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

RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:
Travaux publics et Services gouvernementaux Canada
Voir dans le document/
See herein
NA
Québec
NA

INVITATION TO TENDER
APPEL D'OFFRES

Tender To: Public Works and Government Services Canada

We hereby offer to sell to Her Majesty the Queen in right of Canada, in accordance with the terms and conditions set out herein, referred to herein or attached hereto, the goods, services, and construction listed herein and on any attached sheets at the price(s) set out therefor.

Soumission aux: Travaux Publics et Services Gouvernementaux Canada

Nous offrons par la présente de vendre à Sa Majesté la Reine du chef du Canada, aux conditions énoncées ou incluses par référence dans la présente et aux annexes ci-jointes, les biens, services et construction énumérés ici et sur toute feuille ci-annexée, au(x) prix indiqué(s).

Comments - Commentaires

Title - Sujet Instal. finale équipements CRD

Solicitation No. - N° de l'invitation EF944-221777/A	**Date** 2021-12-20
Client Reference No. - N° de référence du client R.105593.101	**GETS Ref. No. - N° de réf. de SEAG** PW-$MTC-410-16355
File No. - N° de dossier MTC-1-44189 (410)	**CCC No./N° CCC - FMS No./N° VME**

Solicitation Closes - L'invitation prend fin
at - à 02:00 PM Eastern Standard Time EST
on - le 2022-01-20 Heure Normale du l'Est HNE

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

Address Enquiries to: - Adresser toutes questions à: Spina, Angelina	**Buyer Id - Id de l'acheteur** mtc410
Telephone No. - N° de téléphone (514) 703-4764 ( )	**FAX No. - N° de FAX** ( ) -

Destination - of Goods, Services, and Construction:
Destination - des biens, services et construction:
MINISTERE DES TRAVAUX PUBLICS ET SERVICES GOUVERNEMENTAUX CANADA
PL.BONAVENTURE,PORTAIL S-O
800 RUE DE LA GAUCHETIERE O B7300
MONTREAL
Québec
H5A1L6
Canada

Instructions: See Herein

Instructions: Voir aux présentes

Vendor/Firm Name and Address
Raison sociale et adresse du fournisseur/de l'entrepreneur

Delivery Required - Livraison exigée .	**Delivery Offered - Livraison proposée**

Vendor/Firm Name and Address
Raison sociale et adresse du fournisseur/de l'entrepreneur

Telephone No. - N° de téléphone
Facsimile No. - N° de télécopieur

Name and title of person authorized to sign on behalf of Vendor/Firm (type or print)
Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)

Signature **Date**

Issuing Office - Bureau de distribution
Travaux publics et Services gouvernementaux Canada
Place Bonaventure, portail Sud-Oue
800, rue de La Gauchetière Ouest
7e étage, suite 7300
Montréal
Québec
H5A 1L6

Canada

BID SOLICITATION

Final Installation of CDR Equipment
Saint-Hyacinthe, QC

IMPORTANT NOTICE TO BIDDERS

COVID-19 VACCINATION REQUIREMENT (A3080T)
This requirement is subject to the COVID-19 Vaccination Policy for Supplier Personnel. Failure to complete and provide the COVID-19 Vaccination Requirement Certification as part of the bid will render the bid non-responsive.

TRANSMISSION OF BIDS
Bidders **must** submit their bids electronically using the Canada Post epost Connect service for the purpose of this bid solicitation. This service allows suppliers to submit bids electronically to Public Services and Procurement Canada (PSPC) bid receiving units; it allows the secure electronic transfer of large files up to Protected B level. Please refer to SI05 – Submission of Bid for more information.

Bids in hard copy (delivered in person or by mail or courier) or transmitted by **facsimile will not be accepted** for this bid solicitation.

BID SECURITY
Please refer to SI04 - Bid Security Requirements.

PUBLIC OPENING
There will no Public Opening for the purposes of this solicitation. Please refer to SI06 – Bid Solicitation Results.

THIS DOCUMENT CONTAINS A SECURITY CLEARANCE REQUIREMENT
For further instructions please consult “Special Instruction to Bidders”, SI12, “Security Clearance Requirements” and “Supplementary Conditions” SC01 “Security Clearance Requirements, Document Safeguarding Location”.

TABLE OF CONTENTS

SPECIAL INSTRUCTIONS TO BIDDERS (SI)

SI01 BID DOCUMENTS

1. The following are the Bid Documents:

   a. Invitation to Tender - Page 1;
   b. Special Instructions to Bidders;
   c. General Instructions - Construction Services - Bid Security Requirements R2710T (2021-04-01)
   d. Clauses & Conditions identified in “Contract Documents”;
   e. Drawings and Specifications;
   f. Bid and Acceptance Form and related Appendix(s); 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.

2. General Instructions - Construction Services - Bid Security Requirements R2710T is incorporated by reference and is set out in the Standard Acquisition Clauses and Conditions (SACC) Manual, issued by Public Works and Government Services Canada (PWGSC). The SACC Manual is available on the PWGSC Web site: https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual/5/R

SI02 ENQUIRIES DURING THE SOLICITATION PERIOD

1. Enquiries regarding this bid solicitation must be submitted in writing to the Contracting Authority at e-mail address **angelina.spina@tpsgc-pwgsc.gc.ca**. Except for the approval of alternative materials as described in GI15 of R2710T, enquiries should be received no later than **five (5) business days** prior to the date set for solicitation closing to allow sufficient time to provide a response. Enquiries received after that time may result in an answer NOT being provided.

2. To ensure consistency and quality of the information provided to Bidders, PWGSC will examine the content of the enquiry and will decide whether to issue an amendment.

3. All enquiries and other communications related to this bid sent throughout the solicitation period must be directed ONLY to the Contracting Authority named on page 1 of the Bid Solicitation. Failure to comply with this requirement may result in the bid being declared non-compliant.

SI03 REVISION OF BID

GI10 of R2710T is replaced by:

1. A bid may be revised by epost Connect or facsimile (418-566-6168) 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 bid solicitation. The document shall be on the Bidder's letterhead or bear a signature that identifies the Bidder.

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

3. A letter transmitted by epost Connect or a facsimile submitted to confirm an earlier revision should be clearly identified as a confirmation.

4. Failure to comply with any of the above provisions may 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).

SI04 BID SECURITY REQUIREMENTS

GI08 of R2710T is replaced by:

1. The Bidder shall submit bid security with the bid in the form of a bid bond (subparagraph 4 of GI08) or a security deposit (subparagraph 5 of GI08) in an amount that is equal to not less than 10 percent of the bid amount. Applicable Taxes shall not be included when calculating the amount of any bid security that may be required. The maximum amount of bid security required with any bid is $2,000,000.

2. Bid security shall lapse or be returned as soon as practical following
   a. the solicitation closing date, for those Bidders submitting non-compliant bids;
   b. the administrative bid review, for those Bidders submitting compliant bids ranked fourth to last on the schedule of bids;
   c. the award of contract, for those Bidders submitting the second and third ranked bids;
   d. the receipt of contract security, for the successful Bidder; or
   e. the cancellation of the bid solicitation, for all Bidders.

3. Notwithstanding the provisions of paragraph 2 of GI08 and provided more than three compliant bids have been received, if one or more of the bids ranked third to first is withdrawn or rejected for whatever reason then Canada reserves the right to hold the security of the next highest ranked compliant bid in order to retain the bid security of at least three valid and compliant bids.

4. Bid security in the form of a **bid bond:**

   4.1 A bid bond shall be in a presented on form PWGSC-TPSGC 504 (https://www.tpsgc-pwgsc.gc.ca/app-acq/forms/504-eng.html), duly completed, bearing the required signatures and the seal of a Government of Canada approved bonding company (see Appendix L, Recognized Surety Companies, of the Treasury Board (https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=14494#appL)). Bonds **must** be submitted in **electronic format**.

   4.2 A bid bond must be submitted in an **electronic format** (Electronic Bonding (E-Bond)) and meet the following criteria:

      a. The version submitted by the Bidder must be an electronic encrypted file with embedded digital certificate verifiable by Canada with respect to the totality and wholeness of the bond form, including: the content; all digital signatures; all digital seals; with the Surety Company, or an approved verification service provider of the Surety Company.
      b. The version submitted must be viewable, printable and storable by Canada. It must be in a single file and in PDF format.
      c. The verification may be conducted by Canada immediately or at any time during the life of the Bond and at the discretion of Canada.
      d. The results of the verification must provide a clear, immediate and printable indication of pass or fail regarding Item 4.2.a.
      e. It is not acceptable to present a bid bond with unverifiable signatures and/or seals. Failure to comply with this requirement will render the bond non-compliant and result in the rejection of the bid. A scanned copy of a bond form does not constitute an electronic bond.

5. Contract security in the form of a **security deposit:**

   5.1 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.

   5.2 The security deposit must be received before the solicitation closing date and time by epost Connect.

   5.3 For the purposes of subparagraph 5.1.a of GI08:

a. a bill of exchange is an unconditional order in writing signed by the Bidder and addressed to an approved financial institution, requiring the said institution to pay, on demand, at a fixed or determinable future time a sum certain of money to, or to the order of, the Receiver General for Canada;
b. if a bill of exchange, bank draft or money order is certified by or drawn on an institution or corporation other than a chartered bank, it must be accompanied by proof that the said institution or corporation meets at least one of the criteria described in subparagraph 5.3.c. of GI08, either by letter or by a stamped certification on the bill of exchange, bank draft or money; and
c. An approved financial institution is
   i. a corporation or institution that is a member of the Canadian Payments Association (Payments Canada) 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.

5.4 Bonds referred to in subparagraph 5.1.b of GI08 shall be provided on the basis of their market value current at the date of solicitation closing, and shall be

a. payable to bearer;
b. accompanied by a duly executed instrument of transfer of the bonds to the Receiver General for Canada in the form prescribed by the Domestic Bonds of Canada Regulations; or
c. registered as to principal or as to principal and interest in the name of the Receiver General for Canada pursuant to the Domestic Bonds of Canada Regulations.

5.5 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.

5.6 An irrevocable standby letter of credit referred to in paragraph 5.4 of GI08 shall

a. be an arrangement, however named or described, whereby a financial institution (the "Issuer") acting at the request and on the instructions of a customer (the "Applicant") or on its own behalf,
   i. is to make a payment to, or to the order of, the Receiver General for Canada as the beneficiary;
   ii. is to accept and pay bills of exchange drawn by the Receiver General for Canada;
   iii. authorizes another financial institution to effect such payment or accept and pay such bills of exchange; or
   iv. authorizes another financial institution to negotiate against written demand(s) for payment provided that the terms and conditions of the letter of credit are complied with;
b. state the face amount which may be drawn against it;
c. state its expiry date;
d. provide for sight payment to the Receiver General for Canada by way of the financial institution's draft against presentation of a written demand for payment signed by the Departmental Representative identified in the letter of credit by his/her office;
e. provide that more than one written demand for payment may be presented subject to the sum of those demands not exceeding the face value of the letter of credit;
f. provide that it is subject to the International Chamber of Commerce (ICC) *Uniform Customs and Practice (UCP) for Documentary Credits, 2007 Revision*, ICC Publication No. 600, Pursuant to the ICCUCP, 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 (Payments Canada) and is on the letterhead of the Issuer or Confirmer. The format is left to the discretion of the Issuer or Confirmer.

SI05 SUBMISSION OF BID

GI09 of R2710T is replaced by the following:

1. The Bid and Acceptance Form, duly completed, and the bid security must be attached to the bid sent by the bidder as per SI06.4 below. The bid must be received by the bid receiving unit on or before the date and time set for bid solicitation closing.

2. Unless otherwise specified in the Special Instructions to Bidders
   a. the bid shall be in Canadian currency;
   b. the requirement does not offer exchange rate fluctuation risk mitigation. Requests for exchange rate fluctuation risk mitigation will not be considered. All bids including such provision will render the bid non-responsive.

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

4. Bids may be submitted using the **epost Connect service** provided by Canada Post Corporation**.**

   4.1 Bid submission using the **epost Connect service**:

   4.1.1 To submit a bid using epost Connect service, the Bidder must:

   a. send as early as possible, and in any case, <u>at least six business days prior to the bid solicitation closing date and time</u>, in order to ensure a response, an email that includes the bid solicitation number to the specified Bid Receiving Unit designated in subparagraph 4.1.9 requesting to open an epost Connect conversation. Requests to open an epost Connect conversation received after that time may not be answered;

   OR

   b. send directly its bid only to the PWGSC Bid Receiving Unit designated in subparagraph 4.1.9, using its own licensing agreement for epost Connect provided by Canada Post Corporation.

   4.1.2 epost Connect conversation:

   a. If the Bidder sends an email requesting epost Connect service to the designated Bid Receiving Unit in the bid solicitation of subparagraph 4.1.9, an officer of the Bid Receiving Unit will then initiate an epost Connect conversation. The epost Connect conversation will create an email notification from Canada Post Corporation prompting the Bidder to access and action the message within the conversation. The Bidder will then be able to transmit its bid afterward at any time prior to the solicitation closing date and time.
   b. If the Bidder is using its own licensing agreement to send its bid, the Bidder must keep the epost Connect conversation open until at least thirty (30) business days after the solicitation closing date and time.

   4.1.3 The bid solicitation number should be identified in the epost Connect message field of all electronic transfers.

   4.1.4 It should be noted that the use of epost Connect service requires a Canadian mailing address. Should a bidder not have a Canadian mailing address, they may use the following address to register for the epost Connect service: 11, Laurier Street, Gatineau, Québec, Canada, K1A 0S5.

   4.1.5 For bids transmitted by epost Connect service, Canada will not be responsible for any failure attributable to the transmission or receipt of the bid including, but not limited to, the following:

   a. receipt of a garbled, corrupted or incomplete bid;
   b. availability or condition of the epost Connect service;
   c. incompatibility between the sending and receiving equipment;
   d. delay in transmission or receipt of the bid;
   e. failure of the Bidder to properly identify the bid;
   f. illegibility of the bid;
   g. security of bid data; or
   h. inability to create an electronic conversation through the epost Connect service.

4.1.6 The Bid Receiving Unit will send an acknowledgement of the receipt of bid document(s) via the epost Connect conversation, regardless of whether the conversation was initiated by the supplier using its own license or the Bid Receiving Unit. This acknowledgement will confirm only the receipt of bid document(s) and will not confirm if the attachments may be opened nor if the content is readable.

4.1.7 Bidders must ensure that they are using the correct email address for the Bid Receiving Unit when initiating a conversation in epost Connect or communicating with the Bid Receiving Unit and should not rely on the accuracy of copying and pasting the email address into the epost Connect system.

4.1.8 A bid transmitted by epost Connect service constitutes the formal bid of the Bidder.

4.1.9 The only acceptable email address to use with epost Connect for responses to bid solicitations issued by PWGSC is:
TPSGC.RQReceptionSoumissions-QRSupplyTendersReception.PWGSC@tpsgc-pwgsc.gc.ca

Important notice: Bids emailed directly to this email address will be rejected and deemed non-compliant. This email address is to be used to open an epost Connect conversation, as detailed in 4.1.1 and 4.1.2.

SI06 BID SOLICITAION RESULTS

1. There will be no Public Opening for the purposes of this solicitation.

2. Following bid solicitation closing, bid results may be obtained by contacting the Contracting Authority at email address angelina.spina@tpsgc-pwgsc.gc.ca.

SI07 BASIS OF SELECTION

1. The responsive bid carrying the lowest price will be recommended for contract award.

SI08 BID VALIDITY PERIOD

1. Canada reserves the right to seek an extension to the bid validity period prescribed in BA04 of the Bid and Acceptance Form. Upon notification in writing from Canada, Bidders will have the option to either accept or reject the proposed extension.

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

3. If the extension referred to in paragraph 1.above is not accepted in writing by all those who submitted bids then Canada will, 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 tender.

4. The provisions expressed herein do not in any manner limit Canada's rights in law or under GI11 of R2710T.

SI9 RIGHTS OF CANADA

1. Canada reserves the right to:

   a. Reject any or all bids received in response to the bid solicitation;
   b. Enter into negotiations with bidders on any or all aspects of their bids;

c. Accept any bid in whole or in part without negotiations;
d. Cancel the bid solicitation at any time;
e. Reissue the bid solicitation;
f. If no compliant bids are received and the requirement is not substantially modified, reissue the bid solicitation by inviting only the bidders who bid to resubmit bids within a period designated by Canada; and
g. Negotiate with the sole compliant Bidder to ensure best value to Canada.

SI10 CONSTRUCTION DOCUMENTS

1. After contract award, the final version of the signed and sealed drawings, specifications and amendments will be provided to the successful contractor in an electronic format.

SI11 SECURITY CLEARANCE REQUIREMENTS

1. **Before award of a contract**, the Bidder must hold a valid Security Clearance as indicated in section SC01 of the Supplementary Conditions.

2. The successful Bidder's personnel, as well as any subcontractor and its personnel, who are required to perform any part of the Work pursuant to the subsequent contract must meet the mandatory security requirement as indicated in section SC01 of the Supplementary Conditions. **Individuals who do not have the required level of security will not be allowed on site**. It is the responsibility of the successful Bidder to ensure that the security requirements are met throughout the performance of the contract. Canada will not be held liable or accountable for any delays or additional costs associated with the successful Bidder's non-compliance with the mandatory security requirement.

3. Bidders are reminded to obtain the required security clearance promptly. Any delay in the award of a contract to allow the successful Bidder to obtain the required clearance will be at the entire discretion of the Contracting Authority.

4. For additional information on security requirements, bidders should refer to the Contract Security Program of Public Works and Government Services Canada (http://www.tpsgc-pwgsc.gc.ca/esc-src/introduction-eng.html) website.

SI12 BID CHALLENGE AND RECOURSE MECHANISMS

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

2. Canada encourages suppliers to first bring their concerns to the attention of the Contracting Authority. Canada's Buy and Sell website, under the heading "Bid Challenge and Recourse Mechanisms" contains information on potential complaint bodies such as:
   - Office of the Procurement Ombudsman (OPO)
   - Canadian International Trade Tribunal (CITT)

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

SI13 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

Buy and Sell

https://www.achatsetventes-buyandsell.gc.ca

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

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

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

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

Standard Acquisition Clauses and Conditions (SACC) Manual
https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual/5/R

PWGSC, Contract Security Program
http://ssi-iss.tpsgc-pwgsc.gc.ca/index-eng.html

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

Construction and Consultant Services Contract Administration Forms Real Property Contracting
http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/formulaires-forms-eng.html

Declaration Form
http://www.tpsgc-pwgsc.gc.ca/ci-if/formulaire-form-eng.html

Trade agreements
https://buyandsell.gc.ca/policy-and-guidelines/Policy-and-Legal-Framework/Trade-Agreements

SI14 COVID-19 VACCINATION REQUIREMENT CERTIFICATION (A3081T)

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

SI15 CERTIFICATIONS – BID (A3015T)

Compliance with the certifications bidders provide to Canada is subject to verification by Canada during the bid evaluation period (before award of a contract) and after contract award. The Contracting Authority will have the right to ask for additional information to verify bidders' compliance with the certifications before award of a contract. The bid will be declared non-responsive if any certification made by the Bidder is untrue, whether made knowingly or unknowingly. Failure to comply with the certifications or to comply with the request of the Contracting Authority for additional information will also render the bid non-responsive.

R2710T GENERAL INSTRUCTIONS - CONSTRUCTION SERVICES - BID SECURITY REQUIREMENTS (GI) (2021-04-01)

The following GI's are included by reference and are available at the following Web Site
https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual/5/R/R2710T/23

GI01 Integrity Provisions - Bid
GI02 Completion of Bid
GI03 Identity or Legal Capacity of the Bidder
GI04 Applicable Taxes
GI05 Capital Development and Redevelopment Charges
GI06 Registry and Pre-qualification of Floating Plant
GI07 Listing of Subcontractors and Suppliers
GI08 Bid Security Requirements
GI09 Submission of Bid
GI10 Revision of Bid
GI11 Rejection of Bid
GI12 Bid Costs
GI13 Procurement Business Number
GI14 Compliance with Applicable Laws
GI15 Approval of Alternative Materials
GI16 Performance Evaluation
GI17 Conflict of Interest-Unfair Advantage
GI18 Code of Conduct for Procurement - bid

CONTRACT DOCUMENTS (CD)

1. The following are the Contract Documents:

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

GC1	General Provisions – Construction Services	R2810D	(2017-11-28);
GC2	Administration of the Contract	R2820D	(2016-01-28);
GC3	Execution and Control of the Work	R2830D	(2019-11-28);
GC4	Protective Measures	R2840D	(2008-05-12);
GC5	Terms of Payment	R2850D	(2019-11-28);
GC6	Delays and Changes in the Work	R2860D	(2019-05-30);
GC7	Default, Suspension or Termination of Contract	R2870D	(2018-06-21);
GC8	Dispute Resolution	R2880D	(2019-11-28);
GC9	Contract Security	R2890D	(2018-06-21);
GC10	Insurance	R2900D	(2008-05-12);
	Allowable Costs for Contract Changes Under GC6.4.1	R2950D	(2015-02-25);

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

2. The documents identified by title, number and date above are incorporated by reference and are set out in the Standard Acquisition Clauses and Conditions (SACC) Manual, issued by Public Works and Government Services Canada (PWGSC). The SACC Manual is available on the PWGSC Web site: https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual/5/R

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

SUPPLEMENTARY CONDITIONS (SC)

SC01 SECURITY CLEARANCE REQUIREMENTS, DOCUMENT SAFEGUARDING

The following security requirement (SRCL and related clauses) applies and form part of the Contract.

SECURITY REQUIREMENT FOR CANADIAN SUPPLIER: PWGSC FILE No EF944221777

1. The Contractor/Offeror must, at all times during the performance of the Contract/Standing Offer, hold a valid Designated Organization Screening (DOS), issued by the Contract Security Program (CSP), Public Works and Government Services Canada (PWGSC).

2. The Contractor/Offeror personnel requiring access to sensitive site(s) must EACH hold a valid RELIABILITY STATUS, granted or approved by the CSP, PWGSC.

3. Subcontracts which contain security requirements are NOT to be awarded without the prior written permission of the CSP, PWGSC.

4. The Contractor/Offeror must comply with the provisions of the: a) Security Requirements Check List and security guide (if applicable), attached at Annex ____; b) Contract Security Manual (Latest Edition).

SC02 INSURANCE TERMS

1. Insurance Contracts

a. The Contractor must, at the Contractor's expense, obtain and maintain insurance contracts in accordance with the requirements of the Certificate of Insurance. Coverage must be placed with an Insurer licensed to carry out business in Canada.
b. Compliance with the insurance requirements does not release the Contractor from or reduce its liability under the Contract. The Contractor is responsible for deciding if additional insurance coverage is necessary to fulfill its obligation under the Contract and to ensure compliance with any applicable law. Any additional insurance coverage is at the Contractor's expense, and for its own benefit and protection.

2. Period of Insurance

a. The policies required in the Certificate of Insurance must be in force from the date of contract award and be maintained throughout the duration of the Contract.
b. The Contractor must be responsible to provide and maintain coverage for Products/Completed Operations hazards on its Commercial General Liability insurance policy, for a period of six (6) years beyond the date of the Certificate of Substantial Performance.

3. Proof of Insurance

a. Before commencement of the Work, and no later than thirty (30) days after contract award, the Contractor must deposit with Canada a Certificate of Insurance on the form attached herein.
b. Upon request by Canada, the Contractor must provide originals or certified true copies of all contracts of insurance maintained by the Contractor pursuant to the Certificate of Insurance.

4. Insurance Proceeds

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

5. Deductible

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

SC03 TYPES AND AMOUNTS OF CONTRACT SECURITY

Paragraph 2. of CG9.2 of R2890D is deleted and replaced by the following:

2. A performance bond and a labour and material payment bond referred to in subparagraph 1)(a) of GC9.2 shall be in a presented on form PWGSC-TPSGC 505 (https://www.tpsgc-pwgsc.gc.ca/app-acq/forms/505-eng.html) and form PWGSC-TPSGC 506 (https://www.tpsgc-pwgsc.gc.ca/app-acq/forms/506-eng.html) respectively, duly completed, bearing the required signatures and the seal of a Government of Canada approved bonding or surety company (see Appendix L, Recognized Surety Companies, of the Treasury Board (https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=14494#appL)).

   Bonds must be submitted in **electronic format** and meet the following criteria:

   a. The submitted version must be an encrypted electronic file of an embedded digital certificate verifiable by Canada with respect to the entire and completeness of the bond form, including the content, all digital signatures and all digital seals. , from the surety company or an approved surety company verification service provider.
   b. The submitted version must be viewable, printable and storable by Canada. It must be presented in a single file and in PDF format.
   c. Verification may be conducted by Canada immediately or at any time during the life of the bonds, at Canada's discretion.
   d. The results of the verification must provide a clear, immediate and printable indication of pass or failure with respect to section 2.1.a.
   e. It is not acceptable to present bonds with unverifiable signatures and / or seals. A scanned copy of a bond form does not constitute an electronic bond.

SC04 COMPLIANCE WITH ON-SITE MEASURES, STANDING ORDERS, PLICIES AND RULES

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

BID AND ACCEPTANCE FORM (BA)

BA01 IDENTIFICATION

Final Installation of CDR Equipment; Sainte-Hyacinthe, QC

BA02 LEGAL NAME AND ADDRESS OF BIDDER

Legal Name: _____

Operating Names (if any): _____

Address: _____

Telephone: _____ Fax: _____ PBN:_____

E-mail Address: _____

Industrial Security Program Organization Number: _____
(when required)

BA03 THE OFFER

The Bidder offers to Canada to perform and complete the Work for the above named project in accordance with the Bid Documents for the Total Bid Amount of $ _____excluding Applicable Taxes.
(amount in numbers)

BA04 BID VALIDITY PERIOD

The bid must not be withdrawn for a period of **thirty (30) days** following the date of solicitation closing.

BA05 ACCEPTANCE AND CONTRACT

Upon acceptance of the Bidder's offer by Canada, a binding Contract will be formed between Canada and the Bidder. The documents forming the Contract will be the Contract Documents identified in "Contract Documents (CD)" section.

BA06 CONSTRUCTION TIME

The Contractor must perform and complete the Work within nine (9) weeks from the date of notification of acceptance of the offer.

BA07 BID SECURITY

The Bidder must enclose bid security with its bid in accordance with SI05 of this bid solicitation.

BA08 SIGNATURE

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

_____ _____
Signature Date

APPENDIX 1 - CERTIFICATE OF INSURANCE

(For information only, not required at bid solicitation closing)

CERTIFICATE OF INSURANCE
Page 1 of 2

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

Description and Location of Work	Contract No.
Final Installation of CDR Equipment; Sainte-Hyacinthe, QC	EF944-221777
	Project No. R.105593.101

Name of Insurer, Broker or Agent	Address (No., Street)	City	Province	Postal Code
Name of Insured (Contractor)	Address (No., Street)	City	Province	Postal Code

Additional Insured
Her Majesty the Queen in Right of Canada as represented by the Minister of Public Works and Government Services

Type of Insurance	Insurer Name and Policy Number	Inception Date D / M / Y	Expiry Date D / M / Y	Limits of Liability		
				Per Occurrence	Annual General Aggregate	Completed Operations Aggregate
Commercial General Liability **Umbrella/Excess Liability**				**$** **$**	**$** **$**	**$** **$**
Builder's Risk / Installation Floater				**$**		

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

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

Telephone number

Signature

Date D / M / Y

CERTIFICATE OF INSURANCE
Page 2 of 2

The insurance policies required on page 1 of the Certificate of Insurance must be in force and must include the insurance coverage listed under the corresponding type of insurance on this page.

The policies must insure the Contractor and must include Her Majesty the Queen in Right of Canada as represented by the Minister of Public Works and Government Services as an additional Insured.

The Policy shall be endorsed to provide the Owner with not less than 30 days' notice in writing in advance of any cancellation or change or amendment restricting coverage.

Without increasing the limit of liability, the policies must protect all insured parties to the full extent of coverage provided. Further, the policies must apply to each Insured in the same manner and to the same extent as if a separate policy had been issued to each.

Commercial General Liability
The insurance coverage provided must not be substantially less than that provided by the latest edition of IBC Form 2100.

The policy must either include or be endorsed to include coverage for the following exposures or hazards if the Work is subject thereto:
(a) Blasting.
(b) Pile driving and caisson work.
(c) Underpinning.
(d) Removal or weakening of support of any structure or land whether such support be natural or otherwise if the work is performed by the insured contractor.

The policy must have the following minimum limits:
(a) **$5,000,000** Each Occurrence Limit;
(b) **$10,000,000** General Aggregate Limit per policy year; and
(c) **$5,000,000** Products/Completed Operations Aggregate Limit.

Umbrella or excess liability insurance may be used to achieve the required limits.

Builder's Risk / Installation Floater
The insurance coverage provided must not be less than that provided by the latest edition of IBC Forms 4042 and 4047.
The policy must permit use and occupancy of any of the projects, or any part thereof, where such use and occupancy is for the purposes for which a project is intended upon completion.

The policy may exclude or be endorsed to exclude coverage for loss or damage caused by asbestos, fungi or spores, cyber and terrorism.
The policy must have a limit that is **not less than the sum of the contract value** plus the declared value (if any) set forth in the contract documents of all material and equipment supplied by Canada at the site of the project to be incorporated into and form part of the finished Work. If the value of the Work is changed, the policy must be changed to reflect the revised contract value.

The policy must provide that the proceeds thereof are payable to Canada or as Canada may direct in accordance with GC10.2, "Insurance Proceeds" (https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual/5/R/R2900D/2).

APPENDIX 2 - VOLUNTARY REPORT FOR APPRENTICES EMPLOYED DURING THE CONTRACT (SAMPLE)

(This report is not required at bid deposit)

The Contractor should compile and maintain records on the number of apprentices and their trade that were hired to work on the contract.

The Contractor should provide this data in accordance with the format below. If no apprentices were hired during the contract period, the Contractor should still provide a "nil" report.

The data should be submitted to the Contracting Authority either six months after contract award or at the end of the contract, whichever comes first.

Number of apprentices hired	Trade

APPENDIX 3 - SECURITY REQUIREMENT CHECK LIST (SRCL)

ANNEX A – INTEGRITY PROVISIONS

(Text copied from the Ineligibility and Suspension Policy http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html dated 2016-04-04)

List of names: All Bidders, regardless of their status under the Policy, must submit the following information when participating in a procurement process or real property transaction:

- Bidders that are corporate entities, including those bidding as joint ventures, must provide a complete list of the names of all current directors or, for a privately owned corporation, the names of the owners of the corporation;
- Bidders Bidding as sole proprietors, including sole proprietors bidding as joint ventures, must provide a complete list of the names of all owners; or
- Bidders that are a partnership do not need to provide a list of names.

If the list of names has not been received in a procurement process or real property transaction by the time the evaluation of Bids or Offers is completed, or has not been received in a procurement process or real property transaction where no Bid/Offer will be submitted, the Contracting Authority will inform the Bidder of a time within which to provide the information. Providing the required names is a mandatory requirement for award of a contract or real property agreement. Failure to provide the list of names within the time specified will render a Bid or Offer non-responsive, or the Bidder otherwise disqualified for award of a contract or real property agreement.

ANNEX B - VOLUNTARY CERTIFICATION TO SUPPORT THE USE OF APPRENTICES

(page 1 of 2)

PUBLIC WORKS AND GOVERNMENT SERVICES CANADA APPRENTICE PROCUREMENT INITIATIVE

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

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

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

4. Signed certifications on page 2 of 2 will be used to better understand contractor use of apprentices on Government of Canada maintenance and construction contracts and may inform future policy and program development.

5. The Contractor hereby certifies the following:

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

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

   To support this initiative, a voluntary certification signaling the Contractor's commitment to hire and train apprentices is available at page 2 of 2.

   If you accept fill out and sign page 2 of 2.

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

ANNEX B - VOLUNTARY CERTIFICATION TO SUPPORT THE USE OF APPRENTICES
(page 2 of 2)

Note: The contractor will be asked to fill out a report every six months or at project completion as per sample "Voluntary Reports for Apprentices Employed during the Contract" provided at Appendix 2.

Name:	
Signature:	
Company Name:	
Company Legal Name:	
Solicitation Number:	
Number of company employees:	
Number of apprentices planned to be working on this contract:	

Trades of those apprentices:

ANNEX C - COVID-19 VACCINATION REQUIREMENT CERTIFICATION
(page 1 of 2)

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

(a) fully vaccinated against COVID-19 with Health Canada-approved COVID-19 vaccine(s); or

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

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

I certify that all personnel provided by _____ *(name of business)* have been notified of the vaccination requirements of the Government of Canada's COVID-19 Vaccination Policy for Supplier Personnel, and that the _____ *(name of business)* has certified to their compliance with this requirement.

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

Signature: _____

Date: _____

ANNEX C - COVID-19 Vaccination Requirement Certification
(page 2 of 2)

Optional

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

Initials: _____

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

Government of Canada / Gouvernement du Canada

Contract Number / Numéro du contrat
EF944221777
Security Classification / Classification de sécurité UNCLASSIFIED

SECURITY REQUIREMENTS CHECK LIST (SRCL)
LISTE DE VÉRIFICATION DES EXIGENCES RELATIVES À LA SÉCURITÉ (LVERS)

PART A - CONTRACT INFORMATION / PARTIE A - INFORMATION CONTRACTUELLE

1. Originating Government Department or Organization / Ministère ou organisme gouvernemental d'origine: Public Works and Government Services Canada	2. Branch or Directorate / Direction générale ou Direction: DGBI
3. a) Subcontract Number / Numéro du contrat de sous-traitance	3. b) Name and Address of Subcontractor / Nom et adresse du sous-traitant

4. Brief Description of Work / Brève description du travail
Installation d'équipement électrique et mécanique

5. a) Will the supplier require access to Controlled Goods? Le fournisseur aura-t-il accès à des marchandises contrôlées?	✓ No / Non	☐ Yes / Oui
5. b) Will the supplier require access to unclassified military technical data subject to the provisions of the Technical Data Control Regulations? Le fournisseur aura-t-il accès à des données techniques militaires non classifiées qui sont assujetties aux dispositions du Règlement sur le contrôle des données techniques?	✓ No / Non	☐ Yes / Oui
6. Indicate the type of access required / Indiquer le type d'accès requis		
6. a) Will the supplier and its employees require access to PROTECTED and/or CLASSIFIED information or assets? Le fournisseur ainsi que les employés auront-ils accès à des renseignements ou à des biens PROTÉGÉS et/ou CLASSIFIÉS? (Specify the level of access using the chart in Question 7. c) (Préciser le niveau d'accès en utilisant le tableau qui se trouve à la question 7. c)	✓ No / Non	☐ Yes / Oui
6. b) Will the supplier and its employees (e.g. cleaners, maintenance personnel) require access to restricted access areas? No access to PROTECTED and/or CLASSIFIED information or assets is permitted. Le fournisseur et ses employés (p. ex. nettoyeurs, personnel d'entretien) auront-ils accès à des zones d'accès restreintes? L'accès à des renseignements ou à des biens PROTÉGÉS et/ou CLASSIFIÉS n'est pas autorisé.	☐ No / Non	✓ Yes / Oui
6. c) Is this a commercial courier or delivery requirement with **no** overnight storage? S'agit-il d'un contrat de messagerie ou de livraison commerciale **sans** entreposage de nuit?	✓ No / Non	☐ Yes / Oui

7. a) Indicate the type of information that the supplier will be required to access / Indiquer le type d'information auquel le fournisseur devra avoir accès

Canada ☐	**NATO / OTAN** ☐	**Foreign / Étranger** ☐
7. b) Release restrictions / Restrictions relatives à la diffusion		
No release restrictions Aucune restriction relative à la diffusion ☐	All NATO countries Tous les pays de l'OTAN ☐	No release restrictions Aucune restriction relative à la diffusion ☐
Not releasable À ne pas diffuser ☐		
Restricted to: / Limité à : ☐	Restricted to: / Limité à : ☐	Restricted to: / Limité à : ☐
Specify country(ies): / Préciser le(s) pays :	Specify country(ies): / Préciser le(s) pays :	Specify country(ies): / Préciser le(s) pays :

7. c) Level of information / Niveau d'information

PROTECTED A PROTÉGÉ A ☐	NATO UNCLASSIFIED NATO NON CLASSIFIÉ ☐	PROTECTED A PROTÉGÉ A ☐
PROTECTED B PROTÉGÉ B ☐	NATO RESTRICTED NATO DIFFUSION RESTREINTE ☐	PROTECTED B PROTÉGÉ B ☐
PROTECTED C PROTÉGÉ C ☐	NATO CONFIDENTIAL NATO CONFIDENTIEL ☐	PROTECTED C PROTÉGÉ C ☐
CONFIDENTIAL CONFIDENTIEL ☐	NATO SECRET NATO SECRET ☐	CONFIDENTIAL CONFIDENTIEL ☐
SECRET SECRET ☐	COSMIC TOP SECRET COSMIC TRÈS SECRET ☐	SECRET SECRET ☐
TOP SECRET TRÈS SECRET ☐		TOP SECRET TRÈS SECRET ☐
TOP SECRET (SIGINT) TRÈS SECRET (SIGINT) ☐		TOP SECRET (SIGINT) TRÈS SECRET (SIGINT) ☐

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

8. Will the supplier require access to PROTECTED and/or CLASSIFIED COMSEC information or assets? ☑ No / Non ☐ Yes / Oui
Le fournisseur aura-t-il accès à des renseignements ou à des biens COMSEC désignés PROTÉGÉS et/ou CLASSIFIÉS?
If Yes, indicate the level of sensitivity:
Dans l'affirmative, indiquer le niveau de sensibilité :

9. Will the supplier require access to extremely sensitive INFOSEC information or assets? ☑ No / Non ☐ Yes / Oui
Le fournisseur aura-t-il accès à des renseignements ou à des biens INFOSEC de nature extrêmement délicate?

Short Title(s) of material / Titre(s) abrégé(s) du matériel :
Document Number / Numéro du document :

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

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

☑ RELIABILITY STATUS / COTE DE FIABILITÉ	☐ CONFIDENTIAL / CONFIDENTIEL	☐ SECRET / SECRET	☐ TOP SECRET / TRÈS SECRET
☐ TOP SECRET– SIGINT / TRÈS SECRET – SIGINT	☐ NATO CONFIDENTIAL / NATO CONFIDENTIEL	☐ NATO SECRET / NATO SECRET	☐ COSMIC TOP SECRET / COSMIC TRÈS SECRET
☐ SITE ACCESS / ACCÈS AUX EMPLACEMENTS			

Special comments:
Commentaires spéciaux : _____

NOTE: If multiple levels of screening are identified, a Security Classification Guide must be provided.
REMARQUE : Si plusieurs niveaux de contrôle de sécurité sont requis, un guide de classification de la sécurité doit être fourni.

10. b) May unscreened personnel be used for portions of the work? ☑ No / Non ☐ Yes / Oui
Du personnel sans autorisation sécuritaire peut-il se voir confier des parties du travail?

If Yes, will unscreened personnel be escorted? ☑ No / Non ☐ Yes / Oui
Dans l'affirmative, le personnel en question sera-t-il escorté?

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

INFORMATION / ASSETS / RENSEIGNEMENTS / BIENS

11. a) Will the supplier be required to receive and store PROTECTED and/or CLASSIFIED information or assets on its site or premises? ☑ No / Non ☐ Yes / Oui
Le fournisseur sera-t-il tenu de recevoir et d'entreposer sur place des renseignements ou des biens PROTÉGÉS et/ou CLASSIFIÉS?

11. b) Will the supplier be required to safeguard COMSEC information or assets? ☑ No / Non ☐ Yes / Oui
Le fournisseur sera-t-il tenu de protéger des renseignements ou des biens COMSEC?

PRODUCTION

11. c) Will the production (manufacture, and/or repair and/or modification) of PROTECTED and/or CLASSIFIED material or equipment occur at the supplier's site or premises? ☑ No / Non ☐ Yes / Oui
Les installations du fournisseur serviront-elles à la production (fabrication et/ou réparation et/ou modification) de matériel PROTÉGÉ et/ou CLASSIFIÉ?

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

11. d) Will the supplier be required to use its IT systems to electronically process, produce or store PROTECTED and/or CLASSIFIED information or data? ☑ No / Non ☐ Yes / Oui
Le fournisseur sera-t-il tenu d'utiliser ses propres systèmes informatiques pour traiter, produire ou stocker électroniquement des renseignements ou des données PROTÉGÉS et/ou CLASSIFIÉS?

11. e) Will there be an electronic link between the supplier's IT systems and the government department or agency? ☑ No / Non ☐ Yes / Oui
Disposera-t-on d'un lien électronique entre le système informatique du fournisseur et celui du ministère ou de l'agence gouvernementale?

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

For users completing the form **manually** use the summary chart below to indicate the category(ies) and level(s) of safeguarding required at the supplier's site(s) or premises.
Les utilisateurs qui remplissent le formulaire **manuellement** doivent utiliser le tableau récapitulatif ci-dessous pour indiquer, pour chaque catégorie, les niveaux de sauvegarde requis aux installations du fournisseur.

For users completing the form **online** (via the Internet), the summary chart is automatically populated by your responses to previous questions.
Dans le cas des utilisateurs qui remplissent le formulaire **en ligne** (par Internet), les réponses aux questions précédentes sont automatiquement saisies dans le tableau récapitulatif.

SUMMARY CHART / TABLEAU RÉCAPITULATIF

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

12. a) Is the description of the work contained within this SRCL PROTECTED and/or CLASSIFIED?
La description du travail visé par la présente LVERS est-elle de nature PROTÉGÉE et/ou CLASSIFIÉE?

☑ No Non ☐ Yes Oui

If Yes, classify this form by annotating the top and bottom in the area entitled "Security Classification".
Dans l'affirmative, classifier le présent formulaire en indiquant le niveau de sécurité dans la case intitulée « Classification de sécurité » au haut et au bas du formulaire.

12. b) Will the documentation attached to this SRCL be PROTECTED and/or CLASSIFIED?
La documentation associée à la présente LVERS sera-t-elle PROTÉGÉE et/ou CLASSIFIÉE?

☑ No Non ☐ Yes Oui

If Yes, classify this form by annotating the top and bottom in the area entitled "Security Classification" and indicate with attachments (e.g. SECRET with Attachments).
Dans l'affirmative, classifier le présent formulaire en indiquant le niveau de sécurité dans la case intitulée « Classification de sécurité » au haut et au bas du formulaire et indiquer qu'il y a des pièces jointes (p. ex. SECRET avec des pièces jointes).

Government of Canada / Gouvernement du Canada

Contract Number / Numéro du contrat
EF944221777
Security Classification / Classification de sécurité UNCLASSIFIED

PART D - AUTHORIZATION / PARTIE D - AUTORISATION

13. Organization Project Authority / Chargé de projet de l'organisme

Name (print) - Nom (en lettres moulées)	Title - Titre	Signature	
Côté, Benjamin	Gestionnaire de projets	Cote, Benjamin Signé numériquement par : Cote, Benjamin Nom DN : CN = Cote, Benjamin C = CA O = GC OU = PWGSC-TPSGC Date : 2021.11.16 09:55:12 -05'00'	
Telephone No. - N° de téléphone 514-212-2479	Facsimile No. - N° de télécopieur 514-212-2479	E-mail address - Adresse courriel benjamin.cote@tpsgc-pwgsc.gc.ca	Date 2021/11/16

14. Organization Security Authority / Responsable de la sécurité de l'organisme

Name (print) - Nom (en lettres moulées)	Title - Titre	Signature	
LVERS/SRCL, (TPSGC/PWGSC)	SO	Bouchard, PierreLuc Digitally signed by Bouchard, PierreLuc Date: 2021.11.17 12:14:40 -05'00'	
Telephone No. - N° de téléphone --	Facsimile No. - N° de télécopieur --	E-mail address - Adresse courriel LVERS-SRCL@tpsgc-pwgsc.gc.ca	Date

15. Are there additional instructions (e.g. Security Guide, Security Classification Guide) attached?
Des instructions supplémentaires (p. ex. Guide de sécurité, Guide de classification de la sécurité) sont-elles jointes?

☐ No / Non ☐ Yes / Oui

16. Procurement Officer / Agent d'approvisionnement

Name (print) - Nom (en lettres moulées)	Title - Titre	Signature	
Telephone No. - N° de téléphone	Facsimile No. - N° de télécopieur	E-mail address - Adresse courriel	Date

17. Contracting Security Authority / Autorité contractante en matière de sécurité

Name (p	Title - Titre	Signature	
Anik Farrell - CSO 613-946-5194 anik.farrell@tpsgc-pwgsc.gc.ca		Farrell, Anik Digitally signed by: Farrell, Anik DN: CN = Farrell, Anik C = CA O = GC OU = PWGSC-TPSGC Date: 2021.11.18 13:54:32 -05'00'	
Telephone No. - N° de téléphone	Facsimile No. - N° de télécopieur	E-mail address - Adresse courriel	Date

PAI3 Final Installation of Equipment

R.105593.101

Specifications

December 3, 2021

For tender

Discipline	**Conceptor name**	**Seals**
Structure	**SBSA Inc**. Jean-Sébastien Penney, OIQ Member 5026290	INGÉNIEUR · ENGINEER Jean-Sébastien Penney 5026290 QUÉBEC 2021-12-03
Mechanical Engineering	**Pageau Morel** Marc-Olivier de Tilly, OIQ Member 144773	INGÉNIEUR Marc-Olivier de Tilly 144773 QUÉBEC 2021-12-03
Electrical Engineering	**Pageau Morel** Amado Hernandez Robbio OIQ Member 5053448	INGÉNIEUR · ENGINEER Amado Hernandez Robbio 5053448 QUÉBEC ing 2021-12-03

TABLE OF CONTENTS

Division 26 Electricity

END OF SECTION

List of drawings sheets

Division 03 | Structure

Revision 0 – For Tender | 2021-12-01

DRAWING NO.	DESCRIPTION	REVISION NO.	STATE
S000	Front page	0	Issued
S100	Localisation plan	0	Issued
S101	Island 25	0	Issued

Division 23 | Heating, ventilation and air conditioning (HVAC)

Revision 0 – For Tender | 2021-12-01

DRAWING NO.	DESCRIPTION	REVISION NO.	STATE
M01	Legend – Work zone	0	Issued
M02	Piping Service island #25 (Ohmic Heating) - Demolition	0	Issued
M03	Piping Service island #25 (Ohmic Heating) - Modified	0	Issued
M04	Piping – Basement – Services islands Distribution – Demolition / Modified	0	Issued
M05	Piping Details	0	Issued

Division 26 | Electrical

Revision 0 – For Tender | 2021-12-01

DRAWING NO.	DESCRIPTION	REVISION NO.	STATE
E001	Electrical Legend	0	Issued
E200	Services Basement – Demolition	0	Issued
E201	Services Basement – Modified	0	Issued
E202	Services Ground floor – Demolition	0	Issued
E203	Services Ground floor – Modified	0	Issued

END OF SECTION

Part 1 General

1.1 Work covered by contract documents

.1 Plumbing and electrical connection work for laboratory equipment and insulation, identification and support work.

.2 The work will be carried out in a food production and processing environment.

.3 The equipment covered by the work is summarized in the table included on the electrical drawings.

1.2 Work order

.1 Plan the execution of the work in stages, so that the Departmental Representative can use the premises continuously during the work.

.2 Coordinate the schedule of progress of the work and the occupation of the premises by the Departmental Representative during the construction work.

.3 Maintain access for fire fighting purposes; also maintain fire-fighting means.

.4 Protect the safety of workers and the public.

1.3 Use of the premises by the contractor

.1 Carry out work on weekdays, other than holidays, from 7 a.m. to 4 p.m. Work is prohibited on weekends and holidays.

.2 Notify the Departmental Representative as the work progresses in order to warn the occupants.

.3 Only the Departmental Representative can allow work to be carried out outside the prescribed periods. If necessary, ask for authorization five days in advance.

.4 For all work that could interfere with the activities, the Contractor will make a written authorization request to the Departmental Representative (at least 72 hours before execution) where he will indicate the nature of the work to be performed, the time necessary for its execution and the date by which it must do this work. The Contractor will wait for the Departmental Representative's authorization before proceeding and he will carry out the work according to the schedule that will have been accepted by the Departmental Representative.

.5 All work requiring complete interruptions of service must be carried out outside normal operating hours. Sector outages of more than 4 hours will run outside of normal operating hours. The contractor will request a written authorization from the Departmental Representative as described above each time there is a power cut.

.6 The price for the execution of all overtime work will be included in the tender. No additional remuneration will be granted thereafter for this purpose.

.7 Coordinate the use of the premises according to the instructions of the Departmental Representative.

.8 After obtaining the required authorizations, find the additional work or storage areas necessary for the execution of the work under the terms of this contract and pay the cost thereof.

.9 Once the work is completed, the existing work must be in identical, equivalent or superior condition to the condition it presented before the start of the work.

1.4 Occupancy of the premises by the contractor

.1 The Departmental Representative will occupy the premises for the duration of the construction work and will continue his normal activities during this period.

.2 Collaborate with the Departmental Representative in establishing the work schedule, so as to reduce conflicts and facilitate the latter's use of the premises.

1.5 Cost breakdown

.1 Before requesting the first deposit payment, present a detailed breakdown of costs according to the requirements of the Departmental Representative as well as the total amount of the contract. Once approved by the Departmental Representative, the cost breakdown will be used as the basis for calculating advance payments.

1.6 Work schedule

.1 The work schedule must be updated and submitted to the Departmental Representative at each site meeting as well as each payment request.

.2 The work schedule should show the complete sequencing of activities with the start and end date and the sequence should be coordinated with the Departmental Representative.

1.7 Daily report

.1 The contractor must produce a daily site log indicating the number of its workforce and the various trades as well as those of its subcontractors, machinery, etc. including a brief description of the work performed (specialties, locations) and materials received during the day. All daily reports must be submitted to the Departmental Representative no later than the first working day of the following week.

Part 2 Products

2.1 Not applicable

.1 Not applicable .

Part 3 Execution

3.1 Not applicable

.1 Not applicable .

END OF SECTION

Part 1 General

1.1 Definitions

.1 Activity: Specific work performed as part of a project. An activity normally has an expected duration, an expected cost and expected resource requirements. Activities can be subdivided into tasks.

.2 Bar chart (GANTT chart): Graphic representation of data relating to the implementation schedule of a project. In the usual bar chart, the activities or other elements of the project are presented from top to bottom, to the left of the graph while the dates are presented at the top, from left to right; the duration of each activity is indicated by horizontal segments placed between the dates. Typically, the bar chart is generated from a commercially available computerized project management system.

.3 Baseline: Initial approved plan (for a project, work package or activity), taking into account approved modifications to the scope of the project.

.4 Work week: Five (5) day week, Monday to Friday, defining working days for the purpose of bar chart submission (GANTT chart).

.5 Duration: Required number of work periods (except holidays and other non-working periods) for the execution of an activity or other element of the project. The duration is usually expressed in working days or in weeks of work.

.6 Milestone: Important event in the realization of the project, most often corresponding to the completion of an important product (deliverable).

.7 Execution schedule: Dates fixed for the execution of activities and the achievement of milestones. Dynamic and detailed program of tasks or activities necessary to achieve project milestones. The monitoring and control process is based on the execution schedule for carrying out and controlling activities; it is he who defines the decisions that will be taken throughout the duration of the project.

1.2 Requirements

.1 Ensure that the execution schedule is workable and that it respects the prescribed duration of the contract.

.2 The implementation schedule must provide for the completion of the work according to the prescribed milestones, within the agreed timeframe.

.3 The award of the contract or the start date of the work, the rate of progress of the work, the issuance of the provisional certificate of completion and the final certificate of completion constitute defined stages of the project and are essential conditions of the project. contract.

1.3 Documents / samples to submit for approval / information

.1 Submit documents and samples required in accordance with section 01 33 00 - Documents and samples to be submitted.

.2 Submit to the Departmental Representative, no later than twenty (20) working days after contract award, a bar chart (GANTT chart) which will serve as an execution schedule and will be used for planning and monitoring of works, and for the production of progress reports.

1.4 Work duration

.1 The work must have a maximum duration of nine (9) weeks from the date of contract award.

1.5 Implementation schedule

.1 Structure the work schedule so as to allow the orderly planning, organization and execution of the work according to the bar chart (GANTT chart).

.2 The Departmental Representative will review the schedule and return it to the Contractor within five (5) working days at the latest.

.3 If the schedule is deemed unusable, revise it and then resubmit it no later than five (5) working days after receiving it.

.4 The agreed revised schedule will become the master plan, which will serve as a reference for updates.

.5 The detailed execution schedule must include at least the stages corresponding to the activities below.

.1 Award of contract.
.2 Shop drawings, samples.
.3 Permits.
.4 Mobilization.
.5 Structural steel.
.6 Plumbing.
.7 Electricity.
.8 Piping.
.9 Testing and commissioning.
.10 Materials supplied with long delivery times.
.11 Corrections of defects.

.6 The detailed execution schedule must include all important milestones including the outages of electrical and mechanical services separated by group of equipment or by equipment, as well as possible implications to nearby equipment.

1.6 Status of work reports

.1 Update the work schedule once (1) per week to reflect changes in activities, completion of activities as well as activities in progress.

1.7 Project meeting

.1 Discuss the execution schedule during periodic meetings held on site; identify the activities that are late and plan for means to make up for these delays. Activities with a start date or an end date that exceed the respective approved dates appearing in the reference calendar are considered late.

.2 Also discuss delays due to bad weather and negotiate measures to make up for them.

Part 2 Products

2.2 Not applicable

.1 Not applicable.

Part 3 Execution

3.1 Not applicable

.1 Not applicable.

END OF SECTION

Part 1 General

1.1 Administrative procedures

.1 Within a reasonable time and in a predetermined order so as not to delay the execution of the work, submit the documents and samples required to the Departmental Representative for examination. A delay in this regard cannot constitute a sufficient reason for obtaining an extension of the period of execution of the works and no request in this direction will be accepted.

.2 Do not undertake work for which the deposit of documents and samples is required before the examination of all the submitted parts is completely completed.

.3 The characteristics indicated on the shop drawings, the technical data sheets and the samples of products and works must be expressed in metric units (SI).

.4 When the elements are not produced or manufactured in metric units (SI) or that the characteristics are not given in metric units (SI), converted values may be accepted.

.5 Examine documents and samples before handing them over to Departmental Representative. By this prior verification, the Contractor confirms that the requirements applicable to the work have been or will be determined and verified, and that each of the documents and samples submitted has been examined and found to comply with the requirements of the work and the Contractual Documents. Documents and samples that are not stamped, signed, dated and identified in connection with the particular project will be returned without examination and will be considered rejected.

.6 Notify the Departmental Representative in writing, when submitting documents and samples, of any deviations from the requirements of the Contractual Documents, and explain the reasons.

.7 Ensure the accuracy of measurements taken on site in relation to adjacent structures affected by the work.

.8 The fact that the documents and samples submitted are examined by the Departmental Representative in no way releases the Contractor from his responsibility to send complete and accurate documents.

.9 The fact that the documents and samples submitted are examined by the Departmental Representative in no way relieves the Contractor from his responsibility to send documents in accordance with the requirements of the Contractual Documents.

.10 Keep on site a verified copy of each document submitted.

1.2 Shop drawings and product data

.1 The expression "shop drawings" means the drawings, diagrams, illustrations, schedules, performance charts, brochures and other documentation to be provided by the Contractor to show in detail a part of the work concerned.

.2 The shop drawings must indicate the materials to be used as well as the methods of construction, fastening or anchoring to be employed, and they must contain the assembly diagrams, the details of the connections, the relevant explanatory notes and any other information necessary for the execution of the work. When works or elements are attached or connected to other works or to other elements, indicate on the drawings that there has been coordination of the requirements, regardless of the section under which the works or adjacent elements will be supplied and installed. Make references to the specifications and to the preliminary design drawings.

.3 Allow twenty (20) days for the Departmental Representative to examine each batch of documents submitted.

.4 Changes made to shop drawings by Departmental Representative are not intended to change Contract Price. If so, however, notify the Departmental Representative in writing before starting the work.

.5 Make changes to shop drawings as requested by the Departmental Representative in accordance with the requirements of the Contract Documents. When resubmitting the drawings, notify the Departmental Representative in writing of any changes that have been made in addition to those required.

.6 The documents submitted must be accompanied by the identification sheet attached at the end of this section, duly completed. The documents submitted must bear or indicate the following:

- .1 Date of preparation and dates of overhaul;
- .2 The name and number of the project;
- .3 The name and address of the following persons:
  - .1 The subcontractor;
  - .2 The supplier;
  - .3 The Manufacturer;
- .4 The Contractor's stamp, signed by the latter's authorized representative, certifying that the documents submitted are approved, that the measures taken on site have been verified and that the assembly conforms to the requirements of the Contractual Documents;
- .5 The relevant details concerning the portions of the work concerned:
  - .1 Materials and manufacturing details;
  - .2 Layout or configuration, with dimensions, including those taken on site, as well as clearances and clearances;
  - .3 Details of assembly or adjustment;
  - .4 Characteristics such as power, flow or capacity;
  - .5 Performance characteristics;
  - .6 Reference standards;
  - .7 Operational mass;
  - .8 Wiring diagrams;
  - .9 Single line diagrams and schematic diagrams;
  - .10 Links with adjacent works.

.7 Distribute copies of shop drawings and data sheets once Departmental Representative has completed verification.

.8 The Contractor is responsible for issuing copies, in sufficient quantity (minimum of three (3) printed copies) and for distributing shop drawings and technical sheets once the Departmental Representative has them. completed verification. Documents sent by fax or email will not be considered. In addition, the Contractor is responsible for keeping the copies necessary for the assembly of the end-of-project manuals. Plan to provide one (1) hard copy to the Departmental Representative of all shop drawings viewed.

.9 If no shop drawing is required due to the use of a standard manufacturing product, submit three (3) copies of the technical data sheets or manufacturer's documentation prescribed in the technical sections of the specification and required by the Representative of the Ministry.

.10 Submit three (3) copies of certificates prescribed in the technical sections of the specifications and required by the Departmental Representative.

.1 The documents, printed on official correspondence paper of the manufacturer and signed by a representative of the latter, must certify that the products, materials, equipment and systems supplied comply with the specifications of the specifications.

.2 Certificates must bear a date after contract award and indicate the name of the project.

.11 Submit three (3) electronic copies of manufacturer's instructions prescribed in specification Sections and requested by Departmental Representative.

.1 Pre-printed documents describing the method of installation of products, materials and systems, including specific instructions and data sheets indicating the impedances, the risks as well as the safety measures to be implemented.

.12 Delete information that does not apply to the work.

.13 In addition to current information, provide any additional details that apply to the work.

.14 When the shop drawings have been verified by the Departmental Representative and no errors or omissions have been detected or only minor corrections have been made, the shop drawings are returned, and the work of shaping and installation can then be undertaken. If the shop drawings are rejected, the annotated copy (s) will be returned and the corrected shop drawings must be resubmitted as indicated above before any fabrication and installation work can be undertaken.

.15 When the requirements of the technical sections of the estimate require that the documents be verified and calculated by an engineer, they must bear the seal and signature of an engineer who is a member in good standing of the Ordre des ingénieurs du Québec and able to validate this type of work.

1.3 Samples

.1 Submit two (2) product samples for examination, according to specifications in technical sections. Label the samples with their origin and intended destination.

.2 Send samples prepaid to the Departmental Representative.

.3 Notify the Departmental Representative in writing, at the time of the presentation of the product samples, of the deviations they present from the requirements of the Contractual Documents.

.4 When color, pattern or texture is prescribed, submit full range of samples.

.5 Changes made to samples by Departmental Representative are not intended to change Contract Price. If so, however, notify the Departmental Representative in writing before starting the work.

.6 Make any modifications to the samples that may be requested by the Departmental Representative while respecting the requirements of the Contract Documents.

.7 The examined and approved samples will become the reference standard from which the quality of materials and the quality of workmanship of finished and installed works will be evaluated.

1.4 Certificates and minutes

.1 Submit documents required by relevant Occupational Health and Safety Board immediately after contract award.

.2 Submit copies of insurance policies immediately after contract award.

Part 2 Products

2.1 Not applicable

.1 Not applicable.

Part 3 Execution

3.1 Not applicable

.1 Not applicable.

SHOP DRAWING | IDENTIFICATION SHEET

(This sheet must be filled-up by contractor for each submitted shop drawing)

PROJECT _____

N^O PROJECT _____
PHASE _____

CONTRACTOR _____
Address _____

Project manager _____
Telephone _____
E-mail _____

OWNER _____
(Customer)
ARCHITECT _____

ENGINEER _____

SUB - CONTRACTING _____
Address _____

Responsible _____
Telephone _____
E-mail _____

PROVIDER _____
Address _____

Responsible _____
Telephone _____
E-mail _____

CONTRACTOR APPROVAL

From _____

SUBMITTED PRODUCT		DESIGN ISSUED FOR	
AS IS	☐	VERIFICATION	☐
EQUIVALENT	☐	INFORMATION	☐
SUBSTITUTION	☐	COORDINATION	☐

OTHER _____

SPECIALTY _____
Number of pages _____
Delivery time _____

DESCRIPTION OF THE WORKSHOP DRAWING

_____

Reference to plan no _____

Reference to quotation Division _____
Page _____ Item _____

REMARKS

_____

REVISION	DATE OF ISSUE

ENGINEER CHECK (buffer)

END OF SECTION

Part 1 General

1.1 Reference standards

.1 Canada Labor Code, Part II, Canada Occupational Safety and Health Regulations

.2 Province of Quebec

.1 Act respecting occupational health and safety, R.S.Q., c. S-2.1 (current edition).

.2 Safety code for the construction industry, R.S.Q., c. S-2.1, r.4.

1.2 Documents / samples to be submitted for approval / information

.1 Submit documents and samples required in accordance with section 01 33 00 - Documents and samples to be submitted.

.2 Submit to the Departmental Representative and the CNESST, no later than seven (7) days after the date of service of the execution order and before the mobilization of the workforce, a health and safety established expressly for the site and bringing together the following elements.

.1 Results of the site specific safety risk / hazard assessment.

.2 Results of the analysis of the risks or dangers to health and safety associated with each task and each activity appearing in the work plan.

.3 The Departmental Representative will examine the health and safety plan prepared by the Contractor for the site and will provide him with his observations within ten (10) days following receipt of this document. If necessary, the Contractor shall revise his health and safety plan and submit it again to the Departmental Representative no later than five (5) days after receipt of the observations.

.4 The review by the Departmental Representative of the final health and safety plan prepared by the Contractor for the site must not be interpreted as an approval of this plan and in no way limits the overall responsibility of the Contractor in the matter. health and safety during construction.

.5 Submit to the Departmental Representative, once a week, the reports of the health and safety inspection carried out on the site by the Contractor's authorized representative.

.6 Submit copies of directives or reports prepared by federal, provincial and territorial government health and safety inspectors.

.7 Submit copies of incident and accident reports.

.8 Medical surveillance: Where required by law, regulation or safety program, submit, before starting work, certification of medical surveillance of personnel working on site. Ask the Departmental Representative for additional certification for any new employee working on the site.

.9 Send the representative of the Department a copy of the training certificates for site workers, in particular for the following training (when applicable):

.1 First aid in the workplace and cardiopulmonary resuscitation;

.2 Work likely to emit asbestos dust (compulsory for all work in the presence of asbestos);

.3 Lockout (mandatory for any work requiring lockout);

.4 Safe operation of forklifts (mandatory for all use of forklifts);

.5 Safe operation of elevating work platforms (mandatory for all use of elevating platforms);

.6 Any other training required by regulation or by the prevention program;

.7 In addition, the certificates of the General health and safety course for construction sites must be available on request on the site.

1.3 Production of the project notice

.1 Before starting work, send the project opening notice to the competent authorities.

.2 The Contractor must assume the role of prime contractor for each work area and not the entire complex. The Contractor must acknowledge this responsibility in writing within three (3) weeks of contract award. The Contractor must send a written notice of receipt to the CNESST with the notice of opening of the site.

.3 The Contractor must agree to divide and identify the site adequately, in order to define the time and space at all times during the duration of the project.

1.4 Risk / danger assessment

.1 Make an assessment of the risks / dangers for the safety present on this site with regard to the execution of the work.

1.5 Meetings

.1 Organize a health and safety meeting with the Departmental Representative before the start of the work, and ensure its direction.

1.6 Requirements of regulatory bodies

.1 Perform work in accordance with section 01 41 00 - Regulatory requirements.

1.7 General requirements

.1 Write a site-specific health and safety plan, based on the prior risk / hazard assessment, before starting the work. Implement this plan and ensure that it is respected at all points until the demobilization of all site personnel. The health and safety plan must take into account the specifics of the project.

.2 The Departmental Representative may provide his comments in writing if the plan contains anomalies or raises concerns, and may require the submission of a revised plan which will correct these anomalies or eliminate these concerns.

1.8 Responsibility

.1 The Contractor must accept and assume all the tasks and obligations normally devolved on the project manager under the Act respecting occupational health and safety (LRQ, chapter S-2.1) and the Safety Code for construction work (S-2.1, r.4).

.2 Assume responsibility for the health and safety of persons present on the site, as well as the protection of property located on the site; also assume, in the areas adjacent to the worksite, the protection of people and the environment insofar as they are affected by the work.

.3 As part of the construction work, the Contractor must be the main contractor as described in the Quebec Act respecting occupational health and safety, to carry out only the work that falls within its scope and areas defined and described in this quote.

.4 Comply with, and enforce by employees, the safety requirements set out in the Contract Documents, ordinances, applicable local, territorial, provincial and federal laws and regulations, as well as in the health and safety plan prepared for the job

1.9 Exigences de conformité

.1 Se conformer à la Loi sur la santé et la sécurité du travail, L.R.Q., c. S-2.1, et au Code de sécurité pour les travaux de construction, c. S-2.1, r. 4.

1.10 Unforseen hazards

.1 In the presence of conditions, risks / dangers or particular or unforeseen factors affecting safety during the execution of the work, observe the procedures in place concerning the employee's right to refuse to perform unsafe work, in accordance with the laws and regulations of the relevant province, and inform the Ministerial Representative orally and in writing.

.2 In the presence of conditions, risks / dangers or particular or unforeseen factors affecting the safety during the execution of the work, notify the health and safety coordinator and the safety officer and observe the procedures in accordance with the laws and regulations of the relevant province, and notify the Departmental Representative verbally and in writing.

1.11 Health and safety coordinator

.1 Hire a competent and authorized person as health and safety coordinator, and assign him to the work. The health and safety coordinator must meet the following criteria.

.1 Have practical experience on a construction site.

.2 Have a working knowledge of workplace health and safety regulations.

.3 Assume responsibility for the Contractor's training sessions in occupational health and safety, and verify that only people who have successfully completed the required training have access to the site to perform the work.

.4 Assume responsibility for the implementation, respect in detail and monitoring of the health and safety plan prepared for the site by the Contractor.

.5 Be present on the site during the execution of the work and report directly

1.12 Posting of documents

.1 Ensure relevant documents, articles, ordinances and notices are posted, conspicuously, on site, in accordance with provincial laws and regulations, and in consultation with Departmental Representative.

1.13 Correction of non-compliance

.1 Immediately take the necessary measures to correct situations deemed non-compliant, in terms of health and safety, by the competent authority or by the Departmental Representative.

.2 Submit to the Departmental Representative a written report of the measures taken to correct the situation in the event of non-compliance in terms of health and safety.

.3 The Departmental Representative may order the work to be stopped if the Contractor does not take the necessary corrective measures regarding the conditions deemed non-compliant in terms of health and safety.

1.14 Work stoppage

.1 Give priority to the health and safety of the public and site personnel, and to the protection of the environment, over matters relating to the cost and schedule of the work.

1.15 Violence prevention

.1 Health and safety management on Public Works and Government Services Canada sites includes the implementation of measures to protect the psychological health of all persons who access the site where the work is taking place. Thus, in addition to physical violence, verbal abuse, intimidation and harassment are not tolerated on the site. Anyone who demonstrates such gestures or behaviors will receive a warning and / or could be permanently expelled from the site by the ministry representative.

1.16 Lockout

.1 For any work on equipment powered by electricity or any other energy source, the Contractor must send a general lockout procedure to the Departmental representative and apply it.

.2 Supervisory staff and all workers involved in work requiring lockout must have completed lockout training given by a recognized organization; the Contractor must send the training certificates to the departmental representative.

.3 Before undertaking the lockout of equipment in an occupied site, the Contractor must coordinate his work with the site representative if the shutdown of the energy sources may have an impact on the operations of the site or on the occupants.

.4 The Contractor must identify a qualified person as being responsible for the lockout and must ensure that this person draws up a lockout sheet for each equipment that must be padlocked. The lockout sheet must be sent to the departmental representative at least 48 hours before the start of the work; the latter will have it checked by a representative of the site if the work is taking place in an existing building. The lockout sheet must include at least the following information:

.1 description of the work to be performed;
.2 identification, description and location of the circuit and / or equipment to be locked out;
.3 identification of the energy sources that power the equipment;
.4 identification of each of the cut-off points;
.5 sequence of lockout and release of residual energy as well as sequence of unlocking;
.6 list of necessary padlocking equipment;
.7 method of verifying zero energy;

.8 name and signature of the person who wrote the file.

.5 At the request of the departmental representative, the Contractor must record all this information on the site representative form.

.6 At the time of padlocking, the responsible person must date the sheet and ensure that each worker involved in work on the circuit / padlocked equipment puts his name on the sheet and signs it.

1.17 Work of an electrical nature

.1 The Contractor shall ensure that all work of an electrical nature is performed by qualified employees in accordance with provincial regulations on qualification and professional training.

.2 The Contractor must comply with the requirements of CSA Z462 Workplace electrical safety.

.3 All work on electrical equipment must be done with the power off, unless it is not possible to completely disconnect this equipment.

.4 The Contractor must comply with all the requirements of the "Lockout" paragraph of this section.

.5 The Contractor must notify the Departmental Representative in writing of any work that cannot be done with the power off and obtain his authorization. He must demonstrate to the Departmental Representative that it is impossible to do work with the power off and provide all the information necessary to complete and obtain a live work permit (work method, evaluation of the level of electric arc, protection perimeter, protective equipment, etc.) before the start of work, except for the exceptional cases provided for in standard CSA Z462 Workplace electrical safety.

.6 The live work permit must contain at least the following elements:

.1 description of circuit and equipment and location;
.2 justification of the need for live work;
.3 description of the safe work practices to be adopted;
.4 conclusions of the electric shock hazard analysis;
.5 delimitation of the perimeter of protection against electric shock;
.6 Arc Flash Hazard Analysis Findings;
.7 description of the protection perimeter against electric arc flashes;
.8 description of the personal protective equipment required;
.9 description of the means to restrict access to unqualified persons;
.10 proof that an information session has taken place;
.11 Live work approval signature (by a person in authority or by the Departmental Representative).

.7 If, for the operational needs of the occupants of the site, the site representative requires the Contractor to do live work, the Contractor must obtain all the information necessary to complete a live work permit (work method, evaluation of the electric arc level, protection perimeter, protective equipment, etc.) and have it signed by the site representative designated by the ministry representative before the start of work.

1.18 Exposure to asbestos

.1 The work covered by this specification is not expected to involve the handling of materials containing asbestos; however, if the Contractor or if the departmental

representative or his agent discover materials that are likely to contain asbestos, the Contractor must immediately stop the work and notify the departmental representative. If it is subsequently demonstrated that these materials contain asbestos, the Contractor must comply with the following requirements.

.2 Before the start of any work likely to emit asbestos dust, the Contractor must:

.1 Provide a written work procedure identifying the risk level of the work (low, moderate, high), as defined in section 3.23 of the Safety Code for the construction industry S-2.1, r-4, and which account of all the requirements of this same section.

.2 Submit certificates showing that all workers involved in the work have received training on the risks related to asbestos and on the procedure required in the previous paragraph.

.3 Demonstrate that he has on hand all the material and equipment necessary for the respect of the procedure and the safe execution of the work.

1.19 Fungal contamination

.1 The work covered by this specification is not expected to involve the handling of materials contaminated with mold; however, if the Contractor or if the departmental representative or his agent discover materials that are likely to be contaminated with mold, the Contractor must immediately stop the work and notify the departmental representative. If it is subsequently demonstrated that these materials contain mold, the Contractor must comply with the following requirements.

.2 Before the start of any work for which workers are likely to come into contact with materials contaminated by mold, the Contractor must:

.1 Provide a written work procedure that meets the requirements of the Safety Code for the construction industry, S-2.1, r.4 as well as the requirements indicated in the document "Mold guidelines for the Canadian construction industry" published by the Canadian Construction Association (http://www.cca-acc.com/documents/electronic/cca82/acc82.pdf).

.2 Demonstrate that he has on hand all the material and equipment necessary for the respect of the procedure and the safe execution of the work.

1.20 Respiratory protection

.1 The Contractor must ensure that all workers who must wear a respiratory protection device as part of their tasks have undergone training for this purpose as well as the adjustment tests of their breathing apparatus, in accordance with the CSA standard Z94.4 Selection, maintenance and use of respirators. Certificates of fit testing must be given to the Departmental Representative upon request.

1.21 Prevention of fall hazards

.1 Plan and organize the work so as to promote the elimination at the source of the dangers of falls or collective protection and thus reduce to a minimum the use of personal protective equipment. When personal fall protection is required, workers must use a safety harness in accordance with CAN - CSA- Z-259.10 - M90. The seat belt should not be used for fall protection.

.2 All persons using an elevating platform (scissors, telescopic mast, articulated mast, rotating mast, etc.) must have received training for this purpose.

.3 Wearing a safety harness is mandatory in all lifting platforms with telescopic, articulated or rotating mast.

.4 Delimit a danger zone around each lifting platform.

.5 Any opening in a floor or in a roof must be surrounded by a guardrail or covered with a cover fixed to the floor and resistant to the loads to which it may be subjected, regardless of the dimensions of this opening and the height of fall it represents.

.6 Anyone who works within two meters of a place presenting a risk of falling of three meters or more must use a safety harness in accordance with the requirements of the regulations, unless there is the presence of a guard. -body or another element offering equivalent security.

.7 Despite regulatory requirements, the departmental representative may require the installation of guardrails or the use of safety harnesses for certain specific situations presenting a risk of falls of less than 3 meters.

1.22 Scaffolding

.1 In addition to the requirements of the Safety Code for the construction industry, the Contractor who uses scaffolding must comply with the following requirements:

.2 Seating

.1 Scaffolding must be installed on solid foundations so that it cannot slide or tip over.

.2 The Contractor who wishes to install scaffolding on a roof, a roof overhang, a canopy or a mansard must submit to the Department representative his load calculations as well as the plans signed and sealed by an engineer and obtain his authorization before start the installation.

.3 Assembly, bracing and anchoring

.1 All scaffolding must be assembled, braced and anchored in accordance with the manufacturer's instructions and the provisions of the Safety Code for the construction industry.

.2 For any situation where it is necessary to remove certain elements of the scaffolding (eg: braces), the Contractor must submit to the Departmental representative, before assembling the scaffolding, a signed assembly procedure. and sealed by an engineer certifying that the scaffolding thus assembled will allow the work to be carried out in a safe manner, taking into account the loads that will be applied to it.

.3 For any scaffolding structure whose span between two supports is greater than three meters, the Contractor must provide the Departmental representative, before assembling the scaffolding, an assembly plan signed and sealed by an engineer.

.4 Fall protection during assembly

.1 At all times during assembly, all workers must be protected against falls if they are exposed to a risk of falling more than three meters.

.5 Floors

.1 Scaffolding floors must be designed and installed in accordance with the provisions of the Safety Code for the construction industry.

.2 If planks are used, they must be approved and stamped, in accordance with the provisions of article 3.9.8 of the Safety Code for the construction industry.

.3 Scaffolding of four sections and more (or six meters) in height must have a solid floor covering the entire surface of the bowls at every three meters of height or fraction of three meters and the elements of these floors must not at any time be moved to create intermediate landings.

.6 Guardrails

.1 A guardrail must be installed at all work levels.

.2 Bracing braces must not be considered as guardrails.

.3 If the floors are not solid, the guardrails must be installed just above the edge of the floor, so that there is no empty horizontal space between the floor and the guardrail.

.4 In the case of scaffolding of four sections (or six meters) and more in height where solid floors are required, the guardrails must be installed at each of these landings at the start of the work and remain in place until the end of the works.

.7 Means of access

.1 The Contractor must ensure that the means of access to the scaffolding do not compromise the safety of workers.

.2 When the scaffolding floors are made of planks, ladders must be installed so that the protruding planks do not hinder the ascent or descent.

.3 Notwithstanding the provisions of the Safety Code for the construction industry, stairs must be installed on all scaffolding comprising six rows and more of uprights and six sections and more (or nine meters) in height.

.8 Protection of the public and occupants

.1 When scaffolding is installed in an area accessible to the public, the Contractor must take measures to prevent the public from accessing the scaffolding and, if applicable, the work or storage area located near these scaffolds.

.2 The Contractor must install covered walkways, nets or other similar devices to protect workers, the public and occupants against falling objects. The chosen means of protection must be approved by the representative of the ministry.

.9 Engineering plans

.1 In addition to those required by the Safety Code for the construction industry, the Departmental Representative reserves the right to require engineering plans for other types or configurations of scaffolding.

.2 A plan signed and sealed by an engineer is required for any scaffolding to which canvases, tarpaulins or other devices giving resistance to the wind will be fixed.

.3 A certificate of conformity signed by an engineer is required for all cases where an engineer plan is required, and this, before a person uses the installation that is the subject of this plan. A copy of these documents must be available at all times on the work site.

1.23 Hot work

.1 Hot work means all work using an open flame or capable of producing heat or sparks such as the following work: riveting, welding, cutting, brazing, grinding, burning, heating, etc.

.2 At the start of each shift and for each sector, the Contractor must obtain a “Hot Work Permit” issued by the site manager.

.3 A functional portable extinguisher, and adequate for the fire risk must be available and easily accessible within 5 m of any flame and source of sparks or intense heat.

.4 The Contractor must designate a person to continuously monitor fire hazards for a minimum period of one (1) hour after the end of each hot work. This person must sign the section of the permit to this effect and return it to the site manager after the one-hour deadline.

.5 When hot work is carried out in areas where there are combustible materials or where the walls, ceilings or floors are made or lined with combustible materials, a final inspection of the work area must be scheduled four (4) hours after the end of the work. Unless otherwise advised by the Departmental Representative, the Contractor must designate a person to carry out this monitoring.

.6 Welding and cutting

.1 In addition to the requirements set out in the previous paragraphs, the Contractor must meet the following requirements:

.1 Welding and cutting work must be carried out in accordance with the requirements of the Safety Code for the construction industry, S-2.1, r.4 and of standard CSA W117.2 Safety rules for welding, cutting and related processes.

.2 Use an air extraction system equipped with filters for any welding or cutting work done inside.

.3 Stop any activity that produces flammable or combustible gases, vapors or dust near welding or cutting work.

.4 Store compressed gas cylinders on a fireproof surface and ensure that the room is well ventilated.

.5 Store all oxygen cylinders at a minimum distance of 6 meters from cylinders of flammable gas (ex: acetylene) or combustible material such as oil or grease, unless they are separated by a partition made of non-combustible material as specified in article 3.13.4. of the Safety Code for the construction industry, S-2.1, r.4.

.6 Store cylinders away from all sources of heat.

.7 Do not store cylinders near stairs, exits, corridors and elevators.

.8 Do not put acetylene in contact with metals with metals such as silver, mercury, copper and brass alloys with more than 65% copper, in order to avoid the risk of an explosive reaction.

.9 Verify that electric arc welding equipment has the required voltage and that it is earthed.

.10 Make sure that the conductors of the electric welding equipment are not damaged.

.11 Place welding equipment on flat ground sheltered from bad weather.

.12 Install fireproof fabrics when welding work is done in superposition and where there is a risk of falling sparks.

.13 Remove or protect flammable or combustible materials located less than 15 meters from welding work.

.14 Never weld or cut on closed container.

.15 Do not cut, weld or carry out any work with an open flame on containers, tanks, pipes or other containers that have contained a substance or residues of flammable or explosive products unless:

.1 They have been cleaned and air samples taken indicating the absence of explosive vapors;

.2 Arrangements have been made to ensure worker safety.

Part 2 Products

2.1 Not applicable

.1 Not applicable.

Part 3 Execution

3.1 Not applicable

.1 Not applicable.

END OF SECTION

Part 1 General

1.1 References to regulatory requirements

.1 Execute the work in accordance with the requirements of the National Building Code - Canada including changes made to the deadline for receipt of tenders as well as other provincial or local codes, subject to the most severe conditions applicable in the event conflict or divergence.

.2 The design and performance requirements listed in the specifications or indicated in the drawings may exceed the minimum requirements established by the building code referred to; these requirements will take precedence over the minimum requirements stated in the building code.

.1 The work must meet or exceed the requirements of the documents mentioned below.

.1 The Contractual Documents.

.2 Standards, codes and other prescribed reference documents.

1.2 Smoke-free environment

.1 Smoking restrictions as well as municipal bylaws must be observed.

1.3 Work in a food factory

.1 The work will be carried out in a food production and processing environment. The Contractor and his subcontractors must comply at all times with the site's food safety practices, such as wearing a lab coat, hairnet, etc.

1.4 Quality assurance

.1 Regulatory Requirements: Unless otherwise specified, the Contractor shall obtain, upon payment of all associated costs, the permits, licenses, certificates and approvals required by the regulations and the Contract Documents, in accordance with the General Conditions of the Contract and to the following:

.1 Regulatory requirements and fees payable on the date of submission, and

.2 Any change in regulatory requirements or fees that will become effective after the date of receipt of bids for which notification has been given prior to the date of receipt of bids.

Part 2 Product

2.1 Not applicable

.1 Not applicable.

Part 3 Execution

3.1 Not applicable

.1 Not applicable.

END OF SECTION

Part 1 General

1.1 Administrative requirements

.1 Allowances for independent inspection and testing services retained and paid for by the Contractor. This allowance (s) excludes inspections and tests for the contractor's own quality control activities, as well as inspections and tests required by the competent authority.

.2 Allow and coordinate access of inspection and testing organizations to work on site, off site manufacturing and off site assembly.

.3 Retain and pay for inspections and tests designated for the Contractor's own quality control plan, as well as inspections and tests required by the competent authority.

.4 Give advance notice to the Departmental Representative and to each inspection / testing organization for the inspections and tests required by the contract documents or by the competent authority.

.5 Before each test, notify the appropriate organization the Departmental Representative in the order in which the arrangements for presence can be made.

1.2 Documents / samples to be submitted for approval and information

.1 Submit in accordance with section 01 33 00 - Documents and samples to be submitted.

.2 Submit schedule of inspection and testing activities to Departmental Representative, applicable subcontractors, testing organizations and other affected parties. Include the following:

- .1 List each inspection and testing organization.
- .2 Indicate types of tests and inspections for each organization, and link to applicable specification section title number in contract documents.
- .3 Description of tests and inspections.
- .4 Indicate applicable reference standards.
- .5 Indicate test and inspection method.
- .6 Indicate the number of tests and inspections required.

.3 Submit digital copy of each quality assurance inspection and test report to Departmental Representative, unless otherwise specified in a technical specification section.

.4 Submit adjustment and balancing reports for mechanical and electrical systems and other building systems.

.5 Submit factory test certificates as required.

.6 Deliver copies of quality control reports to the subcontractor responsible for the work inspected or tested.

1.3 Site quality control procedures

.1 Notify appropriate agency and Departmental Representative in advance when testing is required so that all parties involved can be present.

.2 Provide labor, construction equipment and temporary facilities necessary to obtain and handle test samples and materials on site. Allow sufficient space for storage and curing of test samples.

.3 Deliver samples and materials required for testing, as requested in technical specification sections. Submit with due diligence and in an orderly sequence to prevent work delays.

1.4 Works rejected

.1 Remove the defective elements deemed non-compliant with the Contractual Documents and rejected by the Departmental Representative, either because they were not executed according to the rules of the art, or because they were made with materials or defective products, even if they have already been integrated into the work. Replace or redo the elements in question according to the requirements of the Contractual Documents.

.2 If necessary, repair without delay the works of other contractors that were damaged during the aforementioned repair or replacement work.

.3 If, in the opinion of the Departmental Representative, it is not advisable to repair the defective works or those deemed not to comply with the Contractual Documents, the Departmental Representative will deduct from the contract price the difference in value between the work executed and that prescribed in the Contractual Documents, the amount of this difference being determined by the Departmental Representative.

Part 2 Products

2.1 Not applicable

.1 Not applicable.

Part 3 Execution

3.1 Not applicable

.1 Not applicable.

END OF SECTION

Part 1 General

1.1 Documents / samples to be submitted for approval / information

.1 Submit documents and samples required in accordance with section 01 33 00 - Documents and samples to be submitted.

1.2 Positioning and removal of the equipment

.1 Provide the necessary means of use of temporary utility services to allow the work to be carried out as quickly as possible.

.2 Dismantle the equipment and remove it from the site when it is no longer needed.

1.3 Water supply

.1 Ensure the continuous supply of potable water necessary for the execution of the work.

1.4 Heating and ventilation

.1 Provide temporary heating devices required for the period of work, ensure their operation and maintenance and provide the necessary fuel.

.2 Heating devices used inside the building must be vented to the outside or must operate without an open flame (devices not connected). The use of solid fuel stoves on site is prohibited.

.3 Provide appropriate room control (heating and ventilation) in closed spaces for the following purposes:

- .1 Promote the progress of the work;
- .2 Protect works and products against humidity and cold;
- .3 Prevent condensation from forming on surfaces;
- .4 ensure appropriate ambient temperatures and humidity levels for storage, installation and hardening or curing of materials;
- .5 Meet the requirements of the regulations on safety measures at work.

.4 Where work is in progress, maintain temperature at least 10 degrees Celsius.

.5 Ventilation

- .1 Prevent accumulation of dust, vapors and gases as well as fogging in areas which remain occupied during construction work.
- .2 Provide a local combustion gas evacuation system to prevent the accumulation, in the environment, of substances likely to present hazards to the health of the occupants.
- .3 Ensure that combustion gases are evacuated in a safe manner and to a place where they will not present any danger to human health.
- .4 Ensure ventilation of storage spaces for hazardous or volatile materials.
- .5 Provide ventilation for temporary sanitary facilities.

.6 Operate the ventilation and evacuation devices for a certain period of time after completion of the work in order to completely eliminate from the environment any contaminants that could have been generated during the various construction activities.

.6 Assume temporary heating costs when the building's permanent heating system is used for this purpose.

.7 Ensure rigorous monitoring of the operation of heating and ventilation equipment at all times, ensuring that the following requirements are met.

.1 Comply with applicable codes and standards.

.2 Practice safe methods.

.3 Prevent waste.

.4 Prevent any damage to finish coatings.

.5 Evacuate combustion gases from direct heating appliances to the exterior.

.8 Assume full responsibility for damage caused to structures due to inappropriate heating or protection conditions maintained during the work.

1.5 Power supply and lighting

.1 The electrical power required for the project will be provided by the Department. The Contractor is responsible for any installation and temporary connection required and will bear the costs thereof.

.2 The Contractor is responsible for ensuring the compliance of temporary installations with the codes and standards in force. Provide temporary lighting for the premises throughout the duration of the work and ensure the maintenance of the network. The devices must ensure a level of illumination of at least 162 lux on floors and stairs.

Part 2 Product

2.1 Not applicable

.1 Not applicable.

Part 3 Execution

3.1 Not applicable

.1 Not applicable.

END OF SECTION

Part 1 General

1.1 Installation and removal of equipment

.1 Provide, set up or fit out the site facilities necessary to allow the work to be carried out as quickly as possible.

.2 Dismantle the equipment and remove it from the site when it is no longer needed.

1.2 Scaffolding

Provide scaffolding, access ramps, ladders, flying scaffolding, platforms, temporary stairs and all other installations necessary for the execution of the work, and ensure their maintenance.

1.3 Lifting equipment

.1 Supply and install the winches and cranes necessary for the movement of workers, materials / materials and equipment, and ensure their maintenance and operation. Make the necessary financial arrangements with subcontractors for the use of lifting equipment.

.2 The operation of winches and cranes must be entrusted to qualified workers.

1.4 Elevators and loader

.1 Existing elevators and hoists cannot be used for the movement of workers as well as materials / equipment.

1.5 On-site storage / permissible loads

.1 Ensure that the work is carried out within the limits indicated in the Contract Documents. Do not unreasonably encumber the premises with materials and equipment.

.2 Do not overload or allow any part of the work to be overloaded so as not to compromise its integrity.

1.6 Parking on the site

.1 Parking will be permitted in the exterior parking lot.

1.7 Offices

.1 Set up a ventilated office, heated to a temperature of 22 degrees Celsius, equipped with lighting equipment ensuring a lighting level of 500 lux and of sufficient size to allow site meetings to be held, and provide a table there for spreading out the drawings.

.2 The location of the site office must be coordinated on site with the Departmental Representative.

.3 Provide a complete and identified first aid kit and store it in an easily accessible place. The contents of the kit must comply with the Regulation respecting minimum first aid standards.

1.8 Entreposage des matériaux, des matériels et des outils

.1 Prévoir des remises verrouillables, à l'épreuve des intempéries, destinées à l'entreposage des matériaux, des matériels et des outils, et garder ces derniers propres et en bon ordre.

.2 Laisser sur le chantier les matériaux et les matériels qui n'ont pas à être gardés à l'abri des intempéries, mais s'assurer qu'ils gênent le moins possible le déroulement des travaux.

1.9 Storage of materials, equipment and tools

.1 Provide lockable, weatherproof sheds for storage of materials, equipment and tools, and keep them clean and in good order.

.2 Leave materials and equipment on site that do not have to be protected from bad weather, but ensure that they interfere as little as possible with the progress of the work.

1.10 Sanitary facilities

.1 Provide sanitary facilities for workers in accordance with relevant ordinances and regulations.

.2 Post required notices and take all precautions required by local health authorities. Keep the premises and the area clean.

1.11 Cleaning

.1 Remove debris, waste and packaging materials from construction site on a daily basis.

.2 Store materials / equipment recovered during demolition work.

.3 Do not store new materials / equipment or salvaged materials / equipment in site facilities.

Part 2 Products

2.1 Not applicable

.1 Not applicable.

Part 3 Execution

3.1 Not applicable

.1 Not applicable.

END OF SECTION

Part 1 General

1.1 Positioning and removal of the equipment

.1 Provide, set up or fit out the temporary access and protection works necessary to allow the work to be carried out as quickly as possible.

.2 Dismantle the equipment and remove it from the site when it is no longer needed.

1.2 Dust screens

.1 Provide dust screens or watertight partitions to close off spaces where dust-generating activities are carried out, in order to protect workers, the public and finished surfaces or sectors of the work.

.2 Keep these screens and move them as needed until these activities are completed.

1.3 Routes of access to the site

.1 Develop lanes, paths, ramps and pedestrian crossings necessary to access the site.

1.4 Protection of surrounding public and private properties

.1 Protect neighboring public and private property against any damage that may result from the execution of the work.

.2 If necessary, assume full responsibility for damage caused.

1.5 Protection of finished building surfaces

.1 During the entire period of execution of the work, protect the material as well as the completely or partially finished surfaces of the work.

.2 Provide the necessary screens, tarpaulins and barriers.

.3 Three (3) days before the installation of the protection elements, confirm with the location of each as well as the installation schedule.

.4 Assume full responsibility for damage caused to structures due to lack of protection or inadequate protection.

1.6 Waste management and disposal

.1 In accordance with section 01 74 19 - Waste management and disposal.

Part 2 Products

2.1 Not applicable

.1 Not applicable.

Part 3 Execution

3.1 Not applicable

.1 Not applicable.

END OF SECTION

Part 1 General

1.1 Reference standards

.1 References to relevant standards can be made in each section of the specifications.

.2 In cases where there is any doubt as to the conformity of certain products or systems with the relevant standards, the Departmental Representative reserves the right to verify it by tests.

.3 If the products or systems comply with the Contractual Documents, the costs incurred by these tests will be assumed by the Departmental Representative, otherwise they will have to be assumed by the Contractor.

1.2 Quality

.1 The products, materials, equipment, devices and parts used for the execution of the work must be new, in perfect condition and of the best quality for the purposes for which they are intended. If necessary, provide proof establishing the nature, origin and quality of the products supplied.

.2 The use of the term “new” does not exclude the use of new materials or equipment partially or entirely made from recycled materials (preferably post-consumer) from other sources.

.3 The purchasing policy aims to acquire, at minimal cost, items containing the greatest possible percentage of recycled and recovered materials, while maintaining satisfactory levels of competitiveness. Make reasonable efforts to use recycled materials / materials for both the construction of the works and the execution of the work.

.4 Products found to be defective before the end of the work will be refused, regardless of the conclusions of previous inspections. The purpose of the inspections is not to relieve the Contractor of his responsibilities, but simply to reduce the risk of omission or error. The Contractor shall ensure the removal and replacement of defective products at his own expense, and he shall be responsible for any delays and costs arising therefrom.

.5 In case of conflict as to the quality or suitability of the products, only the Departmental Representative may decide the question based on the requirements of the Contract Documents.

.6 Unless otherwise indicated in the specifications, promote a certain uniformity by ensuring that the materials or elements of the same type come from the same manufacturer.

.7 Labels, trademarks and permanent nameplates affixed prominently to the products used are not acceptable, except if they give an operating instruction or if they are placed on equipment installed in premises. mechanical or electrical installations

1.3 Ease of obtaining products

.1 Immediately after signing the contract, become aware of the requirements for product delivery and plan for any delays. If delays in the delivery of the products are foreseeable, notify the Departmental Representative so that measures can be taken to replace them with replacement products or to make the necessary corrections, and this, sufficiently in advance not to delay. the works.

.2 If the Departmental Representative has not been advised of foreseeable delivery delays at the start of the work, and if it seems probable that the execution of the work will be delayed, the Departmental Representative reserves the right to substitute for the planned products other comparable products which can be delivered more quickly, without increasing the price of the contract.

1.4 Storage, handling and protection of products

.1 Handle and store products without damaging, altering or dirtying them, and following manufacturer's instructions, if applicable.

.2 Store products grouped or in batches in their original packaging; leave the packaging, label and manufacturer's seal intact. Do not unwrap or untie the products until it is time to incorporate them into the work.

.3 Products liable to be damaged by bad weather must be kept in a weatherproof enclosure.

.4 Hydraulic binders must not be placed directly on the ground or on a concrete floor, nor be in contact with the walls.

.5 Place materials in sheets or panels on rigid, flat supports so that they do not rest directly on the ground. Give a low slope in order to favor the flow of the condensed water.

.6 Store and mix paint products in a heated and well ventilated room. Daily, remove oily rags and other flammable waste from work areas. Take all the necessary precautions to avoid the risk of spontaneous combustion.

.7 Replace damaged products at no additional cost, to the satisfaction of the Departmental Representative.

.8 Touch up damaged factory finished surfaces to Departmental Representative's satisfaction. Use products identical to those used for the original finish for touch-ups. It is forbidden to apply a finishing or touch-up product to the nameplates.

1.5 Transport

.1 Pay the transportation costs of the products required for the execution of the work.

1.6 Manufacturer's instructions

.1 Unless otherwise specified in the specifications, install or set up the products according to the manufacturer's instructions. Do not rely on the indications written on the labels and containers supplied with the products. Obtain a copy of its written instructions directly from the manufacturer.

.2 Notify Departmental Representative in writing of any discrepancy between specification requirements and manufacturer's instructions, so that appropriate action can be taken.

.3 If the manufacturer's instructions have not been followed, the Departmental Representative may require, without increasing the contract price, the removal and reinstallation of products which have been placed or installed incorrectly.

1.7 Quality of work execution

.1 The implementation must be of the best possible quality, and the work must be carried out by trades workers, qualified in their respective disciplines. Notify the Departmental Representative if the work to be performed is such as to make it unlikely that the expected results will be obtained.

.2 Do not hire people who are unqualified or do not have the necessary dispositions to carry out the work entrusted to them. The Departmental Representative reserves the right to deny access to the site to any person deemed incompetent or negligent.

.3 Only the Departmental Representative can settle disputes concerning the quality of execution of the work and the skills of the workforce, and his decision is irrevocable.

.4 Work and installation of crossings, sleeves and accessories.

1.8 Coordination

.1 Ensure that workers collaborate with each other in carrying out the work. Exercise close and constant supervision of their work.

.2 The Contractor is responsible for coordinating the work and installing the crossings, sleeves and accessories.

1.9 Repair

.1 Perform the repair work required to repair or replace the parts or elements of the work found to be defective or unacceptable. Coordinate the work to be carried out on the contiguous structures affected, as required.

.2 The restoration work must be carried out by specialists familiar with the materials and equipment used; these works must be carried out in such a way that no part of the structure is damaged or risks being damaged.

1.10 Location of appliances

.1 The location indicated for appliances, outlets and other electrical or mechanical equipment must be considered approximate.

.2 Inform the Departmental Representative of any problem that may be caused by the choice of the location of an appliance and proceed with the installation according to his instructions.

1.11 Fasteners - general

.1 Unless otherwise indicated, provide accessories and metal fasteners with the same texture, color and finish as the item to be fastened.

.2 Avoid any electrolytic action between metals or materials of a different nature.

.3 It is important to determine the spacing of the anchors taking into account the limit loads and the shear resistance in order to ensure a permanent solid anchorage. Wooden dowels or any other organic material are not accepted.

.4 Use as few visible fasteners as possible; Space them evenly and place them carefully.

.5 Fasteners which could cause chipping or cracking of the element in which they are anchored will be refused.

1.12 Fasteners - materials

.1 Use fasteners of standard commercial shapes and sizes, of suitable material, with finish suitable for intended use.

.2 Unless otherwise indicated, use sturdy, semi-fine quality fasteners with hexagonal head. Use grade 304 stainless steel parts.

.3 The shanks of the bolts must not protrude above the top of the nuts by a length greater than their diameter.

.4 Use ordinary washers on devices and materials and sheet metal lock washers with flexible gaskets in places where there are vibrations. To secure appliances and materials to stainless steel components, use resilient washers.

1.13 Protection of works in progress

.1 Do not overload any part of the building. Unless otherwise specified, obtain written authorization from the Departmental Representative before cutting or drilling a framing member or passing a sleeve through it.

Part 2 Products

2.1 Not applicable

.1 Not applicable.

Part 3 Execution

3.1 Not applicable

.1 Not applicable.

FIN DE SECTION

Part 1 General

1.1 Documents / samples to be submitted for approval / information

.1 Submit documents and samples required in accordance with section 01 33 00 - Documents and samples to be submitted.

.2 Submit a written request before carrying out cutting work or modifying existing structures, which may affect the following:

- .1 Structural integrity of any element of the work;
- .2 Integrity of elements exposed to bad weather or water-repellent elements;
- .3 The efficiency, maintenance, safety or accessibility of functional elements;
- .4 Visual qualities of visible elements;
- .5 The work of other contractors.
- .6 The request must specify or include the following:
  - .1 The name of the project;
  - .2 Location and description of affected items;
  - .3 A statement explaining why it is necessary to perform the cutting and patching work requested;
  - .4 A description of the proposed work and the products to be used;
  - .5 Alternatives to cutting and patching work;
  - .6 The repercussions of cutting and patching work on those carried out by the contractor;
  - .7 Written permission from the contractor concerned;
  - .8 The date and time when the work will be carried out.

Part 2 Products

2.1 Materials

.1 Patching materials: As far as possible, use materials identical to those of the existing foundation, except for materials and elements which have a degree of fire resistance.

.2 Visible floor coverings: use materials that visually match existing adjacent surfaces and provide the same functional performance.

Part 3 Execution

3.1 Common installation / application / assembly requirements

.1 Adjust the various elements between them so that they integrate well with the rest of the work.

.2 Remove or replace defective or non-conforming elements.

.3 Unless otherwise specified in the specifications, install or set up the products according to the manufacturer's instructions. Do not rely on the indications written on the labels and containers supplied with the products. Obtain a copy of its written instructions directly from the manufacturer.

.4 Notify Departmental Representative in writing of any discrepancy between specification requirements and manufacturer's instructions, so that Departmental Representative can take appropriate action.

.5 Inadequate installation or assembly of products due to failure to meet requirements: the Departmental Representative may require the removal and reinstallation of the products, without increasing the contract price or extending the contract.

.6 Provide openings in the non-loadbearing elements of the work for the penetrations of the mechanical and electrical installations.

.7 In addition to manufacturer's recommendations on safety, access, accessibility and maintenance, locate distribution equipment, devices and installations so as to minimize interference and maximize usable area.

.1 The location of the equipment, devices and electrical outlets indicated on the drawings and in the specifications is approximate.

.2 Inform the Departmental Representative of the installation work to be carried out in the near future and submit for his approval the planned location for these various elements.

3.2 Shoring and bracing

.1 Anchors and fasteners (unless otherwise indicated):

.1 Provide the anchors and fixing devices required for the safe assembly of each component, according to the intended use. Allow movement of the building, including thermal movements and contraction of materials and elements;

.2 Prevent electrolytic reaction between metals and materials of different nature;

.3 Provide stainless steel anchors and fasteners throughout;

.4 Install anchors and fasteners taking into account load limit or individual shear resistance. Ensure that the anchors and fixing devices are permanently secured in the structure;

.5 Evenly distribute the anchors and fixing devices exposed to the sight of all who are gathered in the same place;

.6 Anchors, fasteners and related accessories in metal that will be exposed for all to see: the products supplied must have the same texture, color and finish as the adjacent materials.

.2 Non-conforming work: anchors and fasteners that cause cracking or chipping of the support, after their installation, are unacceptable.

3.3 Cutting and leveling work

.1 Carry out cutting, adjustment and patching work to complete the work, in accordance with the technical sections of the related specifications.

.2 Use special techniques to avoid damaging the rest of the existing works, which will allow the work to be concentrated on the surfaces to be patched and finished.

.3 Cut rigid materials using a masonry saw or use a core drill or any other tool recommended by the product manufacturer or the relevant industry association. The use of pneumatic or impact tools is prohibited on masonry structures without the approval of the Departmental Representative.

.4 Fit the work tightly around pipes, sleeves, air ducts and other through elements.

.5 Refinish surfaces to be identical to adjacent finishing coatings. In the case of continuous surfaces, finish up to the closest intersection between two elements (eg: the edge of the partitions). Give the entire surface a uniform finish, color and texture.

3.4 FIXES

.1 Remove the patch deemed visually unsatisfactory by the Departmental Representative and replace it.

END OF SECTION

Part 1 General

1.1 Site cleanliness

.1 Keep site clean and free from any accumulation of debris and waste materials including those generated by the Departmental Representative or other contractors.

.2 Evacuate debris and waste materials from site daily, at predetermined times, or dispose of as directed by Departmental Representative. Waste materials must not be burned on the site, unless this method of disposal is authorized by the Departmental Representative.

.3 Make the necessary arrangements and obtain permits from the competent authorities for the disposal of debris and waste materials.

.4 Provide on site containers for the evacuation of debris and waste materials.

.5 Provide and use separate and identified containers for recycling.

.6 Dispose of debris and waste materials in designated landfill areas located on Crown land.

.7 Clean interior surfaces before beginning of finishing work and keep these areas free of dust and other impurities during the work in question.

.8 Store volatile waste in closed metal containers and remove them from the site at the end of each work period.

.9 Ensure good ventilation of the premises during the use of volatile or toxic substances. However, it is forbidden to use the building's ventilation system for this purpose.

.10 Use only cleaning products recommended by the manufacturer of the surface to be cleaned, and use them according to the recommendations of the manufacturer of the products in question.

.11 Establish cleaning schedule so that dust, debris and other raised dirt does not fall on wet freshly painted surfaces and do not contaminate building systems.

1.2 Final cleaning

.1 Upon substantial completion of the work, remove surplus materials, tools and construction equipment and materials that are no longer required for the performance of the remainder of the work.

.2 Remove debris and waste materials, except those generated by other contractors, and leave premises clean and ready to occupy.

.3 Before final inspection, remove surplus materials, tools, equipment and construction materials.

.4 Remove debris and waste materials, including those generated by the Departmental Representative.

.5 Evacuate waste materials off site at predetermined times or dispose of as directed by Departmental Representative. Waste materials must not be burned on the site, unless this method of disposal is authorized by the Departmental Representative.

.6 Make the necessary arrangements and obtain permits from the competent authorities for the disposal of debris and waste materials.

.7 Clean and polish glazing, mirrors, hardware, wall tiles, chrome or enamel surfaces, laminate surfaces, stainless steel or porcelain enamel elements as well as mechanical and electrical devices. Replace any broken, scratched or damaged glass.

.8 Remove dust, stains, marks and scratches found on decorative work, mechanical and electrical appliances, furniture, walls and floors.

.9 Clean reflectors, diffusers and other lighting surfaces.

.10 Dust and vacuum interior surfaces of building, not forgetting to clean behind grilles, louvers, registers and screens.

.11 Wax, soap, seal or properly treat floor coverings according to manufacturer's instructions.

.12 Examine finishes, accessories and materials to ensure that they meet prescribed requirements for operation and quality of workmanship.

.13 Sweep and clean paved surfaces.

.14 Thoroughly clean materials and devices, and clean or replace filters on mechanical systems.

.15 Clear crawl spaces and other accessible concealed spaces of debris or surplus materials.

1.3 Waste management and disposal

.1 Sort waste for recycling, in accordance with section 01 74 19 - Waste management and disposal.

Part 2 Products

2.1 Not applicable

.1 Not applicable.

Part 3 Execution

3.1 Not applicable

.1 Not applicable.

END OF SECTION

Part 1 General

1.1 Definitions

.1 Clean waste: untreated and unpainted; not contaminated with oils, solvents, sealants or other similar materials.

.2 Construction and demolition waste: Solid waste, which usually includes construction materials, packaging, refuse, debris and rubble produced by construction, alteration, repair and demolition work.

.3 Hazardous materials: Materials which possess the characteristics of hazardous substances, including properties such as flammability, corrosivity, toxicity or reactivity.

.4 Harmless materials: Materials which do not have any of the characteristics of hazardous substances, including properties such as flammability, corrosivity, toxicity or reactivity.

.5 Non-toxic materials: Materials which have no immediate toxic effect on humans, nor effect after a long period of exposure.

.6 Recyclable: The capacity of a product or material to be recovered at the end of its life cycle and to be converted into new product which will be reused by others.

.7 Recycle: Transport waste from the project site to another site to convert it into new product that will be reused by others.

.8 Recycling: Process of sorting, cleaning, treating and reconstituting solid wastes and other discarded materials for use in altered form. Recycling excludes the burning, incineration or thermal destruction of waste.

.9 Return: Return reusable items or unused products to vendors for a refund.

.10 Reuse: Reuse construction waste on the project site.

.11 Recover: Transport waste from the project site to another site for resale or for reuse by others.

.12 Sediment: Earth and other debris produced by erosion and carried by storms or runoff.

.13 Source sorting: Process of separating the different types of waste as they are produced.

.14 Toxic materials: Materials which have a toxic effect on humans, either immediately after exposure or after a long period of exposure.

.15 Waste: Product or material impossible to reuse, return, recycle or recover.

.16 Volatile Organic Compounds (VOCs): Chemical compounds commonly found in many building materials. These compounds release gases over time:

.1 Solvents present in paints and other coatings;

.2 Wood preservatives, strippers and household cleaning products;

.3 Adhesives used in the manufacture of particle boards, fiber boards and some plywood; insulating foam.

.4 VOC emissions can contribute to smog formation and cause respiratory problems, headaches, eye irritation, nausea, liver damage, kidney disease, central nervous system disorders and even cancer.

.17 Waste: Surplus materials or materials that have reached the end of their useful life for their intended use. Waste includes recoverable, returnable, recyclable and reusable materials.

.18 Construction waste management plan: Plan linked to a project for the recovery, transport and disposal of waste generated on the construction site; the plan is ultimately to reduce the amount of material buried.

1.2 Administrative procedures

.1 Coordination: Coordinate requirements relating to waste management with all divisions applicable to work planned under the project, and ensure that the requirements contained in the construction waste management plan are met.

.2 Pre-work meeting: Before the start of the work covered by the contract, a meeting will take place attended by the Departmental Representative and the relevant subcontractors in order to discuss with the Contractor the construction waste management plan and agree on a coherent waste reduction and recycling policy.

1.3 Documents / samples to submit for approval / information

.1 Submit documents and samples required in accordance with section 01 33 00 - Documents / Samples to be submitted.

.2 Documents and samples to be submitted: Submit the following documents and samples before starting the work provided for in this section.

.1 Construction waste management plan: Submit the document for this project before transporting waste on site. Include the following information in the document:

.1 Material flows: Analysis of the waste generated on the proposed site, including the types and quantities of materials forming part of the material flows mentioned in the draft construction waste management plan; materials removed from the site and intended to serve as a spare daily cover on landfill sites as well as debris resulting from land clearance do not constitute waste recovery; they will therefore be added as a component of the total waste generated for the site.

.2 Recycling carriers and markets: Check for local carriers and markets for recyclable materials, and incorporate information into construction waste management plan.

.3 Alternative landfill sites: Prepare a list of all materials proposed to be recovered, reuse, recycle or compost during the project and specify the local market proposed for each material.

.4 Materials intended for landfill: Indicate which materials cannot be recycled, reused or composted and provide explanations or justifications; Waste-to-energy will be a viable alternative recovery strategy for these materials in locations where facilities are present.

.5 Landfill options: Name the landfill site where the waste will be disposed of; buried materials will be part of the total waste generated by the project.

.6 Material handling methods: Describe the means used to protect recycled waste from contamination and to recycle the above materials in accordance with the requirements of the designated facilities.

.7 Transportation: Describe the modes of transportation of recycled materials, determine if the materials will be sorted on site and transported to designated centers or if mixed materials will be collected on site by a transporter; finally, determine the destination of the materials.

1.4 Documents / elements to be submitted on completion of the project

.1 Documents to be placed in the project file: Submit the information as follows in accordance with section 01 78 00 - Documents / Items to be submitted upon completion of the work:

.1 Construction Waste Management Report: Submit a Construction Waste Management Report for this project in a format that will suit the program requirements for document submission, and that will include the following information:

.1 Accounting: Submit information on the total waste produced by the project.

.2 Composition: Submit information on type of waste and quantity for each material.

.3 Recovery rate: Submit information on the total waste recovered as a percentage of the total waste produced for the project.

.4 Transport documents: Submit duplicate transport documents or manifests showing weight of materials and other evidence of disposal including final destination of recovered waste and waste shipped to landfill.

.5 Spare daily cover: Submit the quantities of material used as daily cover to landfills, and which are part of the total waste generated by the project.

.6 Multiple Waste Transportation: Gather all information into a single construction waste management report when multiple waste transportation modes and recovery strategies are employed for the project.

.7 Photographs: Submit photographs of recovery facilities including photographs of location and display to describe the use of waste sorting containers.

1.5 Quality assurance

.1 Resources for the Development of a Construction Waste Management Plan: The following sources may assist in the development of the draft construction waste management plan.

.1 Recycling carriers and markets: Check for local carriers and markets for recyclable materials, and incorporate information into construction waste management plan.

.2 Waste-to-Energy Systems: Examine local incentives for energy recovery in the absence of waste-to-energy systems for reuse or recycling.

1.6 Transport, storage and handling

.1 Storage requirements: Implement a recycling / reuse program including separate collection of waste generated by the project, as required. This program will also build on recycling and reuse programs available in the region where the project is located.

.2 Handling requirements: Clean contaminated materials before placing them in collection boxes. Make sure that waste destined for the landfill is not mixed with recycled materials.

.1 Deliver materials free of dirt, adhesives, solvents and contamination by hydrocarbons and other substances that interfere with the recycling process.

.2 Arrange for transportation of waste to appropriate recycling or reuse facilities.

.3 Hazardous materials and wastes: Handle in accordance with applicable regulations.

Part 2 Products

2.1 Not applicable

.1 Not applicable.

Part 3 Execution

3.1 Implementation of the construction waste management plan

.1 Manager: The Contractor designates the third parties who are responsible on the site to direct the workers and supervise the progress of the work as well as the results obtained in relation to the construction waste management plan for the project.

.2 .2 Distribution: Give duplicates of the construction waste management plan to the site foreman and each subcontractor, the Departmental Representative and the rest of the site staff, as required, in accordance with the waste management plan of construction.

.3 Instructions: Provide the Subcontractor, on site, with instructions on the appropriate method to sort, handle and recycle, recover, reuse, compost and return construction waste, at each stage of the project.

.4 Sorting facilities: Set up and identify an area to facilitate the sorting of materials for recycling, recovery, reuse, composting and return.

.1 Storage areas for recycling bins and waste bins must be clean and clearly identified to avoid contamination of materials.

.2 Hazardous waste must be sorted, stored and disposed of in accordance with local regulations.

.5 Documentation of progress made: Submit a monthly summary of the waste generated by the project in order to verify whether the waste recovery objectives will be met.

.1 Submit waste data summary with milestone payment request or similar milestone.

.2 The monthly waste data summary will contain the following information:

.1 The quantity of material buried in tonnes or in m^3, as well as the location;

.2 The quantity of materials recovered in tonnes or in m^3;

.3 An indication of the progress made, ie the total waste generated by the project and the percentage of materials recovered.

3.2 Responsibilities of the subcontractor

.1 The Subcontractor must fully cooperate with the Contractor in the implementation of the construction waste management plan.

.2 Lack of cooperation may prevent the Departmental Representative from achieving its environmental objectives and result in penalties that the Contractor will charge to the Responsible Subcontractor.

END OF SECTION

Part 1 General

1.1 Administrative procedures

.1 Procedure for acceptance of work

.1 Inspection carried out by the Contractor: The Contractor must inspect the work, identify defects and deficiencies and make the necessary repairs to ensure that everything complies with the requirements of the Contractual Documents.

.1 Notify the Departmental Representative in writing once the Contractor's inspection is completed, and submit a document attesting that the corrections have been made.

.2 Then submit a request for the work to be inspected by the Departmental Representative.

.2 Inspection carried out by the Departmental Representative:

.1 The Departmental Representative will carry out with the Contractor an inspection of the work in order to identify faults and failures.

.2 The Contractor must make the requested corrections.

.3 Completion of tasks: submit a document in English and French certifying that the tasks indicated below have been carried out.

.1 The work is completed and has been inspected and found to comply with the requirements of the Contract Documents.

.2 Defects and defects found during inspections have been corrected.

.3 Appliances, materials and systems have been tested, adjusted and balanced and are fully operational.

.4 The necessary training in the operation of devices, materials and systems has been given to the Departmental Representative's personnel.

.5 Work is completed and ready to be submitted for final inspection.

.4 Final inspection

.1 When all the aforementioned tasks are completed, submit a request for the work to be submitted to the final inspection, which will be carried out jointly by the Departmental Representative and the Contractor.

.2 If the work is deemed incomplete by the Departmental Representative, complete the items that were not performed and submit a new inspection request.

.5 Declaration of Substantial Completion: When Departmental Representative considers that the deficiencies and defects have been corrected and that the contractual requirements seem largely satisfied, submit a request for the production of a certificate of substantial completion of the work.

.6 Beginning of the warranty period and of the period of exercise of the right of retention: The date of acceptance by the Departmental Representative of the declaration of substantial completion of the work submitted will be the date of the beginning of the period of 'exercise of the right of retention and the warranty period, unless otherwise prescribed by the regulations relating to the right of retention in force at the place of work.

.7 Final payment

.1 When the Departmental Representative considers that the deficiencies and defects have been corrected and that the contractual requirements are fully satisfied, submit a request for final payment.

.2 If the work is deemed incomplete by the Departmental Representative, complete the items that were not performed and submit a new inspection request.

.8 Payment of holdback: After issuance of the certificate of substantial completion of the work, submit a request for payment of holdback in accordance with the provisions of the contractual agreement.

1.2 Final cleaning

.1 Perform cleaning work in accordance with section 01 74 00 - Cleaning.

.1 Remove surplus materials / materials, waste, tools and equipment from site.

.2 Waste management: in accordance with section 01 74 19 - Waste management and disposal.

Part 2 Products

2.1 Not applicable

.1 Not applicable.

Part 3 Execution

3.1 Not applicable

.1 Not applicable.

END OF SECTION

Part 1 General

1.1 Administrative procedures

.1 Meeting on guarantees, prior to completion of work

.1 One (1) week before the completion of the work, hold a meeting with the Contractor's representative and the Departmental Representative, during which will be examined:

.1 The requirements of the work;

.2 Manufacturer's instructions for installation and terms of warranty offered by manufacturer.

.2 The Departmental Representative will establish the communication procedure to be followed in the cases indicated below.

.1 Notice of defect for elements, materials or systems covered by warranty.

.2 Determination of priorities relative to types of defects.

.3 Determination of a reasonable intervention time.

.3 Provide name, address and telephone number of bonded company responsible for performing troubleshooting / warranty repairs.

.4 Ensure that company offices are located in the local service area of the guaranteed element / work, that resource persons are available at all times and that they are able to follow up inquiries regarding troubleshooting / warranty repairs.

1.2 Documents / samples to be submitted for approval / information

.1 Submit documents and samples required in accordance with section 01 33 00 - Documents and samples to be submitted.

.2 One (1) week prior to substantial completion of work, submit four (4) final copies of operations and maintenance manuals in English and French.

.3 Materials and replacement equipment, special tools and spare parts supplied must be of the same manufacturing quality as the products used for the execution of the work.

.4 Upon request, provide documents confirming the type, source of supply and quality of products supplied.

1.3 Presentation

.1 Present data in the form of an instruction manual.

.2 Use rigid, vinyl, three (3) D-ring binders, 219 mm x 279 mm loose leaf, with spine and pockets.

.3 When multiple bindings are required, group data in logical order.

.1 Clearly indicate content of bindings on spine of each.

.4 On the cover page of each binding must be indicated the name of the document, ie "Project file", typed or printed in block letters, the name of the project as well as the table of contents.

.5 Organize content by system, according to specification section numbers and the order in which they appear in the table of contents.

.6 Provide, for each product and each system, a tab separator on which the description of the product and the list of the main pieces of equipment must be typed.

.7 The text must consist of printed data supplied by the manufacturer or typed data.

.8 Provide drawings with a reinforced and perforated tab.

.1 Insert in binder and fold large drawings to text page format.

.9 Provide 1: 1 scale CAD files, in dwg format.

1.4 Content of the project file

.1 Table of contents of each volume: indicate the name of the project;

.1 Date of filing of documents;

.2 The name, address and telephone number of the Contractor as well as the name of their representatives;

.3 A list of products and systems, indexed to the contents of the volume.

.2 For each product or system, indicate the following:

.1 The name, address and telephone number of subcontractors and suppliers, as well as local distributors of materials and spare parts.

.3 Technical sheets: mark each sheet so as to clearly identify the products and specific parts as well as the data relating to the installation; delete all irrelevant information.

.4 Drawings: the drawings are used to complete the technical sheets and to illustrate the relationship between the different elements of the equipment and systems; they include control and principle diagrams.

.5 Drawings as recorded at the end of the work: updated drawings of the project showing annotated with all the modifications made during the project.

.6 Typed text: as required, to complete the technical data sheets.

.1 Give instructions in logical order for each intervention, incorporating manufacturer's instructions prescribed in Section 01 45 00 - Quality Control.

.7 Training: refer to section 01 79 00 - Demonstration and training.

1.5 Documents and samples to be submitted to the project file

.1 In addition to the documents mentioned in the General Conditions, keep on site, for the Client's attention, a copy or a set of the following documents:

.1 contract drawings;

.2 quotes;

.3 addenda;

.4 modification orders and other amendments to the contract;

.5 revised shop drawings, technical data sheets and samples;

.6 records of tests carried out on site;

.7 inspection certificates;

.8 certificates issued by manufacturers.

.2 Store documents and samples from the project file in the site office, separately from the work execution documents.

.1 Provide files and shelves as well as a safe storage location.

.3 .Label documents and classify them according to the list of section numbers indicated in the table of contents of the specifications.

.1 Clearly write "Project file", in block letters, on the label of each document.

.4 Keep project file documents clean, dry and legible.

.1 Do not use them as work execution documents.

.5 The Departmental Representative must have access to documents and samples of the project file for inspection purposes.

1.6 Recording of data in the project file

.1 Record information on a set of opaque black line drawings and in a copy of the specifications.

.2 Record information using felt tip markers, providing a different color for each major system.

.3 Record information as work progresses.

.1 Do not conceal works before required information has been recorded.

.4 Contract drawings and shop drawings: indicate each data so as to show the works as they are, including the following.

.1 The measured depth of the foundation elements in relation to the level of the first finished floor.

.2 The location, measured in the horizontal and vertical planes, of utility pipes and underground accessories in relation to permanent surface installations.

.3 The location of utility pipes and interior accessories, measured in relation to visible and accessible construction elements.

.4 Changes made on site as to dimensions and details of the works.

.5 Changes made following change orders.

.6 Details which do not appear on the original Contractual Documents.

.7 Reference standards to shop drawings and related modifications.

.5 Specifications: enter each data so as to describe the works as they are, including the following.

.1 Manufacturer's name, trademark and catalog number of each product actually installed, and in particular optional and replacement items.

.2 Changes subject to addenda or change orders.

.6 Other documents: keep manufacturers' certificates, inspection certificates, records of on-site tests prescribed in each of the technical sections of the specifications.

.7 If applicable, provide digital photos to be included in the project file.

1.7 Materials and systems

.1 For each piece of equipment and for each system, give a description of the assembly and its constituent parts.

.1 Indicate its function, normal operating characteristics and constraints.

.2 Indicate characteristic curves, with technical data and test results; also submit the complete list as well as the commercial number of the parts which can be replaced.

.2 Provide lists of power circuits (distribution panels), with indication of electrical characteristics.

.3 Operating methods: indicate start-up, break-in and normal operating instructions and sequences, as well as the following instructions:

.1 instructions for regulation, control, shutdown, shutdown and emergency maneuver;

.2 summer and winter operating instructions and any other special instructions.

.4 Maintenance: provide instructions for routine maintenance and troubleshooting as well as instructions for disassembly, repair and reassembly, alignment, adjustment, balancing and verification of components and networks.

.5 Provide maintenance and lubrication schedules as well as list of necessary lubricants.

.6 Provide manufacturer's written instructions for operation and maintenance of elements.

.7 Provide descriptions of the sequence of operations prepared by the various manufacturers of control / regulation devices and devices.

.8 Provide list of original manufacturer parts as well as illustrations, drawings and assembly diagrams required for maintenance.

.9 Provide the control diagrams of the installed control / regulation devices, prepared by the various manufacturers.

.10 Provide the Contractor's coordination drawings as well as the color coded diagrams of the installed piping.

.11 Provide list of valve labeling numbers, with indication of location and function of each device, and reference to control and principle diagrams.

.12 Provide a list of original manufacturer spare parts with indication of current prices and recommended quantities to be kept in stock.

.13 Provide test and balancing reports prescribed in sections 01 45 00 - Quality control and 01 91 13 - Commissioning (MS) - General requirements.

.14 Additional requirements: according to the specifications of the various technical sections of the specifications.

1.8 Materials and finishes

.1 Construction materials, finishing products and other products to be applied: provide technical data sheets and indicate catalog number, dimensions, composition as well as color and texture designations of products and materials.

.2 Provide instructions for cleaning agents and methods as well as recommended cleaning and maintenance schedules, and indicate precautions to be taken against damaging methods and harmful products.

.3 Water repellents and products exposed to the elements: provide manufacturer's recommendations for cleaning agents and methods as well as recommended cleaning and maintenance schedules, and indicate precautions to be taken against damaging methods and harmful products.

.4 Additional requirements: according to the specifications of the various technical sections of the specifications.

1.9 Transport, storage and handling

.1 Store spare parts, materials and replacement equipment as well as special tools in such a way as to prevent any damage or deterioration.

.2 Store replacement materials and equipment as well as special tools in their original packaging kept in good condition and bearing the manufacturer's seal and label intact.

.3 Store items liable to be damaged by bad weather in weatherproof enclosures.

.4 Store paint and products liable to freeze in a heated and ventilated room.

.5 Remove damaged or deteriorated items or products, replace them with new ones at no additional cost, and submit them to the Departmental Representative for review

Part 2 Products

2.1 Not applicable

.1 Not applicable.

Part 3 Execution

3.1 Not applicable

.1 Not applicable

END OF SECTION

Part 1 General

1.1 Administrative procedures

.1 One (1) week before the date of the provisional completion of the work, perform, for the Departmental Representative's staff, demonstrations of the operation and maintenance operations of the devices, equipment and systems installed.

.2 The Departmental Representative will provide the list of staff members who must undergo this training and will ensure, at the times agreed, their participation in the sessions organized for this purpose.

.3 Preparatory work

- .1 Ensure that the conditions for carrying out demonstrations of the operation of devices, materials and systems as well as training sessions comply with the requirements.
- .2 Ensure that designated persons are present.
- .3 Ensure that devices, materials and systems have been inspected and put into operation in accordance with requirements.

.4 Demonstration and training :

- .1 Show how the start-up, operation, control, adjustment, fault diagnosis, servicing and maintenance of each device, material and system must be ensured, at agreed times, at the location where these elements are found.
- .2 Instruct staff in all stages of operation and maintenance of equipment, materials and systems using operating and maintenance manuals provided.
- .3 Perform a detailed review of the content of these manuals to explain all aspects of operation and maintenance.
- .4 Gather, if applicable, additional data required for training and insert them into operation and maintenance manuals.

.5 Duration of training: plan the duration of training required for each device, material or system as indicated in the technical sections. A minimum of 4 hours of training per section must be provided.

1.2 Documents / samples to be submitted for approval / information

.1 Submit documents and samples required in accordance with section 01 33 00 - Documents and samples to be submitted.

.2 Two (2) weeks before the specified dates, submit for approval a schedule indicating the date and time scheduled for the demonstration of the operation of each device, material and system.

.3 In the week following the demonstrations presented, submit the documents confirming that they have been carried out and that the appropriate training has been satisfactorily given.

.4 Specify the date and time of each demonstration performed as well as the list of people present.

.5 Provide complete copies of operation and maintenance manuals which will be used for demonstration of operation of devices, equipment and systems as well as related training sessions.

1.3 Quality assurance

.1 When it is prescribed in certain sections that an authorized representative of the manufacturer must demonstrate the operation of the devices, materials and systems installed,

.1 Ensure the training of the Departmental Representative's staff;

.2 Provide a written document confirming that such demonstration has been performed and that related training has been given.

Part 2 Products

2.1 Not applicable

.1 Not applicable.

Part 3 Execution

3.1 Not applicable

.1 Not applicable.

END OF SECTION

Part 1 General

1.1 Related sections

.1 Section 01 33 00 - Submittal Procedures.

1.2 References

.1 American Society for Testing and Materials International, (ASTM)

- .1 ASTM A 276-14 Standard Specification for Stainless Steel Bars and Shapes.
- .2 ASTM A 554-14 Standard Specification for Welded Stainless Steel Mechanical Tubing.
- .3 ASTM A 240-16 Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.
- .4 ASTM A 593-13 Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.
- .5 ASTM A 594-09 Standard Specification for Stainless Steel Nuts.
- .6 ASTM A 836M-16 Standard Specification for Style 1 Stainless Steel Metric Nuts (Metric)

.2 Canadian General Standards Board (CGSB)

- .1 CAN/CGSB-85.10-99, Protective Coatings for Metals.

.3 Canadian Institute of Steel Construction (CISC)/Canadian Paint Manufacturer's Association (CPMA).

- .1 CISC/CPMA 1-73b, Quick-Drying, One-Coat Paint for Use on Structural Steel.

.4 Canadian Standards Association (CSA International)

- .1 CAN/CSA G40.20-13/G40.21-13, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
- .2 CAN/CSA-S16-14, Limit States Design of Steel Structures.
- .3 CAN/CSA-S136-12 Cold Formed Steel Structural Members.
- .4 CSA-136-12, Commentary on CSA Standard S136.
- .5 CSA W47.1-09, Certification of Companies for Fusion Welding of Steel Structures.
- .6 CSA W48-06 (R2011), Filler Metals and Allied Materials for Metal Arc Welding.
- .7 CSA W55.3-08, Certification of companies for resistance welding of steel and aluminum.
- .8 CSA W59-03 (R2008), Welded Steel Construction (Metal Arc Welding) Metric.

.5 Master Painters Institute

- .1 MPI-INT 5.1-98, Structural Steel and Metal Fabrications.
- .2 MPI-EXT 5.1-98, Structural Steel and Metal Fabrications.

.6 The Society for Protective Coatings (SSPC)

.1 SSPC SP-6/NACE No. 3-00, Commercial Blast Cleaning.

1.3 Calculation requirements

.1 Design of the steel structure according to CAN / CSA S16.1-14 requirements

.2 Design details and connections in accordance with requirements of CAN/CSA-S16 to resist forces, moments, shears and allow for movements indicated.

.3 Shear connections:

.1 Beam support reactions for connection design shall be, unless otherwise specified, based on the following percentages of the total load listed in the BEAM LOAD TABLES (Part 5 – CISC Handbook):

Non-composite beams: 65%

Composite beams: 100%

Add to this value reactions from other beams near the connection, from supported column loads and from vertical components of brace forces, where present.

.4 Submit sketches and design calculations stamped and signed by qualified professional engineer licensed in Province of Quebec, Canada for non-standard connections.

1.4 Shop drawings

.1 Submit shop drawings including fabrication and erection documents and materials list in accordance with Section 01 33 00 - Submittal Procedures

.1 The shop drawings must clearly indicate all the details of shaping and assembly, including cuts, notches, assemblies, holes, anchors and welds.

.2 Prepare shop drawings taking into account all related works. Perform the required coordination to avoid any conflict.

.3 Use symbols defined in CSA W59 to represent welds.

.4 The Specialized Contractor shall not undertake the shaping and manufacture of fabricated metals until the shop drawings have been approved by the Ministerial Representative.

.5 The shop drawings submitted must bear the seal and signature of a qualified engineer recognized and authorized to practice in Canada, in the province of Quebec.

.6 Shop drawings must indicate or show the materials, the thickness of the core, the finishes, the assemblies, the joints, the method of anchoring and the number of anchoring devices, supports, elements reinforcement, details and accessories.

.2 Erection drawings: indicate details and information necessary for assembly and erection purposes including:

.1 Description of methods.

.2 Sequence of erection.

.3 Type of equipment used in erection.

.4 Temporary bracings.

.3 Ensure Fabricator drawings showing designed assemblies, components and connections are stamped and signed by qualified professional engineer licensed in the province of Quebec, Canada.

1.5 Samples

.1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.

1.6 Quality assurance

.1 Submit one (1) copy of mill test reports four (4) weeks prior to fabrication of structural steel.

.1 Test reports: submit test reports certifying that the products, materials and equipment meet the requirements for physical characteristics and performance criteria. These test reports must be certified by qualified metallurgists licensed to practice in Canada.

.2 Certificates: submit documents signed by the manufacturer, certifying that the products, materials and equipment meet the requirements for physical characteristics and performance criteria.

1.7 Waste management and disposal

.1 Separate and recycle waste materials in accordance with Section 01 35 21, Appendix B - Waste Management

.2 Remove from site and dispose of packaging materials at appropriate recycling facilities.

.3 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard, packaging material in appropriate on-site for recycling in accordance with Waste Management Plan.

.4 Divert unused metal materials from landfill to metal recycling facility approved by Consultant.

.5 Divert unused paint material from landfill to official hazardous material collections site approved by Consultant.

.6 Do not dispose of unused paint materials into sewer systems, into lakes, streams, onto ground or in other location where it will pose health or environmental hazard. .

Part 2 Products

2.1 Materials

.1 Structural steel: to CAN/CSA-G40.20/G40.21 Grade as indicated 350W for rolled sections and ASTM A500 Grade C for HSS Sections. Stainless steel: Grade 305 (205 MPa).

.2 Anchor bolts: to CAN/CSA-G40.20/G40.21, Grade 300W. Stainless steel: Grade 305 (205 MPa).

.3 Bolts, nuts and washers: to ASTM A 325 and ASTM A 325M. Stainless steel: Grade 305 (205 MPa).

.4 Welding materials: to CSA W48 Series and/or CSA W59 and certified by Canadian Welding Bureau.

.5 Shear studs: to CSA W59, Appendix H.

2.2 Fabrication

.1 Fabricate structural steel in accordance with CAN/CSA-S16 and in accordance with reviewed shop drawings.

.2 Continuously seal members by continuous welds where indicated. Grind smooth.

Part 3 Execution

3.1 General

.1 Structural steel work: in accordance with CAN/CSA-S16.

.2 Welding: in accordance with CSA W59.

.3 Companies to be certified under Division 1 or 2.1 of CSA W47.1 for fusion welding of steel structures and/or CSA W55.3 for resistance welding of structural components.

3.2 Marking

.1 Mark materials in accordance with CAN/CSA G40.20/G40.21. Do not use die stamping. If steel is to be left in unpainted condition, place marking at locations not visible from exterior after erection.

.2 Match marking: shop mark for fit and match.

3.3 Erection

.1 Erect structural steel, as indicated and in accordance with CAN/CSA-S16 and in accordance with reviewed erection drawings.

.2 Field cutting or altering structural members to approval of ministerial representative.

.3 Clean with mechanical brush and touch up shop primer to bolts, rivets, welds and burned or scratched surfaces at completion of erection.

.4 Continuously seal members by continuous welds where indicated. Grind smooth.

3.4 Field quality control

.1 Inspection and testing of materials and workmanship will be carried out by testing laboratory designated by ministerial representative.

.2 Provide safe access and working areas for testing on site, as required by testing agency and as authorized by ministerial representative.

.3 Submit test reports to ministerial representative within one (1) week of completion of inspection.

END OF SECTION

Part 1 General

1.1 Reference standards

.1 Health Canada / Workplace Hazardous Materials Information System (WHMIS).

.1 Safety data sheets (SDS).

1.2 Definitions

.1 Demolish: Dismantle elements forming part of the existing structure and transport them outside the site for disposal in accordance with the regulations, unless it is indicated to remove and recover or retrieve them. remove and reinstall them.

.2 Remove: Planned deconstruction and dismantling of the electrical elements forming part of the existing construction, including the removal of conduits, junction boxes, wiring and wiring connecting the electrical component to the panel avoiding damage to the elements. adjacent areas that must be kept. Send items off site for disposal in accordance with regulations, unless indicated to remove and salvage or remove and reinstall.

.3 Remove and recover: Dismantle the elements of the existing construction and deliver them to the Departmental Representative, ready to be reused.

.4 Remove and reinstall: Dismantle items, prepare for reuse and reinstall at location indicated.

.5 Existing elements to keep: Elements of existing construction that must remain in place and that have not been planned to remove and recover or remove and reinstall.

.6 “Food service laboratory network”:

.1 Compressed air;

.2 Condensate;

.3 Drainage;

.5 Hot water;

.6 Cold water;

.7 Mixed water;

.8 Ice water -supply;

.9 Ice water - Return;

.10 Emergency water;

.11 Steam;

.11 CIP washing.

1.3 Administrative procedures

.1 All work (demolition, connection, insulation and others) must be coordinated with the Customer's manager at least 48 hours in advance in order to limit the impact on the Customer's activities.

.2 Coordination: Coordinate the work described in this section so as to avoid any interference with the other sections.

.3 Scheduling: Take into account the Departmental Representative's requirements if he wishes to continue to occupy the site during selective demolition. Plan an occupation by stage and the activities on the site, as defined in the schedule of activities, in accordance with 01 32 16.16 - Work scheduling - Critical path method.

1.4 Quality assurance

.1 Regulatory Authority Requirements: Ensure that work in this section is performed in accordance with the following:

.1 Federal Workers Compensation Service.

.2 Occupational Health and Safety, Labor Program, Government of Canada.

.2 Health and safety

.1 Take the necessary health and safety measures in construction in accordance with section 01 35 29.06 - Health and safety.

1.5 Documents / samples to be submitted for approval / information

.1 Submit documents and samples required in accordance with section 01 33 00 - Documents / Samples to be submitted.

.2 Technical sheets

.1 Submit required technical data sheets as well as manufacturer's instructions and documentation. The technical sheets must indicate the characteristics of the products, the performance criteria, the dimensions, the limits and the finish.

.3 .3 Shop drawings

.1 Indicate the following on the drawings.

.1 Assembly details.

.2 The clearances necessary to allow the operation and maintenance (E and E) of the devices.

.2 .3 Submit the following documents with shop drawings and technical data sheets.

.1 Detail drawings of bases, brackets / suspensions and anchor bolts.

.2 Data relating to the sound power of systems and devices, if applicable.

.3 Performance curves with indication of operating points.

.4 A document issued by the manufacturer certifying that the products in question are current models.

.5 Certificate of compliance with relevant codes.

.3 In addition to the cover letter mentioned in section 01 33 00 - Documents and samples to be submitted, use the document entitled "Shop Drawing Submittal Title Sheet" published by the MCAC (Association of Mechanical Contractors of Canada). / AEMC). Specify the number of the section and article in question.

.4 Documents / Samples to be submitted in relation to the sustainable design

.1 Construction waste management

.1 In accordance with section 01 74 19 - Waste Management And Disposal.

.5 Installation plan for pipe and cable supports for approval by the Customer's representative and by SAG. The plan should have been coordinated with electricity for integration with bundled supports.

.6 Installation plan and piping assembly for approval by the Customer's representative and by SAG.

.7 Identification system for approval by the representative of the Consultant and the representative of the Client.

1.6 Documents / elements to be submitted on completion of the work

.1 Submit the documents / items required in accordance with section 01 78 00 - Documents / Items to be submitted upon completion of the work.

.2 Operation and maintenance sheets: provide operating and maintenance instructions, which will be incorporated into the O&M manual.

.1 The E&E manual must be approved, before the final inspection, by the Consultant who will keep the final copies.

.2 Operations sheets must include the following.

.1 Control / regulation circuit diagrams for each system, including room control / regulation circuit.

.2 A description of each system and its control / regulation devices.

.3 A description of the operation of each system under various loads, with schedule of set point changes and indication of seasonal deviations.

.4 Instructions for the operation of each system and component.

.5 A description of the measures to be taken in the event of equipment / material failure.

.6 A table of valves and flow diagram.

.7 The color code.

.3 The maintenance sheets must include the following.

.1 Instructions for maintenance, repair, operation and troubleshooting of each component.

.2 A maintenance schedule specifying the frequency and duration of the tasks, as well as the tools required for their performance.

.4 Performance sheets must include the following.

.1 The performance data provided by the device / material manufacturer, specifying the operating point of each, noted once commissioning is complete.

.2 Results of device / material performance tests.

.3 Any other specific performance data specified elsewhere in the Contract Documents.

.5 Approval

.1 For approval, submit to Consultant two (2) copies of draft E&E manual. Unless otherwise directed by Consultant, sheets are not to be submitted individually.

.2 If necessary, make the required modifications to the O&M manual and resubmit it to the Consultant.

.6 Additional information

.1 Prepare additional information sheets and append them to the E&E manual if, during the training sessions mentioned above, it is realized that such sheets are necessary.

.7 Documents to be kept on site

.1 Departmental Representative will provide one (1) set of reproducible mechanical drawings. Provide the number of sets required for each phase of the work and indicate, as they occur, all changes made during the execution of the work to mechanical equipment and devices, control / regulation systems and control wiring low tension.

.2 Report weekly the information noted on the reproducible drawings, so that they show the mechanical systems and devices as they are actually installed.

.3 Use a different colored indelible ink pen for each network.

.4 Keep these drawings on site and make them available to those concerned for reference and verification.

.8 As-built drawings

.1 Before proceeding with ERA operations (testing, adjustment and balancing of HVAC networks), complete as-built drawings.

.2 Identify each drawing in the lower right corner, in letters not less than 12 mm high, as follows: "AFTER EXECUTION DRAWING: THIS DRAWING HAS BEEN REVIEWED AND SHOWS THE MECHANICAL SYSTEMS / DEVICES AS IS ARE ACTUALLY INSTALLED ". (Signature of Contractor) (Date).

.3 Submit drawings to Consultant for approval, then make necessary corrections as directed.

.4 Test, adjust and balance HVAC networks with as-built drawings in hand.

.5 Submit reproducible copies of completed as-built drawings, along with E&E manual.

.9 Submit sets of as-built drawings, which will be attached to the final ERA report.

1.7 Materials / replacement / maintenance materials to be delivered

.1 Submit materials / equipment required in accordance with section 01 78 00 - Documents / Items to be submitted upon completion of work.

.2 Provide a kit of all the special tools necessary for the maintenance of the devices / equipment, according to the recommendations of the manufacturers.

1.8 Transportation, storage and handling

.1 Transport, store and handle materials and equipment in accordance with Section 01 61 00 - General Product Requirements and manufacturer's written instructions.

.2 Delivery and acceptance: deliver materials and equipment to site in their original packaging, which must bear a label indicating the name and address of the manufacturer.

.3 Storage and handling

.1 Store materials and equipment indoors in a dry place so that they do not rest on the ground, in a clean, dry and well ventilated place, in accordance with the manufacturer's recommendations.

.2 Store materials and equipment in such a way as to protect them from nicks, scratches and blemishes.

.3 Replace damaged materials and equipment with new materials and equipment.

1.9 Site conditions

.1 The Client's activities will be kept in operation for the duration of the work:

.1 Provide all necessary assistance to operators on site.

.2 Ensure continuous supervision of the work for the duration of the execution of the work.

Part 2 Product

2.1 Not applicable

.1 Not applicable.

Part 3 Execution

3.1 Inspection

.1 Verification of conditions: before proceeding with the installation, ensure that the condition of the surfaces / supports previously implemented under the terms of other sections or contracts is acceptable and allows the work to be carried out in accordance with the written instructions of the maker.

.1 Make a visual inspection of surfaces / supports in the presence of the Consultant.

.2 Immediately inform Consultant of any unacceptable condition detected.

.3 Begin installation work only after correcting unacceptable conditions and receiving written approval from Consultant.

3.2 Preparation

.1 Electrically isolate equipment during welding and support work. No welding carried out directly on the equipment is permitted.

.2 Protection of existing plumbing to be preserved: Protect installations and components that must remain in place during selective demolition, according to the following indications:

.1 Prevent movement and install spacers to prevent services and adjacent parts of existing buildings to be preserved from sagging or being damaged.

.2 Notify the Consultant and cease activities when the safety of buildings being demolished, adjacent structures or services seems threatened. Wait until you receive additional instructions before resuming the demolition work provided for in this section.

.3 Prevent debris from blocking outlets.

.4 Protect the mechanical installations which must remain functional.

.3 Protection of building occupants: Schedule demolition work to minimize interference with the use of the building by the Departmental Representative and users:

.1 Prevent entry or exit from occupied buildings from becoming dangerous due to debris.

.2 Notify Consultant and cease activities when occupant safety appears threatened. Wait until you receive additional instructions before resuming the demolition work provided for in this section.

3.3 Installation

.1 No modification to laboratory equipment is permitted.

.2 No piping must be supported by the equipment. The use of the walls and the floor for the installation of the supports must be approved by the responsible of the customer.

.3 No welding is allowed on the equipment frame. However, and following acceptance by the Customer or an authorized representative, the cable or pipe supports can be bolted to the structural frames of the equipment.

3.4 Touch-up and repair of coatings

.1 Prime and touch up surfaces with damaged painted finish and ensure new finish matches original finish.

.2 Restore surfaces whose finish has been severely damaged.

.3 Patch and seal all openings in floors and walls for the installation of supports. Finalize the leveling of the floors with an epoxy paint (refer to the architectural documents).

.4 Fire stop device repair materials: Use materials compatible with existing fire stop systems. Restore the elements rated for their resistance to fire affected by the removal or demolition work according to their existing classification.

3.5 Systems cleaning

.1 Clean interior and exterior of all components, devices and systems, including strainers and filters, and vacuum inside air ducts and air handling units.

3.6 On-site quality control

.1 Quality control requirements in accordance with Section 01 45 00 - Quality Control.

.2 Tests carried out on site: carry out the following tests and submit the reports according to the requirements set out in section DOCUMENTS / SAMPLES TO BE SUBMITTED FOR APPROVAL / INFORMATION, of PART 1.

.3 Inspections carried out on site by the manufacturer

.1 Obtain a written report from the manufacturer confirming the compliance of the work with the specified criteria with regard to handling, implementation, application of products as well as protection and cleaning of the work , then submit this report in accordance with the DOCUMENTS / SAMPLES TO BE SUBMITTED FOR APPROVAL / INFORMATION section of PART 1.

.2 The manufacturer must make recommendations regarding the use of the product (s), and make periodic visits to verify if the installation has been carried out according to his recommendations.

3.7 Demonstration

.1 The Consultant will use certain devices, equipment and systems, for testing purposes, even before they have been accepted. Provide the labor, equipment and instruments necessary to perform the tests.

.2 Provide tools, equipment and the services of qualified instructors to ensure, during normal working hours, the training of E&E personnel in the operation, control / regulation, adjustment, diagnosis of problems / troubleshooting and maintenance of devices, equipment and systems, prior to acceptance thereof.

.3 The training material must include, among other things, the E&E manual, as-built drawings and audio-visual aids.

.4 Requirements for required training hours are indicated in each relevant section.

.5 The Consultant will videotape training sessions for future reference.

3.8 Cleaning

.1 Cleaning during work: perform cleaning work in accordance with section 01 74 00 - Cleaning.

.1 Leave the premises clean at the end of each working day.

.2 Final cleaning: remove surplus materials / equipment, waste, tools and equipment from site in accordance with section 01 74 00 - Cleaning.

.3 Waste management: in accordance with section 01 74 19 - Waste Management And Disposal.

.1 Remove recycling bins and skips from site and dispose of materials at appropriate facilities.

3.9 Protection

.1 Using appropriate elements, prevent dust, dirt and other foreign matter from entering openings of apparatus, equipment and systems.

.2 Protect equipment during all work.

.3 Repair damage caused to adjacent materials and equipment by the installation of hydronic networks.

END OF SECTION

Part 1 General

1.1 Not applicable.

Part 2 Product

2.1 Piping supports

.1 The grouped pipe supports will be prefabricated hot-dip galvanized steel “Cantruss” type sections.

Part 3 Execution

3.1 Application

.1 Manufacturer's instructions: comply with manufacturer's written recommendations, including any available technical bulletin, instructions for handling, storage and use of products, and indications in technical data sheets.

3.2 Connecting the piping to the appliances

.1 Unless otherwise indicated, follow manufacturer's instructions.

.2 Use valves with removable “Tri-clamp” type food fittings to isolate the devices from the piping network and to facilitate maintenance as well as the assembly / disassembly of the elements.

.3 No work related to the piping connections must be started before the approval of the Departmental Representative of the installation plan and the assembly of the piping to be submitted in relation to the requirements of Section 23 05 00 - General requirements concerning the results of the piping. Cvca work.

3.3 Fire protection

.1 Coordinate the implementation of firebreaks around pipes, insulation and adjacent fire separations.

.2 Ensure that pipes likely to present movements comply with the approved fire protection system in order to allow such movements without risk of damage to the material or to the fire stop installation.

.3 In the case of insulated pipes, take care to maintain the integrity of the insulation and the vapor barrier.

3.4 Existing networks

.1 Connect new piping to existing networks at times approved by DCC Representative.

.2 Request written approval from the DCC Representative at least 10 days before the start of work.

.3 Assume full responsibility for any damage that this work may cause to the existing installation.

3.5 Clearances

.1 Provide a clearance around devices and accessories to facilitate inspection, maintenance and observation of their proper functioning, according to the manufacturer's recommendations and the Customer's requirements.

.2 Also provide sufficient working space to dismantle and remove devices or pieces of equipment, if necessary, without having to interrupt the operation of other devices or network elements.

3.6 Piping supports

.1 The spacing between the grouped pipe supports must be established according to the pipe of smallest dimension and according to the codes in force.

.2 Coordinate the integration of cable supports with electricity.

.3 The piping will be mounted on a floor support while maintaining a slope towards the drain or towards the connection on the island. No piping will be deposited directly on the floor.

.4 Place the support less than 300 mm (12 ") from each of the horizontal elbows.

.5 No work related to the pipe supports must be started before the approval of the Departmental Representative of the installation plan for the pipe supports and cables to be submitted in relation to the requirements of Section 23 05 00 - General requirements concerning the results of Cvca work.

3.7 Drain / drain valves

.1 Unless otherwise indicated, install the piping giving it a slope in the direction of the flow of the fluid conveyed.

.2 Install drain / drain valves as indicated.

.3 Connect a pipe to each drain / drain valve and route it to above a floor drain.

.1 The discharge point must be clearly visible.

.4 Use drain / drain valves having the following characteristics: ball type and nominal diameter DN 3/4 unless otherwise indicated, with plug.

3.8 Piping

.1 Coat threads of screw-in fittings with FDA food grade sealing compound.

.2 Prevent the introduction of foreign material into unconnected openings.

.3 Install piping in such a manner as to permit isolation of individual devices to allow for disassembly or removal, if necessary, without interrupting the operation of other components of the system.

.4 Assemble pipe using fittings manufactured in accordance with applicable ANSI standards.

.5 Install exposed piping, fixtures, rectangular cleanouts and similar items parallel or perpendicular to building lines.

.6 Install concealed piping to minimize furring space and maximize headroom and available space.

.7 Except where indicated, install piping with a slope in the direction of flow to allow for free flow of fluid and ventilation of the system.

.8 Except where indicated, install piping in such a manner as to allow for lagging of each pipe.

.9 Group piping as indicated.

.10 Deburr pipe ends and remove accumulated slag and foreign material from pipe prior to assembly.

.11 Use eccentric reducers at diameter changes to ensure free flow of the conveyed fluid and free ventilation of the system.

.12 Provide means to compensate for thermal movement of piping as indicated.

.13 Faucets

.1 Install valves in accessible places.

.2 Remove internal parts before making the connection by welding.

.3 Unless otherwise indicated, install valves so that their operating rod is above the horizontal line.

.4 Install valves in such a way that they are accessible for maintenance purposes without the need to dismantle adjacent piping.

.5 Install globe valves on bypass bypass control valves.

.6 Provide valves with a nominal diameter equal to or greater than DN 2 1/2 with a chain operating device when they are mounted more than 2400 mm above the floor.

3.9 Installation of the compressed air network

.1 Install shut-off valves on the discharge side of the compressor, on the main connections and at the locations indicated.

.2 Install pneumatic chucks with quick couplings as well as pressure gauges at the locations indicated. Install “Tri-clamp” type removable couplings to facilitate removal and reinstallation of devices.

.3 According to the requirements, the slope of the piping must be at least 1%. Install a compressed air bleeder and a pressure regulator at all collection points. Install a drain pipe connected to the nearest drain.

.4 Supply and install all adapters necessary for connection to the equipment; flexible hose for connecting compressed air to equipment.

3.10 Network flushing

.1 Before commissioning a piping network, clean it in accordance with section 01 74 00 - Cleaning and those of the relevant sections relating to mechanical systems and installations.

.2 Before acceptance of the work, clean all devices and materials and restore them to working order, and replace the filters of the piping network.

3.11 Cleaning of water (hydronic) and steam systems

.1 When to perform cleaning: before cleaning the networks, wait until they are operational, including their safety devices, and have undergone all the required hydrostatic tests.

.2 Cleaning of the piping network.

.1 Clean all piping upon completion of pressure testing.

.2 Fill the pipes with a solution of water and non-foaming detergent, without phosphate.

.3 Flush and evacuate water. Remove and clean the filters.

.4 Then fill the network with clean water.

.5 Wait, before installing measuring instruments such as flowmeters, orifice plates, Pitot tubes and measuring valves, to have received the certificate attesting that the network has actually been cleaned.

.3 Procedure

.1 Submit a detailed report outlining the planned procedure at least four (4) weeks before the proposed date for carrying out the cleaning work. The report should state the following:

.1 Method, flow rates, duration of operations;

.2 The chemicals to be used and their concentration;

.3 The inhibitors to be used and their concentration;

.4 The specific requirements concerning the performance of the work;

.5 Specific measures to be taken to protect piping and network elements;

.6 A complete analysis of the water used for cleaning, intended to ensure that it will not damage the network or the devices.

.4 Preconditions for cleaning

.1 The networks must be free of construction debris, dirt and other foreign matter.

.2 Valves and control / regulation valves must be operational and placed in fully open position to allow cleaning of terminal elements.

.3 Filters must be cleaned before initial filling.

.5 Report to be submitted at the end of the work

.1 Once the cleaning work is completed, submit a report in this regard, with a certificate of compliance with the specifications of the supplier of the cleaning products.

.6 Steam installations - In addition to the operations described above, carry out those prescribed below.

.1 Remove the internal elements of the condensed water traps until the rinsing and the heating of the network are completed.

.2 Vent traps. If necessary, to protect personnel or the environment, connect flexible hoses to the drain pipes in order to direct the evacuated condensate to a safe place.

.3 Starting near the heating source, check each trap to see if it is draining condensate, then replace its internal components. Do the same for each of the traps in the network.

.4 If necessary, determine the cause of water hammer and eliminate it.

3.12 Water and steam networks

.1 Once the network has been cleaned and filled, perform the following procedure.

.1 Check performance of equipment and piping according to the requirements of the relevant sections of Division 23.

.2 Ensure that the water quality meets standards and that the water does not contain any cleaning or rinsing residue.

.3 Monitor movement of piping. If necessary, adjust the supports, hangers and spring suspensions of the piping.

3.13 Pressure testing of apparatus, equipment and piping

.1 Notify Consultant at least 48 hours prior to pressure testing.

.2 Perform hydrostatic test of water distribution networks at a pressure equal to 1½ times the working pressure of the network or at a minimum pressure of 860 kPa (125 psi).

.3 Unless otherwise indicated, pressurize the network and ensure that no leaks occur for a period of four (4) hours.

.4 Test drain, return and vent piping in accordance with code requirements. These tests will be done with water only.

.5 Before proceeding with the tests, isolate from the network devices and elements that are not designed to withstand the pressure or the test agent provided.

.6 The tests must be carried out in the presence of the Consultant.

.7 If applicable, assume the cost of repairing or replacing defective elements, re-testing and repairing the network. The Consultant will determine whether to repair or replace items found to be defective.

.8 Insulate or conceal works only after having approved and certified the tests by the Consultant.

.9 Test the compressed air network at a gauge pressure of 1 MPa (150 psi), the outlet pipes being closed and the compressor stopped; the test should last 4 hours. At the end of this period, the pressure loss should not exceed 10 kPa (1.5 psi). Thoroughly clean the piping and devices, completely rid them of all grease and foreign bodies. Commission the compressed air network and demonstrate operation to the Consultant's satisfaction.

3.14 Power tests - hydronic systems

.1 Perform hydronic system power tests once the following operations have been completed, according to the requirements set out in the article on hydronic systems.

.1 Network testing, adjustment and balancing.

.2 Verification of operation of control / regulation devices, limiters and safety devices.

.3 Verification of the accuracy of temperature and pressure sensors and indicators.

.2 Once the tests are completed, return the control / regulation devices and equipment to the instructions and to normal operating conditions.

3.15 Steam systems

.1 Performance monitoring

.1 Once the system is operational, perform the relevant tests on the piping of the steam distribution and condensate return circuits.

.2 Check the operation of the system elements, in particular those mentioned below.

.1 Condensed water drains.

.1 Measure the temperature of the condensates; and or;

.2 use audio devices;

.3 use other approved methods.

.2 Thermostatic vents.

.3 Check the performance of the condensate return circuit and ensure that the maximum quantity of condensate is returned to the system and that these returned condensates have a minimum temperature difference.

.4 Make the necessary adjustments in the piping network to eliminate water hammer.

.2 Monitor system continuously until all elements, including condensate drains, thermostatic vents, expansion vessels and condensate pump stations, are functioning properly.

END OF SECTION

Part 1 General

1.1 Reference standards

.1 American National Standards Institute/American Society of Mechanical Engineers (ANSI/ASME)

- .1 ANSI/ASME B31.1-2007, Power Piping.
- .2 ANSI/ASME B31.9-2007, Building Services Piping.

.2 American Welding Society (AWS)

- .1 AWS C1.1M/C1.1-2000 (R2006), Recommended Practices for Resistance Welding.
- .2 AWS Z49.1-2005, Safety in Welding, Cutting and Allied Process.
- .3 AWS W1-2000, Welding Inspection Handbook.

.3 Groupe CSA (CSA)

- .1 CSA W48-F06, Métaux d'apport et matériaux associés pour le soudage à l'arc.
- .2 CSA B51, Code sur les chaudières, les appareils et les tuyauteries sous pression.
- .3 CSA-W117.2-F06, Règles de sécurité en soudage, coupage et procédés connexes.
- .4 CSA W178.1-2008, Qualification des organismes d'inspection en soudage.
- .5 CSA W178.2-2008, Qualification des inspecteurs en soudage.

1.2 Quality assurance

.1 Qualification of the workforce

- .1 Welders
  - .1 Welders must have the experience and skills defined in CSA B51.
  - .2 Retain the services of qualified welders holding a certificate issued by the competent authority for each welding process used.
  - .3 Submit welder qualification certificates to Consultant.
  - .4 Each welder must identify his work by means of a mark assigned by the competent authority.
  - .5 Aluminum fusion welding companies must be certified in accordance with CSA W47.2.
- .2 Inspectors
  - .1 Inspectors must have the experience and skills defined in CSA W178.2.
- .3 Certification
  - .1 Welding processes must be registered in accordance with the requirements of CSA B51.
  - .2 A copy of the description of the welding processes used must be kept on site for reference.
  - .3 The safety rules to be observed for welding, cutting and related operations must comply with standard CSA-W117.2.

Part 2 Product

2.1 Electrodes

.1 Electrodes: conform to relevant CSA W48 series standards.

Part 3 Execution

3.1 Application

.1 Manufacturer's instructions: comply with manufacturer's written recommendations, including any available technical bulletin, instructions for handling, storage and use of products, and indications in technical data sheets.

.2 Welds must be made with TIG with continuous argon purge inside the piping. The welds must be full penetration.

3.2 Quality of work execution

.1 Perform welding work in accordance with ANSI / ASME B31.1, ANSI / ASME Boiler and Pressure Vessel Code, sections I and IX, and ANSI / AWWA C206, using processes in accordance with AWS B.3 and C1.1 standards and relevant provincial authority requirements.

3.3 Requirements relating to the laying of elements necessary for piping welding

.1 Each weld must bear the mark of the welder who made it.

.2 Fittings

.1 Nominal diameter connections DN 2 and less: welded couplings.

.2 Branch fittings: weld tees or forged fittings.

3.4 Inspections and controls - general requirements

.1 Before starting the work, review, with the Consultant, all requirements relating to the quality of welds and acceptable defects, formulated in the relevant standards and codes.

.2 Establish an inspection and control plan in collaboration with the Consultant.

.3 Do not conceal welds before they have been examined, checked and approved by an inspector.

.4 Allow the inspector to visually examine the welds at the start of the welding work, in accordance with the requirements of the Welding Inspection Handbook. If necessary, repair or rework defective welds in accordance with the requirements of the relevant codes and specifications.

3.5 Inspections and checks carried out by a specialist

.1 General

.1 Inspections and checks must be carried out by a specialist qualified in accordance with CSA W178.1 and CSA W178.2 standards, and approved by the Consultant.

.2 Inspections and checks must be carried out in accordance with the requirements of the ANSI / ASME Boiler and Pressure Vessel Code, section V, and of the CSA B51 standard, as well as the requirements of the authorities having jurisdiction.

.3 In accordance with the inspection and control plan, submit 5% of the welds to non-destructive tests, that is to say a visual control of the integral radiographic controls, by gamma rays (hereinafter referred to as gammagraphy controls).

.2 Submit welds to hydraulic test to ANSI / ASME B31.1.

.3 Visual checks: examine all welds made on the outside circumference and, if possible, on the inside circumference of the piping.

.4 Welds refused on visual inspection

.1 If a weld is rejected during visual inspection, perform additional gamma radiography inspections in accordance with Consultant's instructions.

.5 Integral gamma radiography testing of food service laboratory piping.

.1 Spot checks by gamma radiography

.1 Perform spot checks on a maximum of 10% of the welds, which will be chosen at random by the Consultant from among those which would be the most difficult to repair in the event of failure once the network is in service.

.2 X-ray films

.1 Identify each x-ray film by recording the date and location of the plug and the name of the welder, and give it to the Consultant. Replace the film if it is rejected due to poor quality.

.3 Interpretation of X-ray films

.1 Interpretation of X-ray films must be performed by a qualified technician.

.4 Welds refused at gamma radiography checks

.1 Test all welds performed by the welder who performed the rejected welds.

3.6 Defects causing rejection of welds

.1 According to the requirements of ANSI / ASME B31.1 and ANSI / ASME Boiler and Pressure Vessel Code.

.2 Piping:

.1 Channel more than 0.8 mm deep adjacent to the covering bead, on the outside wall of the pipe.

.2 Channel more than 0.8 mm deep adjacent to the bottom bead, on the inside wall of the pipe.

.3 Channel more than 0.8 mm deep, both on the inside wall and on the outside wall of the pipe.

.4 Incomplete penetration or fusion, over 38 mm, of any weld 1500 mm in length, the depth of these defects exceeding 0.8 mm.

.5 Repair cracks and defects greater than 0.8 mm in depth.

Repair defects whose depth cannot be accurately determined by visual checks or gamma radiography checks.

3.7 Repair of rejected welds

.1 Submit to a new inspection and to new controls the welds having been repaired or reworked, at no additional cost.

END OF SECTION

Part 1 General

1.1 Reference standards

.1 American Society of Mechanical Engineers (ASME)

.1 ASME B40.100-2005, Pressure Gauges and Gauge Attachments.

.2 ASME B40.200-2008, Thermometers, Direct Reading and Remote Reading.

.2 Office des normes générales du Canada (ONGC ou CGSB)

.1 CAN/CGSB-14.4-M88, Thermomètres indicateurs, à dilatation de liquide dans une gaine de verre, de type commercial/industriel.

.2 CAN/CGSB-14.5-M88, Thermomètres indicateurs bimétalliques de type commercial/industriel.

.3 Efficiency Valuation Organization (EVO)

.1 International Performance Measurement and Verification Protocol (IPMVP).

.1 IPMVP, version 2007.

Part 2 Product

2.1 General

.1 The measuring point of the selected thermometers and manometers must be located in the center of the graduated range.

.2 Temperature ranges, unless otherwise indicated: 0-100 ° C.

2.2 Direct reading thermometers

.1 Industrial thermometers, dial type 80 mm in diameter

.1 Resistance to shock and vibration.

.2 All thermometers to be supplied with thermometric wells. The choice of sleeve lengths must be such that there is a minimum insertion of 50 mm (2 ") in liquids and 100 mm (4") in gases. The thread should be 20 mm (¾ ").

.3 Equipment and materials used must meet system requirements, stainless steel.

2.3 Manometers

.1 Dial type manometers, 80 mm in diameter, conforming to standard ASME B40.100, category 2A, with Bourdon tube in stainless steel, with an accuracy corresponding to 0.5% of the measuring range, except otherwise indicated.

2.4 General

.1 .1 The following characteristics or elements must be provided for each of the thermometers and manometers installed, as applicable.

.1 Install a siphon for steam installation, a pulsation damper and diaphragm for corrosive fluids.

.2 Install a manometer filled with glycerin for steam installations.

.3 Include a shock absorber in the case of networks subjected to pressure pulsations.

.4 Include a membrane separator when dealing with corrosive fluid networks.

.5 Include a stainless steel shut-off valve.

.6 Equipment and materials used must meet system requirements.

Part 3 Execution

3.1 General

.1 Place thermometers and pressure gauges so that they can be read from the floor or operating platform.

.1 Otherwise, install telethermometers and telemanometers.

.2 Install the instruments between the devices and the first fitting or valve element placed downstream or upstream, as the case may be.

3.2 Thermometers

.1 Place thermometers in thermometric wells lined with thermally conductive material.

.2 Install thermometers at locations indicated, as well as at the point of connection of each food service laboratory network to service islands.

.3 Use extensions when thermometers are installed on insulated pipes.

3.3 Manometers

.1 Install pressure gauges at locations indicated, as well as at the point of connection of each food service laboratory network to service islands.

.2 Use extensions when pressure gauges are installed on insulated pipes.

3.4 Identification plates

.1 Provide and install identification plates for the fluid conveyed, in laminated plastic (lamicoïd), with engraved indications, in accordance with section 23 05 53 - HVAC equipment and piping.

END OF SECTION

Part 1 General

1.1 Reference standards

.1 Canadian General Standards Board (CGSB)

.1 CAN / CGSB-1.60-97, Interior Gloss Enamel Paint with Alkyd Resins.

.2 CAN / CGSB-24.3-92, Identification of Pipe Networks.

Part 2 Product

2.1 Manufacturer's signage plates

.1 Metal or laminate nameplates, mechanically fixed to pieces of equipment by the manufacturer via stainless steel brackets and fasteners.

.2 Inscriptions (letters and numbers) must be raised or debossed.

.3 The following information, as applicable, must be indicated on the nameplates.

.1 Device: manufacturer's name, model, dimensions, serial number, power, flow.

2.2 Network identification plates

.1 Colors

.1 Hazardous materials: red lettering on white background .

.2 Other materials: black lettering on white background (unless otherwise indicated in the relevant code).

.2 Material and other manufacturing characteristics

.1 Plates 3 mm thick, in or in laminate or white anodized aluminum, matte finish, with square corners and letters precisely aligned and machine-engraved to the core .

.3 Formats

.1 As indicated in the table below

Format number	Dimensions (mm)	Number 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
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 Maximum of 25 letters or numbers per line.

.4 Format according to location

.1 Number 5 format plates for terminal elements and control panels.

.2 Number 9 format plates for equipment located in mechanical installation rooms.

.5 Identification of devices and networks affected by the PWGSC Preventive Maintenance Support System (PSSS).

.1 Primary / origin / destination identification system.

.2 Premises of mechanical equipment and installations

.1 Number 9 format main identification plates.

.2 Identification plates of origin and destination in number 6 format.

.3 Number 5 format terminal element identification plates and control panels.

.3 Other locations: appropriate formats.

2.3 Identification according to the existing system

.1 Identify works added or improved according to the existing identification system.

.2 When the existing identification system does not provide for the identification of new structures installed, they must be identified according to the requirements of this section.

.3 Before starting work, have the identification system approved in writing by the Consultant.

2.4 Identification of piping

.1 The fluid conveyed in the pipes must be identified by background color markings, by pictograms (if necessary) and / or by legends; the direction of flow must be indicated by arrows. Unless otherwise specified, piping must be identified in accordance with CAN / CGSB 24.3.

.2 Pictograms

.1 Where applicable, the pictograms must comply with the requirements of the Workplace Hazardous Materials Information System (WHMIS).

.3 Legends

.1 Uppercase letters of height and color in accordance with CAN / CGSB 24.3.

.4 Arrows indicating direction of flow

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

.2 Outside diameter of pipe / insulation 75 mm and more: 150 mm long x 50 mm high;

.3 Double point arrows when direction of flow is reversible.

.5 Dimensions of background color markings

.1 Height: sufficient to cover the circumference of the pipe / insulation.

.2 Length: sufficient to allow the pictogram, legend and arrows to be affixed.

.6 Materials for making background color markings, lettering (legends) and arrows

.1 Tubes and pipes 20 mm in diameter or less: plastic labels, self-adhesive, water repellent and heat resistant.

.2 Other pipes: self-adhesive, plasticized canvas or vinyl labels, with protective coating and underside coated with a water-repellent contact adhesive, designed to withstand 100% relative humidity, constant heat 150 degrees Celsius and intermittent heat of 200 degrees Celsius.

.7 Background colors and legends

.1 When background colors and legends are not specified, comply with Departmental Representative's instructions.

.2 Colors of legends and arrows: comply with table below.

Fond color	Legends, fleches
YELLOW	BLACK
GREEN	WHITE
RED	WHITE

.3 Background color markings and legends for piping

Content / Fluid conveyed	Fond color	Legend
Alimentation- chilled water	Green	SUPPLY WATER CHILLED.
Return - chilled water	Green	RETURN WATER CHILLED.
Steam ### kPa	Yellow	Steam ### kPa
Condensat (gravity flow)	Yellow	CONDENSAT (GRAVITY)
Safety valve	Yellow	SAFETY VALVE
Supply - mixed laboratory water XX degC	Green	ALIMENTATION EAU MITIGÉE LAB. XX degC
Supply - emergency mixed water	Green	SUPPLY EMERGENCY MIXED WATER
Supply - laboratory hot water XX degC	Green	SUPPLY LABORATORY HOT WATER . XX degC
Natural gas	Yellow	NATURAL GAZ
Supply- cold water laboratory	Green	SUPPLY COLD WATER LAB.
Compressed air (≤700kPa)	Green	COMPRESSED AIR ### kPa

2.5 Identification of valves

.1 Brass labels, hallmarked, in 12 mm characters, painted black.

.2 Provide, for each network, functional diagrams in approved format, with diagrams and lists of labeled elements, specifying the type of valves, the network, the function, the location as well as the normal operating position of the valves. elements.

2.6 Unilingual / bilingual entries

.1 Inscriptions used to identify systems and elements must be written in French and English.

.2 Inscriptions in English and French must be marked on one and the same identification plate, label, etc.

Part 3 Execution

3.1 Manufacturer's instructions

.1 Compliance: Comply with manufacturer's written requirements, recommendations and specifications, including any available technical bulletin, product handling, storage and installation instructions, and data sheet indications techniques.

3.2 Installation

.1 Unless otherwise indicated, identify networks and devices in accordance with CAN / CGSB-24.3.

.2 Provide ULC, CSA certification plates required by each of the respective organizations.

.3 Identify networks and devices according to PWGSC SSEP.

3.3 Identification plates

.1 Location

.1 The plates must clearly identify the devices and / or the piping systems and they must be installed in places where they will be visible and easily read from the work floor.

.2 Spacers

.1 On hot and / or heat-insulated surfaces, provide spacers under the identification plates.

.3 Protection

.1 Do not apply paint, insulation or any coating on identification plates.

3.4 Location of piping identification elements

.1 On long pipes in open areas of boiler rooms, equipment rooms and service galleries: at intervals not exceeding 17 m, so that at least one can easily be seen from any point of operating areas or aisles.

.2 To changes of direction.

.3 In each small room where ducts or air ducts pass (at least one element).

.4 On each side of visual obstacles or in places where it is difficult to follow the layout of the networks.

.5 On each side of partitions, such as walls, floors or partitions.

.6 In places where the pipes are concealed in a groove, a ceiling void, a duct or a technical gallery, or any other restricted space, at the entry and exit points, and near the inspection openings.

.7 At the points of departure and arrival of each pipe or conduit, and near each piece of equipment.

.8 Immediately upstream of the main manually or automatically controlled valves, if not as close as possible, preferably on the upstream side.

.9 So that the designation is easily readable from the usual operating areas and from all easily accessible points.

.1 Perpendicular to the best possible line of sight, taking into account the usual location of operating personnel, lighting conditions, reduced visibility of colors or legends caused by accumulation of dust and dirt, as well as the risk of damage or damage.

3.5 Location of the identification elements of taps

.1 Fix labels using chains or closed "S" hooks in non-ferrous metal on valves, except on those connected to plumbing fixtures or heating radiators, and unless they are at proximity and sight of the equipment to which they are connected.

.2 Install a copy of the functional diagram and the list of valves, framed under anti-reflective glass, at the location determined by the Consultant. Also insert a copy (in reduced format, if necessary) in each of the operations and maintenance manuals.

.3 Number the valves in each network in order.

END OF SECTION

Part 1 General

1.1 Reference standards

.1 American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE).

.1 ASHRAE Standard 90.1-01, Energy Standard for Buildings Except Low-Rise Residential Buildings (IESNA co-sponsored; ANSI approved; Continuous Maintenance Standard).

.2 ASTM International (ASTM)

.1 ASTM B209M-04, Standard Specification for Aluminum and Aluminum Alloy Sheet and Plate Metric.

.2 ASTM C335-04, Standard Test Method for Steady State Heat Transfer Properties of Horizontal Pipe Insulation.

.3 ASTM C411-04, Standard Test Method for Hot-Surface Performance of High-Temperature Thermal Insulation.

.4 ASTM C449/C449M-00, Standard Specification for Mineral Fiber-Hydraulic-Setting Thermal Insulating and Finishing Cement.

.5 ASTM C533-2004, Calcium Silicate Block and Pipe Thermal Insulation.

.6 ASTM C547-2003, Mineral Fiber Pipe Insulation.

.7 ASTM C795-03, Standard Specification for Thermal Insulation for Use in Contact with Austenitic Stainless Steel.

.8 ASTM C921-03a, Standard Practice for Determining the Properties of Jacketing Materials for Thermal Insulation.

.3 Canadian General Standards Board (CGSB)

.1 CGSB 51-GP-52Ma-89, Vapor impermeable casing and liner material for thermal insulation of pipes, ducts and equipment.

.2 CAN / CGSB-51.53-95, Poly (vinyl chloride) sheet for tubing, receptacles and insulated cylindrical conduits.

.4 Department of Justice Canada (Jus)

.1 Canadian Environmental Assessment Act (CEAA), c. 33, 1995.

.2 Canadian Environmental Protection Act (CEPA), c. 33, 1999.

.3 Transportation of Dangerous Goods Act, 1992 (TDGA), c. 34.

.5 Manufacturer associations

.1 Canadian Thermal Insulation Association (CTIA), National Insulation Standards (C2004).

.6 Underwriters Laboratories of Canada (ULC)

.1 CAN / ULC-S102-03, Standard Test Method; surface burning characteristics of building materials and assemblies.

.2 CAN / ULC-S701-01, Standard for Polystyrene Thermal Insulation, Panels and Pipe Coverings.

.3 CAN / ULC-S702, Standard for Mineral Fiber Thermal Insulation for Buildings.

.4 CAN / ULC-S702.2-03, Thermal Insulation, Mineral Fiber for Buildings, Part 2: Applications Guidelines / Standard on thermal insulation of mineral fibers for buildings.

1.2 Definitions

.1 For the purposes of this section, the following definitions apply.

.1 "CONCEALED" elements: pipes, conduits and insulated mechanical devices, located above suspended ceilings or in inaccessible construction voids.

.2 "EXPOSED" elements: elements which are not concealed (according to prescriptions).

.2 ACIT Codes

.1 CPF: Code Piping (Plumbing) Finish.

1.3 Quality assurance

.1 Qualifications

.2 The installer must be an expert in the field, have at least three (3) years of proven experience in carrying out work of the type and scope corresponding to those described in this section, and have the required qualifications. by ACIT.

.3 Health and safety

.1 Take the necessary health and safety measures in construction in accordance with section 01 35 29.06 - Health and safety.

Part 2 Products

2.1 Fire resistance characteristics

.1 According to CAN / ULC-S102 standard

.1 Flame spread index: not more than 25.

.2 Smoke-generating power index: not more than 50.

2.2 Insulating materials

.1 Mineral fibers discussed below include glass wool, rock wool and slag wool.

.2 The coefficient of thermal conductivity (coefficient "k") must not exceed the prescribed values at an average temperature of 24 degrees Celsius, according to the tests carried out in accordance with standard ASTM C335.

.3 Heat insulation bearing code number ACIT A-3: rigid molded sheath, in mineral fibers, with vapor barrier jacket installed in the factory.

.1 Mineral fiber sheath: in accordance with ASTM C547.

.2 Vapor barrier: in accordance with CGSB 51-GP-52Ma.

.3 Maximum “k” coefficient: in accordance with ASTM C547.

.4 For piping in food service laboratory networks, excluding compressed air.

2.3 Accessory products

.1 Tape: aluminum, self-adhesive, reinforced, at least 50 mm wide.

.2 Contact adhesive: quick setting.

.3 Canvas shirt glue: washable.

.4 Tie wire: stainless steel 1.5 mm in diameter.

.5 Retaining straps: stainless steel 0.5 mm thick, 19 mm wide.

2.4 Insulating cement

.1 Thermal insulation and finishing cement

.1 Hydraulic set, on mineral wool, to ASTM C449 / C449M.

2.5 Vapor barrier overlap sealant

.1 Water-based glue, fire retardant, compatible with heat insulating material.

2.6 Vapor barrier for interior piping

.1 Acrylic type vinyl emulsion, compatible with the heat insulating material.

2.7 Lining

.1 Polyvinyl chloride (PVC) lining

.1 One-piece molded ducts, in accordance with standard CAN / CGSB-51.53, preformed as required.

.2 Color: that chosen by the Consultant.

.3 Minimum service temperature: -20 degrees Celsius.

.4 Maximum service temperature: 65 degrees Celsius.

.5 Water vapor permeability: 0.02 perm.

.6 Thickness: 0.4 mm.

.7 Fixing

.1 Solvent adhesive compatible with heat insulating material, to seal joints and overlaps.

.2 Skewers.

.3 Self-adhesive vinyl tape in matching color.

.2 Aluminum liners

.1 According to ASTM B209.

.2 Thickness: 0.4 mm sheets.

.3 Finish: smooth surface.

.4 Jointing: longitudinal and transverse sliding joints, with overlaps of 50 mm.

.5 Connection: 0.4 mm thick forged joint covers, with factory installed interior trim.

.6 Retaining strips and seals: stainless steel 0.4 mm thick, 19 mm wide, installed at 300 mm intervals

Part 3 Execution

3.1 Manufacturer's instructions

.1 Compliance: Comply with manufacturer's written requirements, recommendations and specifications, including any available technical bulletin, product handling, storage and installation instructions, and data sheet

3.2 Preparatory work

.1 Do not install the insulation until the hydrostatic test of the network (pipes and devices to which they are connected) has been completed and the results certified by the competent authority who attended the test.

.2 Make sure that the surfaces to be covered with thermal insulation or to be coated with a coating are clean, dry and free of foreign matter.

3.3 Installation

.1 Carry out work in accordance with the requirements of the relevant national standards of ACIT.

.2 Install insulation according to manufacturers' instructions and the requirements of this section.

.3 Unless otherwise indicated, install code ACIT A-3 insulation on all new and existing piping retained for all food service laboratory networks, from the point of connection of the network to the service island to " at the point of connection to the equipment, appliance and / or floor drain served.

.4 If the required nominal insulation thickness is greater than 75 mm, carry out the work in two layers, staggering the joints.

.5 Install the vapor barrier and apply the finishing coatings without discontinuity.

.1 Supports and suspensions must not pierce the vapor barrier.

.6 Supports and suspensions

.1 Install heat insulator with high compressive strength, appropriate for service conditions, when no saddle or shield of heat insulation is provided.

3.4 Prefabricated, removable heating elements

.1 Destination: to be installed on and removable fittings connecting the pipes to the devices served and valves.

.2 Characteristics: without risk of damage to adjacent insulation.

.3 Description

.1 Heat insulation, fixing products or devices and finishing coating: corresponding to the adjacent heat insulation complex.

3.5 Table - insulation of pipes

Unless otherwise specified, pipe insulation also includes insulation of valves, valve caps, filters and strainers, flanges and fittings.

.1 Insulation bearing code number ACIT A-3.

.1 Fixing: tape, placed 300 mm on center.

.2 Sealing: VR glue to seal overlaps; heat-insulating VR glue.

.3 Installation: according to code number ACIT 1501-C.

.2 Services: For all services identified in the table of modified services.

.3 The insulation thickness must comply with the indications in the table below.

.1 The supply pipes serving the various devices must not be more than 4000 mm in length.

.2 Exposed pipes serving plumbing fixtures, as well as piping, plumbing fixtures and chrome fittings must not be insulated.

Insulation thickness table						
Temperature C or (F)	Pipe dimension mm ou (inches)					
	25 (1) or less	31 to 50 (1.25 to 2)	63 to 100 (2.5 to 4)	125 to 150 (5 to 6)	200 (8) and more	Equipment
233 to 343 (451 to 650)	50 (2)	63 (2.5)	75 (3)	100 (4)	100 (4)	-
151 to 232 (303 to 450)	50 (2)	63 (2.5)	63 (2.5)	88 (3.5)	88 (3.5)	63 (2.5)
121 to 150 (250 to 302)	50 (2)	63 (2.5)	63 (2.5)	75 (3)	75 (3)	50 (2)
96 to 120 (205 to 249)	38 (1.5)	38 (1.5)	50 (2)	50 (2)	50 (2)	50 (2)
50 to 95 (122 to 204)	25 (1)	25 (1)	38 (1.5)	38 (1.5)	38 (1.5)	25 (1)
5 to 13 (41 to 55)	13 (0.5)	19 (0.75)	25 (1)	25 (1)	25 (1)	25 (1)
Under 5 (41)	25 (1)	38 (1.5)	38 (1.5)	38 (1.5)	38 (1.5)	38 (1.5)

.4 Finishing

.1 Exposed piping located inside:

.1 Installed more than one (1) m from the floor: PVC liners.

.2 Installed one (1) m from the floor and less: aluminum liners.

END OF SECTION

Part 1 General

1.1 Reference standards

.1 American Society of Mechanical Engineers (ASME)

- .1 ASME B31.9-14, Building Services Piping.
- .2 ASME B36.19M-04, Stainless Steel Pipe.
- .3 ASME B46.1-2019, Surface Texture (Roughness, Waviness, Lay)

.2 ASTM International (ASTM)

- .1 ASTM A269-15a, Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
- .2 ASTM A270 / A270M-15, Standard Specification for Seamless and Welded Austenitic and Ferritic/Austenitic Stainless Steel Sanitary Tubing
- .3 ASTM A312/A312M-16, Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes.
- .4 ASTM A351/A351M-16, Castings, Austenitic, for Pressure Containing Parts.
- .5 ASTM A403/A403M-16, Wrought Austenitic Stainless Steel Piping Fittings.

.3 Groupe CSA (CSA)

- .1 CSA W48-06, Filler Metals and Allied Materials for Metal Arc Welding.
- .2 CSA B149.1 Code d'installation du gaz naturel et du propane.

1.2 Additional materials / materials

.1 Provide the following replacement material.

- .1 Seats: at least one (1) seat for ten (10) valves installed, for each diameter supplied, but at least one (1) in all cases.
- .2 Shutters: at least one (1) shutter element for ten (10) valves installed, and this, for each diameter supplied, but at least one (1) in all cases.
- .3 Handles / Handwheels: at least two (2) of each dimension.
- .4 Fitting gaskets: at least one (1) gasket for ten 10 fittings installed.

Part 2 Product

2.1 General

.1 The equipment and materials used for apparatus, piping and related accessories must meet the requirements of the system.

2.2 Piping

.1 Piping for all food service laboratory networks: To be installed above ground:

.1 Services: Cold laboratory water, hot laboratory water, mixed laboratory water, mixed emergency water, chilled water, compressed air, steam and condensate.

.2 Sanitary piping, high corrosion resistance, in T-304L stainless steel in accordance with ASTM A270.

.3 Maximum roughness, measured in accordance with ASME B46.1:

.1 Piping with a nominal diameter equal to or less than ¾ in (20 mm): 0.8 µm on the interior and exterior surfaces.

.2 Piping with a nominal diameter greater than ¾ in (20 mm): 0.5 µm on the interior surface and 0.8 µm on the exterior surface.

.4 Service temperatures: 4-80 ° C (40-180 ° F).

.5 Wall thickness:

.1 Nominal diameter piping equal to or less than 3 in (76.1 mm): 0.065 in (1.65 mm) ± 10%.

.2 Nominal diameter piping from 4 in (101.6 mm) to 6 in (152.4 mm): 0.083 in (2.11 mm) ± 10%.

.3 Piping with a nominal diameter greater than 6 in (101.6 mm): 0.109 in (2.77 mm) ± 10%.

2.3 Natural gas

.1 Up to DN 50 mm, black carbon steel, threaded ends, seamless to ASTM A-53, Grade “B”, Type “S”.

.2 Category 150 fittings and sleeves, malleable iron, threaded with beads with sealant. Thread covered with Teflon tape or Teflon pipe coating.

.3 Class 200 ball valves, lubricated, approved, rectangular opening, Teflon packing.

.4 Corrugated type flexible stainless steel piping (TAIO).

2.4 Fittings

.1 304L stainless steel fittings, weld-in: conform to ASTM A403.

.2 Dismountable 304 stainless steel “Tri-clamp” type food fittings.

.3 316 stainless steel quick-coupling fittings, degreased, with male and female ends. Female end for future hose connection, “Tri-clamp” type. Single end closure. Provide the complete set including the male end and the female end.

2.5 Plugs

.1 304 stainless steel sanitary plugs for use with “Tri-clamp” type removable food fittings and gaskets.

2.6 Seals

.1 TIG welding with continuous argon purge inside the piping. The welds must be full penetration.

.2 Collet clamp in 304 stainless steel and nitrile gasket for removable "Tri-clamp" type food fittings.

2.7 Swing check valves

.1 Check valves of nominal diameter equal to or less than DN 2

.1 Category 125, swing check valve, all in 304 stainless steel.

.2 Removable “Tri-clamp” type food connections.

2.8 Taps

.1 Ball valves, nominal diameter equal to or less than DN 2

.1 All stainless steel, PTFE gasket.

.2 Removable “Tri-clamp” type food connections.

.2 Gate valves used in steam distribution circuits for the isolation of devices, control / regulation devices, pipe sections.

.1 Class 125, rising stem, wedge wedge, all stainless steel.

.2 Removable “Tri-clamp” type food connections.

2.9 Flexible hoses

.1 Flexible hose for food application

.1 Braided 304 stainless steel tube. Maximum operating pressure: 1724 kPa (250 psig); minimum burst pressure: 6.9 MPa (1000 psig), operating temperature range: - 40 ° C to 150 ° C (- 40 ° F to 300 ° F).

.2 End fittings: Tri-clamp quick-coupling fitting.

.3 Diameter and length: Refer to the indications on the plans.

.4 Provide with 304 stainless steel wall bracket and ball type shut-off valve.

2.10 Adjustable safety and exhaust valves for compressed air and cooled water

.1 Antagonist spring type valves and stainless steel housing for adjustable exhaust pressure.

.2 Materials: ASTM A351 stainless steel body

.3 ASME Section VIII Div 1 Approval Pressure Vessels for Steam, Air / Gas and Liquids.

2.11 Filters

.1 General

.1 Multi-cartridge, all 304 stainless steel.

.2 Filtration capacity: 10 µm.

.3 “Tri-clamp” type removable food connections.

.4 Refer to the drawings for the diameters

.5 Reference: Rainfresh ESS series.

Part 3 Execution

3.1 Piping installation

.1 Install piping in accordance with Section 23 05 15 - Common Pipe Laying Requirements for HVAC Installations.

3.2 Manufacturer's instructions

.1 Compliance: comply with manufacturer's written requirements, recommendations and specifications, including any available technical bulletin, product handling, storage and installation instructions, and technical data sheets.

3.3 Devices

.1 Install the devices by providing the space necessary for the removal of accessories to allow maintenance.

3.4 Testing

.1 Test network in accordance with Section 23 05 00 - General Requirements for HVAC Results.

3.5 Performance check

.1 Adjust the pressure regulators when the draw-off flow rate is at the maximum and the inlet pressure at the minimum.

.2 Sterilize the networks.

.3 Check performance of temperature regulators.

.4 Ensure the network meets health and safety requirements

END OF SECTION

Part 1 General

1.1 Reference standards

.1 American National Standards Institute (ANSI) / American Society of Mechanical Engineers (ASME)

- .1 ASME B16.1, Cast Iron Pipe Flanges and Flanged Fittings: Class 25, 125, 250 and 800.
- .2 ASME B16.25, Buttwelding Ends.
- .3 ASME B16.3, Malleable Iron Threaded Fittings: Classes 150 and 300.

.2 American National Standards Institute (ANSI) / American Water Works Association (AWWA)

- .1 ANSI/AWWA C111/A21.11, Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.

.3 ASTM International (ASTM)

- .1 ASTM A 47/A 47M, Standard Specification for Ferritic Malleable Iron Castings.
- .2 ASTM A 53/A 53M, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc Coated, Welded and Seamless.
- .3 ASTM A 126, Standard Specification for Grey Iron Castings for Valves, Flanges, and Pipe Fittings.

.4 Groupe CSA (CSA)

- .1 CSA W48, Matériaux d'apport et matériaux associés pour le soudage à l'arc.

.5 Manufacturers Standardization Society of the Valve and Fittings Industry, Inc.

- .1 MSS-SP-70, Cast Iron Gate Valves, Flanged and Threaded Ends.
- .2 MSS-SP-71, Grey Iron Swing Check Valves, Flanged and Threaded Ends.
- .3 MSS-SP-80, Bronze Gate, Globe, Angle and Check Valves.
- .4 MSS-SP-85, Cast Iron Globe and Angle Valves, Flanged and Threaded Ends.

Part 2 Products

2.1 Pipes

.1 Steel pipes: conform to standard ASTM A 53 / A 53M, grade B, as well as the following prescriptions.

2.2 2.2 Seals

.1 Pipes of nominal diameter equal to or less than DN 2: screw connections.

.2 Pipes with a nominal diameter equal to or greater than DN 2 1/2: fittings and flanges to be welded.

2.3 Fittings

Butt weld fittings: steel, to ANSI / ASME B16.9

Part 3 Execution

3.1 Application

.1 Manufacturer's instructions: comply with manufacturer's written recommendations, including any available technical bulletin, instructions for handling, storage and use of products, and indications in technical data sheets.

3.2 Piping installation

.1 Unless otherwise indicated, install piping in direction of fluid flow, at the following slope:

.1 steam distribution piping: 1: 240;

.2 condensate return piping: 1:70.

.2 .2 The purge manifolds must have the same diameter as the pipe on which they are mounted.

3.3 Testing

.1 .1 The test pressure must correspond to the greater of the following two values, that is to say one and a half (1 1/2) times the maximum working pressure of the network or 860 kPa.

END OF SECTION

Part 1 General

1.1 Reference standards

.1 American Society for Mechanical Engineers (ASME International)

.2 ASTM International (ASTM)

.1 ASTM A167-99 (2004), Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet and Strip.

.2 ASTM A276-06, Standard Specification for Stainless Steel Bars and Shapes.

.3 ASTM A351 / A351M, Standard Specification for Castings, Austenitic, for Pressure-Containing Parts.

.4 ASTM A564 / A564M-04, Standard Specification for Hot-Rolled and Cold-Finished Age-Hardening Stainless Steel Bars and Shapes.

Part 2 Product

2.1 Materials

.1 Stainless steel: according to ASTM A351 / A351M.

Part 3 Execution

3.1 Application

.1 Manufacturer's instructions: comply with manufacturer's written recommendations, including any available technical bulletin, instructions for handling, storage and use of products, and indications on technical data sheets.

.2 Ensure that the clearances around the devices are sufficient to allow maintenance of the latter.

END OF SECTION

Part 1 General

1.1 Reference standards

.1 CSA Group

.1 CSA C22.1-18, Canadian Electrical Code, Part 1 (24nd Edition), Safety Standard for Electrical Installations.

.2 CAN3-C235-F19, Preferred Voltage Levels for AC Systems, 0 to 50,000 V.

.2 Institute of Electrical and Electronics (IEEE)/National Electrical Safety Code Product Line (NESC)

.1 IEEE SP1122-2000, The Authoritative Dictionary of IEEE Standards Terms, 7th Edition.

1.2 Definitions

.1 Electrical and electronic terms: unless otherwise specified or indicated, terms used in these specifications, and on drawings, are those defined by IEEE SP1122.

1.3 Administrative procedures

.1 All work (demolition, connection, insulation and others) must be coordinated with the Departmental Representative at least 72 hours in advance in order to limit the impact on the activities of building users.

.2 Coordination: Coordinate the work described in this section so as to avoid any interference with the other sections.

.3 Scheduling: Take into account the requirements of the Departmental Representative if he wishes to continue to occupy the site during selective demolition. Plan an occupation by stage and the activities on the site, as defined in the schedule of activities, in accordance with 01 32 16.19 – Construction progress schedule – Bar (GANTT) chart.

1.4 Quality assurance

.1 Regulatory Authority Requirements: Ensure that work in this section is performed in accordance with the following:

.1 Federal Workers Compensation Service.

.2 Occupational Health and Safety, Labor Program, Government of Canada.

.2 Health and safety

.1 Take the necessary health and safety measures in construction in accordance with section 01 35 29.06 - Health and safety requirements.

1.5 Action and informational submittals

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

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Shop drawings:

.1 Submit wiring diagrams and installation details of equipment indicating proposed location, layout and arrangement, control panels, accessories, piping, ductwork, and other items that must be shown to ensure co-ordinated installation.

.2 Identify on wiring diagrams circuit terminals and indicate internal wiring for each item of equipment and interconnection between each item of equipment.

.3 Indicate of drawings clearances for operation, maintenance, and replacement of operating equipment devices.

.4 Submit 2 number of copies of 600 x 600 mm minimum size drawings and product data to authority having jurisdiction.

.5 If changes are required, notify the Departmental Representative of these changes before they are made.

.6 Shop drawings relating to products, special design systems or installations, custom equipment or similar to, all of which are not standard or catalogued products, will be considered engineering documents and as such, shall be authenticated by their author engineer. Authentication shall be in conformity with current Province of Quebec Laws and By-Laws.

.4 Certificates:

.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 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 certificate of acceptance from authority having jurisdiction upon completion of Work to Departmental Representative.

.5 Manufacturer's Field Reports: submit to manufacturer's written report, within three (3) days of review, verifying compliance of Work and electrical system and instrumentation testing, as described in PART 3 - FIELD QUALITY CONTROL.

.6 Installation plan for cable supports for approval by the Departmental Representative.

1.6 Closeout submittals

.1 Submit in accordance with Section 01 78 00 - Closeout Submittals.

.2 Operation and Maintenance Data: submit operation and maintenance data for all systems for incorporation into manual.

.1 Provide for each system and principal item of equipment as specified in technical sections for use by operation and maintenance personnel.

.2 Operating instructions to include following:

.1 Wiring diagrams, control diagrams, and control sequence for each principal system and item of equipment.

.2 Start up, proper adjustment, operating, lubrication, and shutdown procedures.

.3 Safety precautions.

.4 Procedures to be followed in event of equipment failure.

.5 Other items of instruction as recommended by manufacturer of each system or item of equipment.

1.7 Delivery, storage and handling

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and 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 off ground in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

.2 Store and protect materials and equipment from nicks, scratches, and blemishes.

.3 Replace defective or damaged materials with new.

.4 Packaging Waste Management: in accordance with Section 01 74 19 - Waste Management and Disposal.

Part 2 Products

2.1 Design requirements

.1 Operating voltages: to CAN3-C235

.2 Motors, 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 for control items in English and French.

.4 Use one nameplate for both languages.

2.2 Materials and equipment

.1 Provide material and equipment in accordance with Section 01 61 00 - Common Product Requirements.

.2 Material and equipment to be CSA certified. Where CSA certified material and equipment are not available, obtain special approval inspection authorities before delivery to site and submit such approval as described in PART 1 - ACTION AND INFORMATIONAL SUBMITTALS.

2.3 Warning signs

.1 Warning Signs: in accordance with requirements of Departmental Representative.

.2 Lamicoid plates, 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 as follows:

.1 Nameplates: plastic lamicoid 3 mm thick plastic engraving sheet, matt white finish face, black white core, lettering accurately aligned and engraved into core, glued to the equipment.

.2 Use white letters on a red background for emergency equipment.

.3 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 the Departmental Representative prior to manufacture.

.4 Allow for minimum of twenty-five (25) letters per nameplate.

.5 Nameplates for terminal cabinets and junction boxes to indicate system and/or voltage characteristics.

.6 Identify equipment with Size 3 labels engraved "ASSET INVENTORY NO. _____ " as directed by the Departmental Representative.

.7 Disconnects: indicate equipment being controlled and voltage.

.8 Terminal cabinets and pull boxes: indicate system and voltage.

.9 Transformers: indicate capacity, primary and secondary voltages.

.10 120/208 Vac and 347/600 Vac distribution panels for services.

.1 For modified electric panels, supply a new updated typewritten list.

.11 Outlets

.1 Identify all service outlets with a self-adhesive marker showing the panel and circuit numbers on the outside plate surface.

.2 The adhesive marker shall have black lettering on clear substrate, normal 16 points lettering.

2.6 Wiring identification

.1 Identify wiring with permanent indelible identifying markings, 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 C22.1

.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.

Network	Base Colour	Complementary Colour
Up to 250 Vac (120 and 120/208 Vac) normal	Yellow	
Up to 250 Vac (120 and 120/208 Vac) emergency	Orange	
251 Vac to 600 Vac (347/600 Vac) normal	Blue	
251 Vac to 600 Vac (347/600 Vac) emergency	Violet	
Grounding		Green

.4 Write the panel number and circuit numbers or its function on junction or pull box covers with a black felt pen marker. Identification to be as follows:

.1 C.1: For circuit number;

.2 C.1 (P 100): For circuit and panel number.

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.

.1 Paint indoor switchgear and distribution enclosures light gray.

2.9 Areas protected by sprinklers

.1 Except otherwise noted, the building is protected by an automatic fire extinguishing system (water sprinklers).

.2 Ensure that water coming from the sprinkler system, following a direct line of sight path from the sprinkler head, cannot strike live parts within the enclosure through ventilation openings in the sides and tops of electrical equipment.

.3 Ensure that water coming from the sprinkler system, coming from water accumulating on the top of the equipment, cannot flow into the interior through significant openings. By significant openings, we consider ventilation openings, openings around bus duct and cables and conduits connectors of any sizes, etc. If no waterproof connector is available, the cables should enter from the underside of the case.

.4 The use of equipment designed and certified as sprinkler resistant is also required to comply with the aforementioned requirements.

Part 3 Execution

3.1 Examination

.1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for installation in accordance with manufacturer's written instructions.

.1 Visually inspect substrate in presence of the Departmental Representative.

.2 Inform the Departmental Representative of unacceptable conditions immediately upon discovery.

.3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from the Departmental Representative.

3.2 Preparation

.1 Electrically isolate equipment during support welding work

3.3 Installation

.1 No modification to laboratory equipment is permitted.

.2 Do complete installation in accordance with CSA C22.1 except where specified otherwise

3.4 Touch-up and repair of coatings

.1 Prime and touch up surfaces with damaged painted finish and ensure new finish matches original finish.

.2 Restore surfaces whose finish has been severely damaged.

.3 Patch and seal all openings in floors and walls for the installation of supports. Finalize the leveling of the floors with an epoxy paint.

.4 Fire stop device repair materials: Use materials compatible with existing fire stop systems. Restore the elements rated for their resistance to fire affected by the removal or demolition work according to their existing classification.

3.5 Nameplates and labels

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

3.6 Openings

.1 Openings of more than 150 mm (6") are the responsibility of the general Contractor. Openings of 150 mm (6") or less are the responsibility of the subcontractor who requires the opening.

.2 Obtain approval of a Structural Engineer before drilling or inserting a sleeve in a load-bearing element, slab or other structural elements.

.3 The contractor is responsible for all damage and breakage due to its openings. Use all technical means available to ensure not to damage existing pipes, cables or structural elements with the opening.

.4 Before making an opening, the contractor must use one of these technical means to detect the presence of conduit, wiring or structural element:

.1 Radian thermography;
.2 Metal detector for metal conduits;
.3 Radars;
.4 X-ray.

.5 Make the openings so that the ridge are level and clean and ensure that the sealing gasket is the least visible as possible. Achieve airtight seals between the structures and pipes, conduits and sleeves.

.6 All filling and sealing work must be done to maintain the performance and integrity of the fire resistance required for the construction of floors, walls and ceilings.

.7 The drilling of holes using pneumatic or electric hammer with vibratory action as well as the drilling by hand and any other process using mechanical shocks are prohibited. The holes must be drilled using a rotary water drill or any other equipment accepted by the structural Engineer.

3.7 Conduit and cable installation

.1 If plastic sleeves are used in fire rated walls or floors, remove before conduit installation.

.2 No cables or conduits must be supported by the equipment. The use of the walls and the floor for the installation of the supports must be approved by the responsible of the customer.

.3 No welding is allowed on the frame of the equipment. On the other hand, and following the acceptance of the Departmental Representative, the cable supports can be bolted to the structural frames of the equipment.

3.8 Location of outlets

.1 Locate outlets in accordance with Section 26 05 32 - Outlet Boxes, Conduit Boxes and Fittings.

.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.

3.9 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.

3.10 Co-ordination of protective devices

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

3.11 Marking against electric shocks and arcs

.1 Contractor shall supply and install appropriate warning marking on equipment subject to require inspections, adjustments, repairs or maintenance under live conditions, according to the article 2-306 of the applicable Electrical Code. Marking shall be installed on following equipment, among others:

.1 Disconnect switches

3.12 Field quality control

.1 Quality control requirements in accordance with Section 01 45 00 – Quality control.

.2 Voltage drop

.1 A voltage drop greater than 2% in branch circuit wiring for receptacle or equipment, shall be considered unacceptable and will have to be corrected by the electrical contractor at is own expense.

.3 Conduct following tests in accordance with Section 01 45 00 - Quality Control.

.1 Circuits originating from branch distribution panels.

.2 Insulation resistance testing:

.1 Megger circuits, feeders and equipment up to 350 V with a 500 V instrument.

.2 Megger 350-600 V circuits, feeders and equipment with a 1000 V instrument.

.3 Check resistance to ground before energizing.

.4 Carry out tests in presence of the Departmental Representative.

.5 Provide instruments, meters, equipment and personnel required to conduct tests during and at conclusion of project.

3.13 System startup

.1 Instruct operating personnel and Departmental Representative in operation, care and maintenance of systems, system equipment and components.

3.14 Cleaning

.1 Progress Cleaning: clean in accordance with Section 01 74 00 - 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 00 - Cleaning.

.3 Waste Management: in accordance with Section 01 74 19 - Waste Management and Disposal.

.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.15 Protection

.1 Protect equipment during all work.

3.16 Seismic protection

.1 General

.1 Contractor is responsible to evaluate, furnish and install seismic protection for all new technical components as well as all relocated or modified technical components under his responsibility.

.2 Hire an Engineer, member in good standing of the Ordre des ingénieurs du Québec, for the evaluation of the seismic risk and calculation of seismic force resisting systems. The hired Engineering shall demonstrate recognized expertise in seismic protection. Contractor shall provide his contact details no more than two (2) weeks after contract signature.

.3 In some cases, indications on anchors and supports may be put on the drawings because they require a coordination with other trades. The hired Engineer shall take into consideration those indications for his calculation.

.4 During an earthquake, seismic protection devices shall prevent permanent displacements and damages caused by vertical and horizontal motions and overturns.

.2 Design criterias

.1 Site class of the building is E.

.2 Importance category of building is high.

.3 Evaluation and mitigation of seismic effects

.1 Evaluation of seismic effects shall be done as per requirements of sub-section 4.1.8 of the Quebec Construction Code, Chapter I – Building, and National Building Code of Canada (amended).

.2 Seismic force resisting systems shall be designed as per following standards:

.1 NFPA 13 et 20;

.2 SMACNA – Seismic Restraint Manual Guidelines for Mechanical System;

.3 ASHRAE – Seismic and Wind Design;

.4 FEMA;

.5 Engineering documents from earthquake-resistant devices manufacturers.

.4 Evaluation and mitigation of seismic effects report

.1 Submit to the Departmental Representative the evaluation and mitigation of seismic effects report before beginning the installation of the technical components.

.2 The report shall include, at least, the following information:

.1 General data for the project:

.1 Location of the building;

.2 General description of the building including height of the building (hn);

.3 Site class at the location of the building;

.4 Importance category of the building;

.5 Value of Sa (0.2);

.6 Value of Fa;

.7 Value of Ie;

.2 List of all technical components included in the contract which need to be have an evaluation of the seismic effects.

.3 List of all technical components which may be exempted with the justifications.

.4 For each technical component (CT) the evaluation of the seismic effect and the seismic force resisting system applied. Include following elements:

.1 Identification of the CT;

.2 Location of the CT including height (hx);

.3 Description of CT including:

.1 Type of equipment;

.2 Make and model;

.3 Dimensions;

.4 Weight;

.5 Category and values of Cp, Ar et Rp.

.4 Calculation of lateral force Vp, and forces on building structure;

.5 Description of the resisting system applied, including:

.1 Make and model of chosen material;

.2 Installation drawing specific for this project;

.3 Drawing showing the location of the seismic resisting systems.

.5 For each CT located on the ground, on a slab or on an equipment base, the overturn force calculation and description of the resisting system. Included following elements:

.1 Identification of the CT;

.2 Location of the CT including height (hx);

.3 Description of CT including:

.1 Make and model;

.2 Dimensions;

.3 Weight;

.4 Location of gravity center;

.4 Calculation of the overturn force;

.5 Description of the resisting system applied, including:

.1 Mark and model of chosen material;

.2 Installation drawing specific for this project;

.3 Drawing showing the location of the seismic resisting systems.

.5 Installation

.1 Install seismic force resisting system as per the indications of the evaluation and mitigation of seismic effects report.

.2 Any modification to the seismic force resisting system for any reason, shall be subject to a new calculation by the Engineer responsible for the seismic protection, and issued as an amendment to the report.

.3 Following requirements apply to the installation of electrical and mechanical material:

.1 Power-driven and drop-in anchors are not permitted for traction loads;

.2 C-clamps are not allowed to support CT unless they have a retainer mechanism;

.3 C-clamps are not allowed for seismic resisting systems;

.4 Equipment base shall be anchored to the slab;

.5 All vibration isolators shall be designed for seismic protection;

.6 Oval bolt adjusting hole are prohibited.

.4 Seismic protection systems must be designed in a manner not to compromise the performance of vibration isolation or thermal expansion components designed to allow piping and equipment movements. In these cases, flexible or lose anchors and ties must be used rather than rigid structures.

.6 Work approval

.1 The Engineer who prepared the evaluation and mitigation of seismic effects report shall inspect the work related to the seismic force resisting systems.

.2 Obtain from the seismic protection engineer a written and signed certification indicating that the seismic force resisting systems have been installed as per the report and the amendments to the report. Submit this certification before submitting of the work certificate of compliance.

.3 Include in the operation and maintenance manual all documents issued by the seismic protection engineer.

END OF SECTION

Part 1 General

1.1 Reference standards

.1 CSA Group (CSA)

.1 CSA S350 M1980 (R2003), Code of Practice for Safety in Demolition of Structures

1.2 Definitions

.1 Demolish: Detach items from existing construction and legally dispose of items off site, unless indicated as removed and salvaged, or removed and reinstalled.

.2 Remove: Planned deconstruction and disassembly of electrical items from existing construction including removal of conduit, junction boxes, cabling and wiring from electrical component to panel taking care not to damage adjacent assemblies designated to remain; legally dispose of items off site, unless indicated as removed and salvaged, or removed and reinstalled.

.3 Remove and Salvage: Detach items from existing construction and deliver them to Departmental Representative ready for reuse.

.4 Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.

.5 Existing to Remain: Existing items of construction that are not removed and that are not otherwise indicated as being removed and salvaged, or removed and reinstalled.

1.3 Administrative requirements

.1 Coordination: Coordinate work of this Section to avoid interference with work by other Sections.

.2 Scheduling: Consider the Departmental Representative's requirements if he wishes to continue to occupy the site during selective demolition. Plan a phased occupancy and site activities, as defined in the activity schedule.

1.4 Quality assurance

.1 Regulatory Requirements: Perform work of this Section in accordance with:

.1 Federal Workers' Compensation Service.

.2 Provincial/Territorial Occupational Health and Safety Standards and Programs

1.5 Site conditions

.1 Existing Conditions: Condition of materials identified as being salvaged or demolished are based on their observed condition at time of site examination before tendering.

1.6 Salvage and debris materials

.1 Demolished items become Contractor's property and will be removed from Project site; except for items indicated as being reused, salvaged, or otherwise indicated to remain Departmental Representative property.

.2 Carefully remove materials and items designated for salvage and store in a manner to prevent damage or devaluation of materials.

Part 2 Products

2.1 Materials

.1 Electrical Repair Materials: Use only new materials, CSA or ULC labelled as appropriate and matching components remaining after work associated with components identified for removal or demolition are completed

.2 Fire stopping Repair Materials: Use fire stopping materials compatible with existing fire stopping systems where removal or demolition work affects rated assemblies, restore to match existing fire rated performance.

Part 3 Execution

3.1 Examination

.1 Verification of Existing Conditions: Visit site, thoroughly examine and become familiar with conditions that may affect the work of this Section before tendering the Bid; Departmental Representative will not consider claims for extras for work or materials necessary for proper execution and completion of the contract that could have been determined by a site visit.

3.2 Preparation

.1 Protection of Existing Systems to Remain: Protect systems and components indicated to remain in place during selective demolition operations and as follows:

.1 Prevent movement and install bracing to prevent settlement or damage of adjacent services and parts of existing buildings scheduled to remain.

.2 Notify the Departmental Representative and cease operations where safety of buildings being demolished, adjacent structures or services appears to be endangered and await additional instructions before resuming demolition work specified in this Section.

.3 Prevent debris from blocking drainage inlets.

.4 Protect mechanical systems that will remain in operation.

.2 Protection of Building Occupants: Sequence demolition work so that interference with the use of the building by Departmental Representative and users is minimized and as follows:

.1 Prevent debris from endangering safe access to and egress from occupied buildings.

.2 Notify Departmental Representative and cease operations where safety of occupants appears to be endangered and await additional instructions before resuming demolition work specified in this Section.

3.3 Execution

.1 Demolition and Removal: Consider the following requirements:

.1 Disconnect electrical circuits and panel feeders; maintain electrical service and main distribution panel as is, ready for subsequent Work.

.2 Remove existing electrical devices and equipment including associated conduits, boxes, wiring, and similar items as indicated on drawings.

.3 Perform demolition work in a neat and workmanlike manner:

.1 Remove tools or equipment after completion of work, and leave site clean and ready for subsequent renovation work.

.2 Repair and restore damages caused as a result of work of this Section to match existing materials and finishes.

.4 Disconnect panel feeders back to main distribution panel and re label respective circuit breaker as "SPARE".

3.4 Closeout activities

.1 Demolition Waste Disposal: Arrange for legal disposal and remove demolished materials to accredited provincial landfill site or alternative disposal site (recycle centre).

END OF SECTION

Part 1 General

1.1 Reference standards

.1 CSA Group (CSA)

.1 CAN/CSA-C22.2 No.18-F98 (C2003), Outlet Boxes, Conduit Boxes and Fittings.

.2 CAN/CSA-C22.2 No.65-F03(C2008), Wire Connectors (Tri-National Standard with UL 486A-486B and NMX-J-543-ANCE-03).

.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)

1.2 Action and informational submittals

.1 Submit in accordance with Section 26 05 00 - Common work results for electrical.

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for wire and box connectors and include product characteristics, performance criteria, physical size, finish and limitations.

1.3 Closeout submittals

.1 Submit in accordance with Section 26 05 00 - Common work results for electrical.

.2 Operation and Maintenance Data: submit operation and maintenance data for wire and box connectors for incorporation into manual.

1.4 Delivery, storage and handling

.1 Deliver, store and handle materials in accordance with Section 26 05 00 - Common work results for electrical and 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 clean, dry, well-ventilated area, in accordance with manufacturer's recommendations.

.2 Store and protect wire and box connectors from nicks, scratches, and blemishes.

.3 Replace defective or damaged materials with new.

.4 Packaging Waste Management: in accordance with Section 26 05 00 - Common work results for electrical.

Part 2 Products

2.1 Materials

.1 Pressure type wire connectors to: CAN/CSA-C22.2 No.65, with current carrying parts of copper sized to fit copper conductors as required.

.2 Clamps or connectors for armoured cable, TECK cable, flexible conduit as required to: CAN/CSA-C22.2 No.18.

Part 3 Execution

3.1 Examination

.1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for wire and box connectors installation in accordance with manufacturer's written instructions.

.1 Visually inspect substrate in presence of the Departmental Representative.

.2 Inform the Departmental Representative of unacceptable conditions immediately upon discovery.

.3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from the Departmental Representative.

3.2 Installation

.1 Remove insulation carefully from ends of conductors and cables and:

.1 Apply coat of zinc joint compound on aluminum conductors prior to installation of connectors.

.2 Install mechanical pressure type connectors and tighten screws with appropriate compression tool recommended by manufacturer. Installation shall meet secureness tests in accordance with CAN/CSA-C22.2 No.65.

.3 Test and verify systems according to section 26 05 00 - Common work results for electrical.

3.3 Cleaning

.1 Progress Cleaning: clean in accordance with Section 26 05 00 - Common work results for electrical.

.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 26 05 00 - Common work results for electrical.

.3 Waste Management: in accordance with Section 26 05 00 - Common work results for electrical.

.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

END OF SECTION

Part 1 General

1.1 Product data

.1 Provide product data in accordance with Section 26 05 00 - Common work results for electrical.

1.2 Delivery, storage and handling

.1 Packaging Waste Management: in accordance with Section 26 05 00 - Common work results for electrical.

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 insulation of cross-linked thermosetting polyethylene material rated at 600 V, of type RW90 XLPE, non jacketed.

2.2 Teck 90 cable

.1 Cable: in accordance with Section 26 05 00 - Common Work Results for Electrical.

.2 Conductors:

- .1 Grounding conductor: copper.
- .2 Circuit conductors: copper, size as indicated.

.3 Insulation:

- .1 Cross-linked polyethylene XLPE.
- .2 Rating:, 600 V.

.4 Inner jacket: polyvinyl chloride material.

.5 Armour: interlocking aluminum.

.6 Overall covering: thermoplastic polyvinyl chloride, FT4.

.7 Fastenings:

- .1 One hole stainless steel straps to secure surface cables 50 mm and smaller. Two holes stainless steel straps for cables larger than 50 mm.
- .2 Channel type supports for two or more cables spaced according to the electrical code.
- .3 Threaded rods: 6 mm diameter to support suspended channels.

.8 Connectors:

- .1 Cable connectors conforming to CSA 22.2 no. 188.
- .2 Cable connectors corresponding to copper cables.
- .3 Use watertight connectors for all the installation.

2.3 Armoured cables

.1 Conductors made of material specified in article "Conductors", of size according to the indications and according to the designation RW90

.2 Armour: interlocking type fabricated from aluminum strip.

.3 Type: AC90 rated at 600 V.

.4 Connectors: anti short connectors.

Part 3 Execution

3.1 Field quality control

.1 Perform tests in accordance with Section 26 05 00 - Common Work Results for Electrical.

.2 Perform the tests using method appropriated to site conditions and to approval of the Departmental Representative and local authority having jurisdiction over installation.

.3 Perform tests before energizing electrical system.

3.2 General cable installation

.1 All conductors and cables must be handled with great care at all times. No installation of conductors or cables will be permitted at temperatures lower than those recommended by the manufacturers.

.2 Special care shall be taken to prevent wires and cables crushing or scratching.

.3 Use CSA approved lubricants compatible with the wire and cable jacket to reduce pulling tension.

.4 Horizontal cable runs in dry walls are prohibited.

.5 Terminate cables in accordance with Section 26 05 20 - Wire and Box Connectors - (0-1000 V).

.6 Cable Colour Coding: to Section 26 05 00 - Common Work Results for Electrical.

3.3 Installation of building wires – general

.1 Install wiring as follows:

.1 In conduit systems in accordance with Section 26 05 34 - Conduits, Conduit Fastenings and Conduit Fittings.

3.4 Installation of wires

.1 Inside boxes and panels, conductors must be formed and tied together using plastic clamps.

.2 Install wires in conduits as per indications.

.3 Do not pull spliced conductors in conduits.

.4 Simultaneously install all conductors in the same conduit.

.5 When the size of the conductor is larger than the size of the lug receiving it, use the largest size allowed for the lug and install a compression connector type "H" between the two conductors. Use tools recommended by manufacturer. Install over the connector an insulating cover designed to suit the connector.

3.5 Installation of teck90 cable (0 -1000 v)

.1 Secure cables properly on supports or on the surfaces using cable clamps. Install enough clamps to ensure a rigid installation and to adequately support the weight of cables in vertical runs.

.2 When cables are grouped, space them to the diameter equal or of the largest cable.

.3 No cables must be placed on the suspended tile ceiling. Securely fix the cables to the slab, structure or frame

.4 Group cables wherever possible on channels.

3.6 Installation of armoured cables

.1 Group cables wherever possible on channels.

.2 The metal sheath of armoured cables shall be cut with the appropriate tool (hacksaws not allowed) and cable extremities to be fitted with insulating bushings.

END OF SECTION

Part 1 General

1.1 Reference standards

.1 CSA Group

.1 CSA C22.1-18, Canadian Electrical Code, Part 1 (24th Edition), Safety Standard for Electrical Installations.

.2 CSA C22.2 No.41-13, Grounding and Bonding Equipment (Tri-National Standard, with NMX-J-590ANCE and UL 467).

.3 CSA C22.2 No.65-18, Wire connectors (Tri-National Standard, with UL 486A-486B NMX-J-543-ANCE).

1.2 Action and informational submittals

.1 Submit in accordance with Section 26 05 00 - Common work results for electrical.

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for connectors and terminations and include product characteristics, performance criteria, physical size, finish and limitations.

1.3 Closeout submittals

.1 Submit in accordance with Section 26 05 00 - Common work results for electrical.

.2 Operation and Maintenance Data: submit operation and maintenance data for connectors and terminations for incorporation into manual.

1.4 Delivery, storage and handling

.1 Deliver, store and handle materials in accordance with Section 26 05 00 - Common work results for electrical and 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 accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

.2 Store and protect connectors and terminations from nicks, scratches, and blemishes.

.3 Replace defective or damaged materials with new.

.4 Packaging Waste Management: in accordance with Section 26 05 00 - Common work results for electrical.

Part 2 Products

2.1 Connectors and terminations

.1 Copper long barrel compression connectors to CSA C22.2 No.65 as required sized for conductors.

.2 4 way joint boxes for wet or dry location in accordance with Section 26 05 33 - Splitters, junction, pull boxes and cabinets.

Part 3 Execution

3.1 Examination

.1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for connectors and terminations installation in accordance with manufacturer's written instructions.

.1 Visually inspect substrate in presence of the Departmental Representative.

.2 Inform the Departmental Representative of unacceptable conditions immediately upon discovery.

.3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from the Departmental Representative.

3.2 Installation

.1 Install stress cones, terminations, and splices in accordance with manufacturer's instructions.

.2 Bond and ground as required to CSA C22.2 No.41.

3.3 Cleaning

.1 Progress Cleaning: clean in accordance with Section 26 05 00 - Common work results for electrical.

.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 26 05 00 - Common work results for electrical.

.3 Waste Management: in accordance with Section 26 05 00 - Common work results for electrical.

.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

END OF SECTION

Part 1 General

1.1 Reference standards

.1 American National Standards Institute /Institute of Electrical and Electronics Engineers (ANSI/IEEE)

.1 ANSI/IEEE 837-2014, IEEE Standard for Qualifying Permanent Connections Used in Substation Grounding.

1.2 Action and informational submittals

.1 Submit in accordance with Section 26 05 00 - Common work results for electrical.

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for grounding equipment and include product characteristics, performance criteria, physical size, finish and limitations.

1.3 Closeout submittals

.1 Submit in accordance with Section 26 05 00 - Common work results for electrical.

.2 Operation and Maintenance Data: submit operation and maintenance data for grounding equipment for incorporation into manual.

1.4 Delivery, storage and handling

.1 Deliver, store and handle materials in accordance with Section 26 05 00 - Common work results for electrical and 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 accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

.2 Store and protect grounding equipment from nicks, scratches, and blemishes.

.3 Replace defective or damaged materials with new.

.4 Packaging Waste Management: in accordance with Section 26 05 00 - Common work results for electrical.

Part 2 Products

2.1 Equipment

.1 Insulated grounding conductors: green, copper conductors, size as indicated.

Part 3 Execution

3.1 Examination

.1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for grounding equipment installation in accordance with manufacturer's written instructions.

.1 Visually inspect substrate in presence of the Departmental Representative.

.2 Inform the Departmental Representative of unacceptable conditions immediately upon discovery.

.3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from the Departmental Representative.

3.2 Installation general

.1 Use mechanical connectors for grounding connections to equipment provided with lugs.

.2 Soldered joints not permitted.

3.3 Equipment grounding

.1 Install grounding connections to typical equipment included in, but not necessarily limited to following list. Transformers, conduits, etc.

3.4 Cleaning

.1 Progress Cleaning: clean in accordance with Section 26 05 00 - Common work results for electrical.

.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 26 05 00 - Common work results for electrical.

END OF SECTION

Part 1 General

1.1 Action and informational submittals

.1 Submit in accordance with Section 26 05 00 - Common work results for electrical .

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for hangers and supports and include product characteristics, performance criteria, physical size, finish and limitations.

1.2 Delivery, storage and handling

.1 Deliver, store and handle materials in accordance with Section 26 05 00 - Common work results for electrical and 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 accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

.2 Store and protect hangers and supports from nicks, scratches, and blemishes.

.3 Replace defective or damaged materials with new.

.4 Packaging Waste Management: in accordance with Section 26 05 00 - Common work results for electrical.

Part 2 Products

2.1 Support channels

.1 U shape, size 41 x 41 mm, 2.5 mm thick, surface mounted or suspended.

.2 Threaded steel rods to support suspended conduits of sufficient diameter for the load.

Part 3 Execution

3.1 Examination

.1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for hangers and supports installation in accordance with manufacturer's written instructions.

.1 Visually inspect substrate in presence of the Departmental Representative.

.2 Inform the Departmental Representative of unacceptable conditions immediately upon discovery.

.3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from the Departmental Representative.

3.2 Installation

.1 Secure equipment to masonry, tile and plaster surfaces with lead anchors.

.2 Secure equipment to poured concrete with expandable inserts.

.3 Secure equipment to hollow masonry walls or suspended ceilings with toggle bolts.

.4 Support equipment, conduit or cables using clips, spring loaded bolts, cable clamps designed as accessories to basic channel members.

.5 Fasten exposed conduit or cables to building construction or support system using straps.

.1 One-hole stainless steel straps to secure surface conduits and cables 50 mm and smaller.

.2 Two-hole stainless steel straps for conduits and cables larger than 50 mm.

.3 Beam clamps to secure conduit to exposed steel work.

.6 Suspended support systems.

.1 Support individual cable or conduit runs with 6 mm diameter threaded rods and spring clips.

.2 Support 2 or more cables or conduits on channels supported by 6 mm diameter threaded rod hangers where direct fastening to building construction is impractical.

.7 For surface mounting of two or more conduits use channels spaced according to the electrical code.

.8 Provide metal brackets, frames, hangers, clamps and related types of support structures where indicated or as required to support conduit and cable runs.

.9 Ensure adequate support for raceways and cables dropped vertically to equipment where there is no wall support.

.10 Do not use wire lashing or perforated strap to support or secure raceways or cables.

.11 Do not use supports or equipment installed for other trades for conduit or cable support except with permission of other trade and approval of the Departmental Representative.

.12 Install fastenings and supports as required for each type of equipment cables and conduits, and in accordance with manufacturer's installation recommendations.

3.3 Cleaning

.1 Progress Cleaning: clean in accordance with Section 26 05 00 - Common work results for electrical.

.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 26 05 00 - Common work results for electrical.

.3 Waste Management: in accordance with Section 26 05 00 - Common work results for electrical.

.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

END OF SECTION

Part 1 General

1.1 Reference standards

.1 CSA Group (CSA)

.1 CSA C22.1-18, Canadian Electrical Code, Part 1, 24th Edition.

1.2 Action and informational submittals

.1 Provide submittals in accordance with Section 26 05 00 - Common work results for electrical.

.2 Product Data:

.1 Provide manufacturer's printed product literature, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Submit shop drawings in accordance with Section 26 05 00 - Common work results for electrical.

1.3 Delivery, storage and handling

.1 Waste Management and Disposal: in accordance with Section 26 05 00 - Common work results for electrical.

Part 2 Products

2.1 Junction and pull boxes

.1 Boxes outside pilot plants

.1 Construction: welded steel enclosure.

.2 Covers Flush Mounted: 25 mm minimum extension all around.

.3 Covers Surface Mounted: screw-on turned edge covers.

.2 Boxes inside pilot plants

.1 Construction: NEMA 4X type stainless steel boxes, welded.

.2 Covers with hinges allowing 180º opening and latches.

.3 Oil-resistant gasket seal.

Part 3 Execution

3.1 Junction, pull boxes and cabinets installation

.1 Install pull boxes in inconspicuous but accessible locations.

.2 Install junction boxes inside pilot plants according the indications in drawings.

.3 Only main junction and pull boxes are indicated. Install additional pull boxes as required by CSA C22.1

3.2 Identification

.1 Equipment Identification: to Section 26 05 00 - Common Work Results for Electrical.

.2 Identification Labels: size 2 indicating voltage and phase or as indicated.

END OF SECTION

Part 1 General

1.1 Reference standards

.1 CSA Group (CSA)

.1 CSA C22.1-18, Canadian Electrical Code, Part 1, 24th Edition.

1.2 Action and informational submittals

.1 Provide submittals in accordance with Section 26 05 00 - Common work results for electrical.

1.3 Delivery, storage and handling

.1 Deliver, store and handle materials in accordance with Section 26 05 00 - Common work results for electrical.

.2 Waste Management and Disposal: in accordance with Section 26 05 00 - Common work results for electrical.

Part 2 Products

2.1 Outlet and conduit boxes general

.1 Size boxes in accordance with CSA C22.1

.2 102 mm square or larger outlet boxes as required.

.3 Blank cover plates for boxes without wiring devices.

2.2 Galvanized steel outlet boxes

.1 One-piece electro-galvanized construction.

.2 Single or multi gang flush device boxes for flush installation, minimum size 76 x 50 x 38 mm or as indicated. 102 mm square outlet boxes when more than one conduit enters one side with extension and plaster rings as required.

.3 Utility boxes for outlets connected to surface-mounted EMT conduit, minimum size 102 x 54 x 48 mm.

2.3 Conduit boxes

.1 Cast FS or FD boxes with factory-threaded hubs and mounting feet for surface wiring of devices.

2.4 Fittings - general

.1 Bushing and connectors with nylon insulated throats.

.2 Knock-out fillers to prevent entry of debris.

.3 Conduit outlet bodies for conduit up to 35 mm and pull boxes for larger conduits.

.4 Double locknuts and insulated bushings on sheet metal boxes.

Part 3 Execution

3.1 Installation

.1 Support boxes independently of connecting conduits.

.2 Fill boxes with paper, sponges or foam or similar approved material to prevent entry of debris during construction. Remove upon completion of work.

.3 Provide correct size of openings in boxes for conduit, mineral insulated and armoured cable connections. Do not install reducing washers.

.4 Vacuum clean interior of outlet boxes before installation of wiring devices.

.5 Identify systems for outlet boxes as required.

END OF SECTION

Part 1 General

1.1 Reference standards

.1 CSA Group (CSA)

.1 CAN/CSA C22.2 No. 18-F98 (C2003), Outlet Boxes, Conduit Boxes, Fittings and Associated Hardware, A National Standard of Canada.

.2 CSA C22.2 No. 56-17, Flexible Metal Conduit and Liquid-Tight Flexible Metal Conduit.

.3 CSA C22.2 No. 83-M1985(C2017), Electrical Metallic Tubing.

1.2 Action and informational submittals

.1 Provide submittals in accordance with Section 26 05 00 - Common work results for electrical.

.2 Product data: submit manufacturer's printed product literature, specifications and datasheets.

.3 Quality assurance submittals:

.1 Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.

.2 Instructions: submit manufacturer's installation instructions.

1.3 Waste management and disposal

.1 Separate waste materials for recycling in accordance with Section 26 05 00 - Common work results for electrical.

Part 2 Products

2.1 Cables and reels

.1 Provide cables on reels or coils.

.1 Mark or tag each cable and outside of each reel or coil, to indicate cable length, voltage rating, conductor size, and manufacturer's lot number and reel number.

.2 Each coil or reel of cable to contain only one continuous cable without splices.

2.2 Conduits

.1 Electrical metallic tubing (EMT): to CSA C22.2 No. 83.

.2 Flexible liquid-tight flexible metal conduit: to CSA C22.2 No. 56.

2.3 Conduit fastenings

.1 One hole stainless steel straps to secure surface conduits 50 mm and smaller.

.2 Two hole stainless steel straps for conduits larger than 50 mm.

.3 Beam clamps to secure conduits to exposed steel work.

.4 Channel type supports for two or more conduits spaced in accordance to the electrical code.

.5 Threaded rods, 6 mm diameter, to support suspended channels.

2.4 Conduit fittings

.1 Fittings: to CAN/CSA C22.2 No. 18, manufactured for use with conduit specified. Coating: same as conduit.

.2 Ensure factory "ells" where 90 degrees bends for 25 mm and larger conduits.

.3 Watertight connectors and couplings for EMT.

.1 Set-screws are not acceptable.

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 datasheets.

3.2 Installation

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

.2 Use electrical metallic tubing (EMT) as indicated on the drawings.

.3 Use liquid tight flexible metal conduit for as indicated on the drawings.

.4 Bend conduit cold:

.1 Replace conduit if kinked or flattened more than 1/10th of its original diameter.

.5 Remove and replace blocked conduit sections.

.1 Do not use liquids to clean out conduits.

.6 Dry conduits out before installing wire.

3.3 Surface conduits

.1 Run parallel or perpendicular to building lines.

.2 Run conduits in flanged portion of structural steel.

.3 Group conduits wherever possible on suspended channels.

.4 Do not pass conduits through structural members except as indicated.

.5 Do not locate conduits less than 75 mm parallel to steam or hot water lines with minimum of 25 mm at crossovers.

3.4 Cleaning

.1 Proceed in accordance with Section 26 05 00 - Common work results for electrical.

.2 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

END OF SECTION

Part 1 General

1.1 Reference standards

.1 CSA Group (CSA)

.1 CAN/CSA-C22.2 No.47-13(R2018), Air-Cooled Transformers (Dry Type).

.2 CSA C9-17, Dry-Type Transformers.

.3 CAN/CSA-C802.2-18, Minimum Efficiency Values for Dry Type Transformers.

.2 All transformers must meet the efficiency standards mentioned by the NRCAN standard according to the test method established by the CSA.802.2 standard.

.3 National Electrical Manufacturers Association (NEMA)

1.2 Action and informational submittals

.1 Submit in accordance with Section 26 05 00 - Common work results for electrical.

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for dry type transformers and include product characteristics, performance criteria, physical size, finish and limitations.

1.3 Closeout submittals

.1 Submit in accordance with Section 26 05 00 - Common work results for electrical.

.2 Operation and Maintenance Data: submit operation and maintenance data for dry type transformers for incorporation into manual.

1.4 Delivery, storage and handling

.1 Deliver, store and handle materials in accordance with 26 05 00 - Common work results for electrical and 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 accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

.2 Store and protect dry type transformers from nicks, scratches, and blemishes.

.3 Replace defective or damaged materials with new.

.4 Packaging Waste Management: in accordance with Section 26 05 00 - Common work results for electrical.

Part 2 Products

2.1 Design description

.1 General

.1 Dry type transformers conform to CSA C22.2 No. 47 and C9 standards.

.2 Single or 3-phase transformer as indicated.

.3 Equipment protected for installation in premises with sprinklers.

.2 Three phases dry type transformers of 15 kVA and above

.1 ANN type.

.2 Class 220 °C insulation with winding temperature rise not exceeding 150 oC.

.3 Copper windings. Three (3) primary winding, delta connected. Three (3) secondary winding, wye connected, with grounded neutral.

.4 Dielectric insulation good for 1.2 kVdc.

.5 BIL: 10 kV.

.6 With four 2.5 % taps: 2 FCAN and 2 FCBN.

.7 NEMA 1 type ventilated enclosure, or as shown, with lifting eyes and front and side removable metallic panels or installed in the service entrance cabinet.

.8 Primary and secondary permanently identified terminals fitted with solder less connectors.

.9 Primary and secondary connection lugs, separately mounted from windings.

.10 Have the appropriate impedance to achieve the energy efficiency standard.

.11 CSA acceptable noise levels:

.1 45 dB from 15 to 50 kVA;

.2 50 dB from 51 to 150 kVA;

.3 55 dB from 151 to 300 kVA;

.4 60 dB from 301 to 500 kVA.

.12 Finishing paint: baked-on ASA 61 grey enamel.

.13 The transformers shall be "Industrial/Standard" series. The "Commercial/Residential" series, such as Marcus, Delta Commercial series are not accepted.

2.2 Equipment identification

.1 Provide equipment identification in accordance with Section 26 05 00 - Common Work Results for Electrical.

.2 Label size: 7.

Part 3 Execution

3.1 Examination

3.2 Verification of Conditions: verify that conditions of the substrate previously installed under other Sections or Contracts are acceptable for dry type transformers installations in accordance with the manufacturer's written instructions.

.1 Visually inspect substrate in presence of Departmental Representative.

.2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.

.3 Proceed with the installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.3 Installation

.1 Mount dry type transformers up to 75 kVA as indicated.

.2 Mount dry type transformers above 75 kVA on floor.

.3 Ensure adequate clearance around transformer for ventilation.

.4 Install transformers in level upright position.

.5 Remove shipping supports only after transformer is installed and just before putting into service.

.6 Loosen isolation pad bolts until no compression is visible.

.7 Make primary and secondary connections in accordance with wiring diagram.

.8 Energize transformers after installation is complete.

.9 Make conduit entry into bottom 1/3 of transformer enclosure.

3.4 Cleaning

.1 Progress Cleaning: clean in accordance with Section 26 05 00 - Common work results for electrical .

.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 26 05 00 - Common work results for electrical.

.3 Waste Management: in accordance with Section 26 05 00 - Common work results for electrical.

.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.5 Protection

.1 Protect installed products and components from damage during construction.

.2 Repair damage to adjacent materials caused by dry type transformers installation.

END OF SECTION

Part 1 General

1.1 Reference standards

.1 CSA Group (CSA)

.1 CSA C22.2 No.42-10, General Use Receptacles, Attachment Plugs and Similar Devices.

.2 CAN/CSA C22.2 No.42.1-13, Cover Plates for Flush-Mounted Wiring Devices (Bi-national standard, with UL 514D).

1.2 Action and informational submittals

.1 Submit in accordance with Section 26 05 00 - Common work results for electrical.

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for wiring devices and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Shop Drawings:

.1 Submit drawings in accordance with Section 26 05 00 - Common work results for electrical.

1.3 Closeout submittals

.1 Submit in accordance with Section 26 05 00 - Common work results for electrical.

.2 Operation and Maintenance Data: submit operation and maintenance data for wiring devices for incorporation into manual.

1.4 Delivery, storage and handling

.1 Deliver, store and handle materials in accordance with Section 26 05 00 - Common work results for electrical.

.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 accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

.2 Store and protect wiring devices from nicks, scratches, and blemishes.

.3 Replace defective or damaged materials with new.

.4 Packaging Waste Management: in accordance with Section 26 05 00 - Common work results for electrical.

Part 2 Products

2.1 Receptacles

.1 Duplex receptacles, industrial grade, heavy-duty, CSA type 5-15R or 5-20R, 125 V, 15 A or 15/20 A, U ground, to CSA C22.2 No. 42, with following features:

- .1 Nylon urea moulded housing.
- .2 Suitable for No. 10 AWG for back and side wiring.
- .3 Break-off links for use as split receptacles.
- .4 Eight back wired entrances, four side wiring screws.
- .5 Triple wipe contacts and riveted grounding contacts.

.2 Other receptacles with ampacity and voltage as indicated.

.3 Receptacles of one manufacturer throughout project.

2.2 Cover plates

.1 Cover plates for wiring devices to: CSA C22.2 No.42.1.

.2 Sheet steel utility box cover for wiring devices installed in surface-mounted utility boxes.

.3 Sheet metal cover plates for wiring devices mounted in surface-mounted FS or FD type conduit boxes. Wall plates shall be designed for attachment to the boxes with four screws.

.4 The receptacles located inside the pilot plants will be completed with a cover having the following characteristics:

- .1 Be watertight even when plugs are plugged into outlet (in use).
- .2 For vertical or horizontal installation.

.5 Simple or double gang as indicated.

2.3 Source quality control

.1 Cover plates from one manufacturer throughout project.

Part 3 Execution

3.1 Examination

.1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for wiring devices installation in accordance with manufacturer's written instructions.

- .1 Visually inspect substrate in presence of the Departmental Representative.
- .2 Inform the Departmental Representative of unacceptable conditions immediately upon discovery.
- .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from the Departmental Representative.

3.2 Installation

.1 Receptacles:

.1 Install receptacles in gang type outlet box when more than one receptacle is required in one location.

.2 Mount receptacles at height as indicated.

.2 Cover plates:

.1 Install suitable common cover plates where wiring devices are grouped.

.2 Do not use cover plates meant for flush outlet boxes on surface-mounted boxes.

3.3 Cleaning

.1 Progress Cleaning: clean in accordance with Section 26 05 00 - Common work results for electrical.

.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 26 05 00 - Common work results for electrical.

.3 Waste Management: in accordance with Section 26 05 00 - Common work results for electrical.

.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.4 Protection

.1 Protect installed products and components from damage during construction.

.2 Protect stainless steel cover plate finish with paper or plastic film until painting and other work is finished.

.3 Repair damage to adjacent materials caused by wiring device installation.

END OF SECTION

Part 1 General

1.1 Reference standards

.1 CSA Group (CSA)

.1 CSA C22.2 No. 106-05 (R2014), HRC-Miscellaneous Fuses.

.2 CAN/CSA C22.2 no 248.14-00 (R2015), Low-Voltage Fuses - Part 14: Supplemental Fuses.

1.2 Action and informational submittals

.1 Provide submittals in accordance with Section 26 05 00 - Common work results for electrical.

.2 Product Data:

.1 Provide fuse performance data characteristics for each type of fuse used. Performance data to include: average melting time-current characteristics.

.3 Shop Drawings:

.1 Submit drawings in accordance with Section 26 05 00 - Common work results for electrical.

1.3 Delivery, storage and handling

.1 Ship fuses in original containers.

.2 Do not ship fuses installed in switchboard.

.3 Store fuses in original containers in a moisture free location.

.4 Waste Management and Disposal in accordance with Section 26 05 00 - Common work results for electrical.

Part 2 Products

2.1 Fuses - general

.1 Fuse type references L1, L2, J1, R1, etc. have been adopted for use in this specification.

.2 Fuses: product of one manufacturer.

2.2 Fuse types

.1 Class L fuses.

.1 Type L1, time delay, capable of carrying 500% of its rated current for 10 s minimum.

.2 Type L2, fast acting.

.2 Class J fuses.

.1 Type J1, time delay, capable of carrying 500% of its rated current for 10 s minimum.

.2 Type J2, fast acting.

2.3 Use of fuses

.1 Motor and transformer circuits.

.1 Class J, form 1, time delay.

.2 For other circuits.

.1 From 0 to 600 A: class J, form 1, fast acting.

Part 3 Execution

3.1 Installation

.1 Install fuses in mounting devices immediately before energizing circuit.

.2 Ensure correct fuses fitted to physically matched mounting devices.

.3 Ensure correct fuses fitted to assigned electrical circuit.

END OF SECTION

Part 1 General

1.1 Reference standards

.1 CSA Group (CSA)

.1 CSA C22.2 No. 5-16, Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures (Tri-national standard with UL 489, and NMX-J-266-ANCE-2010).

1.2 Action and informational submittals

.1 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for circuit breakers and include product characteristics, performance criteria, physical size, finish and limitations.

.2 Include time-current characteristic curves for breakers with interrupting capacity of 22,000 A symmetrical (rms) and over for circuits at 347 et 600 V.

.3 Certificates:

.1 Prior to installation of circuit breakers in either new or existing installation, Contractor must submit three (3) copies of a production certificate of origin from the manufacturer. Production certificate of origin must be duly signed by factory and local manufacturer's representative certifying that circuit breakers come from this manufacturer and are new and meet standards and regulations.

.1 Production certificate of origin must be submitted to the Departmental Representative for approval.

.2 Delay in submitting production of certificate of origin will not justify any extension of contract and additional compensation.

.3 Any work of manufacturing, assembly or installation to begin only after acceptance of production certificate of origin by the Departmental Representative. Unless complying with this requirement, the Departmental Representative reserves the right to mandate manufacturer listed on circuit breakers to authenticate new circuit breakers under the contract, and to Contractor's expense.

.4 Production certificate of origin must contain:

.1 Manufacturer's name and address and person responsible for authentication. Person responsible must sign and date certificate.

.2 Licensed dealer's name and address and person of distributor responsible for Contractor's account.

.3 Contractor's name and address and person responsible for project.

.4 Local manufacturer's representative name and address. Local manufacturer's representative must sign and date certificate.

.5 Name and address of building where circuit breakers will be installed:

.1 Project title: _____.

.2 End user's reference number: _____.

.3 List of circuit breakers: _____.

1.3 Delivery, storage and handling

.1 Deliver, store and handle materials in accordance with Section 26 05 00 - Common work results for electrical.

.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 circuit breakers in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

.2 Store and protect circuit breakers from nicks, scratches, and blemishes.

.3 Replace defective or damaged materials with new.

.4 Packaging Waste Management: in accordance with Section 26 05 00 - Common work results for electrical.

Part 2 Products

2.1 Breakers general

.1 Moulded-case circuit breakers: to CSA C22.2 No. 5

.2 Bolt-on moulded case circuit breaker: quick- make, quick-break type, for manual and automatic operation with temperature compensation for 40 degrees C ambient.

.3 Common-trip breakers: with single handle for multi-pole applications.

.4 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.

.5 In 120 or 208 Vac circuits use, unless otherwise noted on the distribution diagram or on the panel description sheets, single, two or three pole circuit breakers having the ratings as shown and with a 10 kA minimum RMS, symmetrical rupturing capacity.

.6 In 347 or 600 Vac circuits use, unless otherwise noted on the distribution diagram or on the panel description sheets, single, two or three pole circuit breakers having the ratings as shown and with a 14 kA minimum RMS, symmetrical rupturing capacity.

2.2 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 3 Execution

3.1 Examination

.1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for installation in accordance with manufacturer's written instructions.

.1 Visually inspect substrate in presence of the Departmental Representative.

.2 Inform the Departmental Representative of unacceptable conditions immediately upon discovery.

.3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from the Departmental Representative.

3.2 Installation

.1 Install circuit breakers as indicated.

3.3 Cleaning

.1 Progress Cleaning: clean in accordance with Section 26 05 00 - Common work results for electrical.

.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 26 05 00 - Common work results for electrical.

.3 Waste Management: in accordance with Section 26 05 00 - Common work results for electrical.

END OF SECTION

Part 1 General

1.1 Reference standards

.1 CSA Group

.1 CAN/CSA-C22.2 No.4-04(R2014), Enclosed and Dead-Front Switches (Tri-National Standard, with ANCE NMX-J-162-2004 and UL 98).

.2 CSA C22.2 No.39-13, Fuseholder Assemblies.

1.2 Action and informational submittals

.1 Submit in accordance with Section 26 05 00 - Common work results for electrical.

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for disconnect switches - fused and non-fused and include product characteristics, performance criteria, physical size, finish and limitations.

1.3 Delivery, storage and handling

.1 Deliver, store and handle materials in accordance with Section 26 05 00 - Common work results for electrical and 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 accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

.2 Store and protect disconnect switches - fused and non-fused from nicks, scratches, and blemishes.

.3 Replace defective or damaged materials with new.

.4 Packaging Waste Management: in accordance with Section 26 05 00 - Common work results for electrical.

Part 2 Products

2.1 Disconnect switches

.1 Fusible and Non-fusible disconnect switch to CAN/CSA-C22.2 No.4, size as indicated.

.2 In a type CSA 1 metallic enclosure for indoor installation and type 3 enclosure for wet installations

.3 Provision for padlocking in off switch position by 3 locks.

.4 Supplied by the same and only manufacturer.

.5 Mechanically latched door with preventing its opening when the switch is closed (screw driver defeatable mechanism).

.6 Fuses: size as indicated, in accordance with Section 26 28 13.01 - Fuses - Low Voltage.

.7 Fuseholders: to CSA C22.2 No.39, suitable without adaptors, for type and size of fuse indicated.

.8 Quick-make, quick-break action.

.9 ON-OFF switch position indication on switch enclosure cover.

.10 Heavy duty construction.

2.2 Equipment identification

.1 Provide equipment identification in accordance with Section 26 05 00 - Common Work Results for Electrical.

.2 Indicate name of load controlled on size 4 nameplate.

Part 3 Execution

3.1 Examination

.1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for disconnect switches - fused and non-fused installation in accordance with manufacturer's written instructions.

.1 Visually inspect substrate in presence of the Departmental Representative.

.2 Inform the Departmental Representative of unacceptable conditions immediately upon discovery.

.3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from the Departmental Representative.

3.2 Installation

.1 Install disconnect switches complete with fuses if applicable.

.2 Install on each fused safety switch a lamicoid plastic nameplate indicating the size of the fuses installed.

3.3 Cleaning

.1 Progress Cleaning: clean in accordance with Section 26 05 00 - Common Work Results for Electrical.

.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 26 05 00 - Common Work Results for Electrical.

.3 Waste Management: in accordance with Section26 05 00 - Common Work Results for Electrical.

END OF SECTION

Part 1 General

1.1 Reference standards

.1 Reference standards – Lighting fixtures

.1 Photometric test in accordance with IES LM-79 Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products.

.2 Light depreciation determined according to IES LM-80 Approved Method: Measuring Lumen Maintenance of LED Light Sources.

.3 Long-term light depreciation determined according to IES TM-21 Projecting Long Term Lumen Maintenance of LED Light Sources.

.4 UL 8750 Light Emitting Diode Equipment for Use in Lighting Products.

.2 Reference standards – Drivers

.1 UL 1310 Class 2 Power Units or equivalent ou équivalent CSA.

.2 ANSI C62.41 Category A IEEE Recommended Practice for Surge Voltages in Low-Voltage AC Power Circuits.

.3 FCC Title 47 CFR Part 18 Electronic Code of Federal Regulations – Telecommunication – Industrial, Scientific, and Medical Equipment.

1.2 Action and informational submittals

.1 Provide submittals in accordance with Section 26 05 00 - Common work results for electrical.

.2 Product Data:

.1 Provide manufacturer's printed product literature, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.

.2 Provide complete photometric data prepared by independent testing laboratory for luminaires where specified, for approval by the Departmental Representatif.

1.3 Quality assurance

.1 Provide required documents in accordance with Section 26 05 00 - Common work results for electrical.

.1 Manufacturer's Instructions: Submit manufacturer's written installation instructions and special handling criteria, installation sequence and cleaning procedures.

1.4 Delivery, storage, and handling

.1 Deliver, store, and handle materials in accordance with Section 26 05 00 - Common work results for electrical.

.2 Deliver materials to site in original factory packaging, labelled with manufacturer's name, address.

.3 Packaging Waste Management: in accordance with Section 26 05 00 - Common work results for electrical.

Part 2 Products

2.1 Light emitting diode lighting fixtures (LED)

.1 LED devices and their components must meet at least all the reference standards indicated above.

.2 Unless otherwise stated, each fixture must be equipped with a compatible factory installed driver.

.3 Minimum five (5) year warranty, parts and labor, for the device. This includes, without limitation, diodes, connectors, driver and all other components necessary for the proper functioning of the device.

2.2 Drivers

.1 Driver technical data:

.1 Power factor: 90 % minimum;
.2 Total harmonic distortion: 20 % maximum;
.3 Class A nominal sound volume;
.4 Operation ambient temperature: 10 to 40 °C, 90 % R.H.;
.5 Operation ambient temperature for outdoor use: -40 à +40 ºC, 90 % H.R.;
.6 Must tolerate without damage a condition of open circuit or short circuit without use of fuses or other external protection devices.

2.3 Finishes

.1 Light fixture finish and construction to meet ULC listings and CSA certifications related to intended installation.

2.4 Luminaires

.1 As indicated in drawings.

Part 3 Execution

3.1 Installation

.1 Locate and install luminaires as indicated.

.2 Connect the luminaires to indicated circuits.

.3 Install lighting fixtures after all other works, which may damage or soil them, have been finished Provide adequate support to suit ceiling system.

.4 All other division's drawings shall be examined and considered when installing lighting fixtures.

.5 At the end of the work, lighting fixtures shall be cleaned to remove any dust that may have accumulated during construction.

3.2 Cleaning

.1 Clean in accordance with Section 26 05 00 - Common work results for electrical.

.2 Waste Management: in accordance with Section 26 05 00 - Common work results for electrical.

END OF SECTION