and in particular but without limiting the generality of the foregoing, about
  - (a) the meaning of anything in the drawings and specifications;
  - (b) the meaning to be given to the drawings and specifications in case of any error therein, omission therefrom, or obscurity or discrepancy in their wording or intention;

- (c) whether or not the quality or quantity of any Material or workmanship supplied or proposed to be supplied by the Contractor meets the requirements of the Contract;
- (d) whether or not the labour, Plant or Material performed, used and supplied by the Contractor for performing the Work and carrying out the Contract are adequate to ensure that the Work shall be performed in accordance with the Contract and that the Contract shall be carried out in accordance with its terms;
- (e) what quantity of any of the Work has been completed by the Contractor; or
- (f) the timing and scheduling of the various phases of the performance of the Work as specified in the Contract;

the question shall be decided, subject to the provisions of GC8 DISPUTE RESOLUTION, by Canada.

- 2) The Contractor shall perform the Work in accordance with any decisions of Canada that are made under paragraph 1) of GC2.2 and in accordance with any consequential directions given by Canada.
- 3) If the Contractor fails to comply with any instruction or direction issued by Canada pursuant to the Contract, Canada may employ such methods as Canada deems advisable to do what the Contractor failed to do, and the Contractor shall, on demand, pay Canada an amount that is equal to the aggregate of all costs, expenses and damages incurred or sustained by Canada by reason of the Contractor's failure to comply with such instruction or direction, including the cost of any methods employed by Canada in doing what the Contractor failed to do.

**GC2.3 NOTICES**

- 1) Subject to paragraph 3) of GC2.3, any notice, order or other communication may be given in any manner, and if required to be in writing, shall be addressed to the party to whom it is intended at the address in the Contract or at the last address of which the sender has received written notice in accordance with this section.
- 2) Any notice, order or other communication given in writing in accordance with paragraph 1) of GC2.3 shall be deemed to have been received by either party
  - (a) if delivered personally, on the day that it was delivered;
  - (b) if forwarded by mail, on the earlier of the day it was received or the sixth day after it was mailed; and
  - (c) if forwarded by facsimile or electronic mail, 24 hours after it was transmitted.
- 3) A notice given under GC7.1 TAKING THE WORK OUT OF THE CONTRACTOR'S HANDS, GC7.2 SUSPENSION OF WORK, and GC7.3 TERMINATION OF CONTRACT shall be given in writing and, if delivered personally, shall be delivered, if the Contractor is a sole proprietor, to the Contractor or, if the Contractor is a partnership or corporation, to an officer thereof.

**GC2.4 (2016-05-01) SITE MEETINGS**

- 1) In consultation with Canada, the Contractor shall arrange site meetings at regular intervals, with all involved parties who are to attend, in order to ensure, among other things, the proper co-ordination of the Work.

**GC2.5 REVIEW AND INSPECTION OF WORK**

- 1) Canada shall review the Work to determine if it is proceeding in conformity with the Contract and to record the necessary data to make an assessment of the value of Work completed. Canada shall measure and record the quantities of labour, Plant and Material performed, used or supplied by the Contractor in performing the Work or any part thereof that is subject to a Unit Price Arrangement and, on request, shall inform the Contractor of those measurements, and permit the Contractor to inspect any records pertaining thereto.
- 2) Canada shall reject Work or Material which in Canada's opinion does not conform to the requirements of the Contract, and shall require inspection or testing of Work, whether or not such Work is fabricated, installed, or completed. If such Work is not in accordance with the requirements of the Contract, the Contractor shall correct the Work and shall pay Canada, on demand, all reasonable costs and expenses that were incurred by Canada in having the examination performed.
- 3) The Contractor shall provide Canada with access to the Work and its site at all times, and at all times shall provide sufficient, safe, and proper facilities for the review and inspection of the Work by persons authorized by Canada and any representatives of those authorities having jurisdiction. If parts of the Work are in preparation at locations other than the site of the Work, Canada shall be given access to such Work whenever it is in progress.
- 4) The Contractor shall furnish Canada with such information respecting the performance of the Contract as Canada may require, and render every possible assistance to enable Canada to verify that the Work is performed in accordance with the Contract, carry out any other duties and exercise any powers in accordance with the Contract.
- 5) If Work is designated for tests, inspections, or approvals in the Contract or by Canada's instructions, or by laws or ordinances of the place of the Work, the Contractor shall give Canada reasonable notice of when such Work shall be ready for review and inspection. The Contractor shall arrange for and shall give Canada reasonable notice of the date and time of inspections, tests or approvals.
- 6) If the Contractor covers, or permits to be covered, Work that has been designated for tests, inspections or approvals before such tests, inspections or approvals are made, completed or given, the Contractor shall, if so directed by Canada, uncover such Work, have the inspections, tests or approvals satisfactorily made, completed or given and make good the covering of the Work at the Contractor's expense.

**GC2.6 SUPERINTENDENT**

- 1) Prior to commencing the Work, the Contractor shall designate a Superintendent and shall notify Canada of the name, address and telephone number of the Superintendent. The Contractor shall keep the Superintendent at the Work site during working hours until the Work has reached completion.
- 2) The Superintendent shall be in full charge of the operations of the Contractor during the performance of the Work and shall be authorized to accept on behalf of the Contractor any notice, order or other communication given to the Superintendent or the Contractor relating to the Work.

- 3) Upon request of Canada, the Contractor shall remove any Superintendent who, in the opinion of Canada, is incompetent or has been guilty of improper conduct, and shall forthwith designate another Superintendent who is acceptable to Canada.
- 4) The Contractor shall not substitute a Superintendent without the written consent of Canada. If a Superintendent is substituted without such consent, Canada shall be entitled to refuse to issue any documentation or certification relating to progress payments, Substantial Performance or Completion of the Work until the Superintendent has returned to the Work site or another Superintendent who is acceptable to Canada has been substituted.

#### **GC2.7 (2016-05-01) NON-DISCRIMINATION IN HIRING AND EMPLOYMENT OF LABOUR**

- 1) For the purposes of this clause, "persons" include the Contractor, its subcontractors and suppliers at any tier and their respective employees, agents, licensees or invitees and any other individual involved in the performance of the Work or granted access to the Work site. A "person" includes any partnership, proprietorship, firm, joint venture, consortium and corporation.
- 2) Without restricting the provisions of paragraph 3) of GC2.6, "Superintendent", the Contractor shall not refuse to employ and shall not discriminate in any manner against any person because
  - a) of that person's race, national or ethnic origin, colour, religion, age, sex, sexual orientation, marital status, disability, conviction for which a pardon has been granted, or family status;
  - b) of the race, national or ethnic origin, colour, religion, age, sex, sexual orientation, marital status, disability, conviction for which a pardon has been granted, or family status of any person having a relationship or association with that person, or
  - c) a complaint has been made or information has been given in respect of that person relating to an alleged failure by the Contractor to comply with subparagraph (a) or (b).
- 3) Within two working days immediately following receipt of a written complaint pursuant to paragraph 2) of GC2.7, the Contractor shall
  - a) cause to have issued a written direction to the person or persons named by the complainant to cease all actions that form the basis of the complaint;
  - b) forward a copy of the complaint to Canada by registered mail or courier service.
- 4) Within 24 hours immediately following receipt of a direction from Canada to do so, the Contractor shall cause to have removed from the site of the Work and from the performance of Work under the Contract, any person or persons whom Canada believes to be in breach of the provisions of paragraph 2) of GC2.7.
- 5) No later than 30 days after receipt of the direction referred to in paragraph 4) of GC2.7, the Contractor shall cause the necessary action to be commenced to remedy the breach described in the direction.
- 6) If a direction is issued pursuant to paragraph 4) of GC2.7, Canada may withhold from monies that are due and payable to the Contractor or setoff pursuant to GC5.9, "Right of Setoff", whichever is applicable, an amount representing the sum of the costs and payment referred to in paragraph 8) of GC2.7.

- 7) If the Contractor fails to proceed in accordance with paragraph 5) of GC2.7, Canada shall take the necessary action to have the breach remedied, and shall determine all supplementary costs incurred by Canada as a result.
- 8) Canada may make a payment directly to the complainant from monies that are due and payable to the Contractor upon receipt from the complainant of
  - a) a written award issued pursuant to the federal **Commercial Arbitration Act**, R.S. 1985, c. 17 (2nd Supp.);
  - b) a written award issued pursuant to the **Canadian Human Rights Act**, R.S. 1985, c. H-6;
  - c) a written award issued pursuant to provincial or territorial human rights legislation; or
  - d) a judgement issued by a court of competent jurisdiction.
- 9) If Canada is of the opinion that the Contractor has breached any of the provisions of this clause, Canada may take the Work out of the Contractor's hands pursuant to GC7.1, "Taking the Work out of the Contractor's Hands".
- 10) Subject to paragraph 7) of GC3.6, "Subcontracting", the Contractor shall ensure that the provisions of this clause are included in all agreements and contracts entered into as a consequence of the Work.

#### **GC2.8 (2016-05-01) ACCOUNTS AND AUDITS**

- 1) The Contractor shall, in addition to the requirements expressed in paragraph 6) of GC3.4, "Execution of the Work", maintain full records of the Contractor's estimated and actual cost of the Work together with all tender calls, quotations, contracts, correspondence, invoices, receipts and vouchers relating thereto, and shall make them available on request to audit and inspection by Canada and the Deputy Receiver General for Canada or by persons designated to act on behalf of either or both of them.
- 2) The Contractor shall allow any of the persons referred to in paragraph 1) of GC2.8 to make copies of and take extracts from any of the records and material, and shall furnish such persons or entities with any information those persons or entities may require from time to time in connection with such records and material.
- 3) The Contractor shall maintain and keep the records intact until the expiration of six (6) years after the date that a Certificate of Completion has been issued or until the expiration of such other period of time as Canada may direct.
- 4) The Contractor shall cause all subcontractors at any tier and all other persons directly or indirectly controlled by or affiliated with the Contractor and all persons directly or indirectly having control of the Contractor to comply with the requirements of this clause as if they were the Contractor.



**GC3 EXECUTION AND CONTROL OF THE WORK**

- GC3.1 PROGRESS SCHEDULE
- GC3.2 ERRORS AND OMISSIONS
- GC3.3 CONSTRUCTION SAFETY
- GC3.4 EXECUTION OF THE WORK
- GC3.5 MATERIAL
- GC3.6 SUBCONTRACTING
- GC3.7 CONSTRUCTION BY OTHER CONTRACTORS OR WORKERS
- GC3.8 LABOUR
- GC3.9 TRUCK HAULAGE RATES (CANCELLED)
- GC3.10 MATERIAL, PLANT AND REAL PROPERTY BECOME PROPERTY OF CANADA
- GC3.11 DEFECTIVE WORK
- GC3.12 CLEANUP OF SITE
- GC3.13 WARRANTY AND RECTIFICATION OF DEFECTS IN WORK

**GC3.1 (2016-05-01) PROGRESS SCHEDULE**

The Contractor shall

- a) prepare and submit to Canada, prior to the submission of the Contractor's first progress claim, a progress schedule in accordance with the requirements set out in the Contract;
- b) monitor the progress of the Work relative to the schedule and update the schedule as stipulated by the contract documents;
- c) advise Canada of any revisions to the schedule required as the result of any extension of time for completion of the Contract that was approved by Canada; and
- d) prepare and submit to Canada, at the time of issuance of a Certificate of Substantial Performance, an update of any schedule clearly showing a detailed timetable that is acceptable to Canada for the completion of any unfinished Work and the correction of all listed defects.

**GC3.2 (2016-05-01) ERRORS AND OMISSIONS**

- 1) The Contractor shall report promptly to Canada any errors, discrepancies, or omissions the Contractor may discover when reviewing the contract documents. In making a review, the Contractor does not assume any responsibility to Canada for the accuracy of the review. The Contractor shall not be liable for damage or costs resulting from such errors, discrepancies, or omissions in the contract documents prepared by or on behalf of Canada that the Contractor did not discover.

**GC3.3 CONSTRUCTION SAFETY**

- 1) Subject to GC3.7 CONSTRUCTION BY OTHER CONTRACTORS OR WORKERS, the Contractor shall be solely responsible for construction safety at the place of the Work and for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Work. In any emergency, the Contractor shall either stop the Work,

make changes or order extra work to ensure the safety of life and the protection of the Work and neighbouring property.

- 2) Prior to commencing the Work, the Contractor shall notify the authorities having jurisdiction for construction safety at the site of the Work with respect to the intended commencement of the Work, and shall provide such authority with whatever additional information may be required by that authority.

### **GC3.4 EXECUTION OF THE WORK**

- 1) The Contractor shall perform, use or supply and pay for, all labour, Plant, Material, tools, construction machinery and equipment, water, heat, light, power, transportation and other facilities and services necessary for the performance of the Work in accordance with the Contract.
- 2) The Contractor shall, at all times, perform the Work in a proper, diligent and expeditious manner as is consistent with construction industry standards and in accordance with the progress schedule prepared pursuant to GC3.1 PROGRESS SCHEDULE and shall provide sufficient personnel to fulfil the Contractor's obligations in accordance with that schedule.
- 3) Subject to paragraph 4) of GC3.4, the Contractor shall have complete care, custody and control of the Work and shall direct and supervise the Work so as to ensure compliance with the Contract. The Contractor shall be responsible for construction means, methods, techniques, sequences and procedures and for co-ordinating the various parts of the Work.
- 4) When requested in writing by Canada, the Contractor shall make appropriate alterations in the method, Plant or workforce at any time Canada considers the Contractor's actions to be unsafe or damaging to either the Work, existing facilities, persons at the site of the Work or the environment.
- 5) The Contractor shall have sole responsibility for the design, erection, operation, maintenance and removal of temporary structures and other temporary facilities and for the construction methods used in their erection, operation, maintenance and removal. The Contractor shall engage and pay for registered professional engineering personnel, skilled in the appropriate discipline to perform these functions if required by law or by the Contract, and in all cases when such temporary facilities and their methods of construction are of such a nature that professional engineering skill is required to produce safe and satisfactory results.
- 6) The Contractor shall keep at least one copy of current contract documents, submittals, reports, and records of meetings at the site of the Work, in good order and available to Canada.
- 7) Except for any part of the Work that is necessarily performed away from or off the site of the Work, the Contractor shall confine Plant, storage of Material, and operations of employees to limits indicated by laws, ordinances, permits or the contract documents.

### **GC3.5 MATERIAL**

- 1) Unless otherwise specified in the Contract, all Material incorporated in the Work shall be new.
- 2) Subject to paragraph 3) of GC3.5, if a specified reused, refurbished, or recycled item of Material is not available, the Contractor shall apply to Canada to substitute a similar item for the one specified.

- 3) If Canada agrees that the Contractor's application for substitution of a reused, refurbished or recycled item is warranted, and that the substitute item is of acceptable quality and value to that specified and is suitable for the intended purpose, Canada may approve the substitution, subject to the following:
  - (a) the request for substitution shall be made in writing to Canada and shall be substantiated by information in the form of the manufacturer's literature, samples and other data that may be required by Canada;
  - (b) the Contractor shall make the request for substitution in a manner that shall not negatively affect the progress schedule of the Contract and well in advance of the time the item of Material must be ordered;
  - (c) substitution of Material shall be permitted only with the prior written approval of Canada, and any substituted items that are supplied or installed without such approval shall be removed from the site of the Work at the expense of the Contractor, and specified items installed at no additional cost to Canada; and
  - (d) the Contractor shall be responsible for all additional expenses incurred by Canada, the Contractor, its subcontractors and suppliers at any tier due to the Contractor's use of the substitute.

**GC3.6 SUBCONTRACTING**

- 1) Subject to the provisions of this clause, the Contractor may subcontract any part of the Work but not the whole of the Work.
- 2) The Contractor shall notify Canada in writing of the Contractor's intention to subcontract.
- 3) A notification referred to in paragraph 2) of GC3.6 shall identify the part of the Work and the Subcontractor with whom the Contractor intends to subcontract.
- 4) Canada may for reasonable cause, object to the intended subcontracting by notifying the Contractor in writing within six (6) days of receipt by Canada of a notification referred to in paragraph 2) of GC3.6.
- 5) If Canada objects to a subcontracting, the Contractor shall not enter into the intended subcontract.
- 6) The Contractor shall not change, nor permit to be changed, a Subcontractor engaged by the Contractor, in accordance with this clause, without the written consent of Canada.
- 7) The Contractor shall ensure that all the terms and conditions of the Contract that are of general application shall be incorporated in every other contract issued as a consequence of the Contract, at whatever tier, except those contracts issued solely to suppliers at any tier for the supply of Plant or Material.
- 8) Neither a subcontracting nor Canada's consent to a subcontracting shall be construed to relieve the Contractor from any obligation under the Contract or to impose any liability upon Canada.

**GC3.7 CONSTRUCTION BY OTHER CONTRACTORS OR WORKERS**

- 1) Canada reserves the right to send other contractors or workers, with or without Plant and Material, onto the site of the Work.
- 2) When other contractors or workers are sent on to the site of the Work, Canada shall
  - (a) enter into separate contracts, to the extent it is possible, with the other contractors under conditions of contract that are compatible with the conditions of the Contract;
  - (b) ensure that the insurance coverage provided by the other contractors is co-ordinated with the insurance coverage of the Contractor as it affects the Work; and
  - (c) take all reasonable precautions to avoid labour disputes or other disputes arising from the work of the other contractors or workers.
- 3) When other contractors or workers are sent on to the site of the Work, the Contractor shall
  - (a) co-operate with them in the carrying out of their duties and obligations;
  - (b) co-ordinate and schedule the Work with the work of the other contractors and workers;
  - (c) participate with other contractors and workers in reviewing their construction schedules when directed to do so;
  - (d) where part of the Work is affected by or depends upon the work of other contractors or workers for its proper execution, promptly report to Canada in writing and prior to proceeding with that part of the Work, any apparent deficiencies in such work. Failure by the Contractor to so report shall invalidate any claims against Canada by reason of the deficiencies in the work of other contractors or workers except those deficiencies that are not then reasonably discoverable; and
  - (e) when designated as being responsible for construction safety at the place of work in accordance with the applicable provincial or territorial laws, carry out its duties in that role and in accordance with those laws.
- 4) If, when entering into the Contract, the Contractor could not have reasonably foreseen nor anticipated the sending of other contractors or workers on to the site of the Work and provided the Contractor
  - (a) incurs extra expense in complying with the requirements of paragraph 3) of GC3.7; and
  - (b) gives Canada written notice of a claim for that extra expense within thirty (30) days of the date that the other contractors or workers were sent onto the Work or its site;

Canada shall pay the Contractor the cost of the extra labour, Plant and Material that was necessarily incurred, calculated in accordance with GC6.4 DETERMINATION OF PRICE.

### **GC3.8 LABOUR**

- 1) To the extent to which they are available, consistent with proper economy and the expeditious carrying out of the Work, the Contractor shall, in the performance of the Work, employ a reasonable number of persons who have been on active service with the Armed Forces of Canada and have been honourably discharged therefrom.

- 2) The Contractor shall maintain good order and discipline among the Contractor's employees and workers engaged in the Work and shall not employ on the site of the Work anyone not skilled in the tasks assigned.

**GC3.9 TRUCK HAULAGE RATES**

CANCELLED

**GC3.10 MATERIAL, PLANT AND REAL PROPERTY BECOME PROPERTY OF CANADA**

- 1) Subject to paragraph 9) of GC1.8 LAWS PERMITS AND TAXES, all Material and Plant and the interest of the Contractor in all real property, licences, powers and privileges purchased, used or consumed by the Contractor for the Work shall, immediately after the time of their purchase, use or consumption be the property of Canada for the purposes of the Work and they shall continue to be the property of Canada
  - (a) in the case of Material, until Canada indicates that the Materials shall not be required for the Work; and
  - (b) in the case of Plant, real property, licences, powers and privileges, until Canada indicates that the interest vested in Canada therein is no longer required for the purposes of the Work.
- 2) Material or Plant, that is the property of Canada by virtue of paragraph 1) of GC3.10, shall not be taken away from the site of the Work nor used nor disposed of except for the purposes of the Work without the written consent of Canada.
- 3) Canada is not liable for loss of nor damage from any cause to the Material or Plant referred to in paragraph 1) of GC3.10, and the Contractor is liable for such loss or damage notwithstanding that the Material or Plant is the property of Canada.

**GC3.11 DEFECTIVE WORK**

- 1) The Contractor shall promptly remove from the site of the Work and replace or re-execute defective Work whether or not the defective Work has been incorporated in the Work and whether or not the defect is the result of poor workmanship, use of defective Material, or damage through carelessness or other act or omission of the Contractor.
- 2) The Contractor, at the Contractor's expense, shall promptly make good other work destroyed or damaged by such removals or replacements.
- 3) If, in the opinion of Canada, it is not expedient to correct defective Work or Work not performed as provided for in the Contract documents, Canada may deduct from the amount otherwise due to the Contractor the difference in value between the Work as performed and that called for by the contract documents.
- 4) The failure of Canada to reject any defective Work or Material shall not constitute acceptance of the defective Work or Material.

**GC3.12 CLEANUP OF SITE**

- 1) The Contractor shall maintain the Work and its site in a tidy condition and free from an accumulation of waste material and debris.
- 2) Before the issue of a Certificate of Substantial Performance, the Contractor shall remove waste material and debris, and all Plant and Material not required for the performance of the remaining Work and, unless otherwise stipulated in the Contract Documents, shall cause the Work and its site to be clean and suitable for occupancy by Canada.
- 3) Before the issue of a Certificate of Completion, the Contractor shall remove all surplus Plant and Materials and any waste products and debris from the site of the Work.
- 4) The Contractor's obligations described in paragraphs 1) to 3) of GC3.12 do not extend to waste products and other debris caused by Canada's servants, or by other contractors and workers referred to in GC3.7 CONSTRUCTION BY OTHER CONTRACTORS OR WORKERS.

**GC3.13 WARRANTY AND RECTIFICATION OF DEFECTS IN WORK**

- 1) Without restricting any warranty or guarantee implied or imposed by law or contained in the Contract, the Contractor shall, at the Contractor's expense
  - (a) rectify and make good any defect or fault that appears in the Work or comes to the attention of Canada with respect to those parts of the Work accepted in connection with the Certificate of Substantial Performance within 12 months from the date of Substantial Performance; and
  - (b) rectify and make good any defect or fault that appears in or comes to the attention of Canada in connection with those parts of the Work described in the Certificate of Substantial Performance within 12 months from the date of the Certificate of Completion.
  - (c) transfer and assign, to Canada, any subcontractor, manufacturer or supplier extended warranties or guarantees implied or imposed by law or contained in the Contract covering periods beyond the 12 months stipulated above. Extended warranties or guarantees referred to herein shall not extend the 12-month period whereby the Contractor, except as may be provided elsewhere in the Contract, must rectify and make good any defect or fault that appears in the Work or comes to the attention of Canada.
  - (d) provide, to Canada prior to the issuance of the Certificate of Completion, a list of all extended warranties and guarantees referred to in paragraph (c) above.
- 2) Canada may direct the Contractor to rectify and make good any defect or fault referred to in paragraph 1) of GC3.13 or covered by any other expressed or implied warranty or guarantee and the Contractor shall rectify and make good such defect within the time stipulated in the direction.
- 3) A direction referred to in paragraph 2) GC3.13 shall be in writing and shall be given to the Contractor in accordance with GC2.3 NOTICES.

**GC4 PROTECTIVE MEASURES**

GC4.1 PROTECTION OF WORK AND PROPERTY

GC4.2 PRECAUTIONS AGAINST DAMAGE, INFRINGEMENT OF RIGHTS, FIRE AND OTHER HAZARDS

GC4.3 MATERIAL, PLANT AND REAL PROPERTY SUPPLIED BY CANADA

GC4.4 CONTAMINATED SITE CONDITIONS

**GC4.1 PROTECTION OF WORK AND PROPERTY**

- 1) The Contractor shall protect the Work and its site against loss or damage from any cause and shall similarly protect all Material, Plant and real property under the Contractor's care, custody and control whether or not such Material, Plant and real property are supplied by Canada to the Contractor.
- 2) The Contractor shall provide all facilities necessary for the purpose of maintaining security, and shall assist any person authorized by Canada to inspect or to take security measures in respect of the Work and its site.
- 3) Canada may direct the Contractor to do such things and to perform such work as Canada considers reasonable and necessary to ensure compliance with or to remedy a breach of paragraphs 1) or 2) of GC4.1, and the Contractor, shall comply with such direction.

**GC4.2 PRECAUTIONS AGAINST DAMAGE, INFRINGEMENT OF RIGHTS, FIRE AND OTHER HAZARDS**

- 1) The Contractor shall do whatever is necessary to ensure that
  - (a) no person, property, right, easement nor privilege is injured, damaged or infringed upon by reasons of the Contractor's activities in performing the Work;
  - (b) pedestrian and other traffic on any public or private road or waterway is not unduly impeded, interrupted nor endangered by the performance or existence of the Work, Material or Plant;
  - (c) fire hazards in or about the site of the Work are eliminated and any fire is promptly extinguished;
  - (d) the health and safety of all persons employed in the performance of the Work is not endangered by the methods nor means of their performance;
  - (e) adequate medical services are available to all persons employed on the Work or its site at all times during the performance of the Work;
  - (f) adequate sanitation measures are taken in respect of the Work and its site; and
  - (g) all stakes, buoys and marks placed on the Work or its site by Canada are protected and are not removed, defaced, altered nor destroyed.
- 2) Canada may direct the Contractor to do such things and to perform such work as Canada considers reasonable and necessary to ensure compliance with or to remedy a breach of paragraph 1) of GC4.2, and the Contractor shall comply with the direction of Canada.

**GC4.3 MATERIAL, PLANT AND REAL PROPERTY SUPPLIED BY CANADA**

- 1) Subject to paragraph 2) of GC4.3, the Contractor is liable to Canada for any loss of or damage to Material, Plant or real property that is supplied or placed in the care, custody and control of the Contractor by Canada for use in connection with the Contract, whether or not that loss or damage is attributable to causes beyond the Contractor's control.
- 2) The Contractor is not liable to Canada for any loss or damage to Material, Plant or real property referred to in paragraph 1) of GC4.3 if that loss or damage results from and is directly attributable to reasonable wear and tear.
- 3) The Contractor shall not use any Material, Plant or real property supplied by Canada except for the purpose of performing the Contract.
- 4) When the Contractor fails to make good any loss or damage for which the Contractor is liable under paragraph 1) within a reasonable time, Canada may cause the loss or damage to be made good at the Contractor's expense, and the Contractor shall thereupon be liable to Canada for the cost thereof and shall, on demand, pay to Canada an amount equal to that cost.
- 5) The Contractor shall keep records of all Material, Plant and real property supplied by Canada as Canada requires and shall satisfy Canada, when requested, that such Material, Plant and real property are at the place and in the condition in which they ought to be.

**GC4.4 CONTAMINATED SITE CONDITIONS**

- 1) For the purposes of GC4.4, a contaminated site condition exists when a solid, liquid, gaseous, thermal or radioactive irritant or contaminant, or other hazardous or toxic substance or material, including moulds and other forms of fungi, is present at the site of the Work to an extent that constitutes a hazard, or potential hazard, to the environment, property, or the health or safety of any person.
- 2) If the Contractor encounters a contaminated site condition of which the Contractor is not aware or about which the Contractor has not been advised, or if the Contractor has reasonable grounds to believe that such a site condition exists at the site of the Work, the Contractor shall
  - (a) take all reasonable steps, including stopping the Work, to ensure that no person suffers injury, sickness or death, and that neither property nor the environment is injured or destroyed as a result of the contaminated site condition;
  - (b) immediately notify Canada of the circumstances in writing; and
  - (c) take all reasonable steps to minimize additional costs that may accrue as a result of any work stoppage.
- 3) Upon receipt of a notification from the Contractor, Canada shall promptly determine whether a contaminated site condition exists, and shall notify the Contractor in writing of any action to be taken, or work to be performed, by the Contractor as a result of Canada's determination.
- 4) If the Contractor's services are required by Canada, the Contractor shall follow the direction of Canada with regard to any excavation, treatment, removal and disposal of any polluting substance or material.



- 5) Canada, at Canada's sole discretion, may enlist the services of experts and specialty contractors to assist in determining the existence of, and the extent and treatment of contaminated site conditions, and the Contractor shall allow them access and co-operate with them in the carrying out of their duties and obligations.
- 6) Except as may be otherwise provided for in the Contract, the provisions of GC6.4 DETERMINATION OF PRICE shall apply to any additional work made necessary because of a contaminated site condition.

**GC5 TERMS OF PAYMENT**

- GC5.1 INTERPRETATION
- GC5.2 AMOUNT PAYABLE
- GC5.3 INCREASED OR DECREASED COSTS
- GC5.4 PROGRESS PAYMENT
- GC5.5 SUBSTANTIAL PERFORMANCE OF THE WORK
- GC5.6 FINAL COMPLETION
- GC5.7 PAYMENT NOT BINDING ON CANADA
- GC5.8 CLAIMS AND OBLIGATIONS
- GC5.9 RIGHT OF SETOFF
- GC5.10 ASSESSMENTS AND DAMAGES FOR LATE COMPLETION
- GC5.11 DELAY IN MAKING PAYMENT
- GC5.12 INTEREST ON SETTLED CLAIMS
- GC5.13 RETURN OF SECURITY DEPOSIT

**GC5.1 INTERPRETATION**

In these Terms of Payment

- 1) The "payment period" means a period of 30 consecutive days or such other longer period as may be agreed between the Contractor and Canada.
- 2) An amount is "due and payable" when it is due and payable by Canada to the Contractor according to GC5.4 PROGRESS PAYMENT, GC5.5 SUBSTANTIAL PERFORMANCE OF THE WORK or GC5.6 FINAL COMPLETION.
- 3) An amount is "overdue" when it remains unpaid on the first day following the day upon which it is due and payable.
- 4) The "date of payment" means the date of the negotiable instrument of an amount due and payable by the Receiver General for Canada.
- 5) The "Bank Rate" means the rate of interest established by the Bank of Canada as the minimum rate at which it makes short term advances to members of the Canadian Payments Association.
- 6) The "Average Bank Rate" means the simple arithmetic mean of the Bank Rate in effect at 4:00 p.m. Eastern Time each day during the calendar month which immediately precedes the calendar month in which payment is made.

**GC5.2 AMOUNT PAYABLE**

- 1) Subject to any other provisions of the Contract, Canada shall pay the Contractor, at the times and in the manner hereinafter set out, the amount by which the amounts payable by Canada to the Contractor in accordance with the Contract exceed the amounts payable by the Contractor to Canada, and the Contractor shall accept that amount as payment in full satisfaction for everything furnished and done by the Contractor in respect of the Work to which the payment relates.
- 2) When making any payment to the Contractor, the failure of Canada to deduct an amount payable to Canada by the Contractor shall not constitute a waiver of the right to do so, or an admission of lack of entitlement to do so in any subsequent payment to the Contractor.

- 3) Should any payment be made by Canada in excess of what is owed to the Contractor for the actual work performed, the Contractor will reimburse Canada the excess immediately, with or without demand, and any amounts outstanding shall bear simple interest at the Average Bank rate plus 3 percent per annum from the date of overpayment until the day prior to the date of repayment by the Contractor.
- 4) No payment other than a payment that is expressly stipulated in the Contract shall be made by Canada to the Contractor for any extra expense or any loss or damage incurred or sustained by the Contractor.

### **GC5.3 (2016-05-01) INCREASED OR DECREASED COSTS**

1. The Contract Amount shall not be increased nor decreased by reason of any increase or decrease in the cost of the Work that is brought about by an increase or decrease in the cost of labour, Plant, Material or any wage adjustment.
2. Notwithstanding paragraph 1) of GC5.3, if any change, including a new imposition or repeal, of any tax, customs or other duty, charge, or any similar imposition that is imposed under sales, customs or excise tax legislation of the Government of Canada or any Provincial or Territorial legislation, affects the cost of the Work to the Contractor, and occurs
  - a) after the date of submission by the Contractor of its bid; or
  - b) after the date of submission of the last revision, if the Contractor's bid was revised;
  - c) the Contract Amount shall be adjusted in the manner provided in paragraph 3) of GC5.3.
3. If a change referred to in paragraph 2) of GC5.3 occurs, the Contract Amount shall be increased or decreased by an amount established by an examination by Canada of the relevant records of the Contractor referred to in GC2.8, "Accounts and Audits", to be the increase or decrease in the cost incurred by the Contractor that is directly attributable to that change.
4. For the purpose of paragraph 2) of GC5.3, if a tax is changed after the tender closing, but public notice of the change has been given by the Minister of Finance or the corresponding Provincial or Territorial authority before that closing, the change shall be deemed to have occurred before the solicitation closing.
5. Notwithstanding paragraphs 2) to 4) of GC5.3, no adjustment to the Contract Amount in respect of the Work or a part thereof shall be made for a change in any imposition referred to in this section that occurs after the date required by the Contract for completion of the Work or that part of the Work.

### **GC5.4 (2016-05-01) PROGRESS PAYMENT**

- 1) On the expiration of a payment period, the Contractor shall deliver to Canada
  - a) a written progress claim in a form acceptable to Canada that fully describes any part of the Work that has been completed, and any Material that was delivered to the Work site but not incorporated into the Work, during that payment period, and

- b) a completed and signed statutory declaration containing a declaration that, up to the date of the progress claim, the Contractor has complied with all lawful obligations and that, in respect of the Work, all lawful obligations of the Contractor to its Subcontractors and Suppliers, referred to collectively in the declaration as "subcontractors and suppliers", have been fully discharged.
- 2) Within 10 days of receipt of a progress claim and statutory declaration from the Contractor, Canada shall inspect, or cause to have inspected, the part of the Work and the Material described in the progress claim, and shall issue a progress report to the Contractor, that indicates the value of the part of the Work and the Material described in the progress claim that, in the opinion of Canada
- a) is in accordance with the Contract; and
  - b) was not included in any other progress report relating to the Contract.
- 3) Subject to GC5.2, "Amount Payable", and paragraph 5) of GC5.4, Canada shall pay the Contractor an amount that is equal to
- a) 95 percent of the value that is indicated in Canada's progress report if a labour and material payment bond has been furnished by the Contractor; or
  - b) 90 percent of the value that is indicated in Canada's progress report if a labour and material payment bond has not been furnished by the Contractor.
- 4) Canada shall pay the amount referred to in paragraph 3) of GC5.4 not later than
- a) 30 days after receipt by Canada of both a progress claim and a statutory declaration referred to in paragraph 1) of GC5.4; or
  - b) 15 days after receipt by Canada of the Contractor's progress schedule or updated progress schedule, in accordance with GC3.1, "Progress Schedule",
- whichever is later.
- 5) In the case of the Contractor's first progress claim, it is a condition precedent to Canada's obligation under paragraph 3) of GC5.4 that the Contractor has provided all necessary documentation required by the Contract for the first progress claim.

#### **GC5.5 (2016-05-01) SUBSTANTIAL PERFORMANCE OF THE WORK**

1. If, at any time before the issuance of a Certificate of Completion, Canada determines that the Work has reached Substantial Performance as described in subparagraph 1) (b) of GC1.1.4, "Substantial Performance", Canada shall issue a Certificate of Substantial Performance to the Contractor. The Certificate of Substantial Performance shall state or describe
- a) the date of Substantial Performance;
  - b) the parts of the Work not completed to the satisfaction of Canada; and
  - c) all things that must be done by the Contractor before a Certificate of Completion is issued and before the 12-month warranty period referred to in GC3.13, "Warranty and Rectification of Defects in Work", commences for the said parts and all the said things.

2. The issuance of a Certificate of Substantial Performance does not relieve the Contractor from the Contractor's obligations under GC3.11, "Defective Work".
3. Subject to GC5.2, "Amount Payable", and paragraph 4) of GC5.5, Canada shall pay the Contractor the amount referred to in paragraph 1) of GC5.2, "Amount Payable", less the aggregate of
  - a) the sum of all payments that were made pursuant to GC5.4, "Progress Payment";
  - b) an amount that is equal to Canada's estimate of the cost to Canada of rectifying defects described in the Certificate of Substantial Performance; and
  - c) an amount that is equal to Canada's estimate of the cost to Canada of completing the parts of the Work described in the Certificate of Substantial Performance other than defects listed therein.
4. Canada shall pay the amount referred to in paragraph 3) of GC5.5 not later than
  - a) 30 days after the date of issue of a Certificate of Substantial Performance, or
  - b) 15 days after the Contractor has delivered to Canada
    - I. a statutory declaration containing a declaration by the Contractor that up to the date of the Certificate of Substantial Performance, the Contractor has complied with all lawful obligations, discharged all its lawful obligations to its Subcontractors and Suppliers in respect of the work under the Contract, and discharged its lawful obligations referred to in GC1.8, "Laws, Permits and Taxes";
    - II. evidence of compliance with workers' compensation legislation in accordance with GC1.9, "Workers' Compensation"; and
    - III. an update of the progress schedule in accordance with the requirements of GC3.1, "Progress Schedule"; whichever is later.

#### **GC5.6 FINAL COMPLETION**

- 1) When Canada is of the opinion that the Contractor has complied with the Contract and all orders and directions made pursuant thereto, and that the Work has been completed as described in GC1.1.5 COMPLETION, Canada shall issue a Certificate of Completion to the Contractor and, if the Work or a portion of the Work is subject to a Unit Price Arrangement, Canada shall issue a Certificate of Measurement that shall, subject to GC8, be binding upon and conclusive between Canada and the Contractor as to the quantities referred to therein.
- 2) Subject to GC5.2 AMOUNT PAYABLE and paragraph 3) of GC5.6, Canada shall pay the Contractor the amount referred to in GC5.2 AMOUNT PAYABLE, less the aggregate of the sum of all payments that were made pursuant to GC5.4 PROGRESS PAYMENT and GC5.5 SUBSTANTIAL PERFORMANCE OF WORK.
- 3) Canada shall pay the amount referred to in paragraph 2) of GC5.6 not later than
  - a) 60 days after the date of issue of a Certificate of Completion; or
  - b) 15 days after the Contractor has delivered to Canada

- (i) a statutory declaration which contains a declaration by the Contractor that all of the Contractor's lawful obligations and any lawful claims against the Contractor that arose out of the performance of the Contract have been discharged and satisfied; and
- (ii) evidence of compliance with workers' compensation legislation in accordance with GC1.9 WORKERS' COMPENSATION;

whichever is later.

#### **GC5.7 (2016-05-01) PAYMENT NOT BINDING ON CANADA**

- 1) Neither acceptance of a progress claim or progress report, nor any payment made by Canada under the Contract, nor partial or entire use or occupancy of the Work by Canada shall constitute an acceptance by Canada of any portion of the Work or Material that is not in accordance with the requirements of the Contract.

#### **GC5.8 CLAIMS AND OBLIGATIONS**

- 1) The Contractor shall discharge all the Contractor's lawful obligations and shall satisfy all lawful claims against the Contractor arising out of the performance of the Work at least as often as the Contract requires Canada to pay the Contractor.
- 2) Whenever requested to do so by Canada, the Contractor shall make a statutory declaration declaring to the existence and condition of any obligations and claims against the Contractor arising out of the performance of the Work.
- 3) In order to discharge lawful obligations of and satisfy lawful claims against the Contractor or its Subcontractors arising out of the performance of the Contract, Canada may pay an amount that is due and payable to the Contractor directly to the claimant. Such payment is, to the extent of the payment, a discharge of Canada's liability to the Contractor under the Contract and may be deducted from any amount payable to the Contractor under the Contract.
- 4) For the purposes of paragraph 3) of GC5.8, and subject to paragraph 6) of GC5.8, a claim or obligation shall be considered lawful when it is so determined by
  - (a) a court of legal jurisdiction;
  - (b) an arbitrator duly appointed to arbitrate the claim; or
  - (c) the written consent of the Contractor authorizing payment of the claim or obligation.
- 5) If a claim or obligation would have been subject to the provisions of Provincial or Territorial lien legislation or, in the Province of Quebec, the law relating to legal hypothecs had the Contractor been performing the Work for an entity other than Canada
  - (a) such amount as may be paid by Canada pursuant to paragraphs 3) and 4) of GC5.8 shall not exceed the amount that the Contractor would have been obliged to pay had the provisions of such legislation or law been applicable to the Work;
  - (b) a claimant need not comply with the provisions of such legislation, setting out the steps by way of notice, registration or otherwise as might have been necessary to preserve or perfect any claim for lien or privilege which the claimant might have had; and

- (c) for the purposes of determining the entitlement of a claimant, the notice required by paragraph 8) of GC5.8 shall be deemed to replace the registration or provision of notice after the performance of work as required by any applicable legislation and no claim shall be deemed to have expired, become void or unenforceable by reason of the claimant not commencing any action within the time prescribed by such legislation.
- 6) The Contractor shall, at the request of any claimant, submit to binding arbitration those questions that need to be answered to establish the entitlement of the claimant to payment. The arbitration shall have as parties to it any Subcontractor or Supplier to whom the claimant supplied Material, performed work or rented equipment should such Subcontractor or Supplier wish to be adjoined, and Canada shall not be a party to such arbitration. Subject to any agreement between the Contractor and the claimant, the arbitration shall be conducted in accordance with the governing Provincial or Territorial legislation applicable to the site of the Work.
- 7) Paragraph 3) of GC5.8 shall apply only to claims and obligations
- (a) the notification of which has set forth the amount claimed to be owing and the person who by contract is primarily liable and has been received by Canada in writing before final payment is made to the Contractor pursuant to GC5.6 FINAL COMPLETION, and within 120 days of the date on which the claimant
    - (i) should have been paid in full under the claimant's contract with the Contractor, its Subcontractor or Supplier if the claim is for money that was lawfully required to be held back from the claimant; or
    - (ii) performed the last of the services, work or labour, or furnished the last of the Material pursuant to the claimant's contract with the Contractor or its Subcontractor or Supplier where the claim is for money not lawfully required to be held back from the claimant; and
  - (b) the proceedings to determine the right to payment of which, pursuant to paragraph 5) of GC5.8, shall have commenced within one year from the date that the notification required by subparagraph 7)(a) of GC5.8 was received by Canada.
- 8) Upon receipt of a notice of claim, Canada may withhold, from any amount that is due and payable to the Contractor pursuant to the Contract, the full amount of the claim or any portion thereof.
- 9) Canada shall notify the Contractor in writing in a timely manner of receipt of any claim and of the intention of Canada to withhold funds. At any time thereafter and until payment is made to the claimant, the Contractor may be entitled to post, with Canada, security in a form acceptable to Canada in an amount equal to the value of the claim, and upon receipt of such security Canada shall release to the Contractor any funds that would be otherwise payable to the Contractor, that were withheld pursuant to the provisions of this clause in respect of the claim of any claimant for whom the security stands.

#### **GC5.9 RIGHT OF SETOFF**

- 1) Without limiting any right of setoff or deduction given or implied by law or elsewhere in the Contract, Canada may set off any amount payable to Canada by the Contractor under the Contract, or under any current contract, against any amount payable to the Contractor under the Contract.

- 2) For the purposes of paragraph 1) of GC5.9, "current contract" means a contract between Canada and the Contractor
  - (a) under which the Contractor has an undischarged obligation to perform or supply work, labour or material; or
  - (b) in respect of which Canada has, since the date of the Contract, exercised any right to take the work that is the subject of that contract out of the Contractor's hands.

#### **GC5.10 ASSESSMENTS AND DAMAGES FOR LATE COMPLETION**

- 1) For the purposes of this clause
  - (a) the Work shall be deemed to be completed on the date of the Certificate of Completion; and
  - (b) the "period of delay" means the number of days commencing on the day fixed for completion of the Work and ending on the day immediately preceding the day on which the Work is completed but does not include any day within a period of extension granted pursuant to GC6.5 DELAYS AND EXTENSION OF TIME and any other day on which, in the opinion of Canada, completion of the Work was delayed for reasons beyond the control of the Contractor.
- 2) If the Contractor does not complete the Work by the day fixed for its completion but completes it thereafter, the Contractor shall pay Canada an amount equal to the aggregate of
  - (a) all salaries, wages and travelling expenses incurred by Canada in respect of persons overseeing the performance of the Work during the period of delay;
  - (b) the cost incurred by Canada as a result of the inability to use the completed Work for the period of delay; and
  - (c) all other expenses and damages incurred or sustained by Canada during the period of delay as a result of the Work not being completed by the day fixed for its completion.
- 3) Canada may waive the right of Canada to the whole or any part of the amount payable by the Contractor pursuant to paragraph 2) of GC5.10 if, in the opinion of Canada, it is in the public interest to do so.

#### **GC5.11 DELAY IN MAKING PAYMENT**

- 1) Notwithstanding GC1.5 TIME OF THE ESSENCE, any delay by Canada in making any payment when it is due pursuant to GC5 TERMS OF PAYMENT, shall not be a breach of the Contract by Canada.
- 2) Subject to paragraph 3) of GC5.11, Canada shall pay to the Contractor simple interest at the Average Bank Rate plus 3 percent per annum on any amount that is overdue pursuant to paragraph 3) of GC5.1 INTERPRETATION, and the interest shall apply from and include the day such amount became overdue until the day prior to the date of payment.
- 3) Interest shall be paid without demand by the Contractor except that



- (a) in respect of amounts that are less than 15 days overdue, no interest shall be paid in respect of payment made within such 15 days unless the Contractor so demands after such amounts have become due and payable; and
- (b) interest shall not be payable or paid on overdue advance payments, if any.

**GC5.12 INTEREST ON SETTLED CLAIMS**

- 1) For the purposes of this clause, a claim means a disputed amount subject to negotiation between Canada and the Contractor under the Contract.
- 2) A claim is deemed to have been settled when an agreement in writing is signed by Canada and the Contractor setting out the amount of the claim to be paid by Canada and the items of work for which the said amount is to be paid.
- 3) A settled claim is deemed to be outstanding from the day immediately following the date the said claim would have been due and payable under the Contract had it not been disputed.
- 4) Canada shall pay to the Contractor simple interest on the amount of a settled claim at the Average Bank Rate plus 3 percent per annum from the date the settled claim was deemed to be outstanding until the day prior to the date of payment.

**GC5.13 RETURN OF SECURITY DEPOSIT**

- 1) After a Certificate of Substantial Performance has been issued, and if the Contractor is not in breach of nor in default under the Contract, Canada shall return to the Contractor all or any part of a Security Deposit that, in the opinion of Canada, is not required for the purposes of the Contract.
- 2) After a Certificate of Completion has been issued, Canada shall return to the Contractor the remainder of any security deposit unless the Contract stipulates otherwise.
- 3) If the security deposit was paid into the Consolidated Revenue Fund of Canada, Canada shall pay interest thereon to the Contractor at a rate established pursuant to section 21(2) of the [Financial Administration Act \(FAA\)](#).

**GC6 DELAYS AND CHANGES IN THE WORK**

- GC6.1 CHANGES IN THE WORK
- GC6.2 CHANGES IN SUBSURFACE CONDITIONS
- GC6.3 HUMAN REMAINS, ARCHAEOLOGICAL REMAINS AND ITEMS OF HISTORICAL OR SCIENTIFIC INTEREST
- GC6.4 DETERMINATION OF PRICE
  - GC6.4.1 Price Determination Prior to Undertaking Changes
  - GC6.4.2 Price Determination Following Completion of Changes
  - GC6.4.3 Price Determination - Variations in Tendered Quantities
- GC6.5 DELAYS AND EXTENSION OF TIME

**GC6.1 CHANGES IN THE WORK**

- 1) At any time before issuance of a Certificate of Completion, Canada may issue orders for additions, deletions or other changes to the Work, or changes in the location or position of the whole or any part of the Work, if the addition, deletion, change or other revision is deemed by Canada to be consistent with the general intent of the Contract.
- 2) An order referred to in paragraph 1) of GC6.1 shall be in writing and given to the Contractor in accordance with GC2.3 NOTICES.
- 3) Upon receipt of an order, the Contractor shall promptly perform the work in accordance with the order as if the order had appeared in and been part of the original Contract.
- 4) If anything done or omitted by the Contractor pursuant to an order increases or decreases the cost of the Work to the Contractor, payment for the work shall be made in accordance with GC6.4 DETERMINATION OF PRICE.

**GC6.2 CHANGES IN SUBSURFACE CONDITIONS**

- 1) If, during the performance of the Work, the Contractor encounters subsurface conditions that are substantially different from the subsurface conditions described in the tender documents supplied to the Contractor, or a reasonable assumption of fact based thereon, the Contractor shall give notice to Canada immediately upon becoming aware of the situation.
- 2) If the Contractor is of the opinion that the Contractor may incur or sustain any extra expense or any loss or damage that is directly attributable to the changed subsurface conditions, the Contractor shall within 10 days of the date the changed subsurface conditions were encountered, give Canada written notice of intention to claim for that extra expense, loss or damage.
- 3) If the Contractor has given a notice referred to in paragraph 2) of GC6.2, the Contractor shall give Canada a written claim for extra expense, loss or damage no later than 30 days after the date that a Certificate of Substantial Performance is issued.
- 4) A written claim referred to in paragraph 3) of GC6.2 shall contain a sufficient description of the facts and circumstances of the occurrence that is the subject of the claim to enable Canada to determine whether or not the claim is justified, and the Contractor shall supply such further and other information for that purpose as Canada requires.
- 5) If Canada determines that a claim referred to in paragraph 3) of GC6.2 is justified, Canada shall make an extra payment to the Contractor in an amount that is calculated in accordance with GC6.4 DETERMINATION OF PRICE.

- 6) If, in the opinion of Canada, the Contractor effects a saving of expenditure that is directly attributable to a substantial difference between the information relating to subsurface conditions at the site of the Work that is contained in the tender documents, or a reasonable assumption of fact based thereon, and the actual subsurface conditions encountered by the Contractor, the Contract Amount shall be reduced by the amount of the saving of expenditure determined in accordance with GC6.4 DETERMINATION OF PRICE.
- 7) If the Contractor fails to give a notice referred to in paragraph 2) of GC6.2 and a claim referred to in paragraph 3) of GC6.2 within the times stipulated, an extra payment shall not be made to the Contractor in respect of the occurrence.
- 8) Canada does not warrant the content expressed in any subsurface report available for the perusal of the Contractor that does not form part of the tender and contract documents.

### **GC6.3 HUMAN REMAINS, ARCHAEOLOGICAL REMAINS AND ITEMS OF HISTORICAL OR SCIENTIFIC INTEREST**

- 1) For the purposes of this clause
  - (a) "human remains" means the whole or any part of a deceased human being, irrespective of the time of death;
  - (b) "archaeological remains" are items, artefacts or things made, modified or used by human beings in antiquity and may include, but not be limited to, stone, wood or iron structures or monuments, dump deposits, bone artefacts, weapons, tools, coins, and pottery; and
  - (c) "items of historical or scientific interest" are naturally occurring or manufactured objects or things of any age that are not archaeological remains but may be of interest to society because of their historical or scientific significance, value, rarity, natural beauty, or other quality.
- 2) If, during the course of the Work, the Contractor encounters any object, item or thing which is described in paragraph 1) of GC6.3 or which resembles any object, item or thing described in paragraph 1) of GC6.3, the Contractor shall
  - (a) take all reasonable steps, including stopping work in the affected area, to protect and preserve the object, item or thing;
  - (b) immediately notify Canada of the circumstances in writing; and
  - (c) take all reasonable steps to minimize additional costs that may accrue as a result of any work stoppage.
- 3) Upon receipt of a notification in accordance with subparagraph 2)(b) of GC6.3, Canada shall promptly determine whether the object, item or thing is one described in, or contemplated by paragraph 1) of GC6.3, and shall notify the Contractor in writing of any action to be performed, or work to be carried out, by the Contractor as a result of Canada's determination.
- 4) Canada may, at any time, enlist the services of experts to assist in the investigation, examination, taking of measurements or other such recordings, placing of permanent protection around or removing of the object, item or thing encountered by the Contractor, and the Contractor shall, to the satisfaction of Canada, allow them access and co-operate with them in the carrying out of their duties and obligations.

- 5) Human remains, archaeological remains and items of historical or scientific interest encountered at the site of the Work shall be deemed to be the property of Canada.
- 6) Except as may be otherwise provided for in the Contract, the provisions of GC6.4 DETERMINATION OF PRICE and GC6.5 DELAYS AND EXTENSION OF TIME shall apply.

## **GC6.4 DETERMINATION OF PRICE**

### **GC6.4.1 Price Determination Prior to Undertaking Changes**

- 1) 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 a negotiated allowance for supervision, co-ordination, administration, overhead, margin and the risk of undertaking the work within the stipulated amount.
- 2) 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.
- 3) A price per unit referred to in paragraph 2) of GC6.4.1 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 a negotiated allowance.
- 4) 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 negotiated allowance.
- 5) If no agreement is reached as contemplated in paragraph 1) of GC6.4.1, the price shall be determined in accordance with GC6.4.2.
- 6) If no agreement is reached, as contemplated in paragraphs 2) and 3) of GC6.4.1, Canada shall determine the class and the unit of measurement of the item of labour, Plant or Material and the price per unit shall be determined in accordance with GC6.4.2.

### **GC6.4.2 Price Determination Following Completion of Changes**

- 1) 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
  - (a) 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 2) of GC6.4.2, that are directly attributable to the performance of the Contract;
  - (b) an allowance for profit and all other expenditures or costs, including overhead, general administration costs, financing and interest charges, in an amount that is equal to 10 percent of the sum of the expenses referred to in subparagraph 1)(a) of GC6.4.2; and
  - (c) interest on the amounts determined under subparagraphs 1)(a) and 1)(b) of GC6.4.2 calculated in accordance with GC5.12 INTEREST ON SETTLED CLAIMS;

- 2) The cost of labour, Plant and Material referred to in subparagraph 1)(a) of GC6.4.2 shall be limited to the following categories of expenditure:
- (a) payments to Subcontractors and Suppliers;
  - (b) 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;
  - (c) assessments payable under any statutory authority relating to workers' compensation, employment insurance, pension plan or holidays with pay, provincial health or insurance plans, environmental reviews, and Applicable Taxes collection costs;
  - (d) rent that is paid for Plant, or an amount equivalent to the said rent if the Plant is owned by the Contractor, that is necessary for and used in the performance of the Work, if the rent or the equivalent amount is reasonable and use of that Plant has been approved by Canada;
  - (e) payments for maintaining and operating Plant necessary for and used in the performance of the Work, and payments for effecting repairs thereto that, in the opinion of Canada, are necessary for the proper performance of the Contract, other than payments for any repairs to the Plant arising out of defects existing before its allocation to the Work;
  - (f) payments for Material that is necessary for and incorporated in the Work, or that is necessary for and consumed in the performance of the Contract;
  - (g) payments for preparation, delivery, handling, erection, installation, inspection, protection and removal of the Plant and Material necessary for and used in the performance of the Contract; and
  - (h) any other payments made by the Contractor with the approval Canada that are necessary for the performance of the Contract in accordance with the Contract Documents.

#### **GC6.4.3 Price Determination - Variations in Tendered Quantities**

- 1) Except as provided in paragraphs 2), 3), 4) and 5) of GC6.4.3, 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.
- 2) 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 other 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
- (a) 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 was requested; and

- (b) the estimated unit cost of labour, Plant and Material required for the portion of the item that is in excess of 115 percent of the tendered quantity.
- 3) If agreement is not reached as contemplated in paragraph 2) of GC6.4.3, the price per unit shall be determined in accordance with GC6.4.2.
  - 4) 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
    - (a) 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
    - (b) the difference in unit cost is due solely to the decrease in quantity and not to any other cause.
  - 5) For the purposes of the negotiation referred to in paragraph 4) of GC6.4.3
    - (a) the onus of establishing, justifying and quantifying a proposed change lies with the party making the request for negotiation; and
    - (b) 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 4) of GC6.4.3 exceed the amount that would have been payable to the Contractor had 85 percent of the tendered quantity actually been performed or supplied.

#### **GC6.5 DELAYS AND EXTENSION OF TIME**

- 1) Upon application of the Contractor made before the date first fixed for completion of the Work or before any other date previously fixed under this clause, Canada may extend the time for completion of the Work by fixing a new date if Canada determines that causes beyond the control of the Contractor have delayed its completion.
- 2) The Contractor's application shall be accompanied by the written consent of the bonding company whose bond forms part of the Contract Security.
- 3) Subject to paragraph 4) of GC6.5, no payment, other than a payment that is expressly stipulated in the Contract, shall be made by Canada to the Contractor for any extra expense, loss or damage incurred or sustained by the Contractor due to delay, whether or not the delay is caused by circumstances beyond the control of the Contractor.
- 4) If the Contractor incurs or sustains any extra expense or any loss or damage that is directly attributable to any neglect or delay that occurs after the date of the Contract on the part of Canada in providing any information or in doing any act that the Contract either expressly requires Canada to do or that would ordinarily be done by an owner in accordance with the practice of the trade, the Contractor shall give Canada written notice of intention to claim for that extra expense or loss or damage within ten working days of the date the neglect or delay first occurred.
- 5) When the Contractor has given a notice referred to in paragraph 4) of GC6.5, the Contractor shall give Canada a written claim for the extra expense, loss or damage no later than 30 days after the date that a Certificate of Completion is issued and not afterwards.

- 6) A written claim referred to in paragraph 5) of GC6.5 shall contain a sufficient description of the facts and circumstances of the occurrence that is the subject of the claim to enable Canada to determine whether or not the claim is justified and the Contractor shall supply such further and other information for that purpose as Canada may require.
- 7) If Canada determines that a claim referred to in paragraph 5) of GC6.5 is justified, Canada shall make an extra payment to the Contractor in an amount that is calculated in accordance with GC6.4 DETERMINATION OF PRICE.
- 8) If the Contractor fails to give a notice referred to in paragraph 4) and a claim referred to in paragraph 5) of GC6.5 within the times stipulated, an extra payment shall not be made to the Contractor in respect of the occurrence.

**GC7 DEFAULT, SUSPENSION OR TERMINATION OF CONTRACT**

GC7.1 TAKING THE WORK OUT OF THE CONTRACTOR'S HANDS

GC7.2 SUSPENSION OF WORK

GC7.3 TERMINATION OF CONTRACT

GC7.4 SECURITY DEPOSIT - FORFEITURE OR RETURN

**GC7.1 TAKING THE WORK OUT OF THE CONTRACTOR'S HANDS**

- 1) By giving notice in writing to the Contractor in accordance with GC2.3 NOTICES, Canada, without any other authorization, may take all or any part of the Work out of the Contractor's hands, and may employ such means as Canada sees fit to have the Work completed if the Contractor:
  - (a) fails to remedy any delay in the commencement or default in the diligent performance of the Work to the satisfaction of Canada within six days of Canada giving notice to the Contractor in writing in accordance with GC2.3 NOTICES;
  - (b) defaults in the completion of any part of the Work within the time fixed for its completion by the Contract;
  - (c) becomes insolvent, or has committed an act of bankruptcy, and has neither made a proposal to its creditors nor filed a notice of intention to make such a proposal, pursuant to the [Bankruptcy and Insolvency Act](#);
  - (d) abandons the work;
  - (e) makes an assignment of the Contract without the consent required by GC1.16 ASSIGNMENT; or
  - (f) otherwise fails to observe or perform any of the provisions of the Contract.
- 2) If the whole or any part of the Work is taken out of the Contractor's hands, the Contractor's right to any further payment that is due or accruing due under the Contract is, subject only to paragraph 3) of GC7.1, extinguished, and the Contractor is liable to pay Canada, upon demand, an amount that is equal to the amount of all loss and damage incurred or sustained by Canada in respect of the Contractor's failure to complete the Work.
- 3) If the whole or any part of the Work that is taken out of the Contractor's hands is completed by Canada, Canada may pay the Contractor the amount, if any, of the holdback or a progress claim as determined by Canada that had accrued and was due prior to the date on which the Work was taken out of the Contractor's hands and that is not required for the purposes of having the Work performed or of compensating Canada for any other loss or damage incurred or sustained by reason of the Contractor's default.
- 4) The taking of the Work or any part thereof out of the Contractor's hands does not relieve the Contractor from any obligation under the Contract or imposed by law except the obligation to complete the performance of that part of the Work that was taken out of the Contractor's hands.
- 5) If the Work or any part thereof is taken out of the Contractor's hands, all Plant and Material and the interest of the Contractor, or its suppliers or subcontractors at any tier, in all real property, licences, powers and privileges acquired, used or provided by the Contractor, or its suppliers or subcontractors at any tier, under the Contract shall continue to be the property of Canada without compensation.



- 6) When Canada certifies that any Plant, Material, or any interest of the Contractor is no longer required for the purposes of the Work, or that it is not in the interests of Canada to retain that Plant, Material, or interest, it shall revert to the Contractor.
- 7) If the Contractor has become insolvent or has committed an act of bankruptcy, and has either made a proposal to its creditors or filed a notice of intention to make such a proposal, pursuant to the [Bankruptcy and Insolvency Act](#), the Contractor shall immediately forward a copy of the proposal or the notice of intention to Canada.

#### **GC7.2 SUSPENSION OF WORK**

- 1) When, in Canada's opinion, it is in the public interest to do so, Canada may require the Contractor to suspend performance of the Work either for a specified or an unspecified period, by giving a notice of suspension in writing to the Contractor in accordance with GC2.3 NOTICES.
- 2) When a notice of suspension is received by the Contractor, the Contractor shall suspend all operations in respect of the Work except those that Canada determines are necessary for the care and preservation of the Work, Plant and Material.
- 3) During a period of suspension, the Contractor shall not remove any part of the Work, Plant or Material from its site without the consent of Canada.
- 4) If a period of suspension is 60 days or less, the Contractor shall resume the performance of the Work on the expiration of that period, and the Contractor is entitled to be paid the extra costs necessarily incurred by the Contractor as a result of the suspension, determined in accordance with GC6.4 DETERMINATION OF PRICE.
- 5) If a period of suspension is more than 60 days, Canada and the Contractor may agree that the performance of the Work shall be continued by the Contractor, and the Contractor shall resume performance of the Work subject to any terms and conditions agreed upon by Canada and the Contractor. If Canada and the Contractor do not agree that performance of the Work shall be continued by the Contractor, or upon the terms and conditions under which the Contractor shall continue the Work, the notice of suspension shall be deemed to be a notice of termination pursuant to GC7.3 TERMINATION OF CONTRACT.

#### **GC7.3 TERMINATION OF CONTRACT**

- 1) Canada may terminate the Contract at any time by giving a notice of termination in writing to the Contractor in accordance with GC2.3 NOTICES.
- 2) If the Contractor receives a notice of termination, the Contractor shall forthwith cease all operations in performance of the Contract, subject to any conditions stipulated in the notice.
- 3) Subject to paragraph 4) of GC7.3, if the Contract is terminated, Canada shall pay the Contractor an amount determined to be due to the Contractor pursuant to GC6.4 DETERMINATION OF PRICE less the aggregate of all amounts that were paid to the Contractor by Canada and all amounts that are due to Canada from the Contractor pursuant to the Contract.
- 4) In no event shall the total amount payable by Canada to the Contractor exceed the amount, calculated in accordance with GC5 TERMS OF PAYMENT, that would have been payable to the Contractor had the Contractor completed the Work.

- 5) Payment to the Contractor, if any, shall be made as soon as practicable under the circumstances.

**GC7.4 SECURITY DEPOSIT - FORFEITURE OR RETURN**

- 1) If the Work is taken out of the Contractor's hands, or the Contractor is in breach of, or in default under, the Contract, Canada may convert a security deposit to Canada's own use.
- 2) If Canada converts a security deposit, the amount realized shall be deemed to be an amount due from Canada to the Contractor under the Contract.
- 3) Any balance of the amount realized that remains after payment of all losses, damage and claims of Canada and others shall be paid by Canada to the Contractor if, in the opinion of Canada, it is not required for the purposes of the Contract.

**GC8 DISPUTE RESOLUTION**

- GC8.1 INTERPRETATION
- GC8.2 CONSULTATION AND CO-OPERATION
- GC8.3 NOTICE OF DISPUTE
- GC8.4 NEGOTIATION
- GC8.5 MEDIATION
- GC8.6 BINDING ARBITRATION
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  - GC8.10.8 Procedure
  - GC8.10.9 Settlement Agreement
  - GC8.10.10 Termination of Mediation
  - GC8.10.11 Costs
  - GC8.10.12 Subsequent Proceedings

**GC8.1 INTERPRETATION**

- 1) "dispute" means any disagreement regarding any issue identified by the Contractor in the notice submitted to Canada in accordance with paragraph 2 of GC8.3 NOTICE OF DISPUTE, and includes any claim by the Contractor arising from such disagreement and any counterclaim by Canada, but does not include any claim by either party for punitive or exemplary damages, injury to persons, death, or any claim based on an allegation of libel or slander.
- 2) The alternative dispute resolution procedures set out in GC8, do not apply to any claim by Canada against the Contractor except any counterclaim in a dispute as defined in paragraph 1 of GC8.1, including, but not limited to, any claim of setoff regarding any amount due to Canada under GC5.10 ASSESSMENT AND DAMAGES FOR LATE COMPLETION.

**GC8.2 CONSULTATION AND CO-OPERATION**

- 1) The parties agree to maintain open and honest communication throughout the performance of the Contract.
- 2) The parties agree to consult and co-operate with each other in the furtherance of the Work and the resolution of problems or differences that may arise.

**GC8.3 NOTICE OF DISPUTE**

- 1) Any difference between the parties to the Contract of any nature arising out of or in connection with the Contract which could result in a claim by the Contractor against Canada, and which is not settled by consultation and co-operation as envisaged in GC8.2

CONSULTATION AND CO-OPERATION, shall be resolved in the first instance by Canada, whose written decision or direction shall be final and binding subject only to the provisions of GC8. Such written decision or direction includes, but is not limited to, any written decision or direction by Canada under any provision of the General Conditions.

- 2) The Contractor shall be deemed to have accepted the decision or direction of Canada referred to in paragraph 1) of GC8.3 and to have expressly waived and released Canada from any claim in respect of the particular matter dealt with in that decision or direction unless, within 15 working days after receipt of the decision or direction, the Contractor submits to Canada a written notice of dispute requesting formal negotiation under GC8.4 NEGOTIATION. Such notice shall refer specifically to GC8.4 NEGOTIATION, and shall specify the issues in contention and the relevant provisions of the Contract.
- 3) The giving of a written notice in accordance with paragraph 2) of GC8.3 shall not relieve the Contractor from complying with the decision or direction that is the subject of the dispute. Such compliance, however, shall not be construed as an admission by the Contractor of the correctness of such decision or direction.
- 4) If a dispute is not resolved promptly, Canada shall give such instructions as, in Canada's opinion, are necessary for the proper performance of the Work and to prevent delays pending a resolution of the matter. Unless Canada terminates the Contract, orders the Contractor to suspend the Work, or takes the Work out of the hands of the Contractor, the Contractor shall continue to perform the Work in accordance with the provisions and requirements of the Contract and the instructions of Canada. Such performance shall not prejudice any claim that the Contractor may have.
- 5) Nothing in GC8 relieves the Contractor from its obligation to provide any other notice required by the Contract within the time specified in the Contract, including but not limited to, any notice required under GC6.2 CHANGES IN SUBSURFACE CONDITIONS.

#### **GC8.4 NEGOTIATION**

- 1) Within 10 working days after receipt by Canada of a notice referred to in paragraph 2) of GC8.3 NOTICE OF DISPUTE, or within such other period of time as may be mutually agreed to, the parties shall commence formal negotiations in order to resolve the dispute. Negotiations shall occur initially between representatives of the Contractor and Canada who play a direct supervisory role in the performance, administration or management of the Contract.
- 2) If the representatives referred to in paragraph 1) of GC8.4 are unable to resolve some or all of the issues which are the subject of the negotiations within 10 working days, the parties shall refer the remaining issues which are in dispute to a second level of negotiation between a principal or principals of the Contractor and a senior level manager or senior level managers representing Canada.
- 3) If negotiations fail to resolve the dispute within 30 working days from the date of delivery of the notice referred to in paragraph 2) of GC8.3 NOTICE OF DISPUTE, or within such longer period as may have been agreed to by the parties, the Contractor may, by giving written notice to Canada, in accordance with GC2.3 NOTICES, within 10 working days from the end of such period, request that mediation be undertaken to assist the parties to reach agreement on the outstanding issues.
- 3) If the Contractor does not request mediation within the period permitted by paragraph 3) of GC8.4, the Contractor shall be deemed to have accepted the decision or direction of Canada under paragraph 1) of GC8.3 NOTICE OF DISPUTE and to have expressly waived and

released Canada from any claim in respect of the particular matter dealt with in that decision or direction.

### **GC8.5 MEDIATION**

- 1) If the Contractor has requested mediation in accordance with paragraph 3) of GC8.4 NEGOTIATION, mediation shall be conducted in accordance with GC8.8 RULES FOR MEDIATION OF DISPUTES.
- 2) If a Project Mediator has not previously been appointed for the purposes of the Contract, a Project Mediator shall be appointed in accordance with GC8.8 RULES FOR MEDIATION OF DISPUTES forthwith after delivery of a notice in accordance with paragraph 3) of GC8.4 NEGOTIATION, requesting mediation.
- 3) If the dispute has not been resolved within
  - (a) Ten (10) working days following the appointment of a Project Mediator in accordance with paragraph 2) of GC8.5, if a Project Mediator was not previously appointed;
  - (b) Ten (10) working days following receipt by Canada of a written notice in accordance with paragraph 3) of GC8.4 NEGOTIATION, if a Project Mediator was previously appointed; or
  - (c) such other longer period as may have been agreed to by the parties;

the Project Mediator shall terminate the mediation by giving written notice to the parties stating the effective date of termination.

### **GC8.6 BINDING ARBITRATION**

- 1) If mediation of the dispute is terminated pursuant to the provisions of GC8.5, "Mediation", and
  - a) the termination of mediation occurs prior to the applicable date set out in paragraph 4) of GC8.6; and
  - b) the disputed issues involve issues of fact or issues of arbitral questions of law or issues of mixed fact and arbitral questions of law;

either party, by giving notice in writing to the other party in accordance with GC2.3, "Notices", may require that the dispute be resolved by binding arbitration pursuant to GC8.6.

- 2) A notice referred to in paragraph 1) of GC8.6 shall be given within 10 working days of the date of termination of mediation under GC8.5 Mediation and shall be in accordance with GC2.3, "Notices".
- 3) If no notice is given within the period set out in paragraph 2) of GC8.6, or if the conditions set out in subparagraphs 1)(a) and 1)(b) of GC8.6 are not met, the arbitration provisions set out in GC8.6 do not apply to the dispute.
- 4) Unless otherwise agreed, the arbitration of the dispute shall be held in abeyance until the earlier of
  - a) the date of issuance of a Certificate of Substantial Performance under GC5.5, "Substantial Performance of the Work";

- b) the date the Work is taken out of the Contractor's hands; and
- c) the date of termination of the Contract;

and consolidated with all other such disputes into a single arbitration.

- 5) Arbitral proceedings under this GC8.6 shall be governed by and conducted in accordance with the **Commercial Arbitration Act**, R.S. 1985, c. 17 (2nd Supp.) and the provisions of GC8.11, "Rules for Arbitration of Disputes".
- 6) For the purposes of calculating time under the Rules for Arbitration referred to in paragraph 5) of GC8.6, arbitration proceedings shall commence on the applicable date set out in paragraph 4) of GC8.6.
- 7) Notwithstanding anything else contained in GC8.6, the arbitration provisions in GC8.6 do not apply if the aggregate amount of all claims by the Contractor required to be arbitrated on the applicable date set out in paragraph 4) of GC8.6 is less than \$25,000.

#### **GC8.7 DISPUTES NOT SUBJECT TO ARBITRATION**

- 1) Where the arbitration provisions in GC8.6, "Binding Arbitration", do not apply to a dispute as a result of paragraphs 3) or 7) of GC8.6, "Binding Arbitration", either party may take such court action or proceedings as it considers appropriate, including, without limiting the foregoing, all suits that would otherwise have been immediately available to it but for the provisions of these Dispute Resolution Conditions. Subject to the provisions of paragraph 2) of GC8.7, the Contractor shall initiate any such action or proceeding no later than three calendar months after the date that a Certificate of Completion is issued under GC5.6, "Final Completion", and not afterwards, except where it is otherwise provided by law.
- 2) Any action or proceeding resulting from a direction under GC3.13, "Warranty and Rectification of Defects in Work", shall be initiated by the Contractor no later than three calendar months after the expiry of the warranty or guarantee period and not afterwards, except where it is otherwise provided by law.

#### **GC8.8 (2016-05-01) CONFIDENTIALITY**

All information exchanged during alternative dispute resolution procedures, by whatever means, shall be without prejudice and shall be treated as confidential by the parties and their representatives, unless otherwise required by law. However, evidence that is independently admissible or discoverable shall not be rendered inadmissible or non-discoverable by virtue of its use during an alternative dispute resolution process.

#### **GC8.9 (2016-05-01) SETTLEMENT**

Any agreement to settle all or any part of a dispute, by whatever means, shall be in writing and be signed by the parties or their authorized representatives.

#### **GC8.10 (2016-05-01) RULES FOR MEDIATION OF DISPUTES**

##### **GC8.10.1 Interpretation**

In these Rules

- 1) “Coordinator” means the person designated by Canada to act as the Dispute Resolution Coordinator.

#### **GC8.10.2 Application**

- 1) By mutual agreement, the parties may change or make additions to the Rules.

#### **GC8.10.3 Communication**

- 1) Written communications pursuant to these Rules shall be given in accordance with GC2.3 NOTICES.

#### **GC8.10.4 Appointment of Project Mediator**

- 1) The parties to the Contract may, by mutual consent, at any time after entry into the Contract, appoint a mediator (the “Project Mediator”) to conduct mediation proceedings in accordance with these Rules for Mediation of Disputes, in regard to any dispute that may arise with regard to the interpretation, application or administration of the Contract. In this case, they shall jointly enter into a contract with the appointed Project Mediator, which contract shall be in a form drafted by the Coordinator and agreed to by the parties.
- 2) If the parties do not appoint a Project Mediator pursuant to paragraph 1) of GC8.8.4, the parties shall appoint a Project Mediator within 17 working days following receipt of a written notice from the Contractor, in accordance with GC2.3 NOTICES, requesting that mediated negotiations be undertaken in accordance with these Rules to assist the parties to reach agreement on any outstanding issues that may be in dispute. Any contract entered into with the appointed Project Mediator shall meet the requirements as set out for the contract described in paragraph 1) of GC8.8.4.
- 3) When mediation is requested by the Contractor pursuant to paragraph 3) of GC8.4 NEGOTIATION, if the parties have previously entered into a contract with a Project Mediator, the parties shall within 2 days send to both the Project Mediator and the Coordinator
  - (a) a copy of the notice requesting negotiation under paragraph 2) of GC8.3 NOTICE OF DISPUTE;
  - (b) a copy of Canada’s written position in relation to the notice, the issues in contention and the relevant provisions of the contract; and
  - (c) a copy of the Contractor’s written request for mediation required under paragraph 3) of GC8.4 NEGOTIATION.
- 4) If the parties have not agreed on a Project Mediator, the parties shall forthwith provide the Coordinator with the written materials referred to in subparagraphs 3)(a), 3)(b) and 3)(c) of GC8.8.4 together with a request that the Coordinator assist in the appointment of a mutually acceptable Project Mediator in accordance with these Rules.
- 5) Within 5 working days following receipt of the request and materials referred to in paragraph 4) of GC8.8.4, the Coordinator shall provide the parties with a list of qualified private sector mediators obtained from an independent and impartial entity, together with instructions to

each party to individually and confidentially select and rank their preferred and fully acceptable choices of mediator in descending order. Each mediator listed shall be impartial and independent of the parties, and shall be an experienced and skilled commercial mediator, preferably with knowledge of the subject matter of the dispute.

- 6) Within 10 working days of receipt of the list referred to in paragraph 5) of GC8.8.4 each party shall comply with the instructions accompanying the list(s) and shall deliver the completed listing to the Coordinator.
- 7) Within 2 working days following receipt of the completed listings, the Coordinator shall select the highest common ranked mediator to act as Project Mediator for the purposes of the contract.
- 8) In the event of a tie, the Coordinator shall consult both parties to re-evaluate their rankings in order to assist the Coordinator in selecting a Project Mediator acceptable to both parties. If the parties cannot agree upon a Project Mediator, the Coordinator shall forthwith provide the parties with a second list of mediators and the procedure shall be repeated.
- 9) If the parties have not previously entered into a contract with a mutually acceptable Project Mediator, the Coordinator shall use reasonable efforts to negotiate a contract with a mutually acceptable Project Mediator on behalf of the parties, which contract shall incorporate or otherwise comply with the provisions of these Rules. If negotiations are unsuccessful, or if for other reason the individual is unwilling or unable to enter into a contract to act as Project Mediator, the Coordinator shall repeat the process with the second-highest common ranked mediator.
- 10) The parties agree that, upon successful completion of the negotiations referred to in paragraph 9) of GC8.8.4, they shall jointly enter into a contract with the selected Project Mediator, which contract shall be in a form drafted by the Coordinator and agreed to by the parties.
- 11) Upon execution of the contract with the Project Mediator referred to in paragraph 10) of GC8.8.4 the Coordinator shall provide the Project Mediator with copies of the documents referred to in paragraph 3) of GC8.8.4.

#### **GC8.10.5 Confidentiality**

- 1) Subject to paragraph 2) of GC8.8.5, and unless otherwise agreed in writing by the parties, the Project Mediator, the parties and their counsel or representatives shall keep confidential all matters and documents disclosed during mediation proceedings except where the disclosure is necessary for any implementation of any agreement reached or is required by law.
- 2) Evidence that is independently admissible or discoverable in any arbitral or judicial proceeding shall not be rendered inadmissible or non-discoverable by virtue of its use in mediation proceedings.
- 3) Neither party shall make transcripts, minutes or other records of a mediation conference.
- 4) The personal notes and written opinions of the Project Mediator made in relation to mediation are in the Project Mediator's sole possession and control, are confidential, and may not be used in any subsequent proceeding between the parties or where they are opposed in interest without the express written permission of the parties.



- 5) All information exchanged during mediation procedures, by whatever means, shall be without prejudice and shall be treated as confidential by the parties and their representatives, unless otherwise required by law.

**GC8.10.6 Time and Place of Mediation**

- 1) The Project Mediator, in consultation with the parties shall set the date, time and place of any mediation conference as soon as possible, bearing in mind that, subject to agreement to the contrary between the parties, only 10 working days are available within which to attempt to settle the dispute.

**GC8.10.7 Representation**

- 1) Representatives of the parties may be accompanied at the mediation conference by legal counsel or any other person.
- 2) If the Project Mediator is a lawyer, the Project Mediator shall not provide legal advice to a party during the course of the mediation conference, but may recommend that a party obtain independent legal advice before finalizing a settlement agreement.

**GC8.10.8 Procedure**

- 1) The parties agree to an exchange of all facts, information and documents upon which they intend to rely in any oral or written presentation during the mediation. This exchange shall be completed no later than 2 working days prior to the date set for a mediation conference.
- 2) The Project Mediator shall be free to meet with the parties individually during a mediation conference if the Project Mediator is of the opinion that this may improve the chances of a mediated settlement, and either party may request such an individual meeting at any time.
- 3) The parties may agree to extend the 10 working days available for settlement of the dispute through mediation, and the Project Mediator shall record that agreement in writing.

**GC8.10.9 Settlement Agreement**

- 1) The parties shall record in writing any settlement agreement reached, with sufficient detail to ensure a clear understanding of
  - (a) the issues resolved;
  - (b) any obligations assumed by each party including criteria to determine if and when these obligations have been met; and
  - (c) the consequences of failure to comply with the agreement reached.
- 2) The parties agree to carry out the terms of a settlement agreement as soon as possible and, in any event, within any time periods specified in the agreement.

**GC8.10.10 Termination of Mediation**

- 1) Either party may withdraw from mediation at any time without reason and, in that event, the Project Mediator shall give each party a written notice terminating the mediation and establishing the effective date of termination.
- 2) If, in the opinion of the Project Mediator, either party fails to mediate in good faith or fails to comply with the terms of these Rules, or if the Project Mediator, at any time during mediation, is of the opinion that further negotiations will fail to resolve the issues outstanding, the Project Mediator may terminate the negotiations by providing the parties with a written notice of termination, stating therein the Project Mediator's reasons for the termination, and the effective date of termination.
- 3) If a dispute has not been resolved within 10 working days or such other longer period as may have been agreed to by the parties, the Project Mediator shall terminate the mediation by giving written notice to the parties stating the effective date of termination.

#### **GC8.10.11 Costs**

- 1) The parties agree that they will each be responsible for the costs of their own representatives and advisors and associated travel and living expenses. Fees and expenses of the Project Mediator and all administrative costs of mediation, such as the cost of the meeting room(s), if any, shall be borne equally by the parties.

#### **GC8.10.12 Subsequent Proceedings**

- 1) The parties shall not rely on or introduce as evidence in any arbitral or judicial proceeding, whether or not such proceeding relates to the subject matter of mediation,
  - (a) any documents of other parties that are not otherwise producible in those proceedings;
  - (b) any views expressed or suggestions made by any party in respect of a possible settlement of issues;
  - (c) any admission made by any party in the course of mediation unless otherwise stipulated by the admitting party; and
  - (d) the fact that any party has indicated a willingness to make or accept a proposal or recommendation for settlement.
- 2) The Project Mediator shall neither represent nor testify on behalf of either of the parties in any subsequent investigation, action or proceeding relating to the issues in mediation proceedings.
- 3) The Project Mediator shall not be subpoenaed to give evidence relating to
  - (a) the Project Mediator's role in mediation; or
  - (b) the matters or issues in mediation;**

**in any subsequent investigation, action or proceeding and the parties agree to vigorously oppose any effort to have the Mediator so subpoenaed.**

**GC9 CONTRACT SECURITY**

GC9.1 OBLIGATION TO PROVIDE CONTRACT SECURITY

GC9.2 TYPES AND AMOUNTS OF CONTRACT SECURITY

**GC9.1 OBLIGATION TO PROVIDE CONTRACT SECURITY**

- 1) The Contractor shall, at the Contractor's expense and within 14 days after the date that the Contractor receives notice that the Contractor's bid was accepted by Canada, obtain and deliver Contract Security to Canada in one of the forms prescribed in GC9.2 TYPES AND AMOUNTS OF CONTRACT SECURITY.
- 2) If the whole or a part of the Contract Security provided is in the form of a security deposit, it shall be held and disposed of in accordance with GC5.13 RETURN OF SECURITY DEPOSIT and GC7.4 SECURITY DEPOSIT - FORFEITURE OR RETURN.
- 3) If a part of the Contract Security provided is in the form of a labour and material payment bond, the Contractor shall post a copy of that bond at the site of the Work.
- 4) It is a condition precedent to the release of the first progress payment that the Contractor has provided the Contract Security as specified herein.

**GC9.2 (2016-05-01) TYPES AND AMOUNTS OF CONTRACT SECURITY**

- 1) The Contractor shall deliver to Canada either (a) or (b).
  - a) A performance bond and a labour and material payment bond each in an amount that is equal to not less than 50 percent of the Contract Amount (excluding applicable tax(es)).
  - b) A security deposit or an irrevocable standby letter of credit in an amount that is equal to not less than 20 percent of the Contract Amount (excluding applicable tax(es)).
- 2) A performance bond and a labour and material payment bond referred to in paragraph 1) of GC9.2 shall be in a form and be issued by a bonding or surety company that is approved by Canada.
  - (a) The approved form for the performance bond is displayed at the following Website: <http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=14494&section=text#appS>
  - (b) The approved form for the labour and material payment bond is displayed at the following website: <http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=14494&section=text#appS>; and
  - (c) The list of approved bonding or surety companies is displayed at the following Website: <http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=14494&section=text#appl>
- 3) A security deposit referred to in subparagraph 1)(b) of GC9.2 shall be in the form of
  - 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 GC9.2
- a) a bill of exchange is an unconditional order in writing signed by the Contractor 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 GC9.2, 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 GC9.2 shall be provided on the basis of their market value current at the date of the Contract, and shall be
- a) made payable to bearer; or
  - 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) An irrevocable standby letter of credit referred to in subparagraph 1)(b) of GC9.2 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, Canada as the beneficiary;
    - II.is to accept and pay bills of exchange drawn by 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 that 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 Canada;
- 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 in a format left to the discretion of the issuer or confirmer, by an approved financial institution on its letterhead.

**GC10 INSURANCE**

GC10.1 INSURANCE CONTRACTS

GC10.2 INSURANCE PROCEEDS

**GC10.1 INSURANCE CONTRACTS**

- 1) The contractor shall, at the contractor's expense, obtain and maintain insurance contracts in respect of the work and shall provide evidence thereof to Canada in accordance with the requirements of the INSURANCE TERMS.
- 2) The insurance contracts referred to in paragraph 1) of GC10.1 shall
  - (a) be in a form, of the nature, in the amounts, for the periods and containing the terms and conditions specified in INSURANCE TERMS; and
  - (b) provide for the payment of claims under such insurance contracts in accordance with GC10.2 INSURANCE PROCEEDS.

**GC10.2 INSURANCE PROCEEDS**

- 1) In the case of a claim payable under a Builders Risk/Installation (All Risks) insurance contract maintained by the contractor pursuant to GC10.1 INSURANCE CONTRACTS, the proceeds of the claim shall be paid directly to Canada, and
  - (a) the monies so paid shall be held by Canada for the purposes of the contract, or
  - (b) if Canada elects, shall be retained by Canada, in which event they vest in Canada absolutely.
- 2) In the case of a claim payable under a General Liability insurance contract maintained by the contractor pursuant to GC10.1 INSURANCE CONTRACTS, the proceeds of the claim shall be paid by the insurer directly to the claimant.
- 3) If an election is made pursuant to paragraph 1) of GC10.2, Canada may cause an audit to be made of the accounts of the contractor and of Canada in respect of the part of the work that was lost, damaged or destroyed for the purpose of establishing the difference, if any, between
  - (a) the aggregate of the amount of the loss or damage suffered or sustained by Canada, including any costs incurred in respect of the clearing and cleaning of the work and its site and any other amount that is payable by the contractor to Canada under the contract, minus any monies retained pursuant to subparagraph 1)(b) of GC10.2; and
  - (b) the aggregate of the amounts payable by Canada to the contractor pursuant to the contract up to the date of the loss or damage.
- 4) A difference that is established pursuant to paragraph 3) of GC10.2 shall be paid forthwith by the party who is determined by the audit to be the debtor to the party who is determined by the audit to be the creditor.

- 5) When payment of a deficiency has been made pursuant to paragraph 4) of GC10.2, all rights and obligations of Canada and the contractor under the contract shall, with respect only to the part of the work that was the subject of the audit referred to in paragraph 3) of GC10.2, be deemed to have been expended and discharged.
- 6) If an election is not made pursuant to subparagraph 1)(b) of GC10.2, the contractor shall, subject to paragraph 7) of GC10.2, clear and clean the work and its site and restore and replace the part of the work that was lost, damaged or destroyed at the contractor's expense as if that part of the work had not yet been performed.
- 7) When the contractor clears and cleans the work and its site and restores and replaces the work referred to in paragraph 6) of GC10.2, Canada shall pay the contractor out of the monies referred to in paragraph 1) of GC10.2 so far as they will thereunto extend.
- 8) Subject to paragraph 7) of GC10.2, payment by Canada pursuant to paragraph 7) of GC10.2 shall be made in accordance with the contract but the amount of each payment shall be 100 percent of the amount claimed notwithstanding subparagraphs 3)(a) and 3)(b) of GC5.4 PROGRESS PAYMENT.



## INSURANCE TERMS

### IN1 GENERAL

- IN1.1 Worker's Compensation
- IN1.2 Indemnification
- IN1.3 Proof of Insurance
- IN1.4 Insured
- IN1.5 Payment of Deductible

### IN2 COMMERCIAL GENERAL LIABILITY

- IN2.1 Scope of Policy
- IN2.2 Period of Insurance

### IN3 AUTOMOBILE INSURANCE

- IN3.1 Scope of Policy

### IN4 BUILDER'S RISK / INSTALLATION FLOATER

- IN4.1 Scope of Policy
- IN4.2 Amount of Insurance
- IN4.3 Period of Insurance
- IN4.4 Insurance Proceeds

## IN1 GENERAL

### IN1.1 Worker's Compensation

- 1) The Contractor shall provide and maintain Worker's Compensation Insurance in accordance with the legal requirements of the Province or Territory where the work is being carried out.

### IN1.2 Indemnification

- 1) The insurance required by the provisions of these Insurance Terms shall in no way limit the Contractor's responsibility under the Indemnification clause of the General Conditions of the contract. Any additional coverage the Contractor may deem necessary to fulfill his obligations under the aforesaid clause shall be at his own discretion and expense.

### IN1.3 Proof of Insurance

- 1) Before commencement of the Work, and within thirty (30) days after acceptance of its bid, the Contractor shall deposit with Canada a CERTIFICATE OF INSURANCE (form AAFC / AAC5314) available upon request.
- 2) In the event that the Contractor already possesses an insurance certificate clearly demonstrating that their insurance coverage meets IN2.1 Scope of Policy provisions, then the Contractor may deposit an original copy of this insurance certificate.
- 3) Upon request by Canada, the Contractor shall provide originals or certified true copies of all contracts of insurance maintained by the Contractor pursuant to the provisions contained herein.

### IN1.4 Insured

- 1) Each policy shall insure the Contractor and shall include Her Majesty the Queen in right of Canada, represented by the Minister of Agriculture & Agri-Food Canada as an additional Insured, with respect to liability arising out of the operations of the contractor with regard to the work.



## **INSURANCE TERMS (Continued)**

### **IN1.5 Payment of Deductible**

- 1) The payment of monies up to the deductible amount made in satisfaction of a claim shall be borne by the Contractor.

## **IN2 COMMERCIAL GENERAL LIABILITY**

### **IN2.1 Scope of Policy**

- 1) The insurance coverage provided shall not be less than that provided by IBC Form 2100, as amended from time to time, and shall have:
  - (a) an Each Occurrence Limit of not less than \$5,000,000.00 ;
  - (b) a Products/Completed Operations Aggregate Limit of not less than \$5,000,000.00 ; and
  - (c) a General Aggregate Limit of not less than \$10,000,000.00 per policy year, if the policy is subject to such a limit.
- 2) The policy shall 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) Asbestos.
  - (f) Non-owed Automobile Policy.

### **IN2.2 Period of Insurance**

- 1) Unless otherwise directed in writing by Canada, or, otherwise stipulated elsewhere herein, the policy required herein shall 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 Liability shall, in any event, be maintained for a period of at least six (6) years beyond the date of the CERTIFICATE OF SUBSTANTIAL PERFORMANCE.

## **IN3 AUTOMOBILE INSURANCE**

### **IN3.1 Scope of Policy**

- 1) Automobile Liability Insurance in respect of licensed vehicles shall have limits of not less than one million dollars inclusive per occurrence for bodily injury, death, and damage to property.

## **INSURANCE TERMS (Continued)**

### **IN4 BUILDER'S RISK / INSTALLATION FLOATER**

#### **IN4.1 Scope of Policy**

- 1) The insurance coverage provided by a Builder's Risk policy or an Installation Floater policy shall not be less than that provided by IBC Forms 4042 and 4047, as amended from time to time.
- 2) The policy shall 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.

#### **IN4.2 Amount of Insurance**

- 1) The amount of insurance shall 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 shall be changed to reflect the revised contract value.

#### **IN4.3 Period of Insurance**

- 1) Unless otherwise directed in writing by Canada, or, stipulated elsewhere herein, the policy required herein shall be in force and be maintained from prior to the commencement of work until the day of issue of the CERTIFICATE OF SUBSTANTIAL PERFORMANCE.

#### **IN4.4 Insurance Proceeds**

- 1) The policy shall provide that the proceeds thereof are payable to Her Majesty or as Canada may direct in accordance with GC 10.2 Insurance Proceeds.
- 2) The Contractor shall, without delay, do such things and execute such documents as are necessary to effect payment of the proceeds.

## BID AND ACCEPTANCE FORM

### CONSTRUCTION CONTRACT - MAJOR WORKS

<b>BA01 IDENTIFICATION</b>					
Description of the Work Building 49 - Upgrade Chilled Water System					
Solicitation Number 19-1233			File / Project Number CEF19 0027		
<b>BA02 BUSINESS NAME AND ADDRESS OF BIDDER</b>					
Name					
Address					
Unit/Suite/Apt.	Street number	Number suffix	Street name	Street type	Street direction
PO Box or Route Number			Municipality (City, Town, etc.)		Province
Postal code					
Phone number		Fax number		Email address	
<b>BA03 THE OFFER</b>					
1) The Bidder offers to Canada as represented by the Minister of Agriculture and Agri-food 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 (GST/HST/QST). (to be expressed in numbers only)					
<b>BA04 BID VALIDITY PERIOD</b>					
1) The bid shall not be withdrawn for a period of <u>60</u> days following the date of solicitation closing.					
<b>BA05 APPENDICES</b>					
1) The following appendices are included in this Bid and Acceptance Form: <input type="checkbox"/> No appendices <input type="checkbox"/> Appendix 1 <input type="checkbox"/> Appendix 2					
<b>BA06 ACCEPTANCE AND CONTRACT</b>					
1) Upon acceptance of the Bidder's offer by Canada, a binding Contract shall be formed between Canada and the resulting Contractor. The documents forming the Contract shall be the contract documents referred to in SC01 CONTRACT DOCUMENTS.					
<b>BA07 CONSTRUCTION TIME</b>					
1) The Contractor shall perform and complete the Work <u>on or before</u> <u>2020-03-31</u>					
<b>BA08 BID SECURITY</b>					
1) The Bidder shall enclose bid security with its bid in accordance with GI07 BID SECURITY REQUIREMENTS.					
2) If a security deposit is furnished as bid security, it shall be forfeited in the event that the bid is accepted by Canada and the Contractor fails to provide Contract Security in accordance with GC9 CONTRACT SECURITY, provided that Canada may, if it is in the public interest, waive the right of Canada to forfeiture any or all of the security deposit.					

**BA09 SIGNATURE**

Name and title of person authorized to sign on behalf of Bidder (type or print)	Name
	Title
	_____
	Signature _____ Date _____
	Name
	Title
	_____
	Signature _____ Date _____

**BA10 INTEGRITY PROVISIONS - LIST OF NAMES**

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

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

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

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

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____



Agriculture and  
Agri-Food Canada

Agriculture et  
Agroalimentaire Canada

# **DRAWINGS & SPECIFICATIONS**

**#19-1233**

**FOR**

**BUILDING 49 -**

**UPGRADE CHILLED WATER  
SYSTEM**

**CENTRAL EXPERIMENTAL FARM (CEF)  
Agriculture and Agri-Food Canada (AAFC)  
960 Carling Ave.  
Ottawa, ON  
K1A 0C6**

**SPECIFICATIONS:**

<i>Section No.</i>	<i>Section Title</i>	<i>Pages</i>
<b>DIVISION 01</b>	<b>GENERAL REQUIREMENTS</b>	
01 00 10	General instructions	5
01 33 00	Submittal Procedures	4
01 35 29 06	Health and safety requirements	4
01 74 11	Cleaning	2
01 78 00	Closeout Submittals	6
01 91 13	General Commissioning (Cx) Requirements	8
01 91 33	Commissioning (Cx) Forms	3
<b>DIVISION 02</b>	<b>EXISTING CONDITIONS</b>	
02 61 33	Hazardous Materials	3
<b>DIVISION 23</b>	<b>HVAC</b>	
23 05 54	Mechanical Identification	5
23 05 93	Testing, Adjusting, and Balancing for HVAC	4
23 64 26	Scroll Water Chillers	8
<b>DIVISION 25</b>	<b>INTEGRATED AUTOMATION</b>	
25 30 02	Field Control Devices	4
<b>DIVISION 26</b>	<b>ELECTRICAL</b>	
26 05 00	Electrical General Requirements	6
26 05 20	Wire and Box Connectors (0-1000V)	1
26 05 21	Wires and Cables (0-1000V)	2
26 05 28	Grounding - Secondary	2
26 05 31	Splitters, Junction, Pull Boxes, and, Cabinets	1
26 05 34	Conduits, Conduit Fastenings, and Conduit Fittings	2
26 28 21	Moulded Case Circuit Breakers	1
26 28 23	Disconnect Switches – Fused and Non-fused	1

**Drawings :**

**Mechanical :** M-1, M-2, M-3

**Electrical :** E-1, E-2, E-3

END OF SECTION

**Part 1            General**

**1.1                MINIMUM STANDARDS**

- .1        Materials shall be new and work shall conform to the minimum applicable standards of the Canadian General Standards Board, the Canadian Standards Association, the National Building Code of Canada 2010 (NBC) and all applicable Provincial and Municipal codes. In the case of conflict or discrepancy the most stringent requirement shall apply.

**1.2                PRECEDENCE**

**1.3                SITE LOCATES AND CLEARANCE NUMBERS**

- .1        Be responsible for all costs associated with obtaining site locates or clearance numbers for all utilities within the work area, including those utilities considered privately owned.
- .2        Engage the services of private locator firm to undertake the private locates. All known locations of Federal underground utilities (“private utilities”) are indicated in the contract documents.
- .3        Provide copies of written correspondence from each respective underground utility agencies pertaining to their utility locates or work site clearance numbers.

**1.4                TAXES**

- .1        Pay all taxes properly levied by law (including Federal, Provincial and Municipal).

**1.5                FEES, PERMITS, AND CERTIFICATES**

- .1        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.

**1.6                FIRE SAFETY REQUIREMENTS**

- .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.

**1.7                HAZARDOUS MATERIALS**

- .1        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.
- .2        For work in occupied buildings give the Departmental Representative 48 hours notice for work involving designated substances (Ontario Bill 208), hazardous substances (Canada Labour Code Part II Section 10)

**1.8                WELDING AND CUTTING**

- .1        At least 48 hours prior to commencing cutting or welding, provide to Departmental Representative:

- 
- .1 Completed welding permit.
  - .2 Return welding permit to Departmental Representative immediately upon completion of procedures for which permit was issued.
  - .3 A firewatcher 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.

#### **1.9 FIELD QUALITY CONTROL**

- .1 Carry out Work using qualified licensed workers or apprentices in accordance with Provincial Act respecting manpower vocational training and qualification.
- .2 Permit employees registered in Provincial apprenticeship program to perform specific tasks only if under direct supervision of qualified licensed workers.
- .3 Determine permitted activities and tasks by apprentices, based on level of training attended and demonstration of ability to perform specific duties.

#### **1.10 TEMPORARY UTILITIES**

- .1 Existing services required for the work, are not to be used by the Contractor. Contractor responsible to supply all portable generators as required to meet all power requirements of the equipment and machinery required to undertake the work.
- .2 All water requirements for execution of this contract are the responsibility of the contractor to provide from off-site sources.

#### **1.11 REMOVED MATERIALS**

- .1 Unless otherwise specified, materials for removal become the Contractor's property and shall be taken from site.

#### **1.12 PROTECTION**

- .1 Protect adjacent work against the spread of dust and dirt beyond the work areas.
- .2 Protect finished work against damage until take-over.
- .3 Protect operatives and other users of site from all hazards.

#### **1.13 HOARDING**

- .1 Erect temporary site enclosure around work site, including excavations.
- .2 Hoarding to be in full compliance with requirements of the Ontario Health and Safety Act and Regulations - 1990 (OHSa).
  - .1 Hoarding around the work site shall consist of: new 1.2m high snow fence wired to rolled steel "T" bar fence posts spaced at 2.4m o.c. complete with 2x4 lumber support for top of fence.
  - .2 In accordance with OHSa, where required, provide 1.8m high sturdy fence to protect personnel from hazards.
- .3 Keep site fenced off at all times from general public. Only remove portion of fence to provide opening to site to accommodate access, minimize duration of opening, and immediately close when not required.
- .4 Ensure site is fully enclosed when work force is not on site.
- .5 Continually monitor condition of hoarding and make good repairs.



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**1.14 USE OF SITE AND FACILITIES**

- .1 Execute work with least possible interference or disturbance to the normal use of premises. Make arrangements with Departmental Representative to facilitate work as stated.
- .2 Maintain existing services to building and provide for personnel and vehicle access, including emergency vehicles.
- .3 Maintain vehicle and pedestrian access, including emergency vehicles to and from the site.
- .4 Where security is reduced by work provide temporary means to maintain security.

**1.15 SANITARY FACILITIES**

- .1 Provide sanitary facilities for work force in accordance with governing regulations and ordinances.
- .2 Post notices and take precautions as required by local health authorities. Keep area and premises in sanitary condition.
- .3 Location of portable facility to be approved by Departmental Representative on site.

**1.16 SITE STORAGE**

- .1 Storage and stockpile areas shall be equipped and maintained by the contractor.
  - .1 Storage and stockpile areas are to be contained entirely within the laydown/work area indicated.
  - .2 Contractor employee parking shall be contained within the indicated laydown/work area
- .2 Do not unreasonably encumber site with materials or equipment.
- .3 Move stored products or equipment, which interfere with operations of Departmental Representative or other contractors.
- .4 Obtain and pay for use of additional storage or work areas needed for operations.

**1.17 CUT, PATCH AND MAKE GOOD**

- .1 Cut existing surfaces as required to accommodate new work.
- .2 Remove all items so shown or specified.
- .3 Patch and make good surfaces cut, damaged or disturbed, to Departmental Representative's approval. Match existing material, colour, finish and texture.

**1.18 EXAMINATION**

- .1 Examine site and conditions likely to affect work and be familiar and conversant with existing conditions.

**1.19 SIGNS**

- .1 Provide common-use signs related to traffic control, information, instruction, use of equipment, public safety devices, etcetera, in both official languages or by the use of commonly understood graphic symbols to the Departmental Representative's approval.

- .2 No advertising will be permitted on this project.

**1.20 ACCESS AND EGRESS**

- .1 Design, construct and maintain temporary "access to" and "egress from" work areas, including stairs, runways, ramps or ladders, independent of finished surfaces and in accordance with relevant municipal, provincial and other regulations.

**1.21 BUILDING SMOKING ENVIRONMENT**

- .1 Smoking is not permitted in the Building. Obey smoking restrictions on building property.

**1.22 DUST CONTROL**

- .1 Prevent the spread of dust for the protection of workers, finished areas of work and public.

**1.23 TESTING LABORATORY SERVICES**

- .1 Departmental Representative will appoint and pay for costs of inspection and testing services, unless indicated otherwise.
- .2 Provide safe working areas and assist with testing procedures, including provisions for materials or services and co-ordination, as required by testing agency and as authorized by Departmental Representative.
- .3 Where tests indicate non-compliance with specifications, contractor to pay for initial test and all subsequent testing of work to verify acceptability of corrected work.

**1.24 SCHEDULING**

- .1 On award of contract submit bar chart construction schedule for work, indicating anticipated progress stages within time of completion. When schedule has been reviewed by the Departmental Representative, take necessary measures to complete work within scheduled time. Do not change schedule without notifying Departmental Representative.
- .2 Carry out work during "regular hour" Monday to Friday from 07:00 to 18:00 hours, unless otherwise indicated.
- .3 Carry out the following work during "off hours", as defined as Monday to Friday from 18:00 to 07:00 hours and anytime on Saturdays, Sundays, and statutory holidays:
  - .1 Building service interruptions.
  - .2 Connections of new water main to live water mains.
- .4 Give the Departmental Representative 96 hours notice for work to be carried out during "off hours".

**1.25 COST BREAKDOWN**

- .1 Before submitting first progress claim submit breakdown of Contract Amount in detail as directed by Departmental Representative and aggregating the Contract Amount. After approval by Departmental Representative cost breakdown will be used as the basis of progress payments.

**Part 2 Products**

**2.1**            **NOT USED**

**Part 3**        **Execution**

**3.1**            **NOT USED**

**END OF SECTION**

**Part 1            General**

**1.1                ADMINISTRATIVE**

- .1        Submit to Departmental Representative submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .2        Do not proceed with Work affected by submittal until review is complete.
- .3        Present shop drawings, product data, samples, and mock-ups in SI Metric units.
- .4        Where items or information is not produced in SI Metric units, converted values are acceptable. Review submittals prior to submission to Departmental Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.
- .5        Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .6        Verify field measurements and affected adjacent Work are co-ordinated.
- .7        Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.
- .8        Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative's review.
- .9        Keep one (1) reviewed copy of each submission on site.

**1.2                SHOP DRAWINGS AND PRODUCT DATA**

- .1        The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures, and other data which are to be provided by Contractor to illustrate details of a portion of Work.
- .2        Where requested in documents submit shop drawings bearing stamp and signature of qualified professional Engineer registered or licensed in the Province of Ontario.
- .3        Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross-references to design drawings and specifications.
- .4        Allow 5 days for Departmental Representative's review of each submission.
- .5        Adjustments made on shop drawings by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.
- .6        Make changes in shop drawings as Departmental Representative may require, consistent with Contract Documents. When resubmitting, notify Departmental Representative in writing of revisions other than those requested.

- .7 Accompany submissions with transmittal letter, in duplicate, containing:
  - .1 Date.
  - .2 Project title and number.
  - .3 Contractor's name and address.
  - .4 Identification and quantity of each shop drawing, product data and sample.
  - .5 Other pertinent data.
- .8 Submissions include:
  - .1 Date and revision dates.
  - .2 Project title and number.
  - .3 Name and address of:
    - .1 Subcontractor.
    - .2 Supplier/Manufacturer.
  - .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
  - .5 Details of appropriate portions of Work as applicable:
    - .1 Fabrication.
    - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
    - .3 Setting or erection details.
    - .4 Capacities.
    - .5 Performance characteristics.
    - .6 Standards.
    - .7 Operating weight.
    - .8 Wiring diagrams.
    - .9 Single line and schematic diagrams.
    - .10 Relationship to adjacent work.
- .9 After Departmental Representative's review, distribute copies.
- .10 Submit electronic copy of shop drawings for each requirement requested in specification Sections and as Departmental Representative may reasonably request.
- .11 Submit electronic copies of product data sheets or brochures for requirements requested in specification Sections and as requested by Departmental Representative where shop drawings will not be prepared due to standardized manufacture of product.
- .12 Submit electronic copies of test reports for requirements requested in specification Sections and as requested by Departmental Representative.
  - .1 Report signed by authorized official of testing laboratory that material, product, or system identical to material, product, or system to be provided has been tested in accord with specified requirements.
  - .2 Testing must have been performed within three (3) years of date of contract award for project.
- .13 Submit electronic copies of certificates for requirements requested in specification Sections and as requested by Departmental Representative.

- .1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system, or material attesting that product, system, or material meets specification requirements.
- .2 Certificates must be dated after award of project contract complete with project name.
- .14 Submit electronic copies of manufacturers instructions for requirements requested in specification Sections and as requested by Departmental Representative.
  - .1 Pre-printed material describing installation of product, system, or material, including special notices and Material Safety Data Sheets concerning impedances, hazards, and safety precautions.
- .15 Submit electronic copies of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Departmental Representative. Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
- .16 Submit electronic copies of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Departmental Representative.
- .17 Delete information not applicable to project.
- .18 Supplement standard information to provide details applicable to project.
- .19 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, reviewed shop drawings will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, a noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.

### **1.3 SAMPLES**

- .1 Submit for review samples in duplicate as requested in respective specification Sections. Label samples with origin and intended use.
- .2 Deliver samples prepaid to Departmental Representative's site office.
- .3 Notify Departmental Representative, in writing, at time of submission of deviations in samples from requirements of Contract Documents.
- .4 Where colour, pattern or texture is criterion, submit full range of samples.
- .5 Adjustments made on samples by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.
- .6 Make changes in samples, which Departmental Representative may require, consistent with Contract Documents.
- .7 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

### **1.4 PROGRESS PHOTOGRAPHS**

- .1 Submit progress photographs.

### **1.5 CERTIFICATES AND TRANSCRIPTS**

- .1 Immediately after award of Contract, submit Workers' Compensation Board status.

- .2 Submit transcription of insurance immediately after award of Contract.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not Used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not Used.

**END OF SECTION**

**Part 1            General**

**1.1                REFERENCES**

- .1    Province of Ontario
  - .1        Occupational Health and Safety Act, R.S.O. 1990 Updated 2005.

**1.2                SUBMITTALS**

- .1    Submit site-specific Health and Safety Plan: Within 5 days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:
  - .1        Results of site specific safety hazard assessment.
  - .2        Results of safety and health risk or hazard analysis for site tasks and operation found in work plan.
- .2    Submit 2 copies of Contractor's authorized representative's work site health and safety inspection reports to Departmental Representative weekly.
- .3    Submit copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors.
- .4    Submit copies of incident and accident reports.
- .5    Submit WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 00 10 – General Instructions.
- .6    Personnel training requirements including, but not limited to, the following:
  - .1        Training and qualifications of personnel and alternates responsible for site safety and health.
  - .2        Training requirements for hazards present on site.
  - .3        Training for use of personal protective equipment.
- .7    Departmental Representative will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within 3 days after receipt of plan. Revise plan as appropriate and resubmit plan to Departmental Representative within 2 days after receipt of comments from Departmental Representative.
- .8    Departmental Representative's review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.
- .9    On-site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations.

**1.3                FILING OF NOTICE**

- .1    File Notice of Project with Provincial authorities prior to beginning of Work.



**1.4 SAFETY ASSESSMENT**

- .1 Perform site specific safety hazard assessment related to project.

**1.5 MEETINGS**

- .1 Schedule and administer Health and Safety meeting with Departmental Representative prior to commencement of Work.

**1.6 REGULATORY REQUIREMENTS**

- .1 Comply with specified standards and regulations to ensure safe operations at site containing hazardous or toxic materials.

**1.7 PROJECT/SITE CONDITIONS**

- .1 Work at site will involve contact with:
  - .1 Vehicular Traffic.
  - .2 Heavy Construction Equipment.
  - .3 Rotating Objects.
  - .4 Overhead hoisting.

**1.8 GENERAL REQUIREMENTS**

- .1 Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.
- .2 Departmental Representative may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns. Relief from or substitution for any portion or provision of minimum Health and Safety Guidelines specified herein or reviewed site-specific Health and Safety Plan must be submitted to Departmental Representative in writing. Departmental Representative will respond in writing, either accepting or requesting improvements.

**1.9 RESPONSIBILITY**

- .1 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.
- .2 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.

**1.10 COMPLIANCE REQUIREMENTS**

- .1 Comply with Ontario Health and Safety Act, R.S.O.

**1.11 UNFORSEEN HAZARDS**

- .1 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Province having jurisdiction and advise Departmental Representative verbally and in writing.

**1.12 HEALTH AND SAFETY CO-ORDINATOR**

- .1 Employ and assign to Work, competent and authorized representative as Health and Safety Co-ordinator. Health and Safety Co-ordinator must:
  - .1 Have working knowledge of occupational safety and health regulations.
  - .2 Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform Work.
  - .3 Be responsible for implementing, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan.
  - .4 Be on site during execution of Work site supervisor.

**1.13 POSTING OF DOCUMENTS**

- .1 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.

**1.14 CORRECTION OF NON-COMPLIANCE**

- .1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Departmental Representative.
- .2 Provide Departmental Representative with written report of action taken to correct non-compliance of health and safety issues identified.
- .3 Departmental Representative may stop Work if non-compliance of health and safety regulations is not corrected.

**1.15 POWDER ACTUATED DEVICES**

- .1 Use powder actuated devices only after receipt of written permission from Departmental Representative.
- .1 Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations for Work.

**Part 2            Products**

**2.1                NOT USED**

.1            Not used.

**Part 3            Execution**

**3.1                NOT USED**

.1            Not used.

**END OF SECTION**

**Part 1            General**

**1.1                PROJECT CLEANLINESS**

- .1      Maintain Work in tidy condition, free from accumulation of waste products and debris, including that caused by Owner or other Contractors.
- .2      Remove waste materials from site at daily regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site, unless approved by Departmental Representative.
- .3      Clear snow and ice from access to building, bank/pile snow in designated areas only as directed by Departmental Representative. Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .4      Provide on-site containers for collection of waste materials and debris.
- .5      Dispose of waste materials and debris as directed by Departmental Representative.
- .6      Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .7      Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .8      Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

**1.2                FINAL CLEANING**

- .1      When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
- .2      Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.
- .3      Prior to final review remove surplus products, tools, construction machinery and equipment.
- .4      Remove waste products and debris including that caused by Owner or other Contractors.
- .5      Remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site, unless approved by Departmental Representative.
- .6      Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .7      Clean lighting reflectors, lenses, and other lighting surfaces.
- .8      Remove dirt and other disfiguration from exterior surfaces.
- .9      Sweep and wash clean paved areas. Clean equipment and fixtures to sanitary condition; clean or replace filters of mechanical equipment.
- .10     Remove snow and ice from access to building.

**1.3                WASTE MANAGEMENT AND DISPOSAL**

- .1      Not used.

**Part 2**            **Products**

**2.1**                **NOT USED**

                  .1        Not used.

**Part 3**            **Execution**

**3.1**                **NOT USED**

                  .1        Not used.

**END OF SECTION**

**Part 1            General**

**1.1                SUBMITTALS**

- .1        Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
- .2        Prepare instructions and data using personnel experienced in maintenance and operation of described products.
- .3        Copy will be returned after final inspection, with Departmental Representative's comments.
- .4        Revise content of documents as required prior to final submittal.
- .5        Two (2) weeks prior to Substantial Performance of the Work, submit to the Departmental Representative, four final copies of operating and maintenance manuals in English.
- .6        Ensure spare parts, maintenance materials and special tools provided are new, undamaged or defective, and of same quality and manufacture as products provided in Work.
- .7        Furnish evidence, if requested, for type, source and quality of products provided.
- .8        Defective products will be rejected, regardless of previous inspections. Replace products at own expense.
- .9        Pay costs of transportation.

**1.2                FORMAT**

- .1        Organize data as instructional manual.
- .2        Binders: vinyl, hard covered, 3 'D' ring, loose leaf 219 mm x 279 mm with spine and face pockets.
- .3        When multiple binders are used correlate data into related consistent groupings. Identify contents of each binder on spine.
- .4        Cover: identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.
- .5        Arrange content by systems, process flow, under Section numbers and sequence of Table of Contents.
- .6        Provide tabbed flyleaf for each separate product and system, with typed description of product and major component parts of equipment.
- .7        Text: manufacturer's printed data, or typewritten data.
- .8        Drawings: provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.
- .9        Provide 1:1 scaled CAD files in dwg format on CD.

**1.3                CONTENTS - EACH VOLUME**

- .1        Table of Contents: provide title of project; Date of submission; names.

- .1 Addresses, and telephone numbers of Consultant and Contractor Design-Builder with name of responsible parties.
- .2 Schedule of products and systems, indexed to content of volume.
- .2 For each product or system:
  - .1 List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.
- .3 Product Data: mark each sheet to identify specific products and component parts, and data applicable to installation; delete inapplicable information.
- .4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.

#### **1.4 AS-BUILTS AND SAMPLES**

- .1 Maintain, in addition to requirements in General Conditions, at site for Departmental Representative, one (1) record copy of:
  - .1 Contract Drawings.
  - .2 Specifications.
  - .3 Addenda.
  - .4 Change Orders and other modifications to Contract.
  - .5 Reviewed shop drawings, product data, and samples.
  - .6 Field test records.
  - .7 Inspection certificates.
  - .8 Manufacturer's certificates.
- .2 Store record documents and samples in field office apart from documents used for construction. Provide files, racks, and secure storage.
- .3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual. Label each document "PROJECT RECORD" in neat, large, printed letters.
- .4 Maintain record documents in clean, dry and legible condition. Do not use record documents for construction purposes.
- .5 Keep record documents and samples available for inspection by Departmental Representative .

#### **1.5 RECORDING ACTUAL SITE CONDITIONS**

- .1 Record information on set of drawings, and in copy of Project Manual, provided by Departmental Representative.
- .2 Provide felt tip marking pens, maintaining separate colours for each major system, for recording information.
- .3 Record information concurrently with construction progress. Do not conceal Work until required information is recorded.
- .4 Contract Drawings and shop drawings: mark each item to record actual construction, including:
  - .1 Measured depths of elements of foundation in relation to finish first floor datum.

- .2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
- .3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
- .4 Field changes of dimension and detail.
- .5 Changes made by change orders.
- .6 Details not on original Contract Drawings.
- .7 References to related shop drawings and modifications.
- .5 Specifications: mark each item to record actual construction, including:
  - .1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.
  - .2 Changes made by Addenda and change orders.
- .6 Other Documents: maintain manufacturer's certifications, inspection certifications, field test records, required by individual specifications sections.

#### **1.6 FINAL SURVEY**

- .1 Submit final site survey certificate stating that completed works are in conformance, and outlining any agreed non-conforming aspects formally accepted in writing by the Departmental Representative.

#### **1.7 EQUIPMENT AND SYSTEMS**

- .1 Each Item of Equipment and Each System: include description of unit or system, and component parts. Give function, normal operation characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.
- .2 Panel board circuit directories: provide electrical service characteristics, controls, and communications.
- .3 Include installed colour coded wiring diagrams.
- .4 Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.
- .5 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- .6 Provide servicing and lubrication schedule, and list of lubricants required.
- .7 Include manufacturer's printed operation and maintenance instructions.
- .8 Include sequence of operation by controls manufacturer.
- .9 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- .10 Provide installed control diagrams by controls manufacturer.
- .11 Provide Contractor's co-ordination drawings, with installed colour coded piping diagrams.
- .12 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.



- .13 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- .14 Additional requirements: as specified in individual specification sections.

## **1.8 MATERIALS AND FINISHES**

- .1 Building Products, Applied Materials, and Finishes: include product data, with catalogue number, size, composition, and colour and texture designations. Provide information for re-ordering custom manufactured products.
- .2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .3 Moisture-Protection and Weather-Exposed Products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .4 Additional Requirements: as specified in individual specifications sections.

## **1.9 WARRANTIES AND BONDS**

- .1 Develop warranty management plan to contain information relevant to Warranties.
- .2 Submit warranty management plan, thirty (30) days before planned pre-warranty conference, to Departmental Representative for approval.
- .3 Warranty management plan to include required actions and documents to assure that receives warranties to which it is entitled.
- .4 Provide plan in narrative form and contain sufficient detail to make it suitable for use by future maintenance and repair personnel.
- .5 Submit, warranty information made available during construction phase, to Departmental Representative for approval prior to each monthly pay estimate.
- .6 Assemble approved information in binder and submit upon acceptance of work. Organize binder as follows:
  - .1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.
  - .2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.
  - .3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten (10) days after completion of applicable item of work.
  - .4 Verify that documents are in proper form, contain full information, and are notarized.
  - .5 Co-execute submittals when required.
  - .6 Retain warranties and bonds until time specified for submittal.
- .7 Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial Performance is determined.
- .8 Conduct joint 4-month and 9-month warranty inspection, measured from time of acceptance by Departmental Representative.
- .9 Include information contained in warranty management plan as follows:

- 
- .1 Roles and responsibilities of personnel associated with warranty process, including points of contact and telephone numbers within the organizations of Contractors, subcontractors, manufacturers or suppliers involved.
  - .2 Listing and status of delivery of Certificates of Warranty for extended warranty items, to include pumps, motors, transformers, and commissioned systems such as alarm systems.
  - .3 Provide list for each warranted equipment, item, feature of construction or system indicating:
    - .1 Name of item.
    - .2 Model and serial numbers.
    - .3 Location where installed.
    - .4 Name and phone numbers of manufacturers or suppliers.
    - .5 Names, addresses and telephone numbers of sources of spare parts.
    - .6 Warranties and terms of warranty: include one-year overall warranty of construction. Indicate items that have extended warranties and show separate warranty expiration dates.
    - .7 Cross-reference to warranty certificates as applicable.
    - .8 Starting point and duration of warranty period.
    - .9 Summary of maintenance procedures required to continue warranty in force.
    - .10 Cross-Reference to specific pertinent Operation and Maintenance manuals.
    - .11 Organization, names and phone numbers of persons to call for warranty service.
    - .12 Typical response time and repair time expected for various warranted equipment.
  - .4 Contractor's plans for attendance at 4 and 9 month post-construction warranty inspections.
  - .5 Procedure and status of tagging of equipment covered by extended warranties.
  - .6 Post copies of instructions near selected pieces of equipment where operation is critical for warranty and/or safety reasons.
  - .10 Respond in a timely manner to oral or written notification of required construction warranty repair work.
  - .11 Written verification will follow oral instructions. Failure to respond will be cause for the Departmental Representative to proceed with action against Contractor.

**1.10 PRE-WARRANTY CONFERENCE**

- .1 Meet with Departmental Representative, to develop understanding of requirements of this section. Schedule meeting prior to contract completion, and at time designated by Departmental Representative.
- .2 Departmental Representative will establish communication procedures for:
  - .1 Notification of construction warranty defects.
  - .2 Determine priorities for type of defect.
  - .3 Determine reasonable time for response.

- .3 Provide name, telephone number and address of licensed and bonded company that is authorized to initiate and pursue construction warranty work action.
- .4 Ensure contact is located within local service area of warranted construction, is continuously available, and is responsive to inquiries for warranty work action.

**1.11 WARRANTY TAGS**

- .1 Tag, at time of installation, each warranted item. Provide durable, oil and water resistant tag approved by Departmental Representative.
- .2 Attach tags with copper wire and spray with waterproof silicone coating.
- .3 Leave date of acceptance until project is accepted for occupancy.
- .4 Indicate following information on tag:
  - .1 Type of product/material.
  - .2 Model number.
  - .3 Serial number.
  - .4 Contract number.
  - .5 Warranty period.
  - .6 Inspector's signature.
  - .7 Construction Contractor.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not Used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not Used.

**END OF SECTION**

**Part 1        General**

**1.1            SUMMARY**

- .1 Section Includes:
  - .1 General requirements relating to commissioning of project's components and systems, specifying general requirements to PV of components, equipment, sub-systems, systems, and integrated systems.
- .2 Acronyms:
  - .1 AFD - Alternate Forms of Delivery, service provider.
  - .2 BMM - Building Management Manual.
  - .3 Cx - Commissioning.
  - .4 EMCS - Energy Monitoring and Control Systems.
  - .5 O&M - Operation and Maintenance.
  - .6 PI - Product Information.
  - .7 PV - Performance Verification.
  - .8 TAB - Testing, Adjusting and Balancing.

**1.2            GENERAL**

- .1 Cx is a planned program of tests, procedures and checks carried out systematically on systems and integrated systems of the finished Project. Cx is performed after systems and integrated systems are completely installed, functional and Contractor's Performance Verification responsibilities have been completed and approved. Objectives:
  - .1 Verify installed equipment, systems and integrated systems operate in accordance with contract documents and design criteria and intent.
  - .2 Ensure appropriate documentation is compiled into the BMM.
  - .3 Effectively train O&M staff.
- .2 Contractor assists in Cx process, operating equipment and systems, troubleshooting, and making adjustments as required.
  - .1 Systems to be operated at full capacity under various modes to determine if they function correctly and consistently at peak efficiency. Systems to be used interactively with each other as intended in accordance with Contract Documents and design criteria.
  - .2 During these checks, adjustments to be made to enhance performance to meet environmental or user requirements.
- .3 Design Criteria: as per client's requirements or determined by designer. To meet Project functional and operational requirements.
- .4 For AFD-managed projects, the term Departmental Representative in Cx specifications to be interpreted as AFD Service Provider.

**1.3            COMMISSIONING OVERVIEW**

- .1 Cx to be a line item of Contractor's cost breakdown.
- .2 Cx activities supplement field quality and testing procedures described in relevant technical sections.

- 
- .3 Cx is conducted in concert with activities performed during stage of project delivery. Cx identifies issues in Planning and Design stages which are addressed during Construction and Cx stages to ensure the built facility is constructed and proven to operate satisfactorily under weather, environmental, and occupancy conditions to meet functional and operational requirements. Cx activities include transfer of critical knowledge to facility operational personnel.
  - .4 Departmental Representative will issue Interim Acceptance Certificate when:
    - .1 Completed Cx documentation has been received, reviewed for suitability and approved by Departmental Representative.
    - .2 Equipment, components, and systems have been commissioned.
    - .3 O&M training has been completed.

#### **1.4 NON-CONFORMANCE TO PERFORMANCE VERIFICATION REQUIREMENTS**

- .1 Should equipment, system components, and associated controls be incorrectly installed or malfunction during Cx, correct deficiencies, re-verify equipment and components within the non-functional system, including related systems as deemed required by Departmental Representative to ensure effective performance.
- .2 Costs for corrective work, additional tests, inspections, to determine acceptability and proper performance of such items to be borne by Contractor. Above costs to be in form of progress payment reductions or hold-back assessments.

#### **1.5 PRE-CX REVIEW**

- .1 Before Construction:
  - .1 Review contract documents, confirm by writing to Departmental Representative.
    - .1 Adequacy of provisions for Cx.
    - .2 Aspects of design and installation pertinent to success of Cx.
- .2 During Construction:
  - .1 Co-ordinate provision, location and installation of provisions for Cx.
- .3 Before start of Cx:
  - .1 Have completed Cx Plan up-to-date.
  - .2 Ensure installation of related components, equipment, sub-systems, systems is complete.
  - .3 Fully understand Cx requirements and procedures.
  - .4 Have Cx documentation shelf-ready.
  - .5 Understand completely design criteria and intent and special features.
  - .6 Submit complete start-up documentation to Departmental Representative.
  - .7 Have Cx schedules up-to-date.
  - .8 Ensure systems have been cleaned thoroughly.
  - .9 Complete TAB procedures on systems, submit TAB reports to Departmental Representative for review and approval.
  - .10 Ensure "As-Built" system schematics are available.
- .4 Inform Departmental Representative in writing of discrepancies and deficiencies on finished works.

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**1.6 CONFLICTS**

- .1 Report conflicts between requirements of this section and other sections to Departmental Representative before start-up and obtain clarification.
- .2 Failure to report conflict and obtain clarification will result in application of most stringent requirement.

**1.7 SUBMITTALS**

- .1
  - .1 Submit no later than four (4) weeks after award of Contract:
    - .1 Name of Contractor's Cx agent.
    - .2 Draft Cx documentation.
    - .3 Preliminary Cx schedule.
  - .2 Request in writing to Departmental Representative for changes to submittals and obtain written approval at least eight (8) weeks prior to start of Cx.
  - .3 Submit proposed Cx procedures to Departmental Representative where not specified and obtain written approval at least eight (8) weeks prior to start of Cx.
  - .4 Provide additional documentation relating to Cx process as required by [ Departmental Representative.

**1.8 COMMISSIONING DOCUMENTATION**

- .1 Refer to Section 01 91 33 - Commissioning (Cx) Forms: Installation Check Lists and Product Information (PI) / Performance Verification (PV) Forms for requirements and instructions for use.
- .2 Departmental Representative to review and approve Cx documentation.
- .3 Provide completed and approved Cx documentation to Departmental Representative.

**1.9 COMMISSIONING SCHEDULE**

- .1 Provide detailed Cx schedule as part of construction schedule.
- .2 Provide adequate time for Cx activities prescribed in technical sections and commissioning sections including:
  - .1 Approval of Cx reports.
  - .2 Verification of reported results.
  - .3 Repairs, retesting, re-commissioning, re-verification.
  - .4 Training.

**1.10 COMMISSIONING MEETINGS**

- .1 Convene Cx meetings following project meetings.
- .2 Purpose: To resolve issues, monitor progress, and identify deficiencies relating to Cx.
- .3 Continue Cx meetings on regular basis until commissioning deliverables have been addressed.
- .4 At 60% construction completion stage, Departmental Representative to call a separate Cx scope meeting to review progress, discuss schedule of equipment start-up activities, and prepare for Cx. Issues at meeting to include:

- 
- .1 Review duties and responsibilities of Contractor and subcontractors, addressing delays and potential problems.
  - .2 Determine the degree of involvement of trades and manufacturer's representatives in the commissioning process.
  - .5 Thereafter, Cx meetings to be held until project completion and as required during equipment start-up and functional testing period.
  - .6 Meeting will be chaired by Departmental Representative, who will record and distribute minutes.
  - .7 Ensure subcontractors and relevant manufacturer representatives are present at 60% and subsequent Cx meetings and as required.

#### **1.11 STARTING AND TESTING**

- .1 Contractor assumes liabilities and costs for inspections. Including disassembly and re-assembly after approval, starting, testing and adjusting, including supply of testing equipment.

#### **1.12 WITNESSING OF STARTING AND TESTING**

- .1 Provide fourteen (14) days notice prior to commencement.
- .2 Departmental Representative to witness of start-up and testing.
- .3 .3 Contractor's Cx Agent to be present at tests performed and documented by sub-trades, suppliers and equipment manufacturers.

#### **1.13 MANUFACTURER'S INVOLVEMENT**

- .1 Not used.

#### **1.14 PROCEDURES**

- .1 Verify that equipment and systems are complete, clean, and operating in normal and safe manner prior to conducting start-up, testing and Cx.
- .2 Conduct start-up and testing in following distinct phases:
  - .1 Included in delivery and installation:
    - .1 Verification of conformity to specification, approved shop drawings and completion of PI report forms.
    - .2 Visual inspection of quality of installation.
  - .2 Start-up: follow accepted start-up procedures.
  - .3 Operational testing: document equipment performance.
  - .4 System PV: include repetition of tests after correcting deficiencies.
  - .5 Post-substantial performance verification: to include fine-tuning.
- .3 Correct deficiencies and obtain approval from Departmental Representative after distinct phases have been completed and before commencing next phase.
- .4 Document require tests on approved PV forms.
- .5 Failure to follow accepted start-up procedures will result in re-evaluation of equipment by an independent testing agency selected by Departmental Representative. If results reveal that equipment start-up was not in accordance with requirements, and resulted in damage to equipment, implement following:

- .1 Minor equipment/systems: implement corrective measures approved by Departmental Representative.
- .2 Major equipment/systems: if evaluation report concludes that damage is minor, implement corrective measures approved by Departmental Representative.
- .3 If evaluation report concludes that major damage has occurred, Departmental Representative shall reject equipment.
  - .1 Rejected equipment to be removed from site and replace with new.
  - .2 Subject new equipment/systems to specified start-up procedures.

#### **1.15 START-UP DOCUMENTATION**

- .1 Assemble start-up documentation and submit to Departmental Representative for approval before commencement of commissioning.
- .2 Start-up documentation to include:
  - .1 Factory and on-site test certificates for specified equipment.
  - .2 Pre-start-up inspection reports.
  - .3 Signed installation/start-up check lists.
  - .4 Start-up reports,
  - .5 Step-by-step description of complete start-up procedures, to permit Departmental Representative to repeat start-up at any time.

#### **1.16 OPERATION AND MAINTENANCE OF EQUIPMENT AND SYSTEMS**

- .1 After start-up, operate and maintain equipment and systems as directed by equipment/system manufacturer.
- .2 With assistance of manufacturer, develop written maintenance program and submit to Departmental Representative for approval before implementation.
- .3 Operate and maintain systems for length of time required for commissioning to be completed.
- .4 After completion of commissioning, operate and maintain systems until issuance of certificate of interim acceptance.

#### **1.17 TEST RESULTS**

- .1 If start-up, testing and/or PV produce unacceptable results, repair, replace or repeat specified starting and/or PV procedures until acceptable results are achieved.
- .2 Provide manpower and materials, assume costs for re-commissioning.

#### **1.18 START OF COMMISSIONING**

- .1 Notify Departmental Representative at least twenty-one (21) days prior to start of Cx.
- .2 Start Cx after elements of building affecting start-up and performance verification of systems have been completed.

#### **1.19 INSTRUMENTS / EQUIPMENT**

- .1 Submit to Departmental Representative for review and approval:
  - .1 Complete list of instruments proposed to be used.



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.2 Listed data including, serial number, current calibration certificate, calibration date, calibration expiry date and calibration accuracy.

.2 Provide the following equipment as required.

### **1.20 COMMISSIONING PERFORMANCE VERIFICATION**

.1 Carry out Cx:

.1 Under actual operating conditions, over entire operating range, in all modes.

.2 On independent systems and interacting systems.

.2 Cx procedures to be repeatable and reported results are to be verifiable.

.3 Follow equipment manufacturer's operating instructions.

.4 EMCS trending to be available as supporting documentation for performance verification.

### **1.21 WITNESSING COMMISSIONING**

.1 Departmental Representative to witness activities and verify results.

### **1.22 AUTHORITIES HAVING JURISDICTION**

.1 Where specified start-up, testing, or commissioning procedures duplicate verification requirements of authority having jurisdiction, arrange for authority to witness procedures so as to avoid duplication of tests and to facilitate expedient acceptance of facility.

.2 Obtain certificates of approval, acceptance and compliance with rules and regulation of authority having jurisdiction.

.3 Provide copies to Departmental Representative within ten (10) days of test and with Cx report.

### **1.23 COMMISSIONING CONSTRAINTS**

.1 Not used.

### **1.24 EXTRAPOLATION OF RESULTS**

.1 Where Cx of weather, occupancy, or seasonal-sensitive equipment or systems cannot be conducted under near-rated or near-design conditions, extrapolate part-load results to design conditions when approved by Departmental Representative in accordance with equipment manufacturer's instructions, using manufacturer's data, with manufacturer's assistance and using approved formulae.

### **1.25 EXTENT OF VERIFICATION**

.1 Number and location to be at discretion of Departmental Representative.

.2 Conduct tests repeated during verification under same conditions as original tests, using same test equipment, instrumentation.

.3 Review and repeat commissioning of systems if inconsistencies found in more than 20% of reported results.

.4 Perform additional commissioning until results are acceptable to Departmental Representative.

**1.26 REPEAT VERIFICATIONS**

- .1 Assume costs incurred by Departmental Representative for third and subsequent verifications where:
  - .1 Verification of reported results fail to receive Departmental Representative's approval.
  - .2 Repetition of second verification again fails to receive approval.
  - .3 Departmental Representative deems Contractor's request for second verification was premature.

**1.27 SUNDRY CHECKS AND ADJUSTMENTS**

- .1 Make adjustments and changes that become apparent as Cx proceeds.
- .2 Perform static and operational checks as applicable and as required.

**1.28 DEFICIENCIES, FAULTS, DEFECTS**

- .1 Correct deficiencies found during start-up and Cx to satisfaction of Departmental Representative.
- .2 Report problems, faults, or defects affecting Cx to Departmental Representative in writing. Stop Cx until problems are rectified. Proceed with written approval from Departmental Representative.

**1.29 COMPLETION OF COMMISSIONING**

- .1 Upon completion of Cx leave systems in normal operating mode.
- .2 Except for warranty and seasonal verification activities specified in Cx specifications, complete Cx prior to issuance of Interim Certificate of Completion.
- .3 Cx to be considered complete when contract Cx deliverables have been submitted and accepted by Departmental Representative.

**1.30 ACTIVITIES UPON COMPLETION OF COMMISSIONING**

- .1 When changes are made to baseline components or system settings established during Cx process, provide updated Cx form for affected item.

**1.31 TRAINING**

- .1 Not used.

**1.32 MAINTENANCE MATERIALS, SPARE PARTS, SPECIAL TOOLS**

- .1 Supply, deliver, and document maintenance materials, spare parts, and special tools as specified in contract.

**1.33 OCCUPANCY**

- .1 Cooperate fully with Departmental Representative during stages of acceptance and occupancy of facility.

**1.34 INSTALLED INSTRUMENTATION**

- .1 Use instruments installed under Contract for TAB and PV if:
  - .1 Accuracy complies with these specifications.

- .2 Calibration certificates have been deposited with Departmental Representative.
- .2 Calibrated EMCS sensors may be used to obtain performance data provided that sensor calibration has been completed and accepted.

**1.35 PERFORMANCE VERIFICATION TOLERANCES**

- .1 Application tolerances:
  - .1 Specified range of acceptable deviations of measured values from specified values or specified design criteria. Except for special areas, to be within +/- 10% of specified values.
- .2 Instrument accuracy tolerances:
  - .1 To be of higher order of magnitude than equipment or system being tested.
- .3 Measurement tolerances during verification:
  - .1 Unless otherwise specified actual values to be within +/- 2% of recorded values.

**1.36 OWNER'S PERFORMANCE TESTING**

- .1 Performance testing of equipment or system by Departmental Representative will not relieve Contractor from compliance with specified start-up and testing procedures.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not Used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not Used.

**END OF SECTION**

**Part 1        General**

**1.1            SUMMARY**

- .1    Section Includes:
  - .1    Commissioning forms to be completed for equipment, system, and integrated system.

**1.2            INSTALLATION/START-UP CHECK LISTS**

- .1    Include the following data:
  - .1    Product manufacturer's installation instructions and recommended checks.
  - .2    Special procedures as specified in relevant technical sections.
  - .3    Items considered good installation and engineering industry practices deemed appropriate for proper and efficient operation.
- .2    Equipment manufacturer's installation/start-up checklists are acceptable for use. As deemed necessary by Departmental Representative, supplemental additional data lists will be required for specific project conditions.
- .3    Use check lists for equipment installation. Document checklist verifying checks have been made; indicate deficiencies and corrective action taken.
- .4    Installer to sign check lists upon completion, certifying stated checks and inspections have been performed. Return completed check lists to Departmental Representative. Check lists will be required during Commissioning and will be included in Building Maintenance Manual (BMM) at completion of project.
- .5    Use of check lists will not be considered part of commissioning process but will be stringently used for equipment pre-start and start-up procedures.

**1.3            PRODUCT INFORMATION (PI) REPORT FORMS**

- .1    Product Information (PI) forms compiles gathered data on items of equipment produced by equipment manufacturer, includes nameplate information, parts list, operating instructions, maintenance guidelines and pertinent technical data and recommended checks that is necessary to prepare for start-up and functional testing and used during operation and maintenance of equipment. This documentation is included in the BMM at completion of work.
- .2    Prior to Performance Verification (PV) of systems complete items on PI forms related to systems and obtain Departmental Representative's approval.

**1.4            PERFORMANCE VERIFICATION (PV) FORMS**

- .1    PV forms to be used for checks, running dynamic tests and adjustments carried out on equipment and systems to ensure correct operation, efficiently and function independently and interactively with other systems as intended with project requirements.
- .2    PV report forms include those developed by Contractor records measured data and readings taken during functional testing and Performance Verification procedures.
- .3    Prior to PV of integrated system, complete PV forms of related systems and obtain Departmental Representative's approval.

**1.5 SAMPLES OF COMMISSIONING FORMS**

- .1 Not used

**1.6 CHANGES AND DEVELOPMENT OF NEW REPORT FORMS**

- .1 When additional forms are required, but are not available from Departmental Representative, develop appropriate verification forms and submit to Departmental Representative for approval prior to use.
  - .1 Additional commissioning forms to be in same format as provided by Departmental Representative.

**1.7 COMMISSIONING FORMS**

- .1 Use Commissioning forms to verify installation and record performance when starting equipment and systems.
- .2 Strategy for Use:
  - .1 Departmental Representative may provide Contractor with project-specific Commissioning forms with Specification data included.
  - .2 Contractor will provide required shop drawings information and verify correct installation and operation of items indicated on these forms.
  - .3 Confirm operation as per design criteria and intent.
  - .4 Identify variances between design and operation and reasons for variances.
  - .5 Verify operation in specified normal and emergency modes and under specified load conditions.
  - .6 Record analytical and substantiating data.
  - .7 Verify reported results.
  - .8 Form to bear signatures of recording technician and reviewed and signed off by Departmental Representative.
  - .9 Submit immediately after tests are performed.
  - .10 Reported results in true measured SI unit values.
  - .11 Provide Departmental Representative with originals of completed forms.
  - .12 Maintain copy on site during start-up, testing and commissioning period.
  - .13 Forms to be both hard copy and electronic format with typed-written results in Building Management Manual.

**1.8 LANGUAGE**

- .1 To suit the language profile of the awarded contract.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not Used.

**Part 3            Execution**

**3.1                NOT USED**

.1            Not Used.

**END OF SECTION**

**Part 1            General**

**1.1                REFERENCES**

- .1    Export and Import of Hazardous Waste Regulations SOR/2002-300.
- .2    National Fire Code of Canada 2005.
- .3    Transportation of Dangerous Goods Act (TDG Act) 1999, (c. 34).
- .4    Transportation of Dangerous Goods Regulations (T-19.01-SOR/2003-400).

**1.2                DEFINITIONS**

- .1    Dangerous Goods: product, substance, or organism that is specifically listed or meets hazard criteria established in Transportation of Dangerous Goods Regulations.
- .2    Hazardous Material: product, substance, or organism that is used for its original purpose; and that is either dangerous goods or a material that may cause adverse impact to environment or adversely affect health of persons, animals, or plant life when released into the environment.
- .3    Hazardous Waste: any hazardous material that is no longer used for its original purpose and that is intended for recycling, treatment or disposal.
- .4    Workplace Hazardous Materials Information System (WHMIS): a Canada-wide system designed to give employers and workers information about hazardous materials used in workplace. Under WHMIS, information on hazardous materials is provided on container labels, material safety data sheets (MSDS), and worker education programs. WHMIS is put into effect by combination of federal and provincial laws.

**1.3                SUBMITTALS**

- .1    Submit product data in accordance with Section 01 33 00 - Submittal Procedures.
- .2    Submit to Departmental Representative current Material Safety Data Sheet (MSDS) for each hazardous material required prior to bringing hazardous material on site.
- .3    Submit hazardous materials management plan to Departmental Representative identifies hazardous materials, their use, their location, personal protective equipment requirements, and disposal arrangements.

**1.4                STORAGE AND HANDLING**

- .1    Co-ordinate storage of hazardous materials with Departmental Representative abide by internal requirements for labelling and storage of materials and wastes.
- .2    Store and handle hazardous materials and wastes in accordance with applicable federal and provincial laws, regulations, codes, and guidelines.
- .3    Store and handle flammable and combustible materials in accordance with current National Fire Code of Canada requirements.
- .4    Keep no more than forty-five (45) litres of flammable and combustible liquids such as gasoline, kerosene and naphtha for ready use.
  - .1    Store flammable and combustible liquids in approved safety cans bearing the Underwriters' Laboratory of Canada or Factory Mutual seal of approval.

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- .2 Storage of quantities of flammable and combustible liquids exceeding forty-five (45) litres for work purposes requires the written approval of the Departmental Representative.
  - .5 Transfer of flammable and combustible liquids is prohibited within buildings.
  - .6 Do not transfer of flammable and combustible liquids in vicinity of open flames or heat-producing devices.
  - .7 Do not use flammable liquids having flash point below thirty-eight (38) degrees Celsius, such as naphtha or gasoline as solvents or cleaning agents.
  - .8 Store flammable and combustible waste liquids for disposal in approved containers located in safe, ventilated area. Keep quantities to minimum.
  - .9 Observe smoking regulations, smoking is prohibited in areas where hazardous materials are stored, used, or handled.
  - .10 Storage requirements for quantities of hazardous materials and wastes in excess of five (5) kg for solids, and five (5) litres for liquids:
    - .1 Store hazardous materials and wastes in closed and sealed containers.
    - .2 Label containers of hazardous materials and wastes in accordance with WHMIS.
    - .3 Store hazardous materials and wastes in containers compatible with that material or waste.
    - .4 Segregate incompatible materials and wastes.
    - .5 Ensure that different hazardous materials or hazardous wastes are not mixed.
    - .6 Store hazardous materials and wastes in secure storage area with controlled access.
    - .7 Maintain clear egress from storage area.
    - .8 Store hazardous materials and wastes in location that will prevent them from spilling into environment.
    - .9 Have appropriate emergency spill response equipment available near storage area, including personal protective equipment.
    - .10 Maintain inventory of hazardous materials and wastes, including product name, quantity, and date when storage began.
  - .11 Ensure personnel have been trained in accordance with Workplace Hazardous Materials Information System (WHMIS) requirements. Report spills or accidents immediately to Departmental Representative. Submit a written spill report to Departmental Representative within 24 hours of incident.

## **1.5 TRANSPORTATION**

- .1 Transport hazardous materials and wastes in accordance with federal Transportation of Dangerous Goods Act, Transportation of Dangerous Goods Regulations, and applicable provincial regulations.
- .2 If exporting hazardous waste to another country, ensure compliance with federal Export and Import of Hazardous Waste Regulations.
- .3 If hazardous waste is generated on site:
  - .1 Co-ordinate transportation and disposal with Departmental Representative.
  - .2 Ensure compliance with applicable federal, provincial and municipal laws and regulations for generators of hazardous waste.



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- .3 Use licensed carrier authorized by provincial authorities to accept subject material.
  - .4 Prior to shipping material obtain written notice from intended hazardous waste treatment or disposal facility that it will accept material and that it is licensed to accept this material.
  - .5 Label containers with legible, visible safety marks as prescribed by federal and provincial regulations.
  - .6 Ensure that trained personnel handle, offer for transport, or transport dangerous goods.
  - .7 Provide photocopy of shipping documents and waste manifests to Departmental Representative.
  - .8 Track receipt of completed manifest from consignee after shipping dangerous goods. Provide a photocopy of completed manifest to Departmental Representative.
  - .9 Report discharge, emission, or escape of hazardous materials immediately to Departmental Representative and appropriate provincial authority. Take reasonable measures to control release.

## **Part 2 Products**

### **2.1 MATERIALS**

- .1 Only bring on site quantity of hazardous materials required to perform work.
- .2 Maintain MSDSs in proximity to where materials are being used. Communicate this location to personnel who may have contact with hazardous materials.

## **Part 3 Execution**

### **3.1 DISPOSAL**

- .1 Dispose of hazardous waste materials in accordance with applicable federal and provincial acts, regulations, and guidelines.
- .2 Recycle hazardous wastes for which there is approved, cost effective recycling process available.
- .3 Send hazardous wastes to authorized hazardous waste disposal or treatment facilities.
- .4 Burning, diluting, or mixing hazardous wastes for purpose of disposal is prohibited.
- .5 Disposal of hazardous materials in waterways, storm or sanitary sewers, or in municipal solid waste landfills is prohibited.
- .6 Dispose of hazardous wastes in timely fashion in accordance with applicable provincial regulations.
- .7 Minimize generation of hazardous waste to maximum extent practicable. Take necessary precautions to avoid mixing clean and contaminated wastes.
- .8 Identify and evaluate recycling and reclamation options as alternatives to land disposal, such as:
  - .1 Hazardous wastes recycled in manner constituting disposal.
  - .2 Hazardous waste burned for energy recovery.

- .3 Lead-acid battery recycling.
- .4 Hazardous wastes with economically recoverable precious metals.

**END OF SECTION**

**Part 1            General**

**1.1                SUMMARY**

- .1    Section Includes:
  - .1    Materials and requirements for the identification of piping systems, ductwork, valves, and controllers, including the installation and location of identification systems.

**1.2                REFERENCES**

- .1    Canadian General Standards Board (CGSB)
  - .1    CAN/CGSB-24.3-92 Identification of Piping Systems.

**1.3                SUBMITTALS**

- .1    Product Data:
- .2    Submittals: in accordance with Section 01 33 00 - Submittal Procedures.

**Part 2            Products**

**2.1                MANUFACTURER'S EQUIPMENT NAMEPLATES**

- .1    Metal or plastic laminate nameplate mechanically fastened to each piece of equipment by manufacturer.
- .2    Lettering and numbers raised or recessed.
- .3    Information to include, as appropriate:
  - .1    Equipment: manufacturer's name, model, size, serial number, capacity.
  - .2    Motor: voltage, Hz, phase, power factor, duty, frame size.

**2.2                SYSTEM NAMEPLATES**

- .1    Colours:
  - .1    Hazardous: red letters, white background.
  - .2    Elsewhere: black letters, white background (except where required otherwise by applicable codes).
- .2    Construction:
  - .1    3 mm thick laminated plastic or white anodized aluminum, matte finish, with square corners, letters accurately aligned and machine engraved into core.
- .3    Sizes:

- .1    Conform to following table:

Size # mm	Sizes (mm)	No. of Lines	Height of Letters (mm)
1	10 x 50	1	3
2	13 x 75	1	5
3	13 x 75	2	3
4	20 x 100	1	8

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Size # mm	Sizes (mm)	No. of Lines	Height of Letters (mm)
5	20 x 100	2	5
6	20 x 200	1	8
7	25 x 125	1	12
8	25 x 125	2	8
9	35 x 200	1	20

.2 Use maximum of 25 letters/numbers per line.

.4 Locations:

.1 Terminal cabinets, control panels: use size # 5 .

.2 Equipment in Mechanical Rooms: use size # 9 .

.5 Identification for PWGSC Preventive Maintenance Support System (PMSS):

.1 Use arrangement of Main identifier, Source identifier, Destination identifier.

.2 Equipment in Mechanical Room:

.1 Main identifier: size #9.

.2 Source and Destination identifiers: size #6.

.3 Terminal cabinets, control panels: size #5.

.3 Equipment elsewhere: sizes as appropriate.

### 2.3 EXISTING IDENTIFICATION SYSTEMS

.1 Apply existing identification system to new work.

.2 Where existing identification system does not cover for new work, use identification system specified this section.

.3 Before starting work, obtain written approval of identification system from Departmental Representative.

### IDENTIFICATION OF PIPING SYSTEMS

.4 Identify contents by background colour marking, pictogram (as necessary), legend; direction of flow by arrows. To CAN/CGSB 24.3 except where specified otherwise.

.5 Pictograms:

.1 Where required: Workplace Hazardous Materials Information System (WHMIS) regulations.

.6 Legend:

.1 Block capitals to sizes and colours listed in CAN/CGSB 24.3.

.7 Arrows showing direction of flow:

.1 Outside diameter of pipe or insulation less than 75 mm: 100 mm long x 50 mm high.

.2 Outside diameter of pipe or insulation 75 mm and greater: 150 mm long x 50 mm high.

.3 Use double-headed arrows where flow is reversible.

.8 Extent of background colour marking:

.1 To full circumference of pipe or insulation.

- .2 Length to accommodate pictogram, full length of legend and arrows.
- .9 Materials for background colour marking, legend, arrows:
  - .1 Pipes and tubing 20 mm and smaller: waterproof and heat-resistant pressure sensitive plastic marker tags.
  - .2 Other pipes: pressure sensitive plastic-coated cloth vinyl with protective overcoating, waterproof contact adhesive undercoating, suitable for ambient of 100% RH and continuous operating temperature of 150 degrees C and intermittent temperature of 200 degrees C.

.10 Colours and Legends:

- .1 Where not listed, obtain direction from the Departmental Representative.
- .2 Colours for legends, arrows: to following table:

Background colour:	Legend, arrows:
Yellow	BLACK
Green	WHITE
Red	WHITE

- .3 Background colour marking and legends for piping systems:

Contents	Background colour marking	Legend
** Add design temperature		
++ Add design temperature and pressure		
Domestic cold water supply	Green	DOM. CWS
Sanitary	Green	SAN
Plumbing vent	Green	SAN. VENT
Fire protection water	Red	FIRE PROT. WTR

**2.4 IDENTIFICATION DUCTWORK SYSTEMS**

- .1 50 mm high stencilled letters and directional arrows 150 mm long x 50 mm high.
- .2 Colours: back, or co-ordinated with base colour to ensure strong contrast.

**2.5 VALVES, CONTROLLERS**

- .1 Brass tags with 12 mm stamped identification data filled with black paint.
- .2 Include flow diagrams for each system, of approved size, showing charts and schedules with identification of each tagged item, valve type, service, function, normal position, location of tagged item.

**2.6 CONTROLS COMPONENTS IDENTIFICATION**

- .1 Identify all systems, equipment, components, controls, and sensors with system nameplates specified in this section.
- .2 Inscriptions to include function and (where appropriate) fail-safe position.

**2.7 LANGUAGE**

- .1 Identification in English and French.

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**Part 3 Execution**

**3.1 MANUFACTURER'S INSTRUCTIONS**

- .1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheet.

**3.2 INSTALLATION**

- .1 Perform work in accordance with CAN/CGSB-24.3 except as specified otherwise.
- .2 Provide ULC and or CSA registration plates as required by respective agency.
- .3 Identify systems, equipment to conform to PWGSC Preventive Maintenance Support System (PMSS).

**3.3 NAMEPLATES**

- .1 Locations:
  - .1 In conspicuous location to facilitate easy reading and identification from operating floor.
- .2 Standoffs:
  - .1 Provide for nameplates on hot and/or insulated surfaces.
- .3 Protection:
  - .1 Do not paint, insulate or cover.

**3.4 LOCATION OF IDENTIFICATION ON PIPING AND DUCTWORK SYSTEMS**

- .1 On long straight runs in open areas in boiler rooms, equipment rooms, galleries, tunnels: at not more than 17 m intervals and more frequently if required to ensure that at least one is visible from any one viewpoint in operating areas and walking aisles.
- .2 Adjacent to each change in direction.
- .3 At least once in each small room through which piping or ductwork passes.
- .4 On both sides of visual obstruction or where run is difficult to follow.
- .5 On both sides of separations such as walls, floors, partitions.
- .6 Where system is installed in pipe chases, ceiling spaces, galleries, confined spaces, at entry and exit points, and at access openings.
- .7 At beginning and end points of each run and at each piece of equipment in run.
- .8 At point immediately upstream of major manually operated or automatically controlled valves, and dampers. Where this is not possible, place identification as close as possible, preferably on upstream side.
- .9 Identification easily and accurately readable from usual operating areas and from access points.
  - .1 Position of identification approximately at right angles to most convenient line of sight, considering operating positions, lighting conditions, risk of physical damage or injury and reduced visibility over time due to dust and dirt.

**3.5 VALVES, CONTROLLERS**

- .1 Valves and operating controllers, except at plumbing fixtures, radiation, or where in plain sight of equipment they serve: Secure tags with non-ferrous chains or closed "S" hooks.
- .2 Install one copy of flow diagrams and valve schedules mounted in a frame behind non-glare glass where directed by the Departmental Representative. Provide one copy (reduced in size if required) in each operating and maintenance manual.
- .3 Number valves in each system consecutively.

**3.6 CLEANING**

- .1 Proceed in accordance with Section 01 74 11 - Cleaning.
- .2 Upon completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

**END OF SECTION**

**Part 1            General**

**1.1                SUMMARY**

- .1    TAB is used throughout this Section to describe the process, methods and requirements of testing, adjusting and balancing for hydronic systems.
- .2    TAB means to test, adjust and balance to perform in accordance with requirements of Contract Documents and to do other work as specified in this section.

**1.2                QUALIFICATIONS OF TAB PERSONNEL**

- .1    Submit names of personnel to perform TAB to Departmental Representative within ninety (90) days of award of contract.
- .2    Provide documentation confirming qualifications, successful experience.
- .3    TAB: performed in accordance with the requirements of standard under which TAB Firm's qualifications are approved:
  - .1    Associated Air Balance Council, (AABC) National Standards for Total System Balance, MN-1-2002.
  - .2    National Environmental Balancing Bureau (NEBB) TABES, Procedural Standards for Testing, Adjusting, Balancing of Environmental Systems-1998.
- .4    Recommendations and suggested practices contained in the TAB Standard: mandatory.
- .5    Use TAB Standard provisions, including checklists, and report forms to satisfy Contract requirements.
- .6    Use TAB Standard for TAB, including qualifications for TAB Firm and Specialist and calibration of TAB instruments.
- .7    Where instrument manufacturer calibration recommendations are more stringent than those listed in TAB Standard, use manufacturer's recommendations.
- .8    TAB Standard quality assurance provisions such as performance guarantees form part of this contract.
  - .1    For systems or system components not covered in TAB Standard, use TAB procedures developed by TAB Specialist.
  - .2    Where new procedures, and requirements, are applicable to Contract requirements have been published or adopted by body responsible for TAB Standard used (AABC, NEBB, or TABB), requirements and recommendations contained in these procedures and requirements are mandatory.

**1.3                PURPOSE OF TAB**

- .1    Test to verify proper and safe operation, determine actual point of performance, evaluate qualitative and quantitative performance of equipment, systems and controls at design, average and low loads using actual or simulated loads
- .2    Adjust and regulate equipment and systems to meet specified performance requirements and to achieve specified interaction with other related systems under normal and emergency loads and operating conditions.
- .3    Balance systems and equipment to regulate flow rates to match load requirements over full operating ranges.



**1.4 EXCEPTIONS**

- .1 TAB of systems and equipment regulated by codes, standards to satisfaction of authority having jurisdiction.

**1.5 CO-ORDINATION**

- .1 Schedule time required for TAB (including repairs, re-testing) into project construction and completion schedule to ensure completion before acceptance of project.
- .2 Do TAB of each system independently and subsequently, where interlocked with other systems, in unison with those systems.

**1.6 PRE-TAB REVIEW**

- .1 Review contract documents before project construction is started and confirm in writing to Departmental Representative the adequacy of provisions for TAB and other aspects of design and installation pertinent to success of TAB.
- .2 Review specified standards and report to Departmental Representative in writing proposed procedures that vary from standard.
- .3 During construction, co-ordinate location and installation of TAB devices, equipment, accessories, measurement ports and fittings.

**1.7 START-UP**

- .1 Follow start-up procedures as recommended by equipment manufacturer unless specified otherwise.

**1.8 FOLLOW SPECIAL START-UP PROCEDURES**

- .1 Notify Departmental Representative seven (7) days prior to start of TAB.
- .2 Start TAB when building is essentially completed, including:
  - .3 Installation of ceilings, doors, windows, other construction affecting TAB.
  - .4 Application of weatherstripping, sealing, and caulking.
  - .5 Pressure, leakage, or other tests specified elsewhere in Division 23.
  - .6 Provisions for TAB installed and operational.
- .7 Start-up, verification for proper, normal and safe operation of mechanical and associated electrical and control systems affecting TAB including but not limited to:
  - .1 Proper thermal overload protection in place for electrical equipment.
  - .2 Liquid systems:
    - .1 Flushed, filled, vented.
    - .2 Correct pump rotation.
    - .3 Strainers in place, baskets clean.
    - .4 Isolating and balancing valves installed, open.
    - .5 Calibrated balancing valves installed, at factory settings.
    - .6 Chemical treatment systems complete, operational.

**1.9 APPLICATION TOLERANCES**

- .1 Do TAB to following tolerances of design values:

- .1 Hydronic systems: plus or minus 10 %.

#### **1.10 ACCURACY TOLERANCES**

- .1 Measured values accurate to within plus or minus 2 % of actual values.

#### **1.11 INSTRUMENTS**

- .1 Prior to TAB, submit to Departmental Representative a list of instruments used together with serial numbers.
- .2 Calibrate in accordance with requirements of most stringent of referenced standard for either applicable system or HVAC system.
- .3 Calibrate within three (3) months of TAB. Provide certificate of calibration to Departmental Representative.

#### **1.12 SUBMITTALS**

- .1 Submit, prior to commencement of TAB:
- .2 Proposed methodology and procedures for performing TAB if different from referenced standard.
- .3 .

#### **1.13 PRELIMINARY TAB REPORT**

- .1 Submit for checking and approval of Departmental Representative, prior to submission of formal TAB report, sample of rough TAB sheets. Include:
  - .1 Details of instruments used.
  - .2 Details of TAB procedures employed.
  - .3 Calculations procedures.
  - .4 Summaries.

#### **1.14 TAB REPORT**

- .1 Format in accordance with referenced standard.
- .2 TAB report to show results in SI units and to include:
  - .1 Project record drawings.
  - .2 System schematics.
- .3 Submit 6 copies of TAB Report to Departmental Representative for verification and approval, in English French both official languages in D-ring binders, complete with index tabs.

#### **1.15 VERIFICATION**

- .1 Reported results subject to verification by Departmental Representative.
- .2 Provide personnel and instrumentation to verify up to 30 % of reported results.
- .3 Number and location of verified results as directed by Departmental Representative.
- .4 Pay costs to repeat TAB as required to satisfaction of Departmental Representative.

**1.16            SETTINGS**

- .1      After TAB is completed to satisfaction of Departmental Representative, replace drive guards, close access doors, lock devices in set positions, ensure sensors are at required settings.
- .2      Permanently mark settings to allow restoration at any time during life of facility. Do not eradicate or cover markings.

**1.17            COMPLETION OF TAB**

- .1      TAB considered complete when final TAB Report received and approved by Departmental Representative.

**Part 2           Products**

**2.1            NOT USED**

- .1      Not used.

**Part 3           Execution**

**3.1            NOT USED**

- .1      Not used.

**END OF SECTION**

**Part 1 General**

**1.1 REFERENCES**

- .1 Air-Conditioning, Heating and Refrigeration Institute (AHRI)
  - .1 AHRI-550/590-03, Performance Rating of Water Chilling Packages Using the Vapor Compression Cycle.
- .2 CSA International
  - .1 CSA B52-05 SMART, Mechanical Refrigeration Code.
- .3 Environment Canada, (EC)/Environmental Protection Services (EPS)
  - .1 EPS 1/RA/2-1996, Environmental Code of Practice for Elimination of Fluorocarbons Emissions from Refrigeration and Air Conditioning Systems.

**1.2 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for scroll water chillers and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop Drawings:
  - .1 Indicate:
    - .1 Equipment including connections, piping and fittings, valves, strainers, control assemblies and ancillaries, identifying factory and field assembled.
    - .2 Wiring as assembled and schematics.
    - .3 Dimensions, construction details, recommended installation and support, mounting bolt hole sizes and locations and point loads.
    - .4 Type of refrigerant used.

**1.3 CLOSEOUT SUBMITTALS**

- .1 Submit in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Operation and Maintenance Data: submit operation and maintenance data for scroll water chiller for incorporation into manual.
- .3 Data to include:
  - .1 Description of equipment giving manufacturers name, model type and year, capacity and serial numbers.
  - .2 Provide part load performance curves.
  - .3 Details on operation, servicing and maintenance.
  - .4 Recommended spare parts list.

## **1.4 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
  - .1 Store materials in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store and protect chiller from nicks, scratches, and blemishes.
  - .3 Replace defective or damaged materials with new.

## **Part 2 Products**

### **2.1 GENERAL**

- .1 Provide complete condenserless liquid scroll type chiller package including: compressor; evaporator; motor and motor starter; controls; control centre; piping; wiring; refrigeration and oil change; ready for connection to chilled water circuit, remote refrigeration condenser, and electric power source, installed in welded steel frame with heavy gauge panels and access doors finished to manufacturers standard.

### **2.2 CAPACITY**

- .1 Certified ratings based on AHRI 550/590:
  - .1 140.7 kW (40 tons nominal), when cooling 6.05 L/s of water from 12.22 degrees C to 6.70 degrees C.
  - .2 Power input, including electrical components: 48.52 kW.
  - .3 Fouling resistance coefficient: 0.0176 m<sup>2</sup>K/W
  - .4 Refrigerant: R410-A.

### **2.3 COMPRESSOR**

- .1 Fully hermetic scroll type compressors operating at 3500 r/min.
- .2 Unloaded start with capacity modulation by continuous linear modulation of slide valve in response to load change.
- .3 Compressor to include suction and discharge shut-off valves; oil sight glass; separate circuit crankcase heater; and cylinder unloading device.
- .4 Provide nameplate to show capacity at design temperature, type of refrigerant used and total weight in system.
- .5 External vibration isolation – rubber in shear.

### **2.4 COMPRESSOR MOTOR**

- .1 Fully Hermetic type with overload protection and manual restart.

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## 2.5 EVAPORATOR

- .1 Evaporator shall be rated for a refrigerant workingside pressure of 450 psig (3103 kPa) and shall be tested for a maximum water-side pressure of 300 psig (2068 kPa).
- .2 Shall be single-pass, ANSI type 316 stainless steel, brazed plate construction.
- .3 Shall be insulated with 3/4-in. (19 mm) closed-cell, polyvinyl-chloride foam with a maximum K factor of 0.28.
- .4 Unit shall be provided with a factory-installed flow switch.
- .5 Unit shall be provided with entering and leaving chilled water temperature sensors and water pressure access port.
- .6 A strainer with a minimum of 40 mesh must be installed within 10 ft (3 m) of the heat exchanger fluid inlet to prevent debris from clogging the heat exchanger. This strainer shall be required and shall be available as an accessory.

## 2.6 CONTROL CENTRE

- .1 Unit controls shall include the following minimum components:
  - .1 Microprocessor.
  - .2 Power and control circuit terminal blocks.
  - .3 ON/OFF control switch.
  - .4 Thermistor is installed to measure evaporator entering and leaving fluid temperatures.
  - .5 Terminal block for temporary and/or permanent interface to the Carrier Comfort Network® or similar building system control.
- .2 Microprocessor with non-volatile memory. Battery backup system shall not be accepted.
- .3 Control transformer to serve all controllers, contactors, relays, and control components.
- .4 Replaceable solid-state relay panels and controllers.
- .5 Pressure transducers (used to calculate saturated suction temperature and saturated condensing temperature).
- .6 Provision for field installation of accessory sensor to measure compressor return gas temperature (suction gas thermistor).
- .7 Terminals shall be provided in the control box for wiring of accessory field-installed condenser temperature sensors.
- .8 Unit controls shall be capable of performing the following functions:
  - .1 Capacity control based on leaving chilled fluid temperature and compensated by rate of change of return-fluid temperature.
  - .2 Limiting of the chilled fluid temperature pulldown rate at start-up to 1° F (0.56° C) per minute to prevent excessive demand spikes (charges) at start-up.
  - .3 Seven-day time schedule.
  - .4 Leaving chilled fluid temperature reset from return fluid.
  - .5 Dual chiller control for parallel chiller applications (common leaving chilled water sensor required)

- .6 Timed maintenance scheduling to signal maintenance activities.

## 2.7

### **Diagnostics:**

- .1 The control panel shall include, as standard, a scrolling marquee display capable of indicating the safety lockout condition by displaying a code for which an explanation may be scrolled at the display.
- .2 Information included for display shall be:
  - .3 Compressor lockout.
  - .4 Loss of charge.
  - .5 Low fluid flow.
  - .6 Evaporator freeze protection.
  - .7 Thermistor malfunction.
  - .8 Entering and leaving-fluid temperature.
  - .9 Circuit suction and discharge pressure.
  - .10 Time of day.
  - .11 Display module, in conjunction with the microprocessor, must also be capable of displaying the output (results) of a service test. Service test shall verify operation of every switch, thermistor, and compressors before chiller is started.
  - .12 Diagnostics shall include the ability to review a list of the 20 most recent alarms with clear language descriptions of the alarm event. Display of alarm codes without the ability for clear language descriptions shall be prohibited.
  - .13 An alarm history buffer shall allow the user to store no less than 20 alarm events with clear language descriptions, time and date stamp event entry.
  - .14 The chiller controller shall include a connection port for communicating with the local equipment network and the Carrier Comfort Network (CCN) system.
  - .15 The control system shall allow software upgrade without the need for new hardware modules.

## 2.8

### **Safeties:**

- .1 Unit shall be equipped with sensors and all necessary components in conjunction with the control system to provide the unit with the following protections:
  - .1 Loss of refrigerant charge protection.
  - .2 Low fluid flow detection.
  - .3 Low chilled fluid temperature protection.
  - .4 Low control voltage (unit) protection.
  - .5 High-pressure switch.
  - .6 Reverse rotation.
  - .7 Overcurrent protection.
  - .8 Loss of phase.
- .2 Compressors shall be equipped with the following protections:
  - .1 High discharge temperature protection.

- .2 Electrical overload through the use of definite-purpose contactors and motor overload protection through internal compressor overload or external current overload.
- .3 Circuit breakers shall open all 3 phases in the event of an overload in any one phase (single-phasing condition).
- .4 Circuit breakers for short circuit protection.

**2.9 Operating Characteristics:**

- .1 Unit shall be capable of starting with up to 95 F (35 C) fluid temperature entering the evaporator.
- .2 Unit shall be capable of operating with variable evaporator fluid flow, up to 10% change in flow rate per minute.

**2.10 Electrical Requirements:**

- .1 Single-point electrical power connection with compressors factory-wired to a terminal block in the control panel. Compressor sensors and system pressure transducers shall be factory wired to the unit controller.
- .2 Control interface shall be accessed through low voltage terminal strip or terminal strip.

**2.11 Chilled Water Circuit:**

- .1 Chilled water circuit shall be rated for 300 psig (2068 kPa).
- .2 Solid-state flow switch with integral relay shall be factory installed and wired.

**2.12 Special Features:**

- .1 Hot Gas Bypass:
  - .1 This factory-installed option shall permit chiller to provide an additional step of capacity reduction over standard.
- .2 Non-Fused Disconnect:
  - .1 The non-fused disconnect shall be factory installed and shall disconnect all power to the unit (including control circuit power).
- .3 Vibration isolation pads
- .4 Strainer on chilled water (40 mesh)
- .5 Access to mechanical room is limited, the chiller dimensions to be – 24”-W, 48”-L, 72”-H. Allow for partial disassembly and assembly if required.

**2.13 Remote condenser**

- .1 General:
  - .1 Factory assembled, single-piece, air-cooled remote condenser. Contained within the unit enclosure shall be all factory wiring, piping, controls, nitrogen holding charge, and special features required prior to field start-up.
- .2 Unit Cabinet:



- .1 Cabinet shall be galvanized steel casing with a baked enamel powder or pre-painted finish.
- .2 Cabinet shall be capable of withstanding 500-hr salt spray test in accordance with ASTM (U.S.A.) B-117 standard.
- .3 Control box access panels shall be removable for service access.
- .4 Lifting holes shall be provided to facilitate rigging.
- .3 Fans:
  - .1 Condenser fans shall be direct-drive propeller type, discharging air vertically upward.
  - .2 All condenser fan motors shall be totally enclosed 3-phase type with permanently lubricated ball bearings, class F insulation and internal, automatic-reset thermal overload protection.
  - .3 Shafts shall have inherent corrosion resistance.
  - .4 Fan blades shall be statically and dynamically balanced.
  - .5 Condenser-fan openings shall be equipped with PVC-coated steel wire safety guards.
- .4 Condenser Coils:
  - .1 Coil shall be air-cooled microchannel heat exchanger (MCHX) and shall have a series of flat tubes containing a series of multiple, parallel flow microchannels layered between the refrigerant manifolds. Microchannel coils shall consist of a two-pass arrangement. Coil construction shall consist of aluminum alloys for the fins, tubes and manifolds in combination with a corrosion-resistant coating on the tubes.
  - .2 Tubes shall be cleaned, dehydrated, and sealed.
  - .3 Assembled condenser coils shall be leak tested and pressure tested at 650 psig (4482 kPa).
- .5 Refrigeration Components:
  - .1 Refrigeration circuit components shall include liquid line temperature relief device and nitrogen holding charge.
- .6 Controls and Safeties:
  - .1 Unit controls shall include:
    - .1 Unit shall have a temperature fusible plug for safety on each refrigerant circuit.
    - .2 Self-contained low voltage control circuit.
    - .3 Cycle condenser fans to maintain proper head pressure control.
- .7 Operating Characteristics:
  - .1 Unit shall be capable of rejecting the required heat at the required cfm and be capable of operating down to moderate ambient temperatures with standard factory supplied fan cycling.
- .8 Electrical Requirements:

- .1 A dual power supply of the correct voltage shall be required for each series unit. A 3-phase power circuit voltage and a 24 volt single-phase control circuit shall be required.
- .2 The number of control circuits shall depend on the unit application, whether it is matched with one unit or two units.
- .3 Power supplies for all units shall enter the control box through factory-punched entrance holes in the control box shelf.
- .4 Units shall utilize electromechanical fan cycling head pressure controls to control proper head pressure.
- .9 Special Features:
  - .1 Non-Fused Disconnect:
    - .1 A non-fused disconnect is available as a factory- installed option for all units having single point power connection units.
- .10 Vibration Isolation Pads:
  - .1 Neoprene vibration isolation pads (24 in. x 3 in. x 1/4 in.) shall be available for field installation to reduce vibration transmission from the compressor through the floor and into the conditioned space.

### **Part 3 Execution**

#### **3.1 EXAMINATION**

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for rotary-screw water chiller installation in accordance with manufacturer's written instructions.
  - .1 Visually inspect substrate in presence of Departmental Representative.
  - .2 Inform Departmental Representative.
  - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative

#### **3.2 APPLICATION**

- .1 Manufacturer's Instructions: comply with manufacturer's written recommendations, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

#### **3.3 GENERAL**

- .1 Provide appropriate protection apparatus.
- .2 Install unit as indicated, to manufacturers recommendations, and in accordance with EPS 1/RA/2.
- .3 Ensure adequate clearances for servicing and maintenance.

- .4 Manufacturer to approve installation, to supervise startup and to instruct operators. Include 3 days per unit.

### **3.4 STRUCTURAL SUPPORT**

- .1 Reuse existing roof curbs approx. 9' a part (field measurement is required). Provide structural base rail spanning over existing roof curbs supporting new chiller.

### **3.5 CLEANING**

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Leave Work area clean at end of each day.
  - .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section [01 74 11 - Cleaning].

### **3.6 PROTECTION**

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by scroll water chiller installation.

**END OF SECTION**

**Part 1           General**

**1.1               SUMMARY**

.1           Section Includes:

- .1           Control devices integral to the Building Energy Monitoring and Control System (EMCS): [transmitters,] [sensors,] [controls,] [meters,] [switches,] [transducers,] [dampers,] [damper operators,] [valves,] [valve actuators,] [low voltage current transformers].

**1.2               REFERENCES**

.1           Canadian Standards Association (CSA International).

- .1           CSA-C22.1-18, Canadian Electrical Code, Part 1 (19th Edition), Safety Standard for Electrical Installations.

**1.3               ACTION AND INFORMATIONAL SUBMITTALS**

.1           Submit shop drawings and manufacturer's installation instructions.

.2           Pre-Installation Tests.

- .1           Submit samples at random from equipment shipped, as requested by Departmental Representative, for testing before installation. Replace devices not meeting specified performance and accuracy.

.3           Manufacturer's Instructions:

- .1           Submit manufacturer's installation instructions for specified equipment and devices.

**1.4               EXISTING CONDITIONS**

.1           Repair surfaces damaged during execution of Work.

.2           Turn over to Departmental Representative existing materials removed from Work not identified for re-use.

**Part 2           Products**

**2.1               GENERAL**

.1           Control devices of each category to be of same type and manufacturer.

.2           Terminations: use standard conduit box with slot screwdriver compression connector block unless otherwise specified.

.3           Transmitters and sensors to be unaffected by external transmitters including walkie talkies.

.4           Account for hysteresis, relaxation time, maximum and minimum limits in applications of sensors and controls.

## 2.2 CONTROL DAMPERS

- .1 Construction: blades, 152 mm wide, 1219 mm long, maximum. Modular maximum size, 1219 mm wide x 1219 mm high. Three or more sections to be operated by jack shafts.
- .2 Materials:
  - .1 Frame: 2.03 mm minimum thickness extruded aluminum. For outdoor air and exhaust air applications, frames to be insulated.
  - .2 Blades: extruded aluminum. For outdoor air/exhaust air applications, blades to be internally insulated.
  - .3 Bearings: maintenance free, synthetic type of material.
  - .4 Linkage and shafts: aluminum, zinc and nickel plated steel.
  - .5 Seals: synthetic type, mechanically locked into blade edges.
    - .1 Frame seals: synthetic type, mechanically locked into frame sides.
- .3 Performance: minimum damper leakage meet or exceed AMCA Standard 500-D ratings.
  - .1 Size/Capacity: refer to damper schedule
  - .2 25 L/s/m<sup>2</sup> maximum allowable leakage against 1000 Pa static pressure for outdoor air and exhaust air applications.
  - .3 Temperature range: minus 40 degrees C to plus 100 degrees C.
- .4 Arrangements: dampers mixing warm and cold air to be parallel blade, mounted at right angles to each other, with blades opening to mix air stream.
- .5 Jack shafts:
  - .1 25 mm diameter solid shaft, constructed of corrosion resistant metal complete with required number of pillow block bearings to support jack shaft and operate dampers throughout their range.
  - .2 Include corrosion resistant connecting hardware to accommodate connection to damper actuating device.
  - .3 Install using manufacturers installation guidelines.
  - .4 Use same manufacturer as damper sections.

## 2.3 ELECTRONIC CONTROL DAMPER ACTUATORS

- .1 Requirements:
  - .1 Direct mount proportional type as indicated.
  - .2 Spring return for "fail-safe" in Normally Open or Normally Closed position as indicated.
  - .3 Operator: size to control dampers against maximum pressure and dynamic closing/opening pressure, whichever is greater.
  - .4 Power requirements: 5 VA maximum at 24 V AC.
  - .5 Operating range: 0 - 10 V DC or 4 - 20 mA DC.
  - .6 Damper actuator to drive damper from full open to full closed in less than 90 seconds.

## **2.4 WIRING**

- .1 For wiring under 70 volts use FT6 rated wiring where wiring is not run in conduit. Other cases use FT4 wiring.
- .2 Wiring must be continuous without joints.
- .3 Sizes:
  - .1 Field wiring to digital device: #18AWG.
  - .2 Analog input and output: shielded #18 minimum solid copper.

## **Part 3 Execution**

### **3.1 INSTALLATION**

- .1 Install equipment, components so that manufacturer's and CSA labels are visible and legible after commissioning is complete.
- .2 Install field control devices in accordance with manufacturers recommended methods, procedures and instructions.
- .3 Electrical:
  - .1 Complete installation in accordance with Section 26 05 00 - Common Work Results for Electrical.
  - .2 Terminate wires with screw terminal type connectors suitable for wire size, and number of terminations.
  - .3 Install communication wiring in conduit.
    - .1 Conduit sizes to suit wiring requirements and to allow for future expansion capabilities specified for systems.
    - .2 Maximum conduit fill not to exceed 40%.
    - .3 Design drawings do not show conduit layout.
  - .4 Wiring in mechanical rooms, wiring in service rooms and exposed wiring must be in conduit.

**END OF SECTION**

**Part 1 General**

**1.1 SUMMARY**

- .1 Section Includes:
  - .1 General requirements that are common to NMS sections found in Division 26 – Electrical. This section supplements requirements of Division 1.

**1.2 REFERENCES**

- .1 Canadian Standards Association (CSA International)
  - .1 CSA C22.1-12, Canadian Electrical Code
  - .2 CSA C22.2
  - .3 CAN/CSA-C22.3 No. 1-01, Overhead Systems.
  - .4 CAN3-C235-83(R2000), Preferred Voltage Levels for AC Systems, 0 to 50,000V.
- .2 Electrical and Electronic Manufacturer's Association of Canada (EEMAC)
  - .1 EEMAC 2Y-1-1958, Light Gray Colour for Indoor Switch Gear.
- .3 Health Canada / Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (MSDS).

**1.3 DESIGN REQUIREMENTS**

- .1 Operating voltages: to CAN3-C235.
- .2 Motors, electric heating, control and distribution devices and equipment to operate satisfactorily at 60 Hz within normal operating limits established by above standard.
  - .1 Equipment to operate in extreme operating conditions established in above standard without damage to equipment.
- .3 Language operating requirements: provide identification nameplates and labels for control items in English and French.
- .4 Use one nameplate or label for each language.

**1.4 SUBMITTALS**

- .1 Shop drawings:
  - .1 Submit drawings for review, prior to ordering/purchasing any equipment.
- .2 Quality Control:
  - .1 Provide CSA certified equipment and material.
  - .2 Where CSA certified equipment and material is not available, submit such equipment and material to authority having jurisdiction for special approval before delivery to site.
  - .3 Submit test results of installed electrical systems and instrumentation.
  - .4 Permits and fees: in accordance with General Conditions of contract.
  - .5 Submit, upon completion of Work, load balance report as described in PART 3 - Load Balance.

- .6 Submit certificate of acceptance from authority having jurisdiction upon completion of Work to Departmental Representative.
  - .3 Manufacturer's Field Reports: submit to Departmental Representative, manufacturer's written report, within 3 days of review, verifying compliance of Work and electrical system and instrumentation testing, as described in PART 3 - FIELD QUALITY CONTROL.
- 1.5 QUALITY ASSURANCE**
- .1 Qualifications: electrical Work to be carried out by qualified, licensed electricians who hold valid Master Electrical Contractor license or apprentices in accordance with authorities having jurisdiction.
- 1.6 SYSTEM STARTUP**
- .1 Instruct, Departmental Representative and operating personnel in operation, care and maintenance of systems, system equipment and components.
  - .2 Arrange and pay for services of manufacturer's factory service engineer to supervise start-up of installation, check, adjust, balance and calibrate components and instruct operating personnel.
  - .3 Provide these services for such period, and for as many visits as necessary to put equipment in operation, and ensure that operating personnel are conversant with aspects of its care and operation.
- Part 2 Products**
- 2.1 MATERIALS AND EQUIPMENT**
- .1 Material and equipment to be CSA certified. Where CSA certified equipment is not available, obtain special approval from authority having jurisdiction.
  - .2 Factory-assembled control panels and component assemblies.
- 2.2 ELECTRIC MOTORS, EQUIPMENT AND CONTROLS**
- .1 Verify installation and co-ordination responsibilities related to motors, equipment and controls, as indicated.
  - .2 Control wiring and conduit is specified in Division 26 except for conduit, wiring and connections below 50 V which are related to control systems specified in Divisions 21, 22 and 23 and as shown on mechanical drawings.
- 2.3 WARNING SIGNS**
- .1 As specified and to meet requirements of Electrical Inspection Department.
  - .2 Decal signs, minimum size 175 x 250 mm.
- 2.4 WIRING TERMINATIONS**
- .1 Ensure lugs, terminals, screws used for termination of wiring are suitable for either copper or aluminum conductors.



**2.5 EQUIPMENT IDENTIFICATION**

- .1 Identify electrical equipment with nameplates and labels as follows:
  - .1 Nameplates: lamicoïd 3 mm thick plastic engraving sheet, black face, white core, mechanically attached with self-tapping screws.
  - .2 Sizes as follows:
 

NAMEPLATE SIZES			
Size 1	10 x 50 mm	1 line	3 mm high letters
Size 2	12 x 70 mm	1 line	5 mm high letters
Size 3	12 x 70 mm	2 lines	3 mm high letters
Size 4	20 x 90 mm	1 line	8 mm high letters
Size 5	20 x 90 mm	2 lines	5 mm high letters
Size 6	25 x 100 mm	1 line	12 mm high letters
Size 7	25 x 100 mm	2 lines	6 mm high letters
- .2 Labels: embossed plastic labels with 6 mm high letters unless specified otherwise.
- .3 Wording on nameplates and labels to be approved by Departmental Representative prior to manufacture.
- .4 Allow for minimum of twenty-five (25) letters per nameplate and label.
- .5 Nameplates for terminal cabinets and junction boxes to indicate system and/or voltage characteristics.
- .6 Disconnects, starters and contactors: indicate equipment being controlled and voltage.
- .7 Terminal cabinets and pull boxes: indicate system and voltage.
- .8 Transformers: indicate capacity, primary and secondary voltages.

**2.6 WIRING IDENTIFICATION**

- .1 Identify wiring with permanent indelible identifying markings, numbered or coloured plastic tapes, on both ends of phase conductors of feeders and branch circuit wiring.
- .2 Maintain phase sequence and colour coding throughout.
- .3 Colour coding: to CSA C22.10-07.
- .4 Use colour-coded wires in communication cables, matched throughout system.

**2.7 CONDUIT AND CABLE IDENTIFICATION**

- .1 Colour code conduits, boxes and metallic sheathed cables.
- .2 Code with plastic tape or paint at points where conduit or cable enters wall, ceiling, or floor, and at 15 m intervals.
- .3 Colours: 25 mm wide prime colour and 20 mm wide auxiliary colour.

	Prime	Auxiliary
up to 250 V	Yellow	
up to 600 V	Yellow	Green
up to 5 kV	Yellow	Blue
up to 15 kV	Yellow	Red
Telephone	Green	
Other Communication Systems	Green	Blue
Fire Alarm	Red	

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	Prime	Auxiliary
Emergency Voice	Red	Blue
Other Security Systems	Red	Yellow

**2.8 FINISHES**

- .1 Shop finish metal enclosure surfaces by application of rust resistant primer inside and outside, and at least two coats of finish enamel.

**Part 3 Execution**

**3.1 INSTALLATION**

- .1 Do complete installation in accordance with CSA C22.1 except where specified otherwise.
- .2 Do overhead and underground systems in accordance with CSA C22.3 No.1 except where specified otherwise.

**3.2 NAMEPLATES AND LABELS**

- .1 Ensure manufacturer's nameplates, CSA labels and identification nameplates are visible and legible after equipment is installed.

**3.3 CONDUIT AND CABLE INSTALLATION**

- .1 Install conduit and sleeves prior to pouring of concrete.
  - .1 Sleeves through concrete: schedule 40 steel pipe, sized for free passage of conduit, and protruding 50 mm.
- .2 If plastic sleeves are used in fire rated walls or floors, remove before conduit installation.
- .3 Install cables, conduits and fittings to be embedded or plastered over, neatly and close to building structure so furring can be kept to minimum.

**3.4 LOCATION OF OUTLETS**

- .1 Locate outlets as shown on drawings.
- .2 Do not install outlets back-to-back in wall; allow minimum 150 mm horizontal clearance between boxes.
- .3 Change location of outlets at no extra cost or credit, providing distance does not exceed 3000 mm, and information is given before installation.
- .4 Locate light switches on latch side of doors.
  - .1 Locate disconnect devices in mechanical and elevator machine rooms on latch side of floor.

**3.5 MOUNTING HEIGHTS**

- .1 Mounting height of equipment is from finished floor to centreline of equipment unless specified or indicated otherwise.
- .2 If mounting height of equipment is not specified or indicated, verify before proceeding with installation.

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**3.6 CO-ORDINATION OF PROTECTIVE DEVICES**

- .1 Ensure circuit protective devices such as overcurrent trips, relays and fuses are installed to required values and settings.

**3.7 FIELD QUALITY CONTROL**

- .1 Load Balance:
  - .1 Measure phase current to panelboards with normal loads (lighting) operating at time of acceptance; adjust branch circuit connections as required to obtain best balance of current between phases and record changes.
  - .2 Measure phase voltages at loads and adjust transformer taps to within 2% of rated voltage of equipment.
  - .3 Provide upon completion of work, load balance report as directed in PART 1 - Submittals: phase and neutral currents on panelboards, dry-core transformers and motor control centres, operating under normal load, as well as hour and date on which each load was measured, and voltage at time of test.
- .2 Conduct and pay for the following tests:
  - .1 Power generation and distribution system including phasing, voltage, grounding and load balancing.
  - .2 Circuits originating from branch distribution panels.
  - .3 Lighting and its control.
  - .4 Motors, heaters and associated control equipment including sequenced operation of systems where applicable.
  - .5 Systems: fire alarm system, communications.
  - .6 Insulation resistance testing:
    - .1 Electrical insulation and leakage test circuits, feeders and equipment up to 350 V with a 500 V instrument.
    - .2 Electrical insulation and leakage test 350-600 V circuits, feeders and equipment with a 1000 V instrument.
    - .3 Check resistance to ground before energizing.
- .3 Carry out tests in presence of Departmental Representative.
- .4 Provide instruments, meters, equipment and personnel required to conduct tests during and at conclusion of project.
- .5 Manufacturer's Field Services:
  - .1 Obtain written report from manufacturer verifying compliance of Work, in handling, installing, applying, protecting and cleaning of product and submit Manufacturer's Field Report(s).
  - .2 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

**3.8 CLEANING**

- .1 Clean and touch up surfaces of shop-painted equipment scratched or marred during shipment or installation, to match original paint.
- .2 Clean and prime exposed non-galvanized hangers, racks and fastenings to prevent rusting.

**3.9 COORDINATION OF MECHANICAL AND ELECTRICAL WORK**

- .1 Provide complete wiring and connections for all motors and other electrical equipment specified in Division 22 and 23.
- .2 Determine characteristics of equipment specified in Division 22 and 23. Provide proper starters, relays, coils, auxiliary contacts and interlocks.

**END OF SECTION**

**Part 1        General**

**1.1            REFERENCES**

- .1 Canadian Standards Association (CSA International)
  - .1 CAN/CSA-C22.2No.18-13, Outlet Boxes, Conduit Boxes, Fittings and Associated Hardware.
  - .2 CSA C22.2No.65-13, Wire Connectors.
- .2 Electrical and Electronic Manufacturers' Association of Canada (EEMAC)
  - .1 EEMAC 1Y-2, 1961 Bushing Stud Connectors and Aluminum Adapters (1200 Ampere Maximum Rating).
- .3 National Electrical Manufacturers Association (NEMA)

**Part 2        Products**

**2.1            MATERIALS**

- .1 Pressure type wire connectors with current carrying parts of copper sized to fit copper conductors as required.
- .2 Fixture type splicing connectors with current carrying parts of copper sized to fit copper conductors 10 AWG or less.
- .3 Clamps or connectors for armoured cable, flexible conduit as required.

**Part 3        Execution**

**3.1            INSTALLATION**

- .1 Remove insulation carefully from ends of conductors and:
  - .1 Install mechanical pressure type connectors and tighten screws with appropriate compression tool recommended by manufacturer. Installation shall meet secureness tests in accordance with CSA C22.2 No.65.
  - .2 Install fixture type connectors and tighten. Replace insulating cap.

**END OF SECTION**

**Part 1           General**

**1.1           GENERAL**

- .1   In general, the wiring is not shown on the drawings for the different systems: the necessary wiring shall however be provided between all outlets and the panels and/or relays to which they are referred to on drawings. In some cases, the panel identification is not given for each circuit but is shown for particular area.

**Part 2           Products**

**2.1           BUILDING WIRES**

- .1   Conductors: stranded for 10 AWG and larger. Minimum size: 12 AWG.
- .2   Copper conductors: size as indicated, with 1000 V insulation of chemically cross-linked thermosetting polyethylene material rated RW90.

**2.2           UNDERGROUND WIRES (DUCT BANK)**

- .1   Conductors: stranded
- .2   Copper conductors: size as indicated, with 1000 V insulation of chemically cross-linked thermosetting polyethylene material rated RW90.

**2.3           TECK CABLE**

- .1   Cable: to CAN/CSA-C22.2 No. 131-14.
- .2   Conductors:
  - .1   Grounding conductor: copper.
  - .2   Circuit conductors: copper, size as indicated.
- .3   Connectors:
  - .1   Watertight, approved for TECK cable.

**Part 3           Execution**

**3.1           INSTALLATION OF BUILDING WIRES**

- .1   Install wiring as follows:
  - .1   All cables in suspended ceiling shall be properly strapped.
  - .2   Use armoured cables only in suspended ceilings when making final connection to equipment or in location(s) pre-approved by Departmental Representative.

**3.2           INSTALLATION OF TECK CABLE 0 TO 1000 V**

- .1   Install cables.

- .1 Group cables wherever possible on channels.
- .2 Terminate cables in accordance with Section 26 05 20 - Wire and Box Connectors - 0 TO 1000 V.

**END OF SECTION**

**Part 1        General**

**1.1            REFERENCES**

- .1        American National Standards Institute (ANSI)/Institute of Electrical and Electronics Engineers (IEEE)
  - .1        ANSI/IEEE 837-1996, Qualifying Permanent Connections Used in Substation Grounding.
- .2        Canadian Standards Association, (CSA International)

**Part 2        Products**

**2.1            EQUIPMENT**

- .1        Clamps for grounding of conductor: size as required to electrically conductive underground water pipe.
- .2        System and circuit, equipment, grounding conductors, bare, stranded copper, soft annealed, size as required.
- .3        Insulated grounding conductors: To be to Section 26 05 21 – Wiring and Cables (0-1000V).
- .4        Non-corroding accessories necessary for grounding system, type, size, material as indicated, including but not necessarily limited to:
  - .1        Grounding and bonding bushings.
  - .2        Protective type clamps.
  - .3        Bolted type conductor connectors.
  - .4        Thermite-welded type conductor connectors.
  - .5        Bonding jumpers, straps.
  - .6        Pressure wire connectors.

**Part 3        Execution**

**3.1            INSTALLATION GENERAL**

- .1        Install complete permanent, continuous grounding system including, electrodes, conductors, connectors, accessories. Where EMT is used, run ground wire in conduit.
- .2        Install connectors in accordance with manufacturer's instructions.
- .3        Protect exposed grounding conductors from mechanical injury.
- .4        Use mechanical connectors for grounding connections to equipment provided with lugs.
- .5        Soldered joints not permitted.
- .6        Install bonding wire for flexible conduit, connected at both end to grounding bushing, solderless lug, clamp or cup washer and screw. Neatly cleat bonding wire to exterior of flexible conduit.
- .7        Make grounding connections in radial configuration only, with connections terminating at single grounding point. Avoid loop connections.



**3.2 EQUIPMENT GROUNDING**

- .1 Install grounding connections to typical equipment included in, but not necessarily limited to following list. Service equipment, transformers, switchgear, duct systems, frames of motors, motor control centres, starters, control panels, building steel work, generators, elevators and escalators, distribution panels, outdoor lighting.

**3.3 FIELD QUALITY CONTROL**

- .1 Perform tests in accordance with Section 26 05 00 – Electrical General Requirements.
- .2 Perform ground continuity and resistance tests using method appropriate to site conditions and to approval of Departmental Representative and local authority having jurisdiction over installation.
- .3 Perform tests before energizing electrical system.
- .4 Disconnect ground fault indicator during tests.

**END OF SECTION**

**Part 1            General**

**1.1                SPLITTERS**

- .1    Sheet metal enclosure, welded corners and formed hinged cover suitable for locking in closed position.
- .2    Main and branch lugs to match required size and number of incoming and outgoing conductors as indicated.
- .3    At least three spare terminals on each set of lugs in splitters less than 400 A.

**1.2                JUNCTION AND PULL BOXES**

- .1    Welded steel construction with screw-on flat covers for surface mounting.
- .2    Covers with 25 mm minimum extension all around, for flush-mounted pull and junction boxes.

**Part 2            Execution**

**2.1                SPLITTER INSTALLATION**

- .1    Install splitters and mount plumb, true and square to the building lines.
- .2    Extend splitters full length of equipment arrangement except where indicated otherwise.

**2.2                JUNCTION, PULL BOXES AND CABINETS INSTALLATION**

- .1    Install pull boxes in inconspicuous but accessible locations.
- .2    Mount cabinets with top not higher than 2 m above finished floor.
- .3    Only main junction and pull boxes are indicated. Install pull boxes so as not to exceed 30 m of conduit run between pull boxes.

**2.3                IDENTIFICATION**

- .1    Provide equipment identification in accordance with Section 26 05 00 – Electrical General Requirements.
- .2    Install size 2 identification labels indicating voltage and phase.

**END OF SECTION**

**Part 1        General**

**1.1            LOCATION OF CONDUITS**

- .1 Drawings do not indicate all conduit runs. Those indicated are in diagrammatic form only.

**Part 2        Products**

**2.1            CONDUITS**

- .1 Rigid metal conduit: to CSA C22.2 No. 45, galvanized steel, threaded.
- .2 Electrical metallic tubing (EMT): to CSA C22.2 No. 83, with couplings.
- .3 Rigid pvc conduit: to CSA C22.2 No. 211.2.
- .4 Flexible metal conduit: to CSA C22.2 No. 56, liquid-tight flexible metal.

**2.2            CONDUIT FASTENINGS**

- .1 One hole steel straps to secure surface conduits 50 mm and smaller. Two hole steel straps for conduits larger than 50 mm.
- .2 Beam clamps to secure conduits to exposed steel work.
- .3 Channel type supports for two or more conduits at 5 m oc.
- .4 Threaded rods, 6 mm dia., to support suspended channels.

**2.3            CONDUIT FITTINGS**

- .1 Fittings: manufactured for use with conduit specified. Coating: same as conduit.
- .2 Factory "ells" where 90 degree bends are required for 25 mm and larger conduits.
- .3 Watertight connectors and couplings for EMT. Set-screws are not acceptable.

**2.4            EXPANSION FITTINGS FOR RIGID CONDUIT**

- .1 Weatherproof expansion fittings with internal bonding assembly suitable for 200 mm linear expansion.
- .2 Watertight expansion fittings with integral bonding jumper suitable for linear expansion and 19 mm deflection in all directions.
- .3 Weatherproof expansion fittings for linear expansion at entry to panel.

**2.5            FISH CORD**

- .1 Polypropylene.

**Part 3        Execution**

**3.1            INSTALLATION**

- .1 Install conduits to conserve headroom in exposed locations and cause minimum interference in spaces through which they pass.

- 
- .2 Conceal conduits except in mechanical and electrical service rooms and in unfinished areas.
  - .3 Use rigid galvanized steel threaded conduit except where conduit is subject to mechanical injury.
  - .4 Use electrical metallic tubing (EMT) for general use, except in cast concrete.
  - .5 Use rigid PVC conduit underground.
  - .6 Use flexible metal conduit for connection to motors in dry areas, connection to recessed incandescent fixtures without a prewired outlet box, connection to surface or recessed fluorescent fixtures and work in movable metal partitions.
  - .7 Use liquid tight flexible metal conduit for connection to motors or vibrating equipment in damp, wet or corrosive locations.
  - .8 Install conduit sealing fittings in hazardous areas. Fill with compound.
  - .9 Minimum conduit size for lighting and power circuits: 19 mm.
  - .10 Bend conduit cold. Replace conduit if kinked or flattened more than 1/10th of its original diameter.
  - .11 Mechanically bend steel conduit over 19 mm dia.
  - .12 Field threads on rigid conduit must be of sufficient length to draw conduits up tight.
  - .13 Install fish cord in empty conduits.
  - .14 Remove and replace blocked conduit sections. Do not use liquids to clean out conduits.
  - .15 Dry conduits out before installing wire.

### **3.2 SURFACE CONDUITS**

- .1 Run parallel or perpendicular to building lines.
- .2 Locate conduits behind infrared or gas fired heaters with 1.5 m clearance.
- .3 Run conduits in flanged portion of structural steel.
- .4 Group conduits wherever possible on suspended or surface channels.
- .5 Do not pass conduits through structural members except as indicated.
- .6 Do not locate conduits less than 75 mm parallel to steam or hot water lines with minimum of 25 mm at crossovers.

**END OF SECTION**

**Part 1        General****1.1            REFERENCES**

- .1        Canadian Standards Association (CSA International).
  - .1        CSA-C22.2 No. 5-13, Moulded-Case Circuit Breakers, Molded-Case Switches.

**1.2            SUBMITTALS**

- .1        Submit product data in accordance with General Instructions.

**1.3            BREAKERS GENERAL**

- .1        Bolt-on moulded case circuit breaker: quick- make, quick-break type, for manual and automatic operation with temperature compensation for 40 degrees C ambient.
- .2        Common-trip breakers: with single handle for multi-pole applications.
- .3        Magnetic instantaneous trip elements in circuit breakers to operate only when value of current reaches setting.
  - .1        Trip settings on breakers with adjustable trips to range from 3-8 times current rating.
- .4        Circuit breakers with interchangeable trips as indicated.
- .5        Breaker interrupting capacity
  - .1        600V panelboards: 25kA symmetrical.
  - .2        250V panelboards: 10kA symmetrical.

**1.4            THERMAL MAGNETIC BREAKERS**

- .1        Moulded case circuit breaker to operate automatically by means of thermal and magnetic tripping devices to provide inverse time current tripping and instantaneous tripping for short circuit protection.

**Part 2        Execution****2.1            INSTALLATION**

- .1        Install circuit breakers as indicated.

**END OF SECTION**

**Part 1           General**

**1.1               SUBMITTALS**

- .1       Submit product data in accordance with Section 01 33 00 – Submittal Procedures.

**Part 2           Products**

**2.1               DISCONNECT SWITCHES**

- .1       Fusible/non-fusible, disconnect switch in CSA Enclosure, size as indicated.
- .2       Provision for padlocking in on-off switch position by locks.
- .3       Mechanically interlocked door to prevent opening when handle in ON position.
- .4       Fuses: size as indicated.
- .5       Fuseholders: Relocatable and suitable without adaptors, for type and size of fuse indicated.
- .6       Quick-make, quick-break action.
- .7       ON-OFF switch position indication on switch enclosure cover.
- .8       Complete with Drip Shields

**2.2               EQUIPMENT IDENTIFICATION**

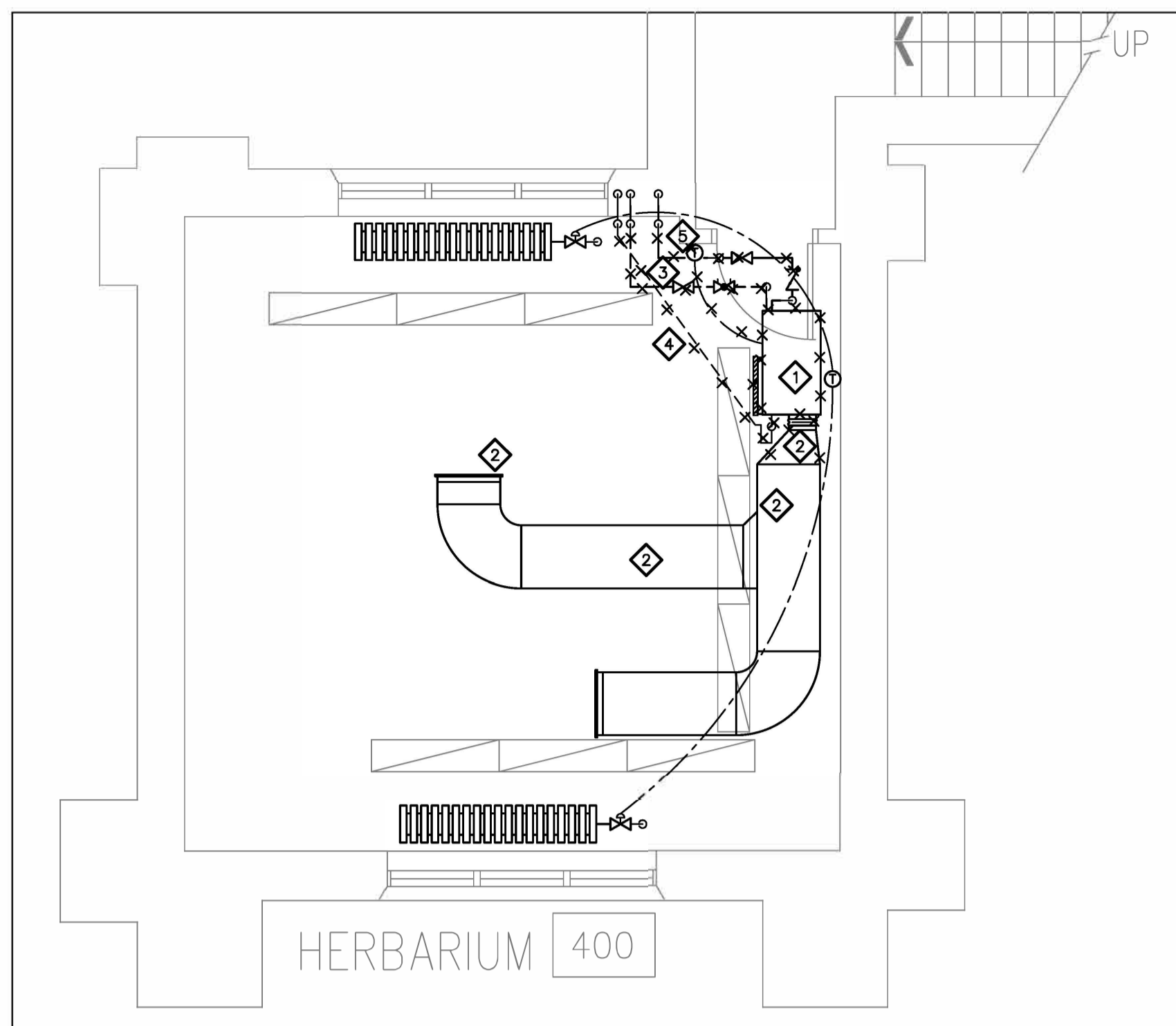
- .1       Provide equipment identification in accordance with Section 26 05 00 – Electrical General Requirements.
- .2       Indicate name of load controlled on Size 4 nameplate.

**Part 3           Execution**

**3.1               INSTALLATION**

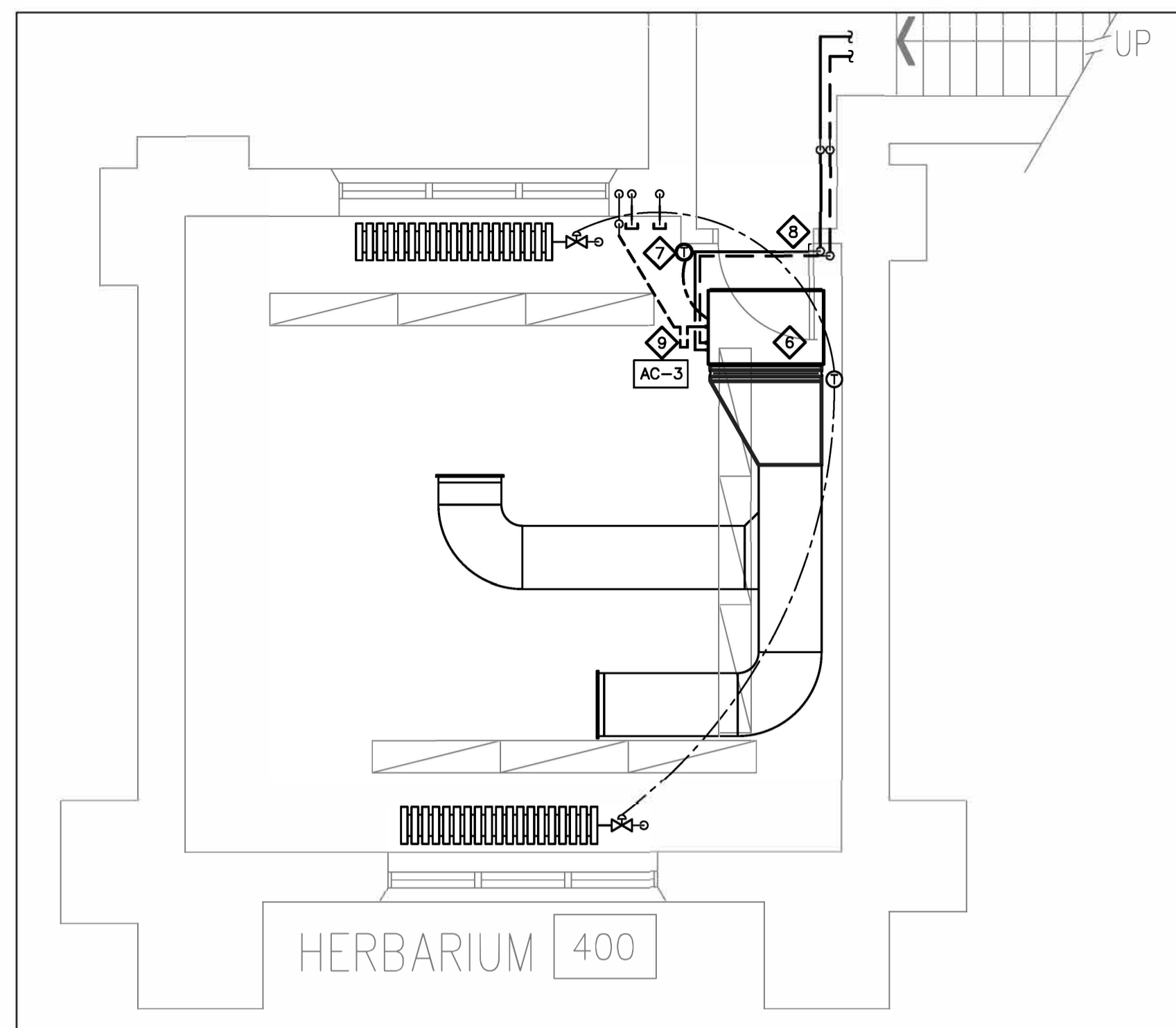
- .1       Install disconnect switches complete with fuses if applicable.

**END OF SECTION**



THIRD FLOOR LEVEL, HERBARIUM ROOM 400  
— EXISTING AND DEMOLITIONS

SCALE - 1:50



THIRD FLOOR LEVEL, HERBARIUM ROOM 400  
— NEW INSTALLATIONS

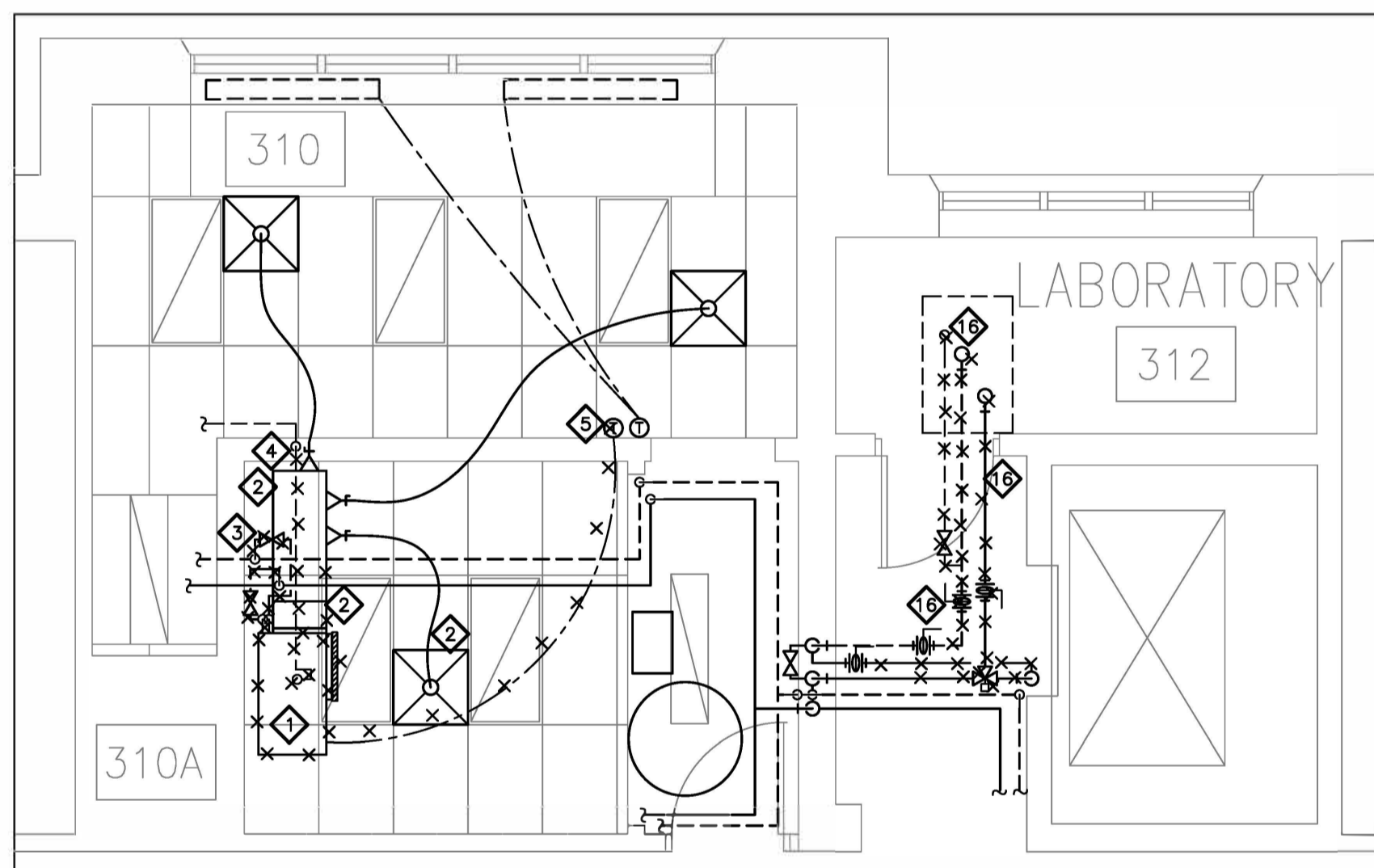
SCALE - 1:50

DRAWING NOTES

- 1 EXISTING WATER COOLED A/C UNIT TO BE REMOVED.
- 2 EXISTING DUCTWORK AND S/A DIFFUSERS TO REMAIN. EXISTING DUCT CONNECTION TO EXISTING A/C UNIT TO BE REMOVED.
- 3 ALL EXISTING WATER SUPPLY AND RETURN PIPING TO BE DISCONNECTED AND CAPPED AT MAINS. ALL EXISTING VALVES, FITTINGS AND ACCESSORIES TO BE REMOVED.
- 4 EXISTING CONDENSATE DRAIN PIPING TO BE DISCONNECTED AND PARTIALLY REMOVED AS REQUIRED FOR INSTALLATION OF NEW PIPING CONNECTION TO NEW A/C UNIT.
- 5 EXISTING THERMOSTAT TO BE REPLACED. EXISTING CONTROL WIRING TO BE MODIFIED AS REQUIRED TO CONTROL NEW A/C UNIT.
- 6 PROVIDE NEW DX COOLED SPLIT A/C SYSTEM AS PER SCHEDULE. INSTALL AS INDICATED AND CONNECT TO EXISTING SUPPLY AIR DUCTWORK. PROVIDE NEW DUCT FITTING AND CONNECTORS AS REQUIRED. PROVIDE ALL NEW SUPPORTS AND HANGERS WITH VIBRATION ISOLATORS FOR NEW A/C UNIT.
- 7 PROVIDE NEW THERMOSTAT AND ALL CONTROL WIRING AS REQUIRED FOR CORRECT OPERATION OF NEW A/C SYSTEM.
- 8 PROVIDE NEW REFRIGERATION PIPING CONNECTIONS TO NEW CONDENSING UNIT. ALL PIPE SIZING AND DETAILS OF INSTALLATION TO BE AS PER SYSTEM MANUFACTURER'S REQUIREMENTS. ALL WORK INVOLVING REFRIGERATION SYSTEM TO BE PERFORMED BY CERTIFIED REFRIGERATION MECHANIC.
- 9 PROVIDE P-TRAP AND NEW PIPING CONNECTION TO EXISTING CONDENSATE DRAIN PIPING.
- 10 PROVIDE NEW ENERGY RECOVERY VENTILATOR, FANTECH, MODEL FIT-120E. UNIT TO BE RATED TO PROVIDE NET OUTDOOR AIR SUPPLY FLOW OF 42 L/S AT 150 Pa EXTERNAL STATIC PRESSURE.
- 11 PROVIDE 125# WALL CAP AND DUCT CONNECTION TO NEW ERV UNIT.
- 12 TYPICAL: NEW WALL CAPS AND NEW REFRIGERATION PIPING PENETRATIONS TO BE INSTALLED IN EXISTING WINDOW FRAMES. REMOVE EXISTING GLASS PANE AND PROVIDE NEW BLOCKING PANELS AS REQUIRED.
- 13 INSTALL NEW CONDENSING UNIT ON GRADE AT OUTSIDE WALL AS INDICATED. PROVIDE PATIO STONES AND ECO-FRAME SUPPORT SYSTEM AND INSTALL UNIT AS PER MANUFACTURER'S RECOMMENDATIONS. EXACT LOCATION TO BE CONFIRMED ON SITE. MAINTAIN CLEARANCES FROM WALL AND ALL OBSTACLES AS PER MANUFACTURER'S RECOMMENDATIONS.
- 14 PROVIDE NEW R/A GRILLE EQUAL TO E.H.PRICE, 80TB, SIZE 300x300, C/W GRILLE PLENUM AND DUCT COLLAR.
- 15 PROVIDE NEW SIDE TAKE OFF WITH BALANCING DAMPER AND NEW FLEXIBLE DUCT CONNECTION TO EXISTING DIFFUSER.
- 16 EXISTING PIPING CONNECTIONS TO EXISTING COOLING TOWER ON ROOF TO BE REMOVED. REFER TO HYDRONIC SYSTEM SCHEMATIC ON DRAWING M-2 FOR ADDITIONAL INFORMATION AND COOLING WATER SYSTEM MODIFICATIONS REQUIRED.
- 17 NEW REFRIGERATION PIPING FROM BASEMENT MECHANICAL ROOM AND UP TO NEW CONDENSING UNIT ON ROOF. REFER TO HYDRONIC SYSTEM SCHEMATIC ON DRAWING M-2 FOR ADDITIONAL INFORMATION. REFER TO ROOF PLAN ON DRAWING M-3 FOR CONTINUATION.
- 18 NEW REFRIGERATION LINES FROM NEW DX FAN COIL UNIT TO NEW CONDENSER ON ROOF.
- 19 PROVIDE ELECTRICAL INLINE FRESH AIR HEATER, THERMO-AIR, MODEL TER-5-2-208, 125# INLET AND OUTLET COLLAR SIZE, 2.0 KW, 208 VOLT SINGLE PHASE, 9.6 AMP.

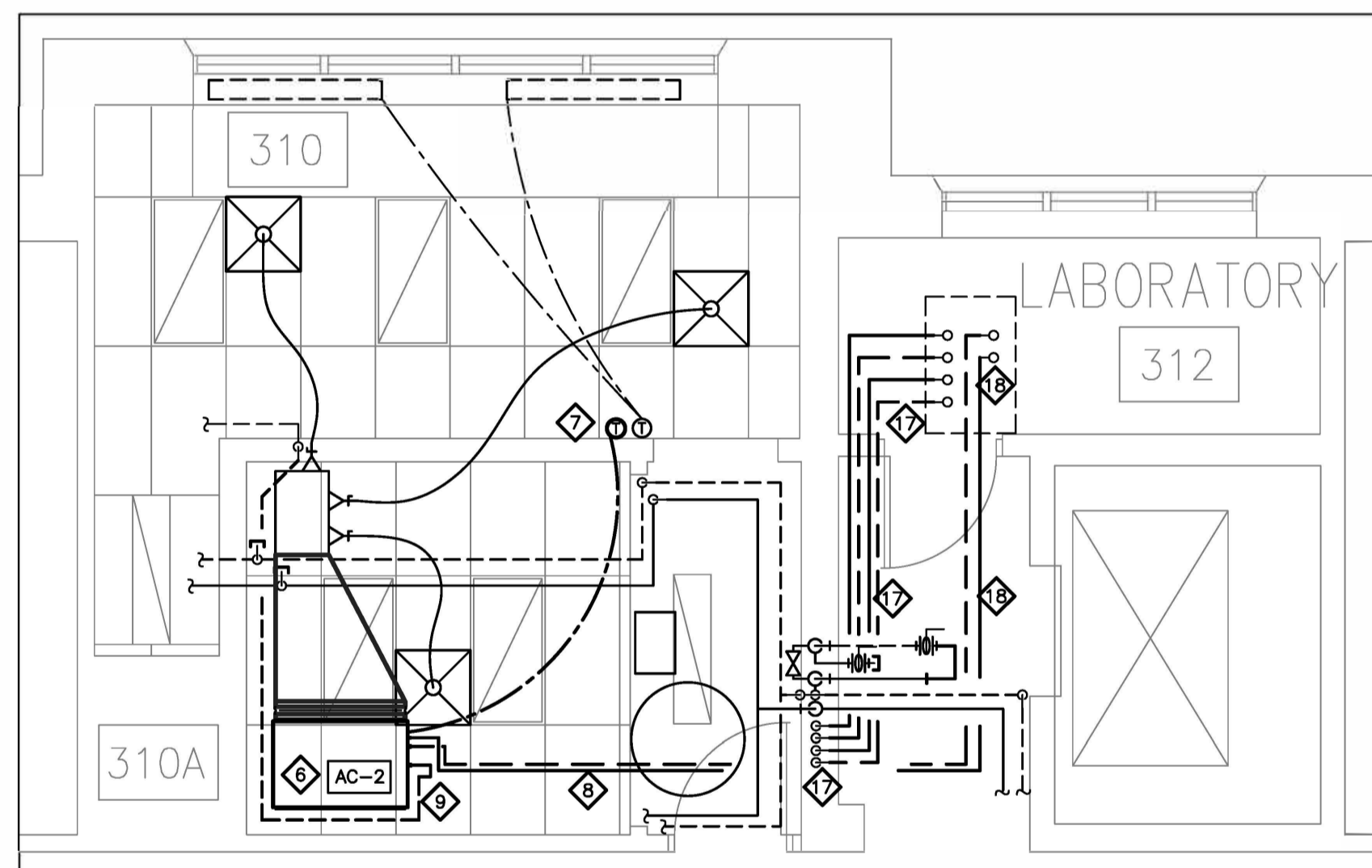
A/C UNIT SCHEDULE								
No.	MAKE/MODEL	TOTAL COOLING (kW)	INDOOR UNIT AIR FLOW (L/S)	E.S.P. (Pa.)	ELEC. SERVICE	INDOOR M.C.A./FUZE (Amp)	OUTDOOR M.C.A./FUZE (Amp)	REMARKS
AC-1	MITSUBISHI PEAD-A30AA7 PUY-A30NHA7	8.79	398	125	208/1	2.73/25	19/26	INDOOR: HORIZONTAL FAN COIL. OUTDOOR: SIDE DISCHARGE 2.5 TON CONDENSER.
AC-2 AC-3	MITSUBISHI PEAD-A24AA7 PUY-A24NHA7	7.03	331	125	208/1	2.63/25	19/26	INDOOR: HORIZONTAL FAN COIL. OUTDOOR: SIDE DISCHARGE 2.5 TON CONDENSER.

NOTE: EACH SYSTEM TO BE C/W PAR-33MAA-J THERMOSTAT AND MANUAL CONTROLLER SWITCH. EACH CONDENSER TO BE PROVIDED WITH MATCHING FRONT, REAR AND SIDE WIND GUARD SET AND WITH ECOFRAME SUPPORT SYSTEM.  
EACH SYSTEM TO BE EQUIPPED WITH ALL CONTROLS AND ACCESSORIES AS REQUIRED FOR ULTRA-LOW AMBIENT OPERATION TO -40°C.



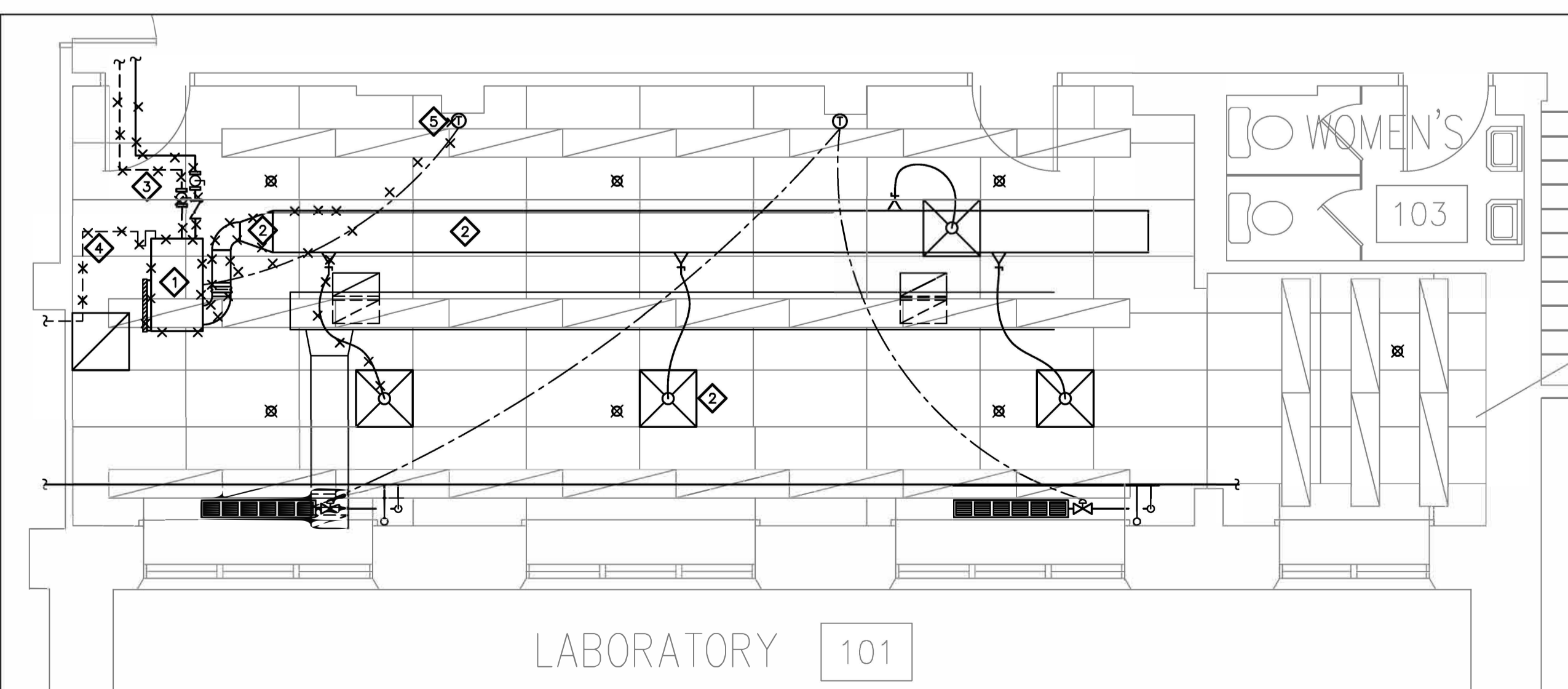
PARTIAL SECOND FLOOR, ROOMS 310 & 310A  
— EXISTING AND DEMOLITIONS

SCALE - 1:50



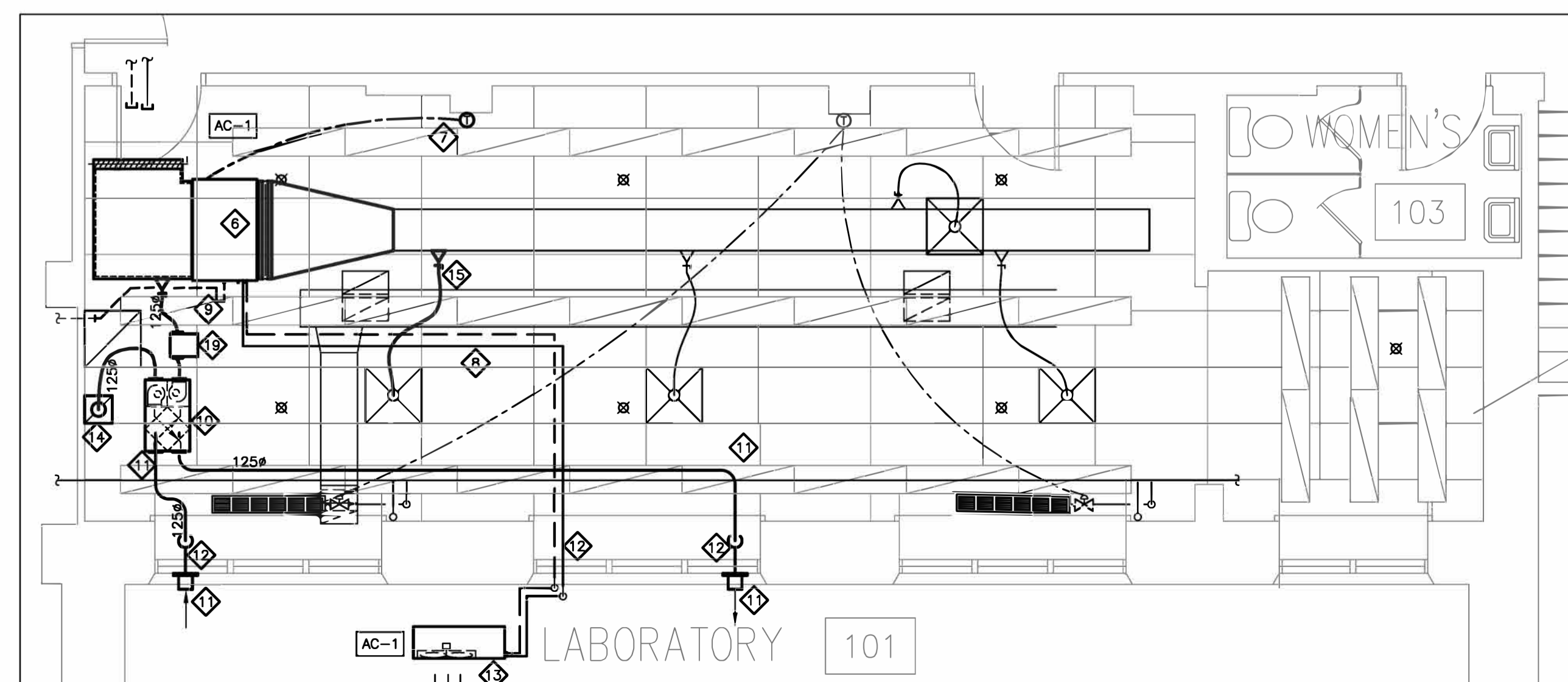
PARTIAL SECOND FLOOR, ROOMS 310 & 310A  
— NEW INSTALLATIONS

SCALE - 1:50



PARTIAL BASEMENT PLAN, LAB 101 — EXISTING AND DEMOLITIONS

SCALE - 1:50



PARTIAL BASEMENT PLAN, LAB 101 — NEW INSTALLATIONS

SCALE - 1:50

0	FOR TENDER	2019-10-08
revision		date

A detail no. / no. du détail  
B location drawing no. / no. de localisation  
C drawing no. / no. du dessin

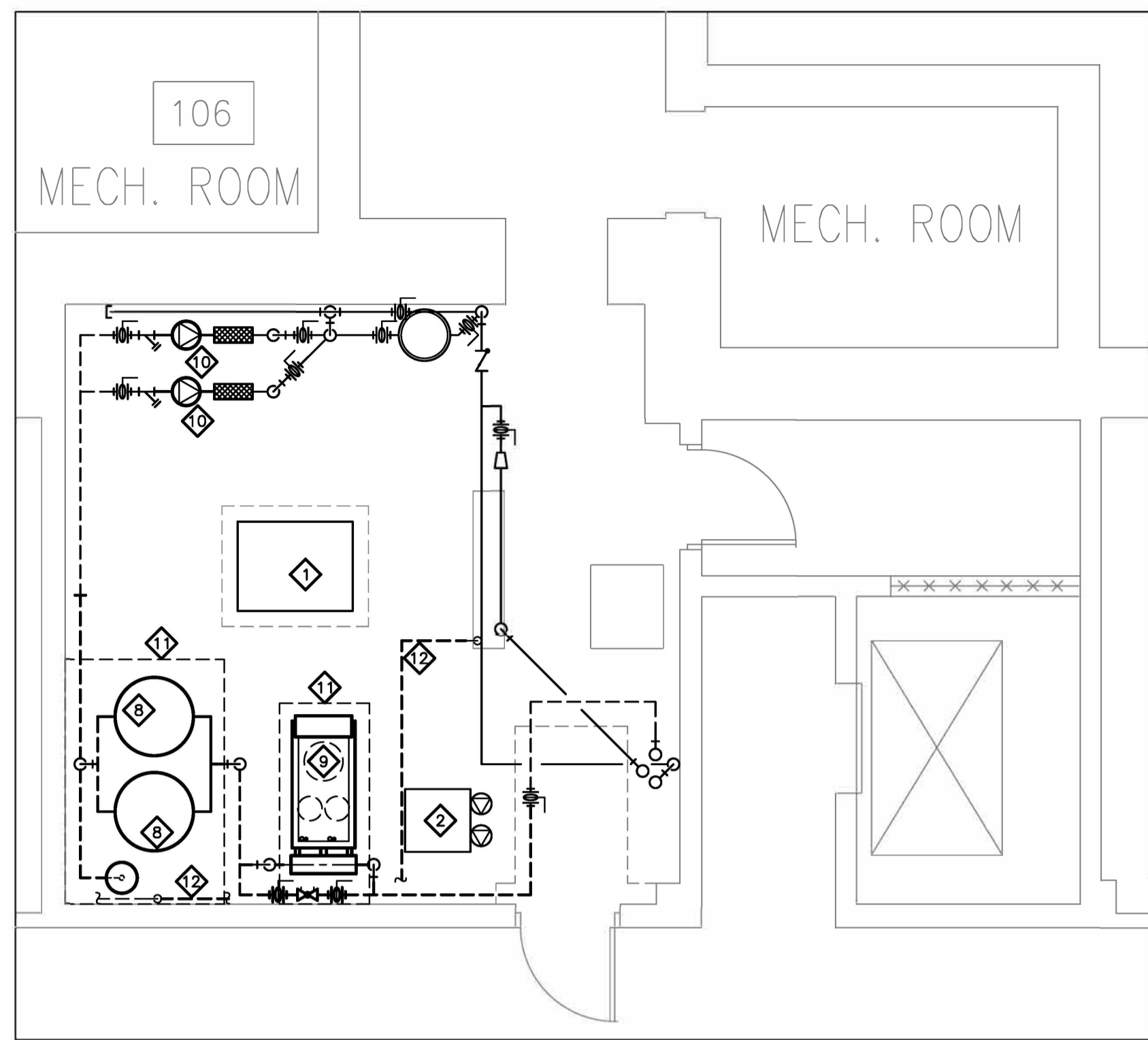
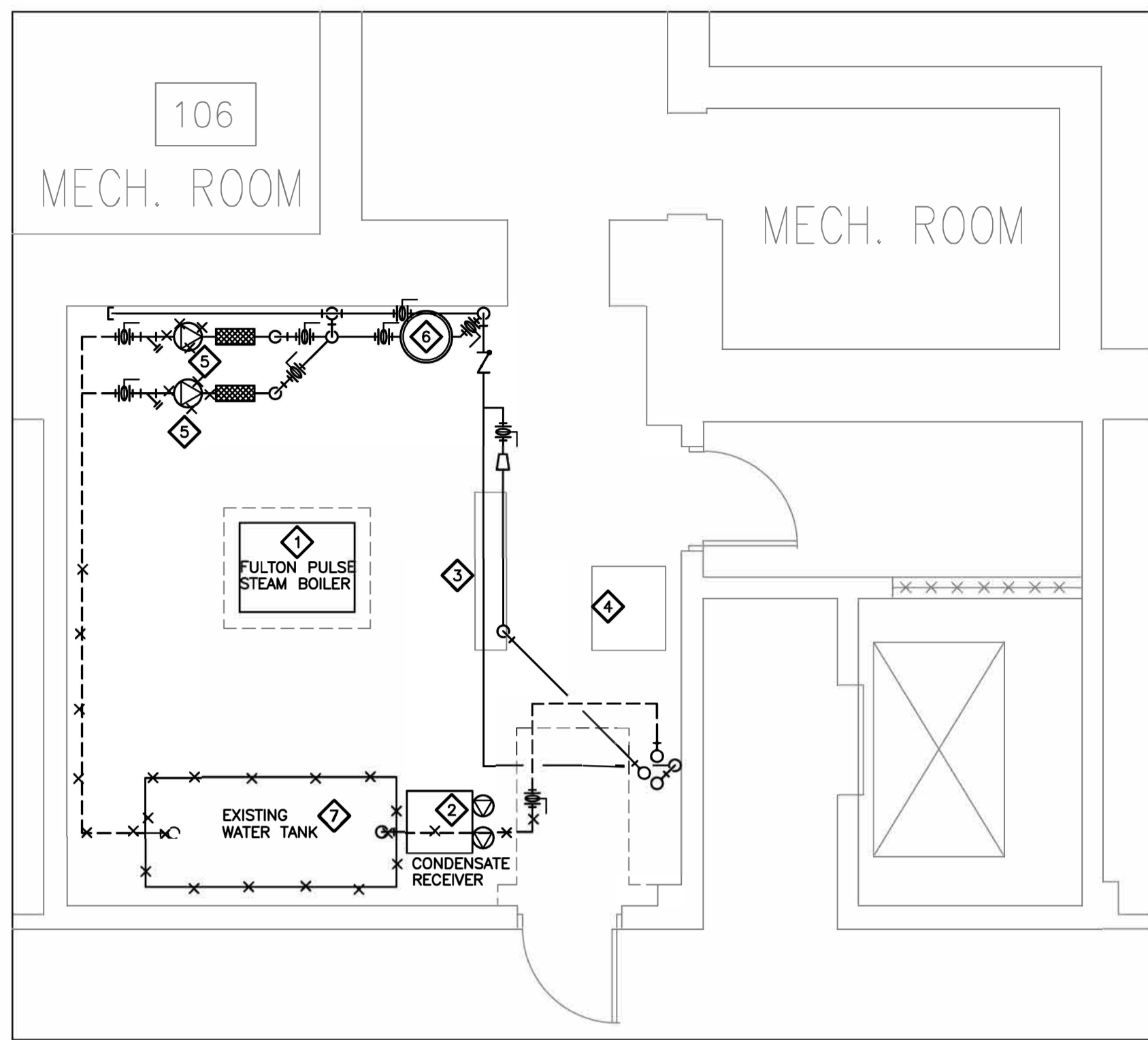
project AGRICULTURE CANADA / CENTRAL EXPERIMENTAL FARM BUILDING No. 49  
COOLING TOWER REMOVAL  
NEW CHILLER INSTALLATION  
OTTAWA, ONTARIO

drawing / dessin

PARTIAL BASEMENT, SECOND AND THIRD FLOOR PLANS  
DEMOLITIONS AND NEW INSTALLATIONS

designed	L.M.K.	conçu
date	SEPTEMBER 2019	
drawn	L.M.K.	dessiné
date	SEPTEMBER 2019	
revised	L.M.K.	révisé
date	SEPTEMBER 2019	
approved	JRP ENGINEERING	approuvé
date	SEPTEMBER 2019	
tender	TOM PUCCI	soumission
Project Manager	Administrateur de projets	
project no.	CEF 19 0027	no. du projet

drawing no. / no. du dessin  
M-1



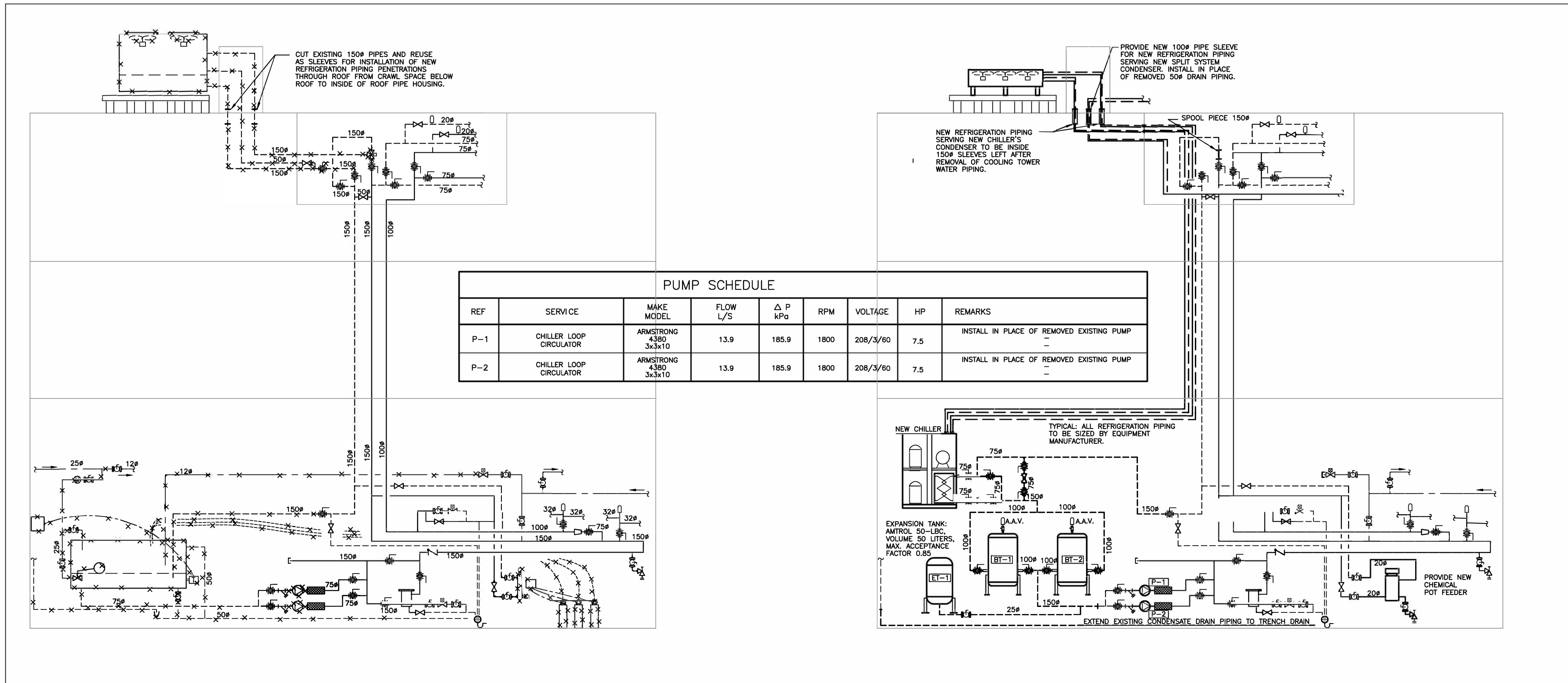
- DRAWING NOTES**
- ◊ EXISTING STEAM BOILER TO REMAIN.
  - ◊ EXISTING CONDENSATE RECEIVER TANK WITH CONDENSATE FEED PUMPS TO REMAIN.
  - ◊ EXISTING TRENCH DRAIN TO REMAIN.
  - ◊ EXISTING SUMP PUMPS TO REMAIN.
  - ◊ EXISTING COOLING WATER SYSTEM PUMPS TO BE REPLACED.
  - ◊ EXISTING COOLING WATER SYSTEM FILTER TO REMAIN.
  - ◊ EXISTING COOLING WATER OPEN BUFFER TANK TO BE REMOVED. REFER TO SYSTEM SCHEMATIC FOR VALVES, ACCESSORIES AND PIPING REMOVAL REQUIREMENTS.
  - ◊ NEW COOLING WATER BUFFER TANKS TO BE AMTROL, CWBT-200-4-125. EACH TANK TO BE C/W 2 PORT CONNECTIONS, INTERNAL BAFFLE, AND TO HAVE STORAGE VOLUME OF 200 US GALLONS (758 LITERS).
  - ◊ NEW CONDENSERLESS MODULAR CHILLER TO BE TANDEM CHILLERS, MODEL WCLX-040-DZV, NOMINAL CAPACITY 40 TONS, RATED SYSTEM CAPACITY 40.2 TONS (141.5 kW) AT 15.5°C ENTERING WATER TEMPERATURE AND 10.0°C LEAVING WATER TEMPERATURE, WITH 8.05 L/S (98 gpm) EVAPORATOR FLOW RATE AND 44.1 kPa WATER PRESSURE DROP. CHILLER TO BE C/W TWO SCROLL COMPRESSORS, TWO REFRIGERATION CIRCUITS AND HOT GAS BYPASS ON LEAD CIRCUIT. ELECTRICAL: 208/3/60. TWO SCROLL COMPRESSORS, TOTAL COMPRESSOR POWER 3.8 kW, UNIT MCA=158 AMPS, MOP=225 AMPS.
  - ◊ TYPICAL FOR TWO: PROVIDE NEW MAIN SYSTEM PUMP AS PER SCHEDULE AND INSTALL IN PLACE OF REMOVED EXISTING. PROVIDE ALL PIPE ADAPTERS AS REQUIRED.
  - ◊ PROVIDE NEW 100 MM CONCRETE HOUSEKEEPING PAD.
  - ◊ EXTEND EXISTING CONDENSATE DRAIN PIPING TO EXISTING FLOOR TRENCH DRAIN.

**PARTIAL BASEMENT PLAN, MECHANICAL ROOM  
- EXISTING INSTALLATIONS AND DEMOLITIONS**

SCALE - 1:50

**PARTIAL BASEMENT PLAN, MECHANICAL ROOM  
- NEW INSTALLATIONS AND MODIFICATIONS**

SCALE - 1:50



**PARTIAL HYDRONIC SYSTEM SCHEMATIC  
- EXISTING INSTALLATIONS AND DEMOLITIONS**

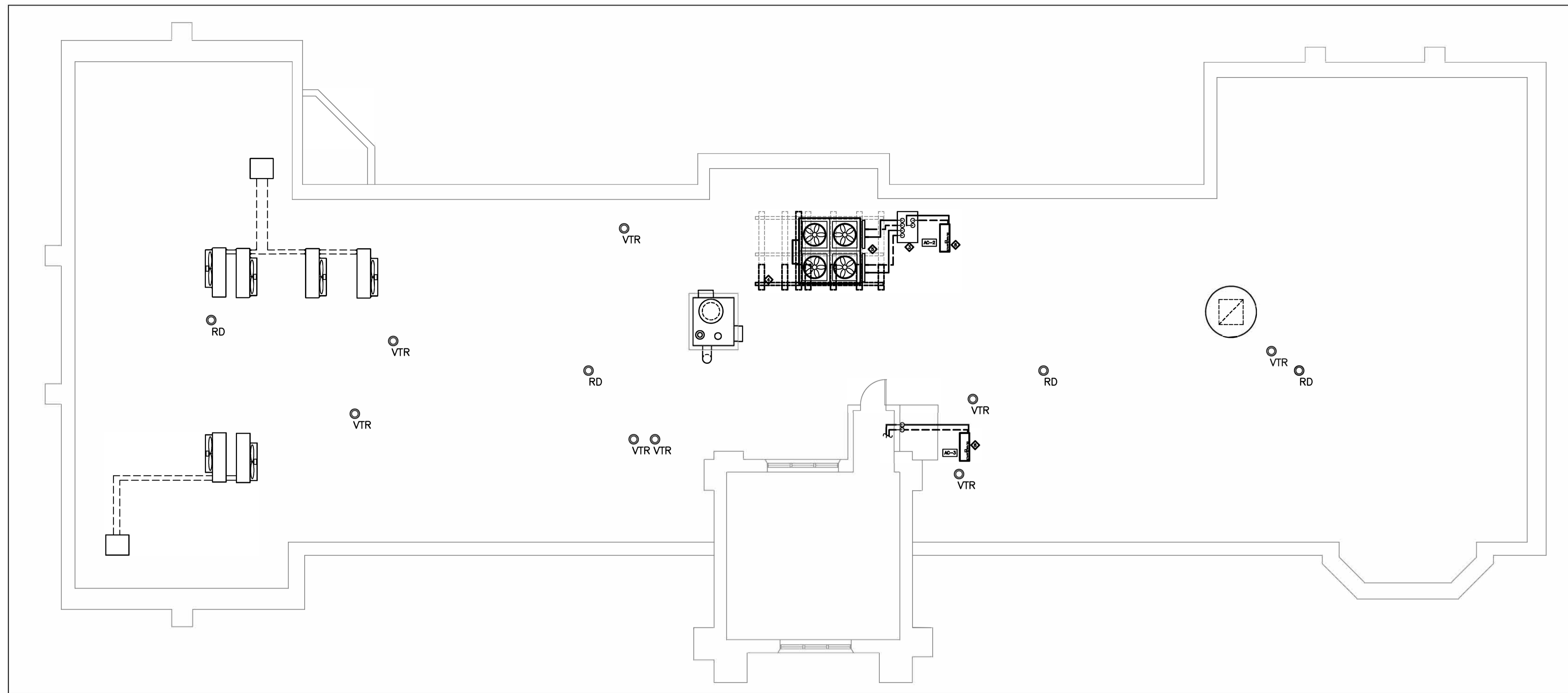
SCALE - N.T.S.

**PARTIAL HYDRONIC SYSTEM SCHEMATIC  
- NEW INSTALLATIONS AND MODIFICATIONS**

SCALE - N.T.S.

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revision		date
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project	AGRICULTURE CANADA / CENTRAL EXPERIMENTAL FARM BUILDING No. 49 COOLING TOWER REMOVAL / NEW CHILLER INSTALLATION OTTAWA, ONTARIO	
project		
drawing	dessin	
<b>BASEMENT MECHANICAL ROOM AND PARTIAL SYSTEM SCHEMATIC DEMOLITIONS AND NEW INSTALLATIONS</b>		
designed	L.M.K.	conçu
date	SEPTEMBER 2019	
drawn	L.M.K.	dessiné
date	SEPTEMBER 2019	
revised	L.M.K.	révisé
date	SEPTEMBER 2019	
approved	JRP ENGINEERING	approuvé
date	SEPTEMBER 2019	
tender	TOM PUCCI	soumission
Project Manager	Administrateur de projets	
project no.	no. du projet	
	CEF 19 0027	
drawing no.	no. du dessin	
	M-2	

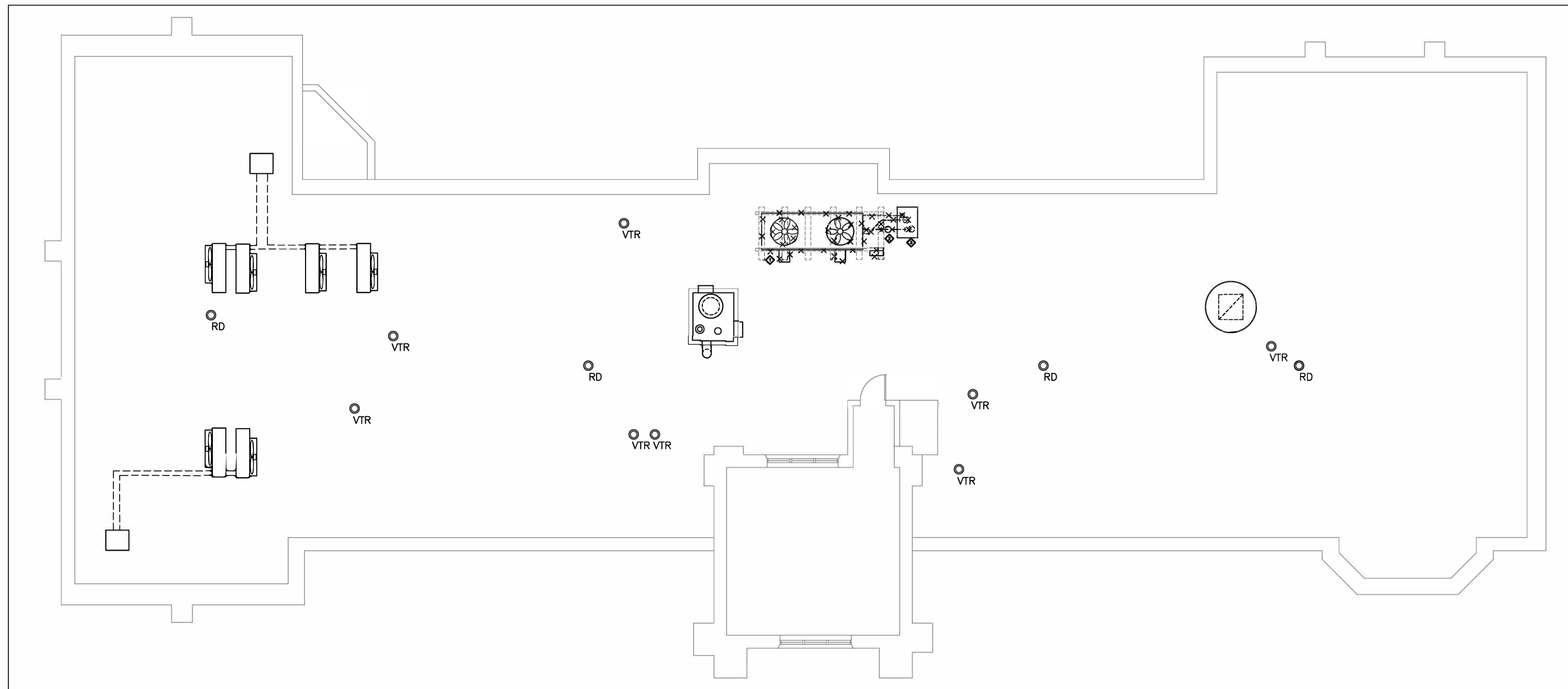




- DRAWING NOTES**
- ◇ EXISTING COOLING TOWER TO BE REMOVED. EXISTING SUPPORT STRUCTURE TO REMAIN AND TO BE MODIFIED AS REQUIRED FOR INSTALLATION OF NEW CONDENSING UNIT SERVING NEW WATER CHILLER.
  - ◇ EXISTING WATER SUPPLY, RETURN AND DRAIN/OVERFLOW PIPING TO BE REMOVED. REFER TO SYSTEM SCHEMATIC ON DRAWING M-2 FOR ADDITIONAL INFORMATION.
  - ◇ EXISTING BUILT-UP HOUSING FOR EXISTING PIPING PENETRATIONS THROUGH ROOF TO REMAIN AND TO BE MODIFIED AS REQUIRED TO PROVIDE COVER FOR NEW REFRIGERATION PIPING CONNECTIONS.
  - ◇ PROVIDE ADDITIONAL SUPPORT STRUCTURE AND INSTALL NEW CONDENSING UNIT IN PLACE OF REMOVED COOLING TOWER.
  - ◇ NEW CONDENSING UNIT TO BE TANDEM CHILLERS, MODEL TRAC-075, C/W FOUR FANS, 3.2 HP EACH FAN AND TWO REFRIGERATION CIRCUITS. ELECTRICAL: 208/3/60, MCA=40 AMPS, MOP=50 AMPS.
  - ◇ TYPICAL FOR TWO: PROVIDE NEW SPLIT SYSTEM CONDENSER AS PER SCHEDULE. PROVIDE SUPPORT STAND ECOFRAME C/W FOOT AND LEG ASSEMBLIES AND INSTALL ON ROOF AS PER MANUFACTURER'S INSTRUCTIONS. PROVIDE REFRIGERATION LINES AND CONNECTIONS TO FAN COIL UNIT BELOW ROOF. ALL WORK INVOLVING REFRIGERATION SYSTEM TO BE BY CERTIFIED REFRIGERATION MECHANIC.

**ROOF PLAN – NEW INSTALLATIONS**

SCALE – 1:100



**ROOF PLAN – EXISTING INSTALLATIONS AND DEMOLITIONS**

SCALE – 1:100

0	FOR TENDER	2019-10-08
revision		date

A	A detail no.	A
C	no. du detail	BC
	B location drawing no.	
	no. de localisation	
	C drawing no.	
	no. du dessin	

project AGRICULTURE CANADA projet  
 CENTRAL EXPERIMENTAL FARM  
 BUILDING No. 49  
 COOLING TOWER REMOVAL  
 NEW CHILLER INSTALLATION  
 OTTAWA, ONTARIO

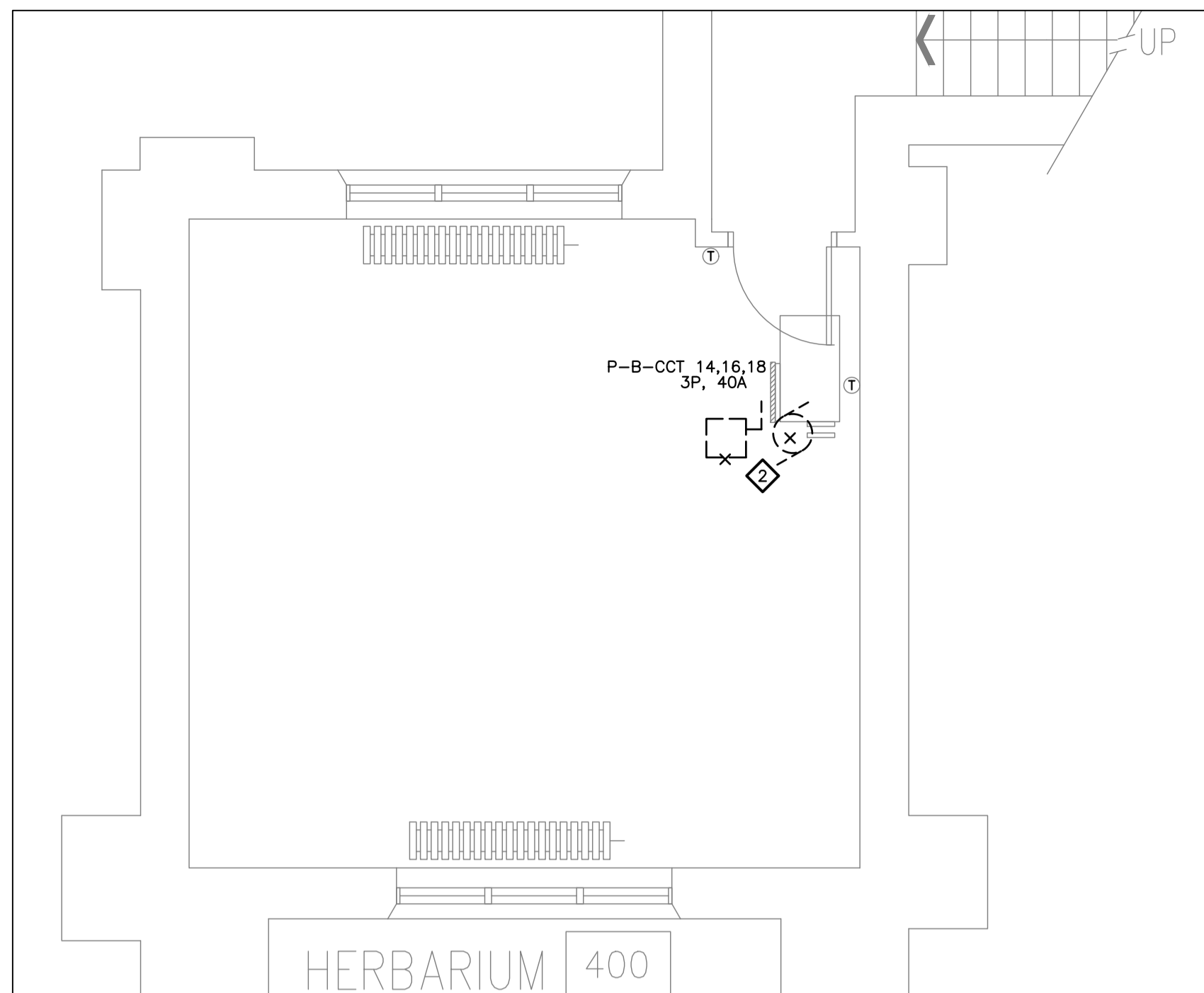
drawing dessin

**ROOF PLAN  
EXISTING INSTALLATIONS,  
DEMOLITIONS AND NEW INSTALLATIONS**

designed	L.M.K.	conçu
date	SEPTEMBER 2019	
drawn	L.M.K.	dessiné
date	SEPTEMBER 2019	
revised	L.M.K.	révisé
date	SEPTEMBER 2019	
approved	JRP ENGINEERING	approuvé
date	SEPTEMBER 2019	

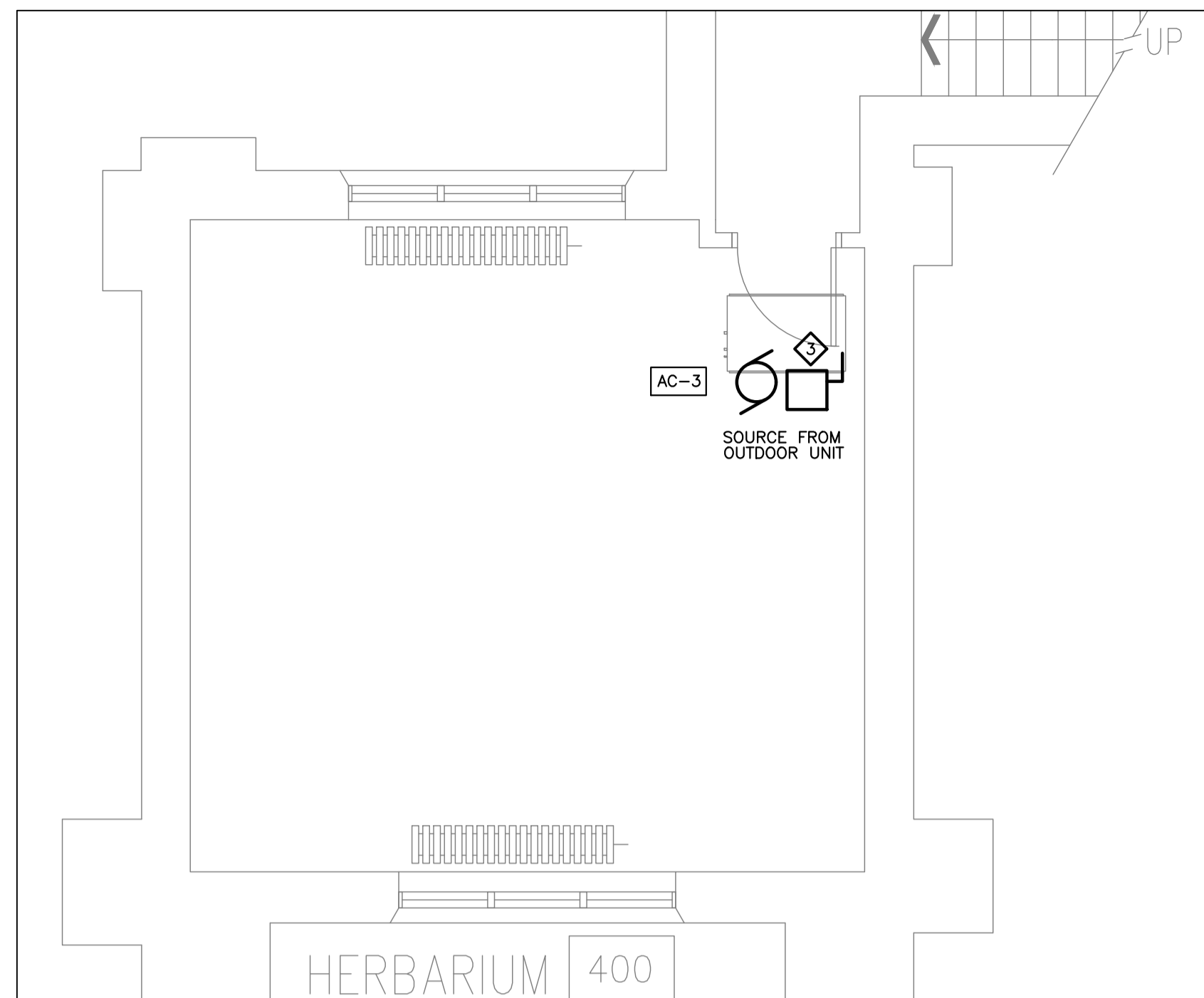
tender TOM PUCCI soumission  
 Project Manager Administrateur de projets  
 project no. CEF 19 0027 no. du projet

drawing no. M-3 no. du dessin



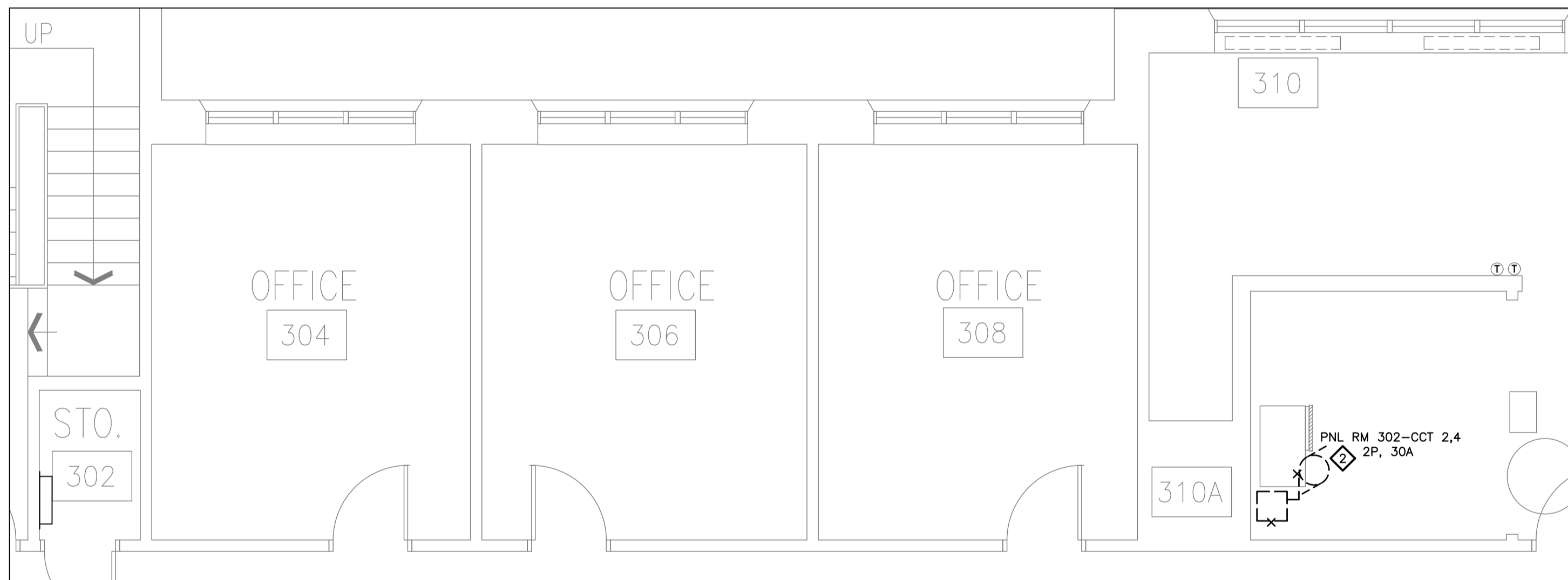
**THIRD FLOOR LEVEL, HERBARIUM ROOM 400**  
**— EXISTING AND DEMOLITIONS**

SCALE - 1:50



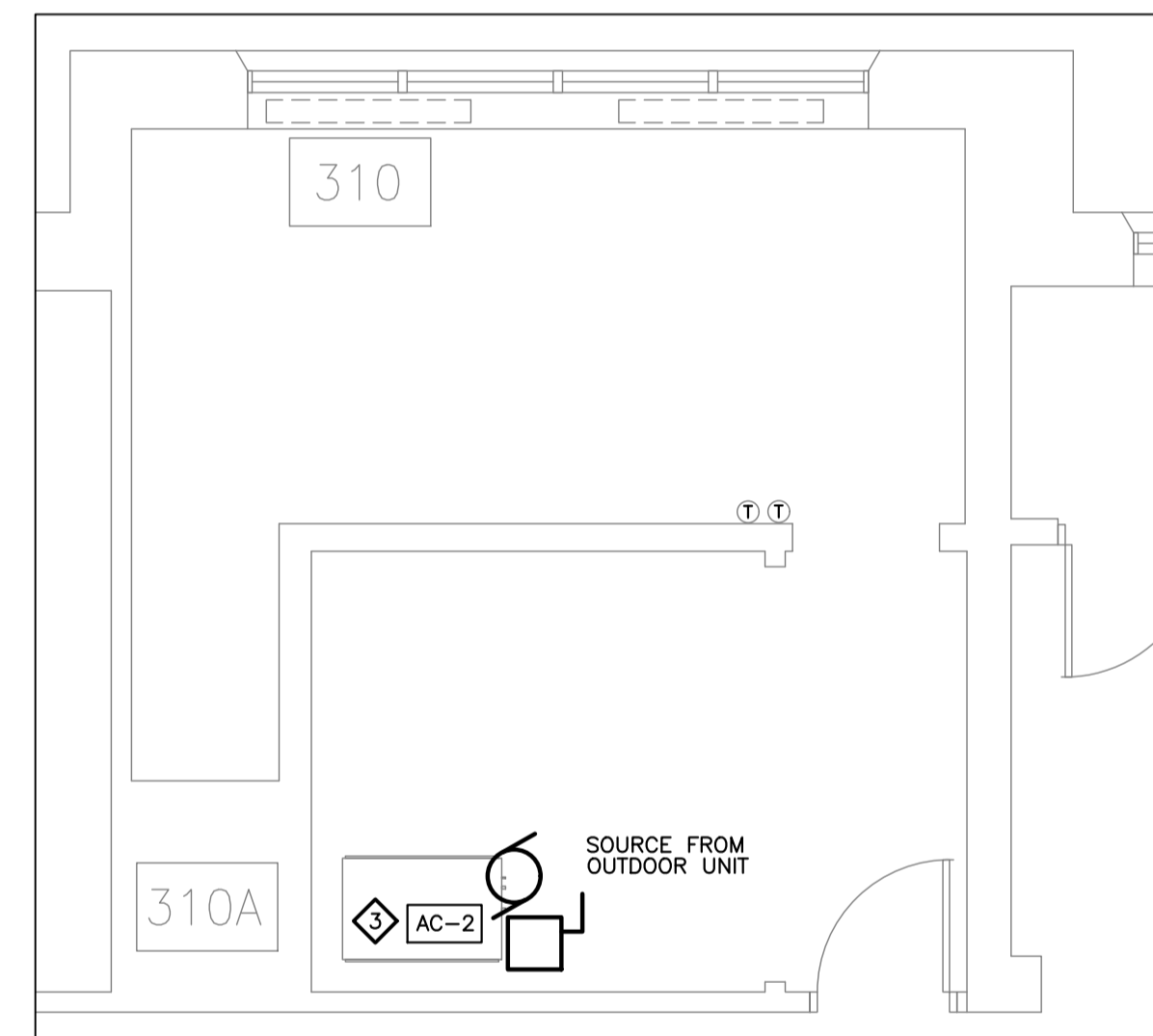
**THIRD FLOOR LEVEL, HERBARIUM ROOM 400**  
**— NEW INSTALLATIONS**

SCALE - 1:50



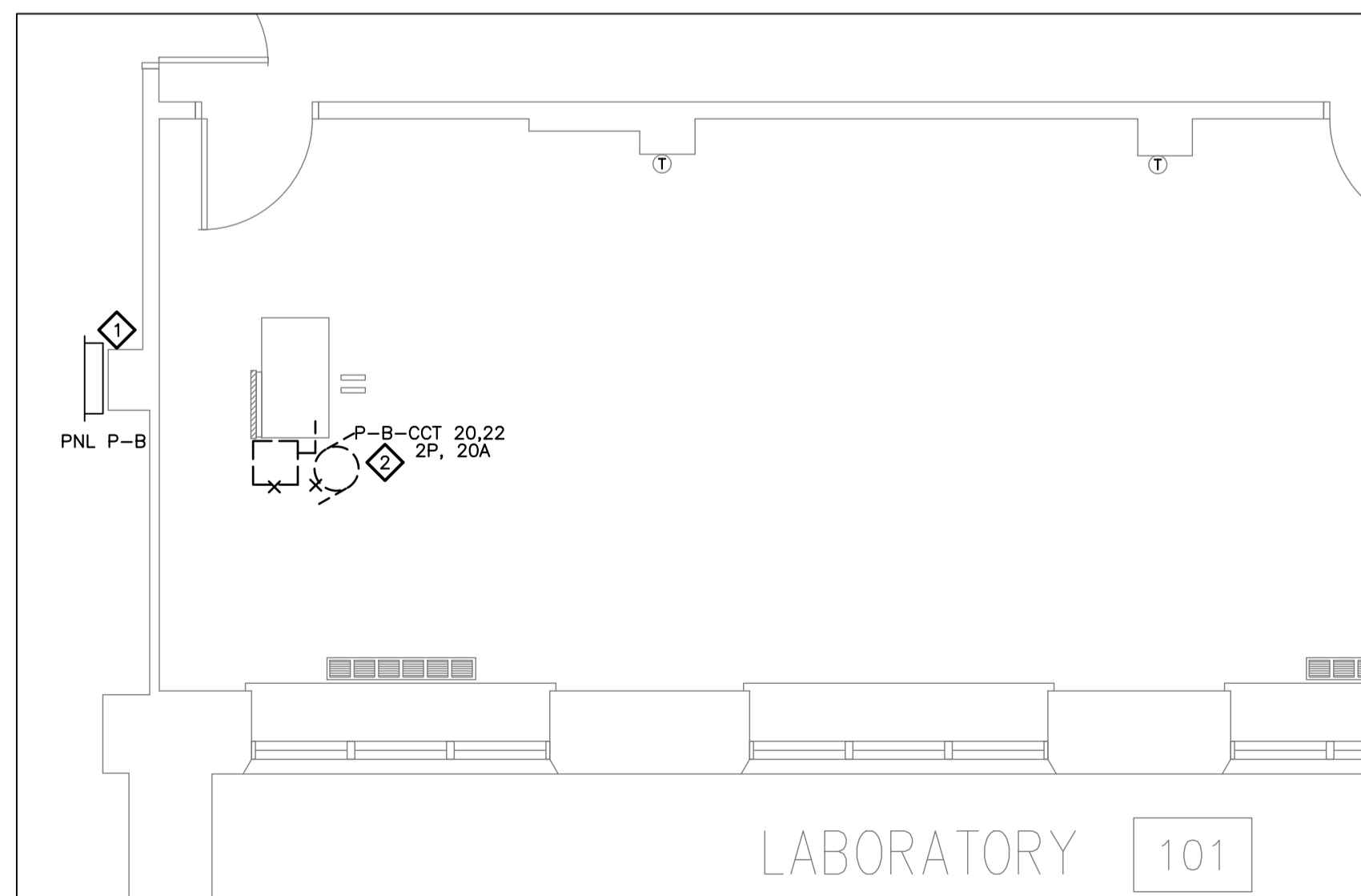
**PARTIAL SECOND FLOOR, ROOMS 310 & 310A**  
**— EXISTING AND DEMOLITIONS**

SCALE - 1:50



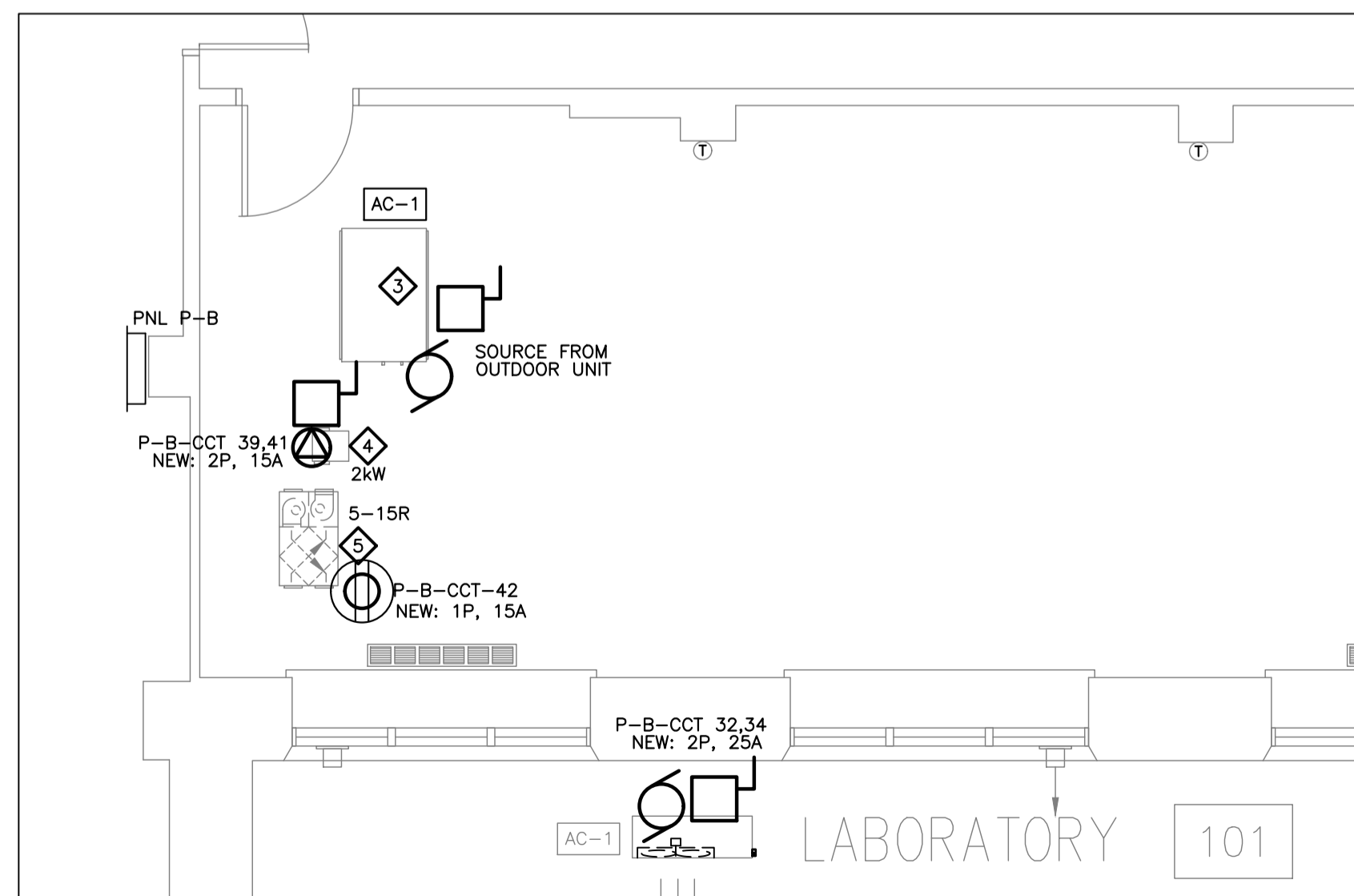
**PARTIAL SECOND FLOOR, ROOMS 310 & 310A**  
**— NEW INSTALLATIONS**

SCALE - 1:50



**PARTIAL BASEMENT PLAN, LAB 101**  
**EXISTING & DEMO.**

SCALE - 1:50



**PARTIAL BASEMENT PLAN, LAB 101 — NEW INSTALLATIONS**

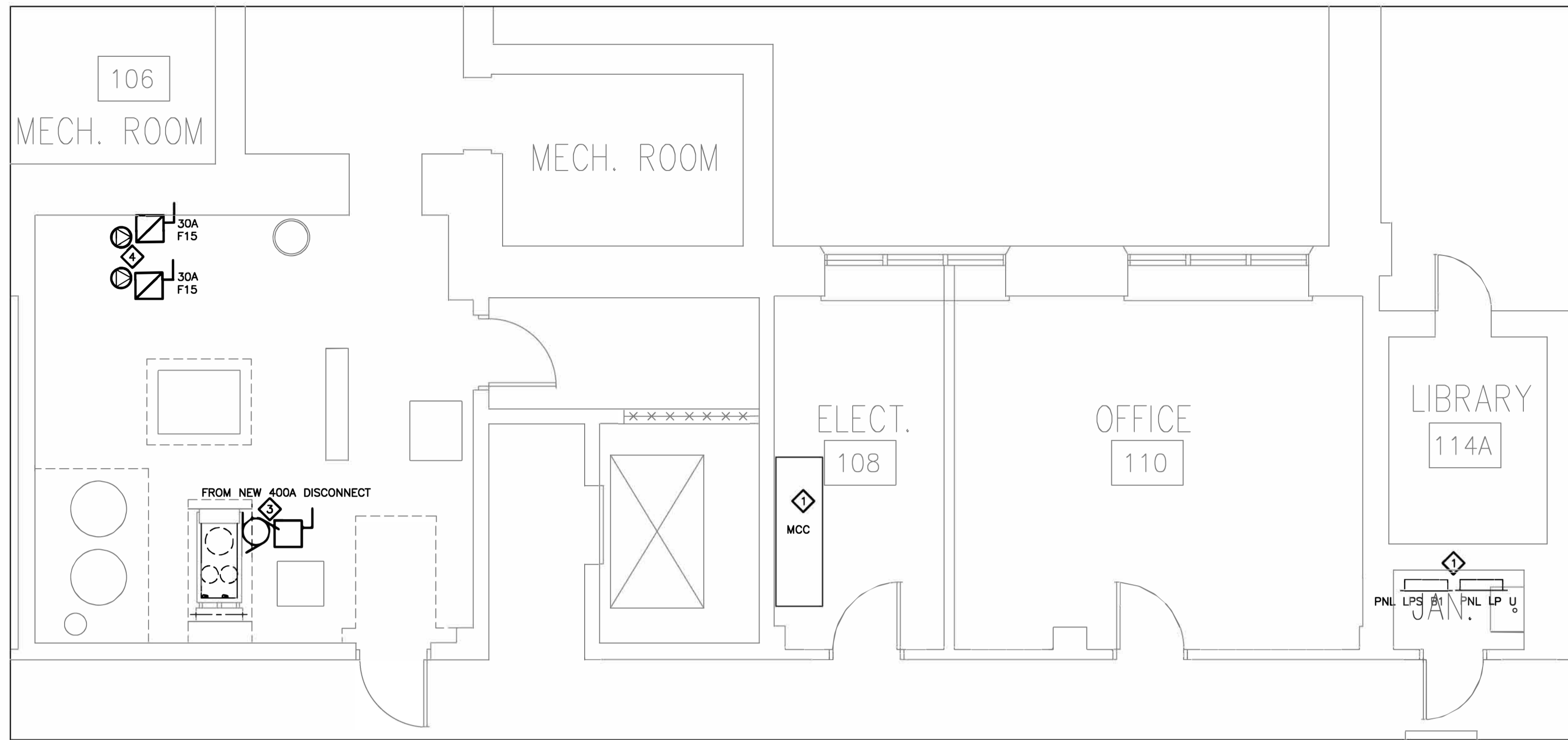
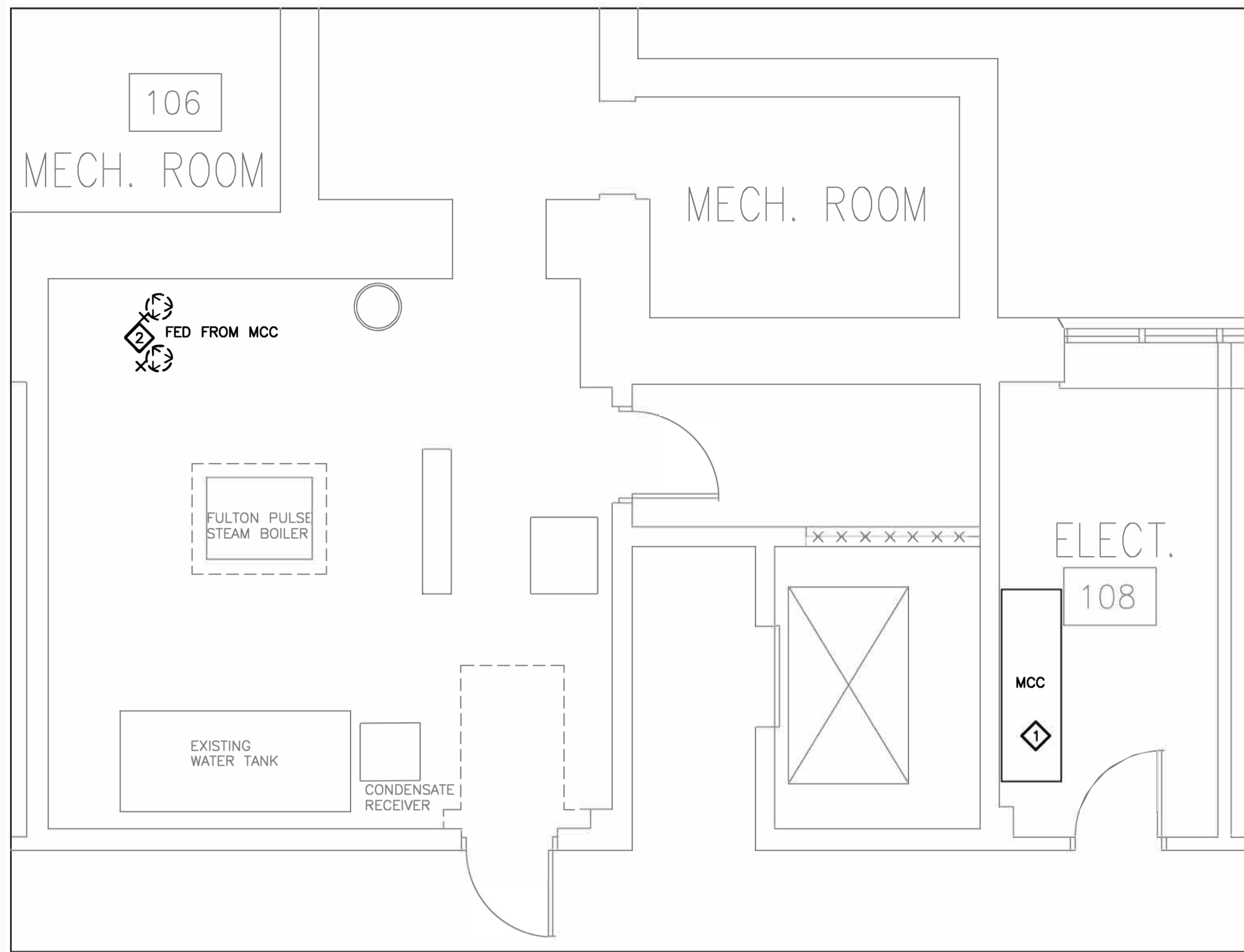
SCALE - 1:50

ELECTRICAL LEGEND	
ITEM	DESCRIPTION
	SUSPENDED LED LIGHT FIXTURE
	EXIT LIGHT CEILING AND WALL MOUNTED
	SWITCH
	ALARM PANEL
	ELECTRICAL PANEL
	JUNCTION BOX
	SMOKE/HEAT DETECTOR
	FIRE ALARM PULL STATION
	FIRE ALARM HORN STROBE
	DUPLEX RECEPTACLE WALL MOUNTED
	DATA/TELEPHONE OUTLET WALL MOUNTED
	EMERGENCY BATTERY PACK LIGHTING
	EMERGENCY REMOTE LIGHT HEAD
	TRANSFORMER
NOT ALL SYMBOLS SHOWN IN LEGEND SET ARE NECESSARILY USED IN DRAWING SET.	

- GENERAL NOTES:**
- ALL ELECTRICAL EQUIPMENT SHOWN IN THICK SOLID LINES IS NEW TO BE PROVIDED UNDER THIS CONTRACT, TOGETHER WITH ALL ASSOCIATED CONDUITS AND WIRING.
  - FOR ANY REQUIRED SHUT DOWN, CONTRACTOR TO COORDINATE WITH SITE MANAGER AND OBTAIN APPROVAL BEFORE SHUT DOWN CAN BE PERFORMED.
  - PROVIDE BREAKERS AS REQUIRED IN ELECTRICAL PANELS TO ACCOMMODATE CONNECTIONS. ALSO PROVIDE BLANK PLATES WHERE CIRCUIT BREAKERS ARE NOT INSTALLED. PROVIDE TYPED PANEL LEGEND TYPICAL FOR ALL PANELS TOUCHED BY THIS CONTRACT. TURN OVER TO THE OWNER ALL BREAKERS REMOVED UNDER THIS CONTRACT.
  - ALL CONDUITS AND WIRING PASSING THRU FLOOR AND FIRE RATED WALLS TO BE FIRE STOP USING 3M FIRE RETARDANT MASTIC SEALANT NO EQUIVALENT.
  - ALL WIRING TO BE R/RW90, MINIMUM SIZE #12AWG COPPER, IN EMT CONDUIT UNLESS OTHERWISE NOTED.
  - COORDINATE ALL WORK WITH ARCHITECTURAL AND MECHANICAL CONTRACTORS.
  - ALL EQUIPMENT, ACCESSORIES, SIZES, LOCATIONS AND DETAILS OF INSTALLATIONS TO BE CONFIRMED ON SITE.
  - SEISMIC RESTRAINT SYSTEM (SRS) — PROVIDE DESIGN, SUPPLY AND INSTALLATION OF COMPLETE SRS FOR ALL SYSTEMS, EQUIPMENT SPECIFIED FOR INSTALLATION ON THIS PROJECT AS PER ONTARIO BUILDING CODE LATEST EDITION. THIS INCLUDES ELECTRICAL LIGHT FIXTURES, TRANSFORMERS, MCC'S, UPS, DIESEL GENERATORS, FIRE PROTECTION, CONDUIT, COMMUNICATIONS, ELECTRICAL EQUIPMENT AND SYSTEMS, BOTH VIBRATION ISOLATED AND STATICALLY SUPPORTED.
  - FIRE ALARM SYSTEM DEVICES SHALL BE INSTALLED AS PER CAN/ULC S524 AND SHALL BE VERIFIED AS PER CAN/ULC S537

- DRAWING NOTES:**
- EXISTING ELECTRICAL PANEL TO REMAIN.
  - EXISTING MECHANICAL EQUIPMENT TO BE DISCONNECTED AND REMOVED. C/W ALL CONDUIT AND WIRING BACK TO SOURCE.
  - TYPICAL: PROVIDE DIRECT CONNECTION TO NEW MECHANICAL EQUIPMENT (HVAC SPLIT SYSTEM) C/W NEW BREAKER, DISCONNECT SWITCH, ALL CONDUIT WIRING AND ASSOCIATED HARDWARE. REFER TO MECHANICAL DRAWINGS AND MANUFACTURER'S INSTALLATION MANUAL FOR FURTHER INFORMATION. INDOOR UNIT FED FROM OUTDOOR UNIT C/W CONTROL WIRING. PROVIDE ALL REQUIRED WIRING FOR COMPLETE INSTALLATION.
  - PROVIDE DIRECT CONNECTION TO NEW 2KW DUCT HEATER C/W NEW BREAKER, DISCONNECT SWITCH, ALL CONDUIT WIRING AND ASSOCIATED HARDWARE.
  - PROVIDE NEW CEILING MOUNTED RECEPTACLE (5-15R) C/W NEW BREAKER, ALL CONDUIT, WIRING AND ASSOCIATED HARDWARE.

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revision		date
<p>project AGRICULTURE CANADA CENTRAL EXPERIMENTAL FARM BUILDING No. 49 COOLING TOWER REMOVAL NEW CHILLER INSTALLATION OTTAWA, ONTARIO</p>		
<p>drawing <b>ELECTRICAL PARTIAL BASEMENT, SECOND AND THIRD FLOOR PLANS DEMOLITIONS AND NEW INSTALLATIONS</b> dessin</p>		
designed	M.G	conçu
date	SEPTEMBER 2019	
drawn	M.G	dessiné
date	SEPTEMBER 2019	
revised	M.G	révisé
date	SEPTEMBER 2019	
approved	JRP ENGINEERING	approuvé
date	SEPTEMBER 2019	
tender	TOM PUCCI	soumission
Project Manager	Administrateur de projets	
project no.	CEF 19-0027	no. du projet
drawing no.	E-1	no. du dessin



**PARTIAL BASEMENT PLAN, MECHANICAL ROOM  
- EXISTING INSTALLATIONS AND DEMOLITIONS**

SCALE - 1:50

**PARTIAL BASEMENT PLAN, MECHANICAL ROOM  
- NEW INSTALLATIONS AND MODIFICATIONS**

SCALE - 1:50

PANEL P-B - SQUARE D - NQO  
120/208V, 225A, 3PH, 4 WIRE

DESCRIPTION	BREAKER SIZE	CIRCUIT NUMBER	CIRCUIT NUMBER	BREAKER SIZE	DESCRIPTION
P-100-1	100	1	2	100	COOLING TOWER 7400-1
		3	4		
		5	6		
P-100-2	100	7	8	50	A/C 113-1
		9	10		
		11	12		
ROOF TOP A/C UNIT	40	13	14	40	A/C 400-1
ROOF TOP A/C UNIT	30	15	16		
		17	18		
ROOF TOP OUTLET	15	19	20	20	A/C UNIT RM 101
SPACE	23	21	22		
SPACE	25	23	24	15	OUTLET AT PANEL
AC UNIT 2	25A	25	26		
AC UNIT 3	25A	27	28	25A	AC UNIT 2
		29	30		
		31	32		
ROOFTOP RECEPTACLE	20A	33	34	20A	ROOFTOP RECEPTACLE
SPACE	35	36			
SPACE	37	38			
AC UNIT 1	15A	39	40	20A	ROOFTOP RECEPTACLE
		41	42		

PANEL LP-3A - SQUARE D - NQOB  
120/208V, 225A, 3PH, 4 WIRE

DESCRIPTION	BREAKER SIZE	CIRCUIT NUMBER	CIRCUIT NUMBER	BREAKER SIZE	DESCRIPTION
A/C SYSTEM ROOM 306	15	1	2	30	A/C UNIT - CEILING RM 310
A/C SYSTEM ROOM 305	15	3	4	30	A/C UNIT - CEILING RM 314
		5	6		
		7	8		
REC. RM 314	15	9	10	20	RM 303
REC. RM 314	20	11	12	20	RM 301
FAN COIL ROOM 313	15	13	14	15	A/C UNIT ROOM 304
		15	16		
		17	18		
REC. SOUTH WALL RM 306	15	19	20	15	A/C UNIT ROOM 308
A/C ROOM 303	15	21	22	15	EXT LIGHTING
A/C ROOM 301	15	23	24	15	EXT LIGHTING
SPACE		25	26		SPACE
SPACE		27	28		SPACE
SPACE		29	30		SPACE
SPACE		31	32		SPACE
SPACE		33	34		SPACE
SPACE		35	36		SPACE
SPACE		37	38		SPACE
A/C UNIT HALLWAY IN FRONT OF RM 317	20	39	40	20	A/C UNIT HALL IN FRONT OF KITCHEN
		41	42		

**DRAWING NOTES:**

- ◇ TYPICAL: EXISTING ELECTRICAL EQUIPMENT TO REMAIN.
- ◇ EXISTING MECHANICAL EQUIPMENT (PUMPS) TO BE DISCONNECTED AND CIRCUIT TO BE REUSED FOR NEW EQUIPMENT. EXTEND ALL CONDUIT AND WIRING TO SUIT.
- ◇ PROVIDE DIRECT CONNECTION TO NEW CHILLER. SOURCE POWER FROM NEW 400A, F225A DISCONNECT SWITCH. REFER TO SLD FOR FURTHER DETAILS. PROVIDE ALL REQUIRED CONDUIT, WIRING AND ASSOCIATED HARDWARE.
- ◇ PROVIDE DIRECT CONNECTION TO NEW PUMPS (7.5HP) C/W NEW FUSED DISCONNECT (30A, F15). EXTEND ALL CONDUIT AND WIRING TO SUIT, RE-USING EXISTING CIRCUITS.

**EXISTING PANEL LEGENDS**

SCALE - NTS

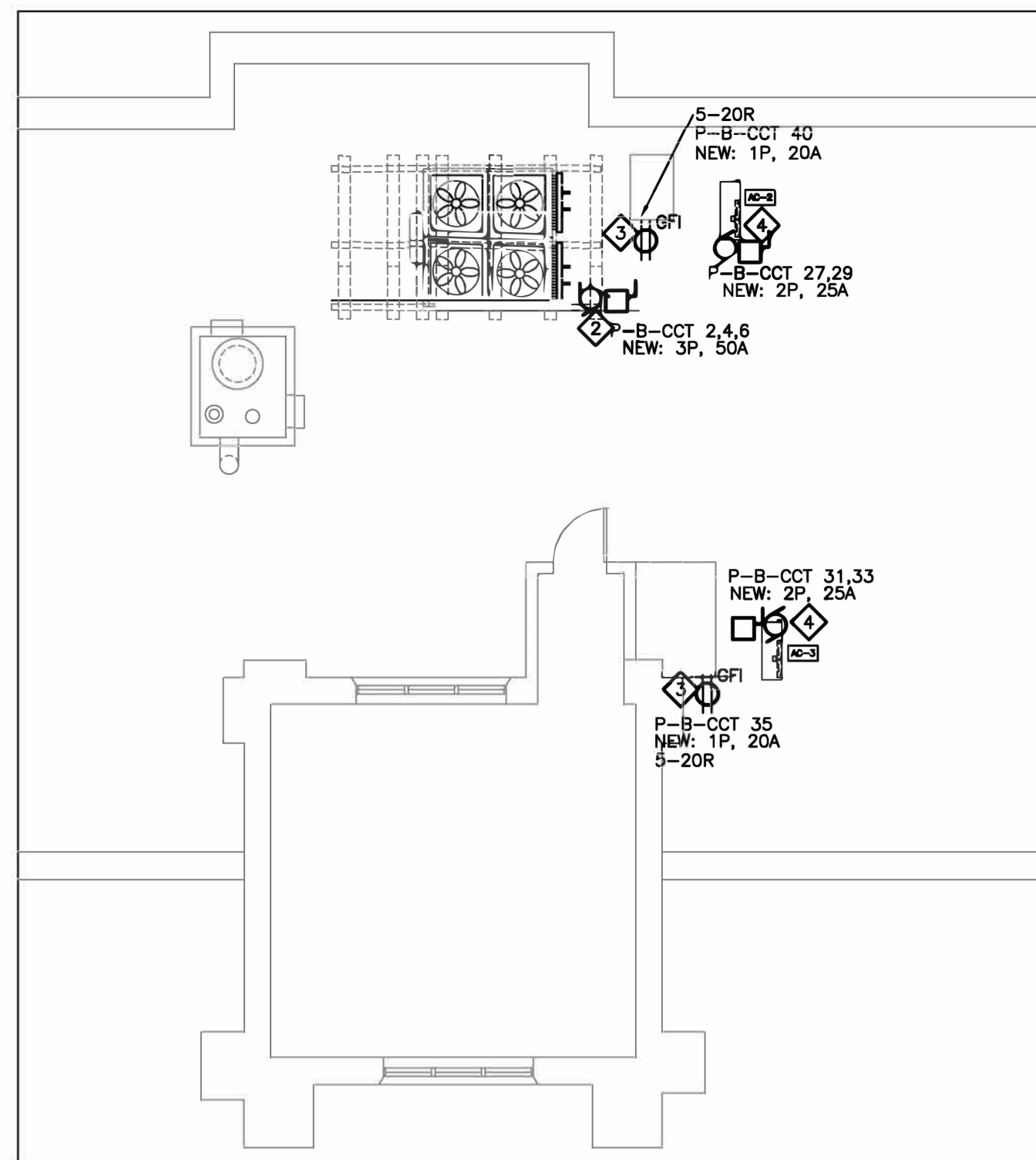
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revision		date

A	A detail no.	A
C	no. du detail	BC
	B location drawing no.	
	no. de localisation	
	C drawing no.	
	no. du dessin	

project AGRICULTURE CANADA / projet  
CENTRAL EXPERIMENTAL FARM  
BUILDING No. 49  
COOLING TOWER REMOVAL  
NEW CHILLER INSTALLATION  
OTTAWA, ONTARIO

drawing ELECTRICAL / dessin  
BASEMENT MECHANICAL ROOM  
AND PARTIAL SYSTEM SCHEMATIC  
DEMOLITIONS AND NEW INSTALLATIONS

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project no. CEF 19-0027	no. du projet
drawing no. E-2	no. du dessin

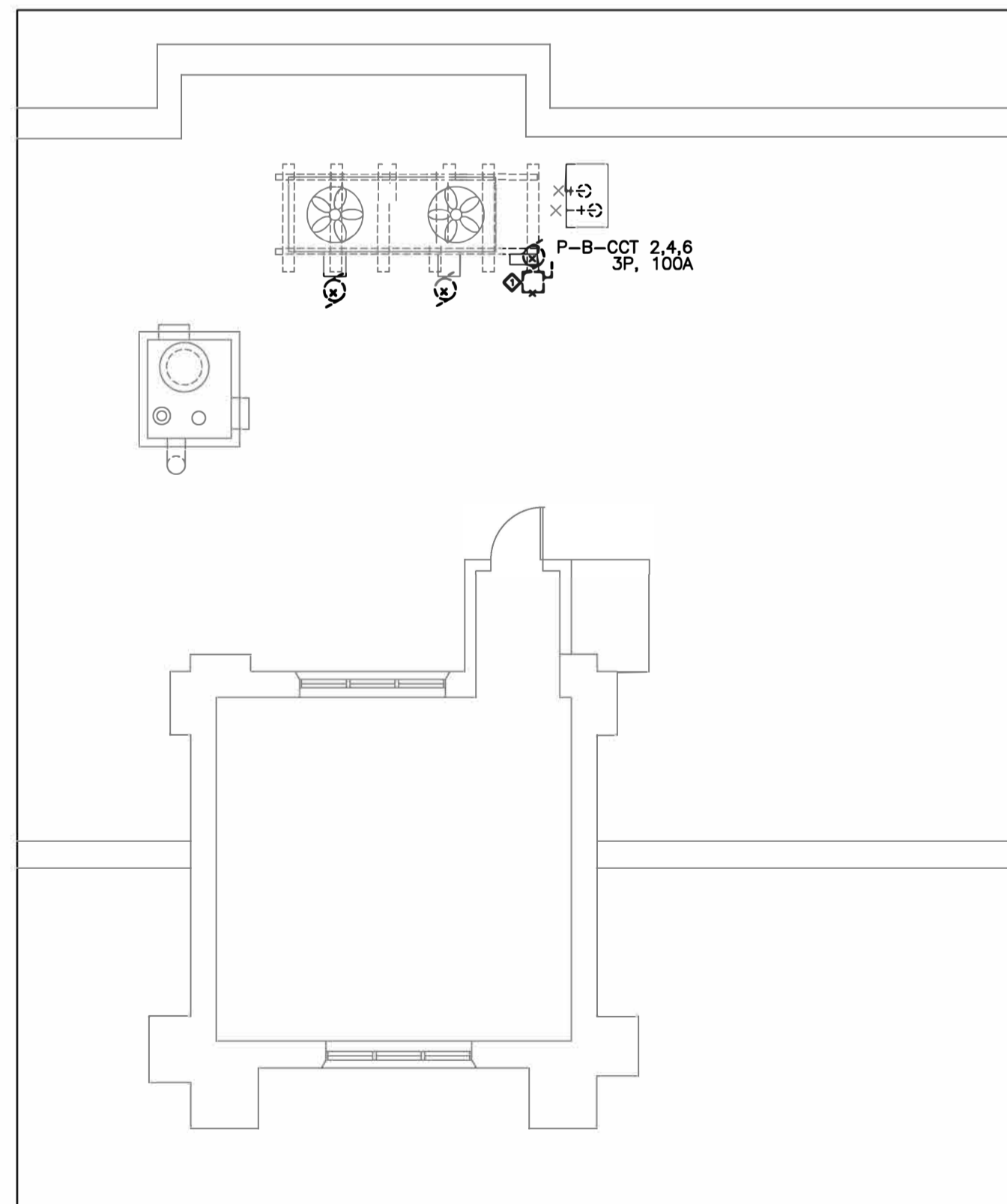


**ROOF PLAN – NEW INSTALLATIONS**

SCALE – 1:100

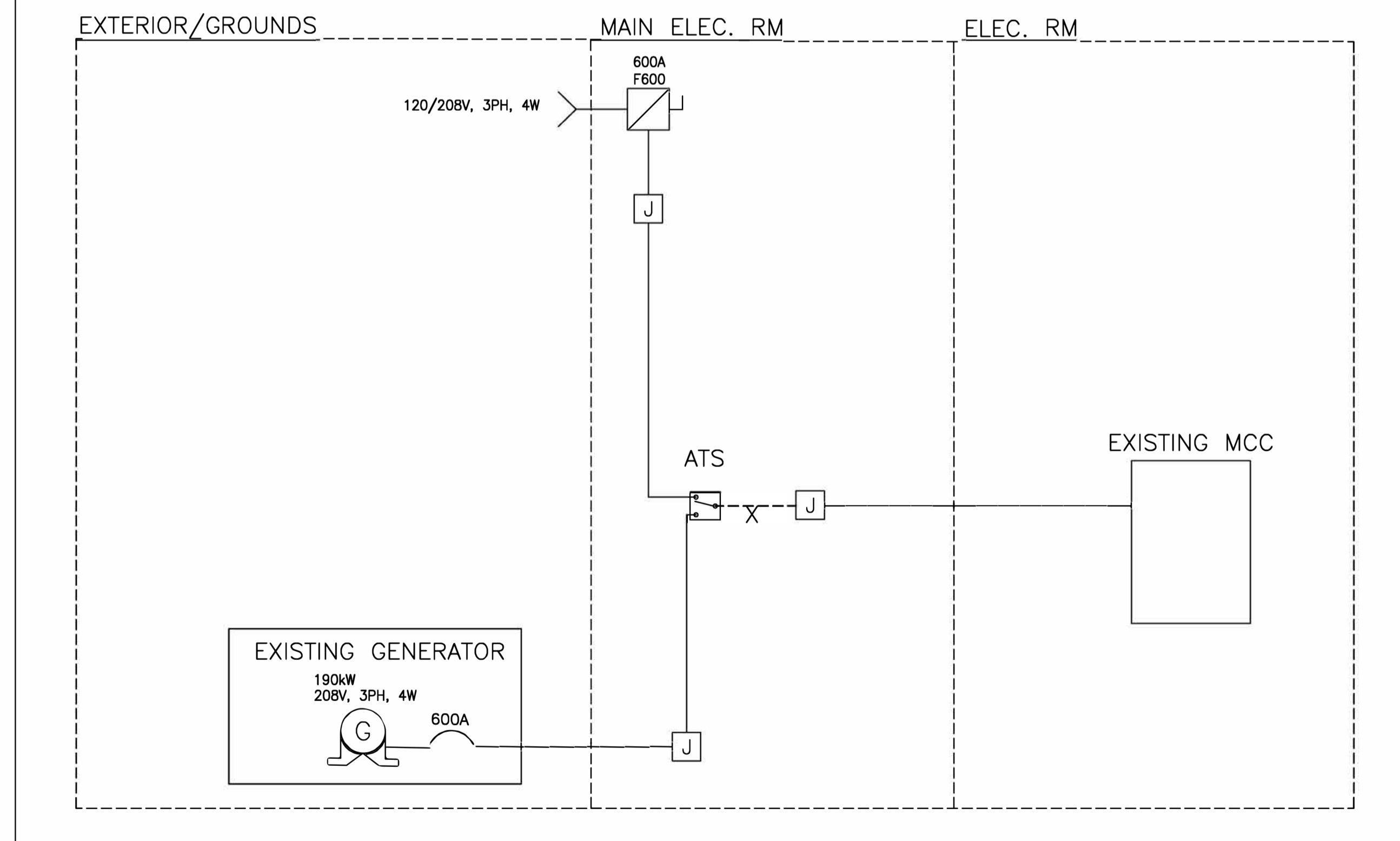
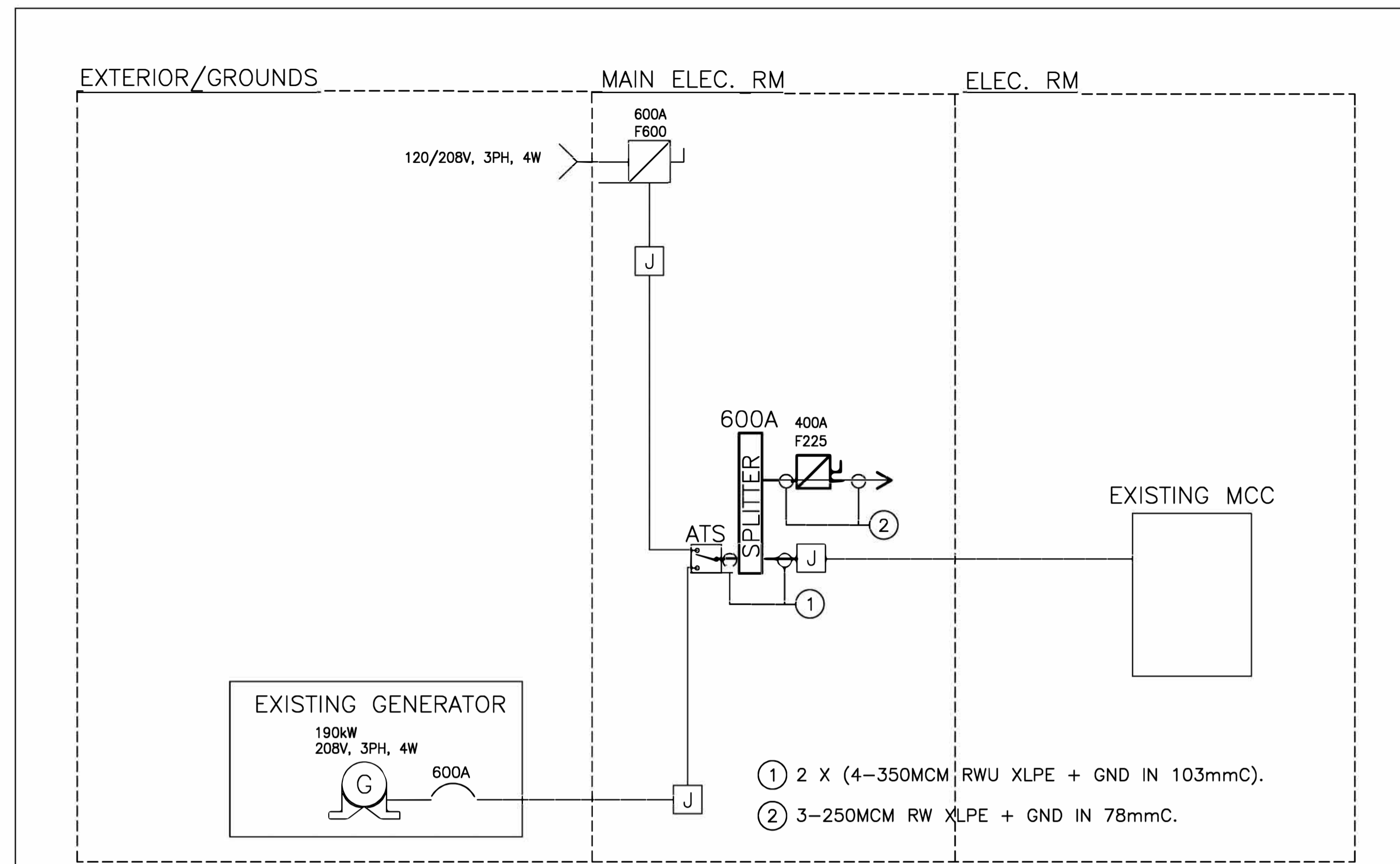
**DRAWING NOTES:**

- ◇ TYPICAL: EXISTING MECHANICAL EQUIPMENT TO BE DISCONNECTED AND REMOVED, BACK TO SOURCE C/W ALL CONDUIT WIRING AND ASSOCIATED HARDWARE.
- ◇ PROVIDE DIRECT CONNECTION TO NEW MECHANICAL EQUIPMENT C/W NEW BREAKER, DISCONNECT SWITCH, ALL REQUIRED CONDUIT, WIRING AND ASSOCIATED HARDWARE.
- ◇ PROVIDE NEW SERVICE RECEPTACLE, WP, GFI, 5-20R C/W ALL CONDUIT, WIRING AND ASSOCIATED HARDWARE.
- ◇ TYPICAL: PROVIDE DIRECT CONNECTION TO NEW MECHANICAL EQUIPMENT (HVAC SPLIT SYSTEM) C/W NEW BREAKER, DISCONNECT SWITCH, ALL CONDUIT WIRING AND ASSOCIATED HARDWARE. REFER TO MECHANICAL DRAWINGS AND MANUFACTURER'S INSTALLATION MANUAL FOR FURTHER INFORMATION. INDOOR UNIT FED FROM OUTDOOR UNIT C/W CONTROL WIRING. PROVIDE ALL REQUIRED WIRING FOR COMPLETE INSTALLATION.



**ROOF PLAN – EXISTING INSTALLATIONS AND DEMOLITIONS**

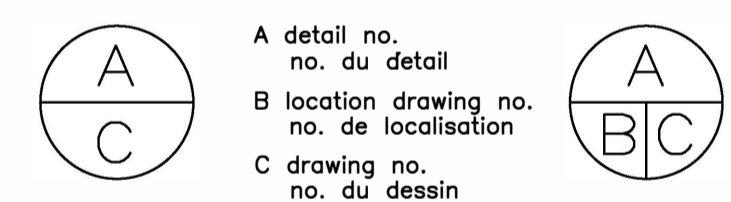
SCALE – 1:100



**SLD – EXISTING, DEMOLITION & NEW WORK**

SCALE – NTS

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revision		date



project AGRICULTURE CANADA / projet CENTRAL EXPERIMENTAL FARM BUILDING No. 49  
 COOLING TOWER REMOVAL  
 NEW CHILLER INSTALLATION  
 OTTAWA, ONTARIO

drawing **ELECTRICAL ROOF PLAN** / dessin  
**EXISTING INSTALLATIONS, DEMOLITIONS AND NEW INSTALLATIONS**

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tender TOM PUCCI / soumission  
 Project Manager Administrateur de projets  
 project no. CEF 19-0027 / no. du projet

drawing no. **E-3** / no. du dessin