

**RETURN BIDS TO:**  
**RETOURNER LES SOUMISSIONS À:**  
**Travaux publics et Services gouvernementaux  
Canada**  
**Place Bonaventure, portail Sud-Est**  
**800, rue de La Gauchetière Ouest**  
**7 ième étage**  
**Montréal**  
**Québec**  
**H5A 1L6**  
**FAX pour soumissions: (514) 496-3822**

**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**

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


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

<b>Title - Sujet</b> Longueuil Entretien Électrique		
<b>Solicitation No. - N° de l'invitation</b> EF944-120233/A		<b>Date</b> 2012-07-03
<b>Client Reference No. - N° de référence du client</b> R.004236.001		<b>GETS Ref. No. - N° de réf. de SEAG</b> PW-\$MTC-025-12077
<b>File No. - N° de dossier</b> MTC-1-34604 (025)	<b>CCC No./N° CCC - FMS No./N° VME</b>	
<b>Solicitation Closes - L'invitation prend fin</b> <b>at - à 02:00 PM</b> <b>on - le 2012-08-13</b>		<b>Time Zone</b> <b>Fuseau horaire</b> Heure Avancée de l'Est HAE
<b>F.O.B. - F.A.B.</b>		
<b>Plant-Usine:</b> <input type="checkbox"/> <b>Destination:</b> <input checked="" type="checkbox"/> <b>Other-Autre:</b> <input type="checkbox"/>		
<b>Address Enquiries to: - Adresser toutes questions à:</b> Couture, Danielle		<b>Buyer Id - Id de l'acheteur</b> mtc025
<b>Telephone No. - N° de téléphone</b> (514) 496-3863 ( )		<b>FAX No. - N° de FAX</b> (514) 496-3822
<b>Destination - of Goods, Services, and Construction:</b> <b>Destination - des biens, services et construction:</b> MINISTERE DES TRAVAUX PUBLICS ET SERVICES GOUVERNEMENTAUX CANADA PL.BONAVENTURE,PORTAIL S-E,BUR.7300 800 RUE DE LA GAUCHETIERE O. MONTREAL Québec H5A 1L6 Canada		

**Instructions: See Herein**

**Instructions: Voir aux présentes**

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

 Public Works and Government Services Canada		Travaux publics et Services gouvernementaux Canada		N° du documentEF944-120233/A		Part - Partie 1 of - de 2		
				See Part 2 for Clauses and Conditions Voir Partie 2 pour Clauses et Conditions				
Item Article	Description	Dest. Code Dest.	Inv. Code Fact.	Qty Qté	U. of I. U. de D.	Unit Price/Prix unitaire FOB/FAM Destination Plant/Usine	Delivery Req. Livraison Req.	Del. Offered Liv. offerte
1	Longueuil Entretien Électrique	EF944	EF944	1	LOT	\$XXXXXXXXXXXX		

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## PART 1 - GENERAL INFORMATION

### 1. Security Requirement

There is no security requirement associated with the requirement.

### 2. Statement of Work

The Contractor must perform the Work in accordance with the Statement of Work at Annex "\_\_\_A\_\_\_".

### 3. Debriefings

After contract award, bidders may request a debriefing on the results of the bid solicitation process. Bidders should make the request to the Contracting Authority within 15 working days of receipt of the results of the bid solicitation process. The debriefing may be in writing, by telephone or in person.

## PART 2 - BIDDER INSTRUCTIONS

### 1. Standard Instructions, Clauses and Conditions

All instructions, clauses and conditions identified in the bid solicitation by number, date and title are set out in the *Standard Acquisition Clauses and Conditions* (<http://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) Manual issued by Public Works and Government Services Canada.

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

The 2003 (2012-03-02) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

### Optional Site Visit

It is **strongly recommended** that the Bidder or a representative of the Bidder visit the work site. Arrangements have been made for a tour of the work site. The site visit will be held on July 18, 2012 at 10:00 a.m. at Health Canada Building, 1001 St-Laurent West, Longueuil, Qc. Bidders are requested to communicate with the Contracting Authority two (2) days before the scheduled visit to confirm attendance and provide the name(s) of the person(s) who will attend. Bidders may be requested to sign an attendance form. Bidders who do not attend or send a representative will not be given an alternative appointment but they will not be precluded from submitting a bid. Any clarifications or changes to the bid solicitation resulting from the site visit will be included as an amendment to the bid solicitation.

### 2. Submission of Bids

Bids must be submitted only to Public Works and Government Services Canada (PWGSC) Bid Receiving Unit by the date, time and place indicated on page 1 of the bid solicitation.

### **3. Enquiries - Bid Solicitation**

All enquiries must be submitted in writing to the Contracting Authority no later than five (\_5\_) calendar days before the bid closing date. Enquiries received after that time may not be answered.

Bidders should reference as accurately as possible the numbered item of the bid solicitation to which the enquiry relates. Care should be taken by bidders to explain each question in sufficient detail in order to enable Canada to provide an accurate answer. Technical enquiries that are of a proprietary nature must be clearly marked "proprietary" at each relevant item. Items identified as "proprietary" will be treated as such except where Canada determines that the enquiry is not of a proprietary nature. Canada may edit the questions or may request that the Bidder do so, so that the proprietary nature of the question is eliminated, and the enquiry can be answered with copies to all bidders. Enquiries not submitted in a form that can be distributed to all bidders may not be answered by Canada.

### **4. Applicable Laws**

Any resulting contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in Québec.

Bidders may, at their discretion, substitute the applicable laws of a Canadian province or territory of their choice without affecting the validity of their bid, by deleting the name of the Canadian province or territory specified and inserting the name of the Canadian province or territory of their choice. If no change is made, it acknowledges that the applicable laws specified are acceptable to the bidders.

## **PART 3 - BID PREPARATION INSTRUCTIONS**

### **1. Bid Preparation Instructions**

Canada requests that bidders provide their bid in separately bound sections as follows:

#### **Section I: Technical Bid**

In their technical bid, bidders should explain and demonstrate how they propose to meet the requirements and how they will carry out the Work.

#### **Section II: Financial Bid**

Bidders must submit their financial bid in accordance with the Basis of Payment. The total amount of Goods and Services Tax (GST) or Harmonized Sales Tax (HST) must be shown separately, if applicable.

#### **Section III: Certifications**

Bidders must submit the certifications required under Part 5.

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## **PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION**

### **1. Evaluation Procedures**

- (a) Bids will be assessed in accordance with the entire requirement of the bid solicitation including the technical and financial evaluation criteria.
- (b) An evaluation team composed of representatives of Canada will evaluate the bids.

#### **1.1 Technical Evaluation**

##### **1.1.1 Mandatory Technical Criteria**

- A) The Contractor shall hold the appropriate valid licence by bid submission deadline.
- B) The Contractor shall have available at least two (2) journeyperson electricians with five (5) years' experience. Written evidence is to be provided.

#### **1.2 Financial Evaluation**

The price of the bid will be evaluated in Canadian dollars, the Goods and Services Tax or the Harmonized Sales Tax excluded, FOB destination, Canadian customs duties and excise taxes included.

A0220T (2007/05/25)

### **2. Basis of Selection**

- 2.1** A bid must comply with the requirements of the bid solicitation and meet all mandatory technical evaluation criteria to be declared responsive. The responsive bid with the lowest evaluated price will be recommended for award of a contract.



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## PART 5 - CERTIFICATIONS

Bidders must provide the required certifications to be awarded a contract. Canada will declare a bid non-responsive if the required certifications are not completed and submitted as requested.

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 award of a contract. 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.

### 1. Certifications Precedent to Contract Award

The certifications listed below should be completed and submitted with the bid, but may be submitted afterwards. If any of these required certifications is not completed and submitted as requested, the Contracting Authority will so inform the Bidder and provide the Bidder with a time frame within which to meet the requirement. Failure to comply with the request of the Contracting Authority and meet the requirement within that time period will render the bid non-responsive.

#### 1.1.1 Federal Contractors Program - over \$25,000 and below \$200,000

Suppliers who are subject to the Federal Contractors Program (FCP) and have been declared ineligible contractors by Human Resources and Skills Development Canada (HRSDC) are no longer eligible to receive federal government contracts over the threshold for solicitation of bids as set out in the Government Contracts Regulations. Suppliers may be declared ineligible contractors either as a result of a finding of non-compliance by HRSDC, or following their voluntary withdrawal from the FCP for a reason other than the reduction of their workforce to less than 100 employees. Any bids from ineligible contractors, including a bid from a joint venture that has a member who is an ineligible contractor, will be declared non-responsive.

The Bidder, or, if the Bidder is a joint venture the member of the joint venture, certifies its status with the FCP, as follows:

The Bidder or the member of the joint venture

- (a) ( ) is not subject to the FCP, having a workforce of less than 100 full-time or part-time permanent employees, and/or temporary employees having worked 12 weeks or more in Canada;
- (b) ( ) is not subject to the FCP, being a regulated employer under the Employment Equity Act, S.C. 1995, c. 44;
- (c) ( ) is subject to the requirements of the FCP, having a workforce of 100 or more full-time or part-time permanent employees, and/or temporary employees having worked 12 weeks or more in Canada, but has not previously obtained a certificate number from HRSDC, having not bid on requirements of \$200,000 or more;
- (d) ( ) has not been declared an ineligible contractor by HRSDC, and has a valid certificate number as follows: \_\_\_\_\_.

Further information on the FCP is available on the HRSDC Web site.

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## **PART 6 - RESULTING CONTRACT CLAUSES**

### **1. Security Requirement**

There is no security requirement associated with the requirement.

### **2. Statement of Work**

The Contractor must perform the Work in accordance with the Statement of Work at Annex "A".

### **3. Standard Clauses and Conditions**

All clauses and conditions identified in the Contract by number, date and title are set out in the Standard Acquisition Clauses and Conditions (<http://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) Manual issued by Public Works and Government Services Canada.

#### **3.1 General Conditions**

2010C (2012/03/02), General Conditions - Services (Medium Complexity) apply to and form part of the Contract.

### **4. Term of Contract**

#### **4.1 Period of the Contract**

The period of the Contract is from date of Contract to five (5) years.

## **5. Authorities**

### **5.1 Contracting Authority**

The Contracting Authority for the Contract is:

Name: Danielle Couture  
Title: Supply Officer  
Public Works and Government Services Canada  
Acquisitions Branch  
Address: 800 de la Gauchetière Street West  
Place Bonaventure, South-East Portal  
Montreal, Qc H5A 1L6  
Telephone: 514-496-3863  
Facsimile: 514-496-3822  
E-mail address: danielle.couture@tpsgc-pwgsc.gc.ca

The Contracting Authority is responsible for the management of the Contract and any changes to the Contract must be authorized in writing by the Contracting Authority. The Contractor must not perform work in excess of or outside the scope of the Contract based on verbal or written requests or instructions from anybody other than the Contracting Authority.

### **5.2 Project Authority**

The Project Authority for the Contract is:

Name: \_\_\_\_\_  
Title: \_\_\_\_\_  
Organization: \_\_\_\_\_  
Address: \_\_\_\_\_  
  
Telephone : \_\_\_\_\_  
Facsimile: \_\_\_\_\_  
E-mail address: \_\_\_\_\_

The Project Authority is the representative of the department or agency for whom the Work is being carried out under the Contract and is responsible for all matters concerning the technical content of the Work under the Contract. Technical matters may be discussed with the Project Authority, however the Project Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of the Work can only be made through a contract amendment issued by the Contracting Authority.

### 5.3 Contractor's Representative

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

Title: \_\_\_\_\_

Organization: \_\_\_\_\_

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

Telephone : \_\_\_\_ \_

Facsimile: \_\_\_\_ \_

E-mail address: \_\_\_\_\_

### 5.4 Contact at the Client's Department

For all information related to invoicing and/or payments:

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

Title: \_\_\_\_\_

Organization: \_\_\_\_\_

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

Telephone : \_\_\_\_ \_

Facsimile: \_\_\_\_ \_

E-mail address: \_\_\_\_\_

## 6. Payment

### 6.1 Basis of Payment

#### Basis of Payment - Firm Price

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid a firm price, as specified in Annex "B" part A") for a cost of \$ \_\_\_\_\_ (*insert the amount at contract award*). Customs duties are included, and Goods and Services Tax or Harmonized Sales Tax is extra, if applicable.

Canada will not pay the Contractor for any design changes, modifications or interpretations of the Work, unless they have been approved, in writing, by the Contracting Authority before their incorporation into the Work.

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## Basis of Payment - Limitation of Expenditure

The Contractor will be reimbursed for the costs reasonably and properly incurred in the performance of the Work, as determined in accordance with the Basis of Payment in Annex "B" part B, to a limitation of expenditure of \$\_\_\_\_\_ (insert the amount at contract award). Customs duties are included, and Goods and Services Tax or Harmonized Sales Tax is extra, if applicable.

### 6.2 Limitation of Expenditure

1. Canada's total liability to the Contractor under the Contract must not exceed \$ \_\_\_\_\_. Customs duties are included and Goods and Services Tax or Harmonized Sales Tax is extra, if applicable.
2. No increase in the total liability of Canada or in the price of the Work resulting from any design changes, modifications or interpretations of the Work, will be authorized or paid to the Contractor unless these design changes, modifications or interpretations have been approved, in writing, by the Contracting Authority before their incorporation into the Work. The Contractor must not perform any work or provide any service that would result in Canada's total liability being exceeded before obtaining the written approval of the Contracting Authority. The Contractor must notify the Contracting Authority in writing as to the adequacy of this sum:
  - (a) when it is 75 percent committed, or
  - (b) four (4) months before the contract expiry date, or
  - (c) as soon as the Contractor considers that the contract funds provided are inadequate for the completion of the Work,whichever comes first.
3. If the notification is for inadequate contract funds, the Contractor must provide to the Contracting Authority a written estimate for the additional funds required. Provision of such information by the Contractor does not increase Canada's liability.

### 6.3

SACC Manual clause H1001C (2008/05/12), Multiple Payments  
SACC Manual clause H1008C (2008/05/12), Monthly Payments  
A9117C (2007/11/30), T1204 - Direct Request by Customer Department

## 7. Invoicing Instructions

### Invoicing Instructions - Maintenance Services

1. The Contractor must submit invoices in accordance with the section entitled "Invoice Submission" of the general conditions along with the maintenance report described in the Statement of Work of the Contract.
2. Invoices cannot be submitted until all work identified in the invoice has been completed and that all maintenance service call reports related to the Work identified in the invoice have been received by the Project Authority.

## 8. Certifications

- 8.1 Compliance with the certifications provided by the Contractor in its bid is a condition of the Contract and subject to verification by Canada during the term of the Contract. If the Contractor does not comply with any certification or it is determined that any certification made by the Contractor in its bid is untrue, whether made knowingly or unknowingly, Canada has the right, pursuant to the default provision of the Contract, to terminate the Contract for default.

## 9. Applicable Laws

The Contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in the Province of Quebec.

## 10. Priority of Documents

If there is a discrepancy between the wording of any documents that appear on the list, the wording of the document that first appears on the list has priority over the wording of any document that subsequently appears on the list.

- (a) the Articles of Agreement;
- (b) 2010C (2012/03/02) General Conditions - Services (Medium Complexity)
- (c) Annex A, Statement of Work;
- (d) the Contractor's bid dated \_\_\_\_\_

## 11. SACC Manual Clauses

A9068C(2010/01/11), Government Site Regulations

Solicitation No. - N° de l'invitation

EF944-120233/A

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

R.004236.001

Amd. No. - N° de la modif.

File No. - N° du dossier

MTC-1-34604

Buyer ID - Id de l'acheteur

mtc025

CCC No./N° CCC - FMS No/ N° VME

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## **12. Insurance**

SACC Manual clause G1005C(12/05/08), Insurance

### **ANNEX "A"**

#### **STATEMENT OF WORK**

**(see PDF document)**



## Annex "B", Price table

### **PART A**      **MAINTENANCE SERVICE** (see note 1 below)

Lump sum:	Lump sum <u>for 5 years</u> , every two (2) years (years 1, 3 and 5 of the contract)	(A1) \$
	Year 1 of the contract	\$ _____
Lump sum breakdown	Year 3 of the contract	\$ _____
	Year 5 of the contract	\$ _____

### **PART B**      **REPAIRS** (see note 2 below)

<b>Materials</b>	Provisional amount for repair materials only <u>for 5 years</u> , including 10% profit	(B1) \$55,000.00
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Labour	Work period	Hourly rate See note 3		Hours (approx.)	Total
<b>Journey person electrician</b>	8:30 a.m.– 4:30 p.m. (Monday to Friday)	\$ _____	x	50	\$ _____
	4:30 p.m.– 7:30 a.m. (Monday to Friday)	\$ _____	x	25	\$ _____
	Sundays and statutory holidays	\$ _____	x	25	\$ _____
<b>Apprentice</b>	8:30 a.m.– 4:30 p.m. (Monday to Friday)	\$ _____	x	50	\$ _____
	4:30 p.m.– 7:30 a.m. (Monday to Friday)	\$ _____	x	25	\$ _____
	Sundays and statutory holidays	\$ _____	x	25	\$ _____

**Total labour:** (B2)  
\$ \_\_\_\_\_

**Grand Total (A1) + (B1) + (B2):** \$ \_\_\_\_\_

**NOTES**

1. The total amount of the bid will be used for evaluation purposes **only**, and only the amount shown in Part A is covered by this contract. The Department undertakes to pay the Part A amount only, subject to approval of the work and other conditions in the Specifications.
2. The Department does not undertake to give the Contractor the amounts shown in Part B for materials and labour. The Department will, however, pay to the Contractor the amounts negotiated for each repair authorized by the Departmental Representative. The Contractor will be paid for work at an hourly rate plus materials based on the general provisions of section 1 and will not be entitled to any other compensation for any difference between the hours negotiated for each repair and the hours actually worked. The Contractor will be paid only for the materials authorized and used in performing the work and shall obtain prior approval from the Department's authorized representative before starting any work under Part B.
3. The above hourly rates shall include all labour costs related to work done by employees, including all benefits, transportation costs, parking costs, administrative costs and Contractor's profit.

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**PUBLIC WORKS AND  
GOVERNMENT SERVICES CANADA**

**HEALTH CANADA**

**1001 ST-LAURENT BOULEVARD WEST  
LONGUEUIL, QUEBEC  
J4K 1C7**

**ELECTRICAL DISTRIBUTION SYSTEM INSPECTION AND MAINTENANCE**

**Project: R.004236.001**

**Call for tenders:**

**Date: May 2012**

**Closing date:**

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## INDEX OF BID DOCUMENTS AND SPECIFICATIONS

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### HEALTH CANADA

1001 ST-LAURENT BOULEVARD WEST  
LONGUEUIL, QUEBEC  
J4K 1C7

### ELECTRICAL DISTRIBUTION SYSTEM INSPECTION AND MAINTENANCE

March 2012

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**ELECTRICAL DISTRIBUTION SYSTEM INSPECTION AND MAINTENANCE**

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**GENERAL PROVISIONS**  
**ELECTRICAL DISTRIBUTION SYSTEM INSPECTION AND MAINTENANCE**

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**1 DRAWINGS**

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1. No drawings are attached to these specifications.

**2 TERMS AND CONDITIONS**

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1. All clauses and general conditions apply to and govern performance of this work.
2. Section 2 of these specifications shall be performed for the lump sum set out in Part A of the price schedule to be completed.
3. Any repairs required and authorized by the Department shall be done at the hourly rate set out in Part B of the price table to be completed.
4. The Contractor shall provide emergency service at all times to cover any possible power outages. The Contractor shall ensure that the necessary staff are on site within three (3) hours. Only the Technical Authority for the building or the Technical Authority's representative can authorize service calls and work orders.
5. The Contractor shall provide all necessary parts for the maintenance or repair work for which the Contractor is responsible.

**3 HOURLY-RATE WORK  
(REPAIRS AND SERVICE  
CALLS)**

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1. All hourly-rate repairs and service calls shall be authorized in advance by the Technical Authority.
  2. The applicable hourly rates shall be the rates set out in Part B and must include benefits, transportation costs, parking costs, administrative costs and profit.
  3. For emergency calls only, a total of one (1) hour shall be allowed for travel to and from the work site (half an hour each way).
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**GENERAL PROVISIONS**  
**ELECTRICAL DISTRIBUTION SYSTEM INSPECTION AND MAINTENANCE**

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**4. DEFECTS AND  
ABNORMAL  
CONDITIONS**

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1. Defects or abnormal conditions in systems, devices or equipment discovered during an inspection shall be promptly reported to the Department, which will then be responsible for taking corrective action. If the services of a licensed electrician are needed to install wiring or conduit, for example, the Department may choose to hire the Contractor holding this contract or any other contractor to carry out the work. In either case, the Contractor shall advise the Department or the Departmental Representative in order to help correct the defect or anomaly.
2. The Contractor is responsible for maintenance, repair and adjustment of equipment or systems carried out by a subcontractor. However, the Contractor is not responsible for work done by another contractor selected by the Department unless the Contractor subsequently inspects the equipment or systems repaired or adjusted by the other contractor.
3. When the Contractor does repairs, the Contractor shall leave on site for inspection any defective parts that were replaced and shall make a notation to that effect in the report.

**5. PARTS AND TOOLS**

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1. The Contractor shall repair worn parts or, where necessary, replace them with new parts.
  2. The Contractor shall supply all instruments, tools, parts and materials required for the maintenance, repair and replacement of the parts covered by the contract.
  3. Replacement parts shall be genuine and shall come from the equipment manufacturers. Where it is impossible to obtain genuine replacement parts or equipment, the Contractor shall use equivalents the quality of which is equal to or greater than the quality of the original parts or equipment; the equivalents shall be approved by the Department or the Departmental Representative.
  4. The Department reserves the right to decide on the quality of replacement parts; this decision shall be final and cannot be appealed.
  5. Any parts installed without the Department's approval or deemed by the Department not to be in compliance shall be
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**GENERAL PROVISIONS**  
**ELECTRICAL DISTRIBUTION SYSTEM INSPECTION AND MAINTENANCE**

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replaced within eight (8) days, failing which the Contractor shall be deemed to be in default.

6. Any change of parts shall be authorized in advance by the Departmental Representative.

**6. LABOUR**

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1. Labour shall be provided by the Contractor and shall be fully qualified.
2. The Department reserves the right to reject and request the replacement of any individual it deems to be unacceptable.
3. The Contractor shall supervise its employees so as to ensure that their conduct and attire are appropriate and that their movement within the buildings is limited to the specific requirements of the work to be performed.
4. The Department shall make available to the Contractor a person to provide guidance as needed during the work period.

**7. WORK PERIOD**

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1. The work period and schedule shall be established and co-ordinated with the timetable previously agreed to by the Contractor and the Technical Authority of the building and/or the Authority's authorized representative.

**8. POWERING OFF**

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1. None of the owner's equipment shall be powered off unless the Contractor is given official notice by the Building Manager and/or the Building Manager's authorized representative. Moreover, if the maintenance or repair work requires that Hydro Quebec equipment be powered off, this task will be co-ordinated with Hydro Quebec and the Contractor by the Building Manager and/or the Building Manager's authorized representative. All costs associated with Hydro Quebec materials/equipment and labour for powering off and re-energization will be billed directly to the owner, who will assume the costs thereof.

**9. SITE SECURITY**

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1. The Contractor and the Contractor's representatives shall abide by building security regulations.
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2. The Contractor shall provide the instructions, notices and signage necessary to inform the Building Manager and building occupants about any work in progress.
  3. Equipment shall be delivered to the location stipulated by the Building Manager. The Contractor's representatives shall clear that space upon receiving the equipment unless otherwise authorized by the manager.
  4. The Contractor or the Contractor's representatives shall sign in and out at the place designated by the Building Manager. They shall indicate the time in and time out and state the reasons for the visit.

**10. DEPARTMENTAL  
REQUIREMENTS**

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1. The Contractor shall have a sufficient number of journeyperson electricians with a least five (5) years' experience in their respective fields.
2. Only qualified personnel with the appropriate credentials shall be allowed to work on electrical, electronic and pneumatic systems as the case may be.
3. The Contractor shall be fully responsible for any omissions, breakage or incompetence and the consequences of the actions of its personnel.

**11. PERSONAL  
PROTECTION AND  
PROTECTION OF  
PROPERTY**

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1. The Contractor shall take such safety measures and precautions as are needed to protect individuals and property against accidents or damage while maintenance and repairs are being carried out.
  2. The Contractor shall be expressly and fully liable for accidents or damage to individuals or property resulting from its activities on the premises.
  3. Special care shall be taken to avoid soiling, scratching, damaging or hitting finished surfaces with ladders, scaffolding or any other equipment that may be used in the course of the work.
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**12. FIRE PROTECTION**

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1. At all times in the course of operations, the Contractor shall comply with the Fire [Protection Standard on the Treasury Board of Canada Secretariat's Web site at http://publiservice.tbs-sct.gc.ca/pol/doc-eng.aspx?id=17316&section=text](http://publiservice.tbs-sct.gc.ca/pol/doc-eng.aspx?id=17316&section=text)
2. The standard is available from the Labour Directorate, Fire Safety Engineering, Guy Favreau Complex, 200 René Lévesque Blvd. West, 4th floor, West Tower, Montreal, Quebec H2Z 1X4. Telephone 514-982-2553.
3. Copies of the standard can be obtained by contacting Human Resources Development, Labour Directorate, Fire Safety Division, Ottawa K1A 0J2.

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**13. CLEAN PREMISES**

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1. Debris shall not be allowed to accumulate. After each work period, the Contractor shall remove from the premises any waste and debris generated by its work. The Contractor shall leave the premises clean to the Departmental Representative's satisfaction.

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**14. DIRECTIONS**

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The Contractor shall comply with any instructions or directives it receives from the Technical Authority of the federal building at 1001 St-Laurent, Longueuil, Quebec.

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**15. COMMUNICATIONS**

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1. The addresses and telephone numbers where the Contractor or its supervisor or manager can be reached at any time of the day or night shall be placed on a list prepared and updated as needed by the Contractor and submitted to the Building Manager prior to the start of work.

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**16. REPORTS,  
CERTIFICATES AND  
WORKSHEET**

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1. After every repair or service call, the Contractor shall produce three (3) copies of a worksheet along with detailed certificates
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of replacement parts. The worksheet must identify the date and the work performed, the parts replaced and/or repaired and the number of hours each employee spent on the job. The Contractor will submit separate worksheets for maintenance work and repairs. Worksheets for emergency calls must contain, in addition to the information indicated above, the date and exact time of the call, the name of the person who made the call, the Contractor's arrival time at the premises and the time the Contractor left.

2. The Building Technical Authority or authorized representative shall keep a copy signed by the Contractor and shall promptly send a copy to the client department. The third copy shall remain the property of the Contractor.
3. Where there is no authorized representative on site, the Contractor shall forward to the manager two copies of the worksheet duly signed by the security guard on duty.
4. Within 10 business days of the completion of the work, the Contractor shall provide the Technical Authority with a complete typed report of the inspections, including the list of equipment confirming that it is operating properly.
5. The form and the information to be recorded in each report must, before the execution of the contract, be submitted for approval by the Technical Authority, who reserves the right to amend the information, where applicable.
6. Each report shall be verified and countersigned by the Building Technical Authority or a person he or she designates.
7. The reports may be sent by regular mail, courier, e-mail or fax.
8. PWGSC must receive the required reports and certificates before paying the invoice.

**17. MANUFACTURERS'  
INSTRUCTIONS**

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Maintaining servicing of systems, devices and equipment shall be performed by the Contractor in strict compliance with the instructions and directives of the manufacturers and suppliers concerned.

**18. ISOLATION AND  
ELECTRICAL  
TRANSFER REQUEST**

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1. The Contractor shall complete [the PWGSC-TPSGC 13 form \(Request for Electrical Isolation and Re-energization\)](#) in the
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instances of electrical isolation or interruption described below in accordance with the [\*Canada Occupational Health and Safety Regulations, Part VIII\*](#) made under the [\*Canada Labour Code\*](#):

1. main building power supply lines;
  2. power supply line panels and sub-panels;
  3. bus bars;
  4. motor control centres;
  5. back-up power circuits;
  6. fire alarm system and fire protection devices;
  7. mechanical protection devices (sump pump, etc.);
  8. building services alarm circuit, including heating, ventilation and air conditioning;
  9. circuits powering more than one device;
  10. circuits connected to a single device incorporated into a cooling or heating system.
1. The Contractor shall complete the form and have it countersigned by the Technical Authority before carrying out the work.

**19 ADDITIONS/MODIFICATIONS**

1. The Department reserves the right to move, modify or add devices and connected equipment. The Contractor shall maintain such devices and equipment at no additional cost provided the amount of equipment added does not exceed 3% of the existing amount.

**20 GENERAL SAFETY**

**1. GENERAL CLAUSES**

**NOTE**

The general and or/specific clauses below may apply to the contract only in part or not at all. Before undertaking any work, the Contractor must confirm with the Building Authority whether the Contractor is required to comply with the conditions below and must comply in full if required.

- 1.1 In accepting this contract, the Contractor agrees to assume all of the responsibilities normally assigned to the principal contractor and the employer under the *Quebec Act respecting occupational health and safety* and to supervise the work.
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- 1.2 The Contractor shall manage its activities to ensure that the health and safety of its employees, the occupants of the building or facility, and the public and protection of the environment always take precedence over cost and scheduling concerns. Further, the Contractor shall meet all of the requirements of these specifications.
- 1.3 The Contractor shall comply at all times with the provisions of the *Quebec Act respecting occupational health and safety*, *Safety Code for the construction Industry* and *Regulation respecting occupational health and safety*, where they apply.
- 1.4 The Contractor shall perform all work in accordance with the latest editions of the *National Fire Code of Canada*, the *National Building Code of Canada* and the *Canadian Electrical Code* and any other applicable codes or standards.
- 1.5 The Contractor shall submit to the Technical Authority a prevention program specific to all activities the Contractor is likely to carry out in the building at least ten (10) days before the start of work. The Contractor shall thereafter update its prevention program if the work proceeds differently than initially planned. After receiving the program and at any time during the work, the Building Technical Authority may demand that the program be amended or augmented to better reflect actual work site conditions. The Contractor shall make any such required corrections before the start of work.

The prevention program shall be based on identification of risks and shall take into account the information and requirements set out in these specifications. The program shall be in effect for the entire term of the contract and shall meet the following requirements:

- include the company's policy on health and safety;
  - include an organization chart of health and safety responsibilities;
  - identify risks specific to each category of tasks that will be performed in order to execute the contract and the corresponding preventive measures based on the regulatory requirements;
  - identify the person responsible for implementing preventive measures;
  - take into account risks that may affect the health and safety of workers, occupants of the building or facility and the public;
  - include first aid and emergency response standards;
  - include an accident response procedure;
  - include a site inspection sheet based on the content of its risk identification;
  - include repair jobs that may be assigned to the Contractor under this contract;
  - include a written undertaking from all stakeholders to comply with the prevention program.
- 1.6 In addition to the program specified in the preceding clause, for all cases in which the work to be completed involves a construction site as defined in the *Act respecting occupational health and safety*, R.S.Q., c. S-2.1, the Contractor shall develop a prevention program specific to the work to be performed and submit it to the Building Technical Authority, and shall also send it to the Commission de la santé et de la sécurité du travail (CSST) and the Association paritaire pour la santé et la sécurité du travail, in accordance with section 198 of that Act. The requirements for that program are the same as the requirements listed in the preceding clause.
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- 1.7 For all cases in which the work to be completed involves a construction site as defined in the *Act respecting occupational health and safety*, R.S.Q., c. S-2.1, a notice of opening of a construction site shall be submitted to the CSST before the start of work and a copy shall be submitted to the Building Technical Authority. A copy of this notice shall be clearly posted on the site. When the site is dismantled, the notice of closing of a construction site shall be submitted to the CSST with a copy to the Building Technical Authority.
- 1.8 The Contractor shall submit the following documents to the Building Technical Authority:
- a copy of the training certificates required for application of these specifications and safe planning of the work, for example, general health and safety for construction sites, asbestos, lock-out, first aid);
  - a copy of the safety data sheet for every controlled product used on the work site, at least three days before the product is used on site;
  - confirmation of the medical examinations of its supervisory employees and all employees. Where a medical examination is required under a statute, regulations, a directive, specifications or an accident prevention program, the Contractor shall thereafter promptly submit confirmations of medical exams for all persons new to the work site;
  - a copy, signed and sealed by an engineer, of all plans and compliance certificates required under the *Safety Code for the construction industry* (c. S-2.1, r. 4), any other statute or regulation, or any other clause of the Specifications or the contract. A copy of these documents shall also be sent to the CSST and be available on the work site at all times;
  - a mechanical inspection certificate for the machinery used to perform the work. (e.g. elevating platforms);
  - an investigation report within 24 hours of any accident that results in an injury or any incident that brings to light a potential hazard;
  - a copy, within 24 hours, of any inspection report, notice of correction or recommendation issued by federal or provincial inspectors.
- 1.9 The Contractor shall ensure that the materials, equipment, tools and protective gear used to perform the work are maintained and kept in good condition. Any equipment, tools or protective gear which cannot be installed or used without compromising the health and safety of workers or of the public shall be deemed unsuitable for the purposes of the work. The Technical Authority reserves the right to prohibit the use of equipment or tools deemed dangerous, defective or inappropriate.
- 1.10 The Contractor shall ensure that its workers have received the training and information needed to perform their tasks safely and that all necessary tools and protective equipment are available, comply with the applicable standards, statutes and regulations and are used.
- 1.11 The Contractor shall take such measures as are necessary to enforce and ensure compliance with the health and safety requirements set out in contract documents, federal and provincial regulations, applicable standards and the prevention program specific to the work, and comply promptly with any order or correction notice issued by the Commission de la santé et de la sécurité du travail.
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Regardless of the number of workers assigned to the work, the Contractor shall designate a person to act as workplace health and safety officer and give that person the authority to order work stopped or resumed when the person deems such action necessary for health and safety reasons.

- 1.12 Without limiting the scope of the preceding paragraph, the Building Technical Authority may at any time order that work be stopped if he or she believes there is a hazard or risk to the health and safety of the employees assigned to the work, the public or the environment.

The Contractor shall take such measures as are needed to ensure effective communication of health and safety information. As soon as they arrive on the work site, all workers shall be informed of the details of the prevention program and their obligations and rights. The Contractor shall maintain a log of information provided and obtain the signature of every worker who is given the information.

The Contractor shall inform its workers that they have the right to refuse any work that entails a risk to their health or safety.

- 1.13 The Contractor shall inspect the work site and submit to the Building Technical Authority a duly completed work site inspection sheet every working day or at an interval determined with the Building Technical Authority on the call-up against a standing offer form.
- 1.14 The Contractor shall promptly take all necessary measures to correct instances of non-compliance with statutes and regulations and hazardous situations identified by a government inspector, by the Building Technical Authority or by the PWGSC health and safety co-ordinator or in the course of a periodic inspection. Written confirmation of all measures taken shall be submitted to the Building Technical Authority to correct non-compliance or hazardous situations.
- 1.15 The Contractor agrees to comply with first aid and emergency response standards in accordance with the applicable policies and regulations and any other clause of the Specifications.
- 1.16 The Contractor shall review the building and facility evacuation procedure and provide its employees with the training and information they need to apply the procedure.
- 1.17 For all cases in which the work to be completed involves a construction site as defined in the *Act respecting occupational health and safety*, R.S.Q., c. S-2.1, a decision-making representative of the Contractor must attend all meetings where health and safety on the site is considered. The Contractor shall set up a work site committee and hold meetings in compliance with the requirements of the *Safety Code for the construction industry*, S-2.1, r. 4.
- 1.18 For all cases in which the work to be completed involves a construction site as defined in the *Act respecting occupational health and safety*, R.S.Q., c. S-2.1, the following information and documents shall be posted in an area that workers can access easily:
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- notice of opening of work site;
  - identification of principal contractor;
  - company policy on occupational health and safety;
  - prevention program specific to the work site;
  - emergency plan;
  - safety data sheets for all controlled products used on the work site;
  - minutes of work site committee meetings;
  - names of the work site committee members;
  - names of the first aid attendants;
  - action and correction reports issued by the CSST.

- 1.19 The Contractor shall mark off and control access to the work area and install barricades as needed.
- 1.20 The Contractor shall take such measures as are necessary to keep the workplace clean and orderly throughout the work and shall ensure that at the end of each workday, the workplace is free of any hazards.
- 1.21 When a worker works alone in an isolated place where it is impossible to call for help, the Contractor shall identify the risks related to the situation and provide the Technical Authority with a procedure for preventing those risks and quickly getting help in an emergency.
- 1.22 Where a hazard not identified in the Specifications arises as a result of or in the course of the work, the Contractor shall stop the work immediately, implement temporary protective measures for the workers and the public, and notify the Building Technical Authority orally and in writing. The Contractor shall then make the necessary changes to the prevention program in order for work to resume safely.
- 1.23 In the event of an incident, the Contractor shall take all necessary measures, including stoppage of work, to ensure the health and safety of the workers and the public and shall contact the Technical Authority promptly.
- 1.24 Subcontracting is not permitted without special authorization from the Building Technical Authority. In making the decision, the Building Technical Authority will consider the subcontractor's ability to meet these requirements.
- 1.25 Sealing guns and other cartridge devices shall not be used without authorization from the Building Technical Authority.
- The above notwithstanding,
- every person who uses a sealing gun shall have a training certificate and shall meet all the requirements set out in section 7 of the *Safety Code for the construction industry* (S-2.1, r. 4);
  - every cartridge device shall be used in accordance with the manufacturer's instructions and the applicable standards and regulations.
- 1.26 On the work site, the Contractor shall take into account the following conditions in developing a safe work plan:
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Some rooms have asbestos in the pipe insulation. Although there is no requirement in these specifications for handling this asbestos, the Contractor shall notify the Building Technical Authority (chief of operations) immediately if this insulation is disturbed during the work or if unexpected work makes it necessary for the Contractor to handle the asbestos.

If the Contractor is asked to carry out work where asbestos dust is likely to be released, the Contractor shall comply with the requirements of section 3.23 of the *Safety Code for the construction industry*, the *Act respecting occupational health and safety* (R.S.Q., c. S-2.1).

The Contractor may be asked to do roofing work. The Contractor shall indicate in its prevention program the measures to be taken to prevent falls.

The Contractor may be asked to do work near a body of water or a holding tank. The Contractor shall indicate in its prevention program the measures to be taken to prevent the risk of drowning, electric shock and electrocution.

The Contractor may be asked to do work at heights in the receiving area, in plants or elsewhere. The Contractor shall indicate in its prevention program the measures to be taken for work at heights.

The Contractor may be asked to inspect or check electrical rooms. The Contractor shall indicate in its prevention program the measures it plans to take to protect people in those areas.

Work in confined spaces may be required. The Contractor shall include in its prevention program the measures it intends to take when working in these areas, and take into account the requirements of section 2.4 of the *Safety Code for the construction industry*, the *Act respecting occupational health and safety* (R.S.Q., c. S-2.1).

The Contractor may be asked to do work in laboratories. The Contractor shall contact the Building Technical Authority to determine whether special procedures need to be taken.

## **2. SPECIAL CLAUSES**

### **2.1 Lock-out**

2.1.1 Whenever work is being done on electric equipment that could be powered on inadvertently, the Contractor shall produce in writing and apply a lock-out procedure and complete the disconnect request form (ELF No. 13) provided by the building technical officer.

The following is a partial list of situations where use of the form is mandatory:

- main building power supply lines;
  - power supply line panels and sub-panels;
  - bus bars (shielded);
  - motor control centres;
  - back-up power circuits;
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- fire alarm and fire protection devices;
  - mechanical protection devices (sump pump, etc.);
  - building services alarm circuit, specifically, all heating, ventilation and air conditioning systems;
  - circuits powering two or more pieces of equipment;
  - circuits powering a single (1) piece of equipment used in a cooling or heating system.

The Contractor shall complete the form and have it countersigned by the person in charge of the work site before carrying out any work.

- 2.1.2 Notwithstanding the preceding clauses, the Contractor shall, in an emergency, obtain oral confirmation of power cut-off from the Building Technical Authority and, as soon as that confirmation is obtained, record in writing the request for isolation or electrical transfer.
- 2.1.3 The procedure referred to in clause 2.1.1 shall comply with the principles set out in the brochure on lock-out published by the Association paritaire en santé et sécurité du secteur de la construction (ASP Construction).
- 2.1.4 The supervisors and workers concerned must have completed the course on lock-out techniques offered by ASP Construction, 514-355-6190 or 1-800-361-6190 or an equivalent course offered by another organization.
- 2.1.5 For any work that absolutely must be carried out with the power on, the Contractor shall identify the situation in writing and make provisions for the preventive measures that will be applied, including personal protective equipment.

**2.2     Work at heights**

- 2.2.1 The Contractor shall provide the equipment needed to work at heights (e.g. ladders, stepladders, elevating platforms, scaffolding).
  - 2.2.2 The Contractor shall ensure that every person who does work that entails a risk of falling more than 2.4 metres is protected against falls.
  - 2.2.3 The Contractor shall plan and organize work so as to foster the elimination of hazards at the source or ensure group protection and thus minimize the need for personal protective equipment. Where personal fall protection is needed, workers shall use a safety harness conforming to standard CAN-CSA-Z-259.10-M90. A safety belt shall not be used for fall protection.
  - 2.2.4 Protective equipment, tools or devices that cannot be installed or used without compromising the health and safety of workers or the public are deemed to be inadequate for the work to be performed.
  - 2.2.5 Workers shall always wear a safety harness when working on a telescoping, articulated or rotating elevating platform.
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2.2.6 The danger zone shall be marked off wherever equipment for work at heights is used.

2.3 Asbestos

Before starting work likely to generate asbestos dust, the Contractor shall:

- 2.3.1 provide a written procedure covering all of the items listed in section 3.23 of the *Safety Code for the construction industry* S-2.1, r. 4;
- 2.3.2 show that all workers concerned have been trained in asbestos hazards and the procedure described above (ASP Construction) (s. 3.23.7);
- 2.3.3 show that it has all the equipment needed to comply with the procedure and safely perform the work.

2.4 Confined spaces

PWGSC classifies and evaluates all confined spaces on properties of which it is the custodian. Confined spaces are divided into three classes: 1—low risk; 2—medium risk; and 3—high risk. An evaluation report is produced for every confined space. The report identifies all of the characteristics and entry requirements of the confined space. It is one of the elements taken into account in issuing permits and developing work procedures.

All confined spaces shall be properly identified on the basis of their classification. A PWGSC-approved sign shall be posted at the entrance or as close as possible to confined spaces.

2.4.1 Class 1

For all Class 1 (low risk) confined spaces, every person involved shall have completed the basic training. While it is not necessary to implement specific work practices in low-risk confined spaces, the Contractor shall apply methods to ensure the general health and safety of persons required to carry out work in such spaces.

Before accessing the confined spaces, the Contractor shall notify the Building Technical Authority or the supervisor of the scheduled time and date for access and exit.

Persons with access to low-risk confined spaces shall record the relevant information in the Confined Space Entry Log (form PWGSC-TPSGC 103 in ELF); in other words, persons entering a low-risk confined space are required to record the time in and time out in the log on each occasion.

2.4.2 Classes 2 and 3

For all Class 2 and Class 3 (medium- and high-risk) confined spaces, the following measures shall be rigorously applied.

- 2.4.2.1 The Contractor's prevention program shall contain a written procedure identifying:
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- the tools needed to perform the work;
  - the equipment installed or to be installed in the confined space and the measures to be taken to install, use, maintain, protect or move the equipment;
  - pipes and conduits entering the confined space;
  - the hazards and safety measures to be taken depending on the work to be performed;
  - contaminants that might be encountered in the confined space;
  - appropriate rescue measures and equipment and emergency measures.

2.4.2.2 The Contractor shall complete an entry permit (ELF form 101). The permit is valid for one shift and shall take into account the information contained in the evaluation report and any specific conditions related to the work to be performed. The Contractor can, however, use its own form provided that it contains all the information appearing on the form supplied by the person in charge of the work site.

2.4.2.3 The Contractor shall complete a Hot Work Permit where the work to be performed includes welding, cutting or any other activity that produces a flame or sparks (ELF form 102).

2.4.2.4 Every person who has access to a confined space shall hold the following training certificates:

- PWGSC Safe Work in Confined Spaces (ASP Construction)
- Workplace First Aid and CPR (organization recognized by the CSST)
- Use of Ventilation Devices (ASP Construction)
- Use of Safety Harnesses (ASP Construction)
- Use and Maintenance of Respiratory Protection Devices (ASP Construction)
- Gas Detection Devices (ASP Construction)

Where the use of supplied-air or self-contained respirators is planned, full training in the preparation, maintenance and use of the devices (manufacturer, supplier or recognized organization) is required.

In remote areas where there is no local emergency response unit, the Contractor shall designate persons to carry out rescue operations in confined spaces. The rescuers designated by the Contractor shall complete relevant training in the use of rescue equipment.

2.4.2.5 Every person who has access to a confined space shall produce a medical certificate confirming his or her fitness to work in a confined space. Such certificates are valid for two years.

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| 2.4.2.6  | Employees required to work in sewage collection systems or similar systems shall be vaccinated against infectious diseases in accordance with the immunization program prescribed by Health Canada, that is, against diphtheria and tetanus.   |
| 2.4.2.7  | While it is mandatory only in the cases referred to previously, vaccination against diphtheria and tetanus is strongly recommended for all work in confined spaces.  |
| 2.4.2.8  | The Contractor shall establish an emergency and rescue procedure with municipal and ambulance services. The procedure, telephone numbers and location of the nearest telephone shall be clearly posted near the work location.   |
| 2.4.2.9  | Before entering the confined space and every 15 minutes thereafter, the Contractor shall take readings of the concentration of oxygen, flammable gases and any toxic gases likely to be present, in particular carbon monoxide and hydrogen sulphide. The readings shall be recorded in a log unless the detection devices have an alarm and operate continuously. The detection devices used shall be calibrated and adjusted by a qualified person according to the manufacturer's instructions so that the alarms comply with the limits set out in the permit. |
| 2.4.2.10 | The Contractor shall supply its own gas detection devices and keep them in good condition. The Technical Authority may have the accuracy of the Contractor's devices checked at any time by a qualified person. If a detection device fails, work shall be suspended immediately and all workers shall leave the confined space. No claim for lost time will be accepted in such circumstances.  |
| 2.4.2.11 | If the alarm on a detection device sounds, all workers shall leave the confined space. The Contractor shall then determine the source of the contamination, neutralize it and ventilate the confined space in order to eliminate any remaining contaminant and shall keep individuals out of the confined space until the oxygen and gas levels have returned to normal.   |
| 2.4.2.12 | Compressed gas cylinders and welding machines shall not be taken into confined spaces. Such equipment shall remain outside and shall not block any entrance or exit. All cylinders shall be properly secured.  |
| 2.4.2.13 | Electric tools and devices used to access confined spaces shall be grounded and, if necessary, designed to be explosion-proof. All equipment shall be connected to a ground fault interrupter or stepdown transformer. The Contractor shall, at its own expense, have a qualified electrician modify any power outlets and/or circuit breakers it plans to use which do not meet these criteria.   |
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| 2.4.2.14 | The Contractor shall provide a ventilation system in order to keep the contaminant levels below the allowable limits.  |
| 2.4.2.15 | The Contractor shall post signs to stop unauthorized persons from entering the confined space.   |
| 2.4.2.16 | Where it is impossible to keep the noise level below 85 dB, the Contractor shall provide all workers with ear protectors appropriate to the desired level of attenuation and the work to be performed.   |
| 2.4.2.17 | The Contractor shall ensure that all workers wear the required personal protective equipment.  |
| 2.4.2.18 | <p>The Contractor shall assign a qualified person to assume the duties of custodian. The custodian shall do the following:</p> <ul style="list-style-type: none"><li>• Be familiar with the procedure for working in a confined space.</li><li>• Ensure constant communication with all workers in the confined space. The directives applied shall be adapted to confined spaces. The Contractor shall select means of communication taking into account the identified hazards and other pertinent factors, that is, the protective equipment workers are required to wear, noise levels in and near confined spaces, remoteness, lighting conditions, etc.</li><li>• Be familiar with the gas detection devices and ensure that they are in working order throughout the work.</li><li>• Be familiar with the back-up ventilation systems and ensure that they are in working order throughout the work.</li><li>• Be familiar with emergency procedures.</li><li>• Ensure that:<ul style="list-style-type: none"><li>✓ all workers entering the confined space observe the Contractor's work procedure;</li><li>✓ working conditions and the work environment inside the confined space are not detrimental to the workers' health and safety.</li></ul></li></ul> |
| 2.4.2.19 | The custodian shall remain at the entrance to the confined space as long as there is a worker in the space.  |
| 2.4.2.20 | The Contractor shall designate a person to be in charge of safety in confined spaces. The designated person shall be on the work site at all times.  |
| 2.4.2.21 | The same person may not serve as custodian and confined spaces safety officer unless he or she is able to meet the requirements of both positions.   |
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**ELECTRICAL DISTRIBUTION SYSTEM INSPECTION AND MAINTENANCE**

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**2.5     Hot work**

2.5.1 Hot work means any work that involves the use of a flame or has the potential to produce an ignition source, such as riveting, welding, cutting, grinding, burning and heating.

2.5.2 The Contractor shall not start work that involves hot work until it has received a PWGSC Hot Work Permit (ELF form PWGSC-TPSGC 102) from the Building Technical Authority.

2.5.3 Work shall be performed in accordance with Fire Commissioner Standard FC 301, Standard for Construction Operations, June 1982. FC 301 is available at the following Internet address:

[http://www.hrsdc.gc.ca/eng/labour/fire\\_protection/policies\\_standards/commissioner/301/page00.shtml](http://www.hrsdc.gc.ca/eng/labour/fire_protection/policies_standards/commissioner/301/page00.shtml)

2.5.4 A working fire extinguisher appropriate to the fire hazard shall be available and readily accessible within five (5) metres of any flame, sparks or intense heat.

2.5.5 A person shall be designated to conduct fire checks for at least thirty (30) minutes after the end of the shift. The person who does the checks shall countersign the permit and give it to the Building Technical Authority (or a designated representative) after the thirty (30)-minute period ends.

2.5.6 Propane cylinders shall be stored in accordance with standard *CAN/CSA-B149.2-00 Propane Storage and Handling Code* and shall meet the specific conditions set out in this document. Cylinders shall be stored outdoors in a safe place where they will not be handled by unauthorized persons, in a storage unit designed for that purpose; they shall be stored securely in an upright position, and the storage unit shall be locked at all times; the storage unit shall be located in an area where there is no vehicle traffic unless the area is protected by gates or an equivalent means.

All cylinders used or stored on work sites shall have a collar designed to protect the valve.

Refilling of cylinders on work sites is not permitted unless a procedure complying with standard *CAN/CSA B149.2* is approved and authorized by the Building Technical Authority.

**2.5.7 Welding and cutting**

Note: For welding and cutting work, the following conditions shall be met in addition to the conditions stated above.

2.5.7.1 Welding and cutting shall be performed in accordance with sections 3.13 "Compressed gas supply" and 3.14 "Welding and cutting" of the *Safety Code for the construction industry* (R.S.Q., c S-2.1, r. 4).

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## GENERAL PROVISIONS

### ELECTRICAL DISTRIBUTION SYSTEM INSPECTION AND MAINTENANCE

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1.5.7.2 Work shall be performed in accordance with Fire Commissioner Standard FC 302, Standard for Welding and Cutting, May 1979. This standard is available at the following Internet address:

[http://www.hrsdc.gc.ca/eng/labour/fire\\_protection/policies\\_standards/commissioner/302/page00.shtml](http://www.hrsdc.gc.ca/eng/labour/fire_protection/policies_standards/commissioner/302/page00.shtml)

2.5.7.3 Welding and cutting devices are extremely dangerous in terms of fire risk. The following precautions shall be taken when that type of work is being carried out:

- Store compressed gas cylinders on a fireproof surface and ensure that the room is well ventilated.
  - Store oxygen cylinders at least 6 metres away from cylinders containing flammable gas (e.g. acetylene) or such combustible materials as oil and grease unless they are separated by a wall made of non-combustible material as specified in section 3.13.4 of the *Safety Code for the construction industry*, S-2.1, r. 4.
  - Put fireproof cloths in place when overhead welding is being done and there is a risk of falling sparks.
  - Store cylinders away from heat sources.
  - Do not store cylinders near stairs, exits, corridors or elevators.
  - To avoid the risk of explosion, do not allow acetylene to come into contact with such metals as silver, mercury, copper and brass alloys containing more than sixty-five percent (65%) copper.
  - Make sure that all electric arc welding equipment has the required voltage rating and is grounded.
  - Make sure that the lead wires of the electric welding equipment are not damaged.
  - Place the welding equipment on a flat surface protected from the weather.
  - Remove or protect combustible materials that may be near the welding site.
  - Never weld or cut closed containers.
  - Take protective measures when welding or cutting near pipes, tanks or other containers containing flammable substances.
  - Do not cut, weld or carry out open-flame work on a tank, pipe or other container that may contain a flammable or explosive substance unless
    - air samples have been taken and indicate that the work can be done safely; or
    - measures have been taken to ensure worker safety.
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## **GENERAL PROVISIONS**

### **ELECTRICAL DISTRIBUTION SYSTEM INSPECTION AND MAINTENANCE**

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#### **2.6 Scaffolding**

##### **2.6.1 Footings**

- Scaffolding shall be placed on solid footings so as to prevent it from sliding or tipping.
- If the Contractor wishes to place scaffolding on a roof, an eave, a canopy or a garret, the Contractor shall submit its calculations to the engineer and obtain the engineer's authorization before proceeding.

##### **2.6.2 Assembly, bracing and anchoring**

- All scaffolding shall be assembled, braced and anchored in accordance with the manufacturer's instructions and the provisions of the *Safety Code for the construction industry*.
- In situations where it is necessary to remove some scaffolding components (e.g. cross pieces), the Contractor shall submit an assembly procedure signed and sealed by an engineer certifying that the scaffolding will allow work to be carried out safely, taking into account the loads that will be applied.
- Where the span between two scaffolding supports is greater than 3 m, the Contractor shall provide an assembly plan signed and sealed by an engineer.

##### **2.6.3 Fall protection during assembly**

- Throughout the assembly process, workers shall be protected against falls.
- Before starting work, the Contractor shall submit to the engineer a procedure specifying the protective measures used and, if applicable, the anchor points for safety cables or retainers. This procedure shall comply with the provisions of sections 3.9.4(5), 2.9.1 and 2.10.12 of the *Safety Code for the construction industry* (as amended on August 2, 2001).

##### **2.6.4 Platforms**

- Scaffold platforms shall be designed and installed in accordance with the provisions of the *Safety Code for the construction industry*.
- If planks are used, they shall be approved and stamped in accordance with section 3.9.8 of the *Safety Code for the construction industry* (in force on January 1, 2002).
- Platforms shall cover the entire surface protected by guardrails.
- Notwithstanding the above, scaffolding four (4) sections (or 6 m) high or higher shall have a full platform covering the entire surface of the putlogs every 3 m or portion thereof, and at no time shall the components of such platforms be moved to create intermediate platforms.

##### **2.6.5 Guardrails**

- A guardrail shall be installed on every platform.
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**GENERAL PROVISIONS**  
**ELECTRICAL DISTRIBUTION SYSTEM INSPECTION AND MAINTENANCE**

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- Cross-bracing shall not be considered guardrails.
  - On scaffolding four (4) sections (or 6 m) high or higher that require full platforms, guardrails shall be installed on all such platforms at the start of work and remain in place until completion of the work.

2.6.6 Access

- The Contractor shall ensure that access to scaffolding does not compromise worker safety.
- Where the scaffolding platforms are made up of planks, ladders shall be installed so as to ensure that any planks that extend past the edge do not prevent workers from moving up or down.
- Notwithstanding the provisions of the *Safety Code for the construction industry*, stairs shall be installed on all scaffolding with six (6) or more sets of uprights that are six (6) sections (or 9 m) high or higher.

2.6.7 Protection of the public and occupants

- The Contractor shall mark out and barricade its work area so as to limit access to authorized workers only.
- The Contractor shall install covered walkways, nets or other similar devices to protect the public and occupants from falling objects.

2.6.8 Use of public roads

- Where it is necessary to encroach on a public road, the Contractor shall obtain at its own expense any authorizations and permits required by the competent authority.
- The Contractor shall install at its own expense all signage, barricades and other devices needed to ensure the safety of the public and its own facilities. Ladders shall be installed so as to ensure that planks that extend past the edge do not prevent workers from moving up or down.

Notwithstanding the provisions of the *Safety Code for the construction industry*, stairs must be installed on all scaffolding with six (6) or more sets of uprights that are six (6) sections (or 9 m) high or higher.

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**SCOPE OF WORK**  
**ELECTRICAL DISTRIBUTION SYSTEM INSPECTION AND MAINTENANCE**

Page 1 of 1

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**1 GENERAL**

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1. The Contractor shall provide the labour, materials, tools and equipment needed to carry out the maintenance work described in this section on any equipment that is part of the systems described in Appendix A, including any components, and the inspections described in Appendix B.
2. The purpose of these specifications is to keep the equipment in very good working condition. However, this shall be regarded as a minimum standard under which the Contractor shall work and in no way represents the full extent of the Contractor's responsibilities and obligations.
3. The Contractor shall carry out all work in accordance with the latest version of the *Canadian Electrical Code* and the standards and regulations applicable to this type of work.
4. The Contractor shall provide a printed worksheet listing any defects and/or abnormal conditions in accordance with section 18 of the General Provisions and other related provisions. Failure to meet this requirement may result in a refusal to pay.
5. The Department reserves the right to make changes at any time to the electrical systems covered by these provisions without relieving the Contractor of any of its obligations under the contract.

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## **APPENDIX A**

### **LIST OF EQUIPMENT**

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**APPENDIX A  
EQUIPMENT LIST**

**Equipment to Maintain**

**A ) External unit**

- ☐ Oil-filled transformer, 2000 kVA to 25 kV / 600 volts, 3 phases, 3-wire.
- ☐ **Load switch**, Westinghouse, 600A, 23 kV, model #34163, with key interlocking.

**B ) Main electrical room (Room 011)**

**1. Four (4) cell main distribution station**

A-S1 P6N1, ITE model, 3000A, 600V, 3-phase, 3-wire, including:

- ☐ One (1) 3000A main circuit breaker frame
- ☐ Twelve (12) 1600A drawout circuit breaker frames

**2. Distribution panels**

- ☐ A-S1-D6N1, Westinghouse model, 600V / 3 Ø / 3-wire, including eight (8) 3-pole moulded-case circuit breakers; 1 x 15A, 2 x 30A, 3 x 60A and 2 x 200A
- ☐ A-S1-D3H1, Westinghouse model, 250A, 600V / 3 Ø / 3-wire, including eight (8) 3-pole moulded-case circuit breakers; 6 x 15A, 2 x 30A
- ☐ A-S1-B6H1, Westinghouse model, 400A, 600V / 3 Ø / 3-wire, including seven (7) 3-pole moulded-case circuit breakers; 2 x 40A, 1 x 50A, 2 x 100A and 1 x 225A
- ☐ A-S1-D2H1, Westinghouse model, 400A, 600V / 3 Ø / 3-wire, including seven (7) 3-pole moulded-case circuit breakers; 1 x 60A, 4 x 70A, and 2 x 150A

**3. Dry-type transformers, 600/120/208 volts, 3 Ø / 4-wire:**

- ☐ A-S1-T2H1, 75 kVA
- ☐ A-S1-T8N1, 15 kVA

**4. Condensers**

- ☐ A-S1-Q6N1, PSC model, 240 kVAR, 800A, 600V, 3-phase, 3-wire.

**C ) Mechanical room (Rooms 012 and 014 )**

**1. Motor control centre**

- ☐ A-S1-M6N1, CCM, eight (8) 600V cells including twenty-seven (27) starters combined with disconnects and two (2) disconnects.
  - ☐ A-S1-M6H1, CCM, one (1) 600V cell including six (6) starters combined with disconnects.
-

**APPENDIX A  
EQUIPMENT LIST**

**2. Dry-type transformers, 600/120/208 volts, 3 Ø / 4-wire;**

- ☐ A-S1-T2N1, Westinghouse, 112.5 kVA

**D ) Secondary electrical room (Room 081)**

**1. Distribution panels**

- ☐ C-S1-B6N1, Westinghouse model, 1200A to 600V / 3 Ø / 3-wire, including eleven (11) 3-pole moulded-case circuit breakers; 4 x 15A, 2 x 60A, 1 x 100A, 1 x 150A, 2 x 175A and 1 x 600A.
- ☐ C-S1-P6H1, Westinghouse model, 1000A to 600V / 3 Ø / 3-wire, including ten (10) 3-pole moulded-case circuit breakers; 5 x 15A, 1 x 60A, 1 x 125A, 1 x 150A, and 2 x 400A.
- ☐ C-S1-D3H1, Cutler-Hammer model, 250A to 600V / 3 Ø / 3-wire, including two (2) 3-pole moulded-case circuit breakers; 1 x 60A and 1 x 125A.
- ☐ C-S1-D2N1, Westinghouse model, 400A to 600V / 3 Ø / 3-wire, including fourteen (14) 3-pole moulded-case circuit breakers; 14 x 70A.
- ☐ C-S1-D2H2, Cutler-Hammer, 400A to 600V / 3 Ø / 3-wire, including four (4) 3-pole moulded-case circuit breakers; 3 x 100A and 1 x 200A.

**2. Dry-type transformers, 600/120/208 volts, 3 Ø / 4-wire;**

- ☐ C-S1-T2H1, Westinghouse, 45 kVA
- ☐ C-S1-T2H2, Anaconda, 112.5 kVA
- ☐ C-S1-T2N1, 150 kVA.

**E ) Mechanical room (Room 093)**

**1. Motor control centre**

- ☐ C-S1-M6N1, CCM, two (2) cells, 600V, including eight (8) starters combined with disconnects
- ☐ C-S1-M6H1, CCM, three (3) cells, 600V, including fourteen (14) starters combined with disconnects and two (2) 50A disconnects

**2. Dry-type transformers, 600/120/208 volts, 3 Ø / 4-wire;**

- ☐ C-S1-T6H1, 27 kVA.
  - ☐ C-S1-T6H2, 27 kVA.
-

**APPENDIX A  
EQUIPMENT LIST**

**F ) Penthouse A**

**1. Busbar cable troughs**

- ☐ A-A-R6H1, cable trough for busbar, ITE XL-Universal model, 225A to 600V / 3 Ø / 3-wire
- ☐ A-A-R6H2, cable trough for busbar, ITE XL-Universal model, 225A to 600V / 3 Ø / 3-wire
- ☐ A-A-R6H3, cable trough for busbar, ITE XL-Universal model, 225A to 600V / 3 Ø / 3-wire

**2. Dry-type transformers, 600/120/208 volts, 3 Ø / 4-wire:**

- ☐ A-A-T2H1, Delta, 30 kVA
- ☐ A-A-T2N1, Westinghouse, 30 kVA

**G ) Penthouse C**

**1. Motor control centres**

- ☐ C-A-M6H1, CCM, six (6) cells, 600V, including twenty-three (23) starters combined with disconnects

**H ) First, second and third floors**

**1. Busbar cable troughs**

- ☐ A-01-R2N1, cable trough for busbar, ITE XL-Universal model, 400A, 120/208V / 3 Ø / 4-wire
- ☐ A-02-R2N1, cable trough for busbar, ITE XL-Universal model, 400A, 120/208V / 3 Ø / 4-wire
- ☐ A-03-R2N1, cable trough for busbar, ITE XL-Universal model, 400A, 120/208V / 3 Ø / 4-wire
- ☐ A-01-R2N2, cable trough for busbar, ITE XL-Universal model, 400A, 120/208V / 3 Ø / 4-wire
- ☐ A-02-R2N2, cable trough for busbar, ITE XL-Universal model, 400A, 120/208V / 3 Ø / 4-wire
- ☐ A-03-R2N2, cable trough for busbar, ITE XL-Universal model, 400A, 120/208V / 3 Ø / 4-wire

**2. Dry-type transformers, 600/120/208 volts, 3 Ø / 4-wire:**

- |   |   |
|---|---|
| <input type="checkbox"/> A-01-T2N1, 112.5 kVA | <input type="checkbox"/> A-01-T2N2, 112.5 kVA |
| <input type="checkbox"/> A-02-T2N1, 112.5 kVA | <input type="checkbox"/> A-02-T2N2, 112.5 kVA |
| <input type="checkbox"/> A-03-T2N1, 112.5 kVA | <input type="checkbox"/> A-03-T2N2, 112.5 kVA |
| <input type="checkbox"/> A-03-T2N2, 112.5 kVA |   |
-

**APPENDIX A  
EQUIPMENT LIST**

**I) Grounding network**

For the entire building

- ☐ Earth electrodes
- ☐ Wire clamp
- ☐ Conductors
- ☐ Etc.



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## **APPENDIX B**

### **MAINTENANCE SCHEDULE**

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**APPENDIX B**  
**MAINTENANCE SCHEDULE**

**Type of system:** Electrical distribution

**Maintenance frequency:** Once in years 1, 3 and 5 of the contract

**Note:**

1. Inspection of the moulded-case circuit breakers (item 4.4.2) at 300% of the nominal value of the trip unit, **which have a capacity of less than 200 amperes**, is to take place in the first contract year only.

<b>1: Drawings</b>	.1	No drawings are appended to these specifications.
<b>2: General</b>	.1	Work is limited to the statement that follows and excludes repairs other than those required under the latter.
	.2	All repairs and/or inspections shall be performed in strict accordance with manufacturers' and suppliers' instructions, where available, and in all cases in accordance with best practices.
	.3	No repairs shall be performed without the authorization of the Building Manager concerned or the latter's representative.
	.4	Repairs shall be performed as described in section 1DE of these specifications. Parts shall be original or equivalent to those existing.
	.5	The building, components and adjacent surfaces shall be kept clean at all times.
	.6	Submit all inspection reports, certificates and other documents required and necessary following inspections.
	.7	Report all detected and unrectified anomalies.
<b>3: Special instructions</b>	.1	Comply with safety standards applicable to such work.
	.2	Before performing the work, obtain the required authorization from the Building Manager or Departmental Representative so as not to hinder the normal operations of the building's users.
	.3	<p>Work on 25 kV apparatus shall be performed by a company that has five (5) years' experience in the maintenance of high-voltage substations and holds a Class A Master Electrician licence.</p> <p>Persons authorized to perform work on 25 kV apparatus shall be specialized in high-voltage work, measurement and protective equipment, and shall hold:</p> <ul style="list-style-type: none"><li><input type="checkbox"/> A safety certificate or clearance for the work required; and</li><li><input type="checkbox"/> Recognized proof of electrical qualification (Class C licence).</li></ul>
	.4	Work on 600 / 347 / 208 / 120 V apparatus shall be performed by a company whose personnel holds recognized proof of electrical qualification (Class C licence). The company itself shall hold a valid licence to perform such work and

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## APPENDIX B MAINTENANCE SCHEDULE

		shall have five (5) years of experience performing this type of work.
	.5	Prior to the work required, coordinate all powering-down of electrical services with the authorized Hydro-Québec representatives and the Building Manager or Departmental Representative.
	.6	Provide and install, as required, all emergency devices and equipment necessary for maintaining certain services.
	.7	Record all the results of the required tests in a report. Take readings, make note of any deficiencies observed and describe each precisely.
	.8	Use an infrared thermographic device and record all anomalies detected. Accompany each record with photographs and the thermogram. Every device and piece of equipment that during the thermographic inspection was revealed to have a deficiency shall also be inspected when de-energized, the results of which inspection shall be an integral part of the requested report, accompanied by the cost of repair for each.
<b>4: Description of the work</b>	.1	<p><u>Liquid-filled transformer</u></p> <ol style="list-style-type: none"> <li>1) Measure insulation resistance using a Megger with a minimum resolution of 50,000 megohms, and adjust the value of the readings to 20°C.               <ul style="list-style-type: none"> <li>– Between the high voltage and ground, with the low voltage connected to the ground for the duration of the test.</li> <li>– Between the low voltage and ground, with the high voltage connected to the ground for the duration of the test.</li> <li>– Between the high and low voltage, connected to each other and ground.</li> </ul> </li> <li>2) Check the tightness of primary and secondary connections and look for traces of possible overheating.</li> <li>3) Check the simultaneous operation of the movable contacts of the voltage regulator in a vacuum.</li> <li>4) Clean and check the bushings and insulators.</li> <li>5) Take a sample of the insulating liquid and analyze it. This analysis consists in checking:               <ol style="list-style-type: none"> <li>1. For the oil field transformers                   <ol style="list-style-type: none"> <li>a) Electric strength</li> <li>b) Acidity</li> <li>c) Colour</li> <li>d) Surface tension</li> <li>e) Specific gravity</li> </ol> </li> </ol> </li> </ol>

**APPENDIX B  
MAINTENANCE SCHEDULE**

		<ul style="list-style-type: none"> <li>f) Power factor</li> <li>g) Hygrometry</li> </ul> <p>2. For the Inerteen or Askarel oil field transformers:</p> <ul style="list-style-type: none"> <li>a) Surface tension</li> <li>b) Electric strength</li> <li>c) Acidity</li> <li>d) Specific gravity</li> <li>e) Colour</li> <li>f) Power factor</li> <li>g) Hygrometry</li> </ul> <p>6) Sealed transformers. Test for leaks using dry nitrogen or liquid air. Apply the pressure recommended by the manufacturer for a period of twenty-four (24) hours.</p> <p>7) Check the oil level and temperature indicators and the alarm systems:</p> <ul style="list-style-type: none"> <li>a) From the inside of the transformer to the external binding posts.</li> <li>b) From the binding posts to the external network.</li> </ul> <p>8) Check the transformer voltage of the transformer taps.</p> <p>9) Check the dielectric dissipation factor on the oil field transformers to measure insulation quality as a whole.</p> <p>10) Test the operation of the gas detector.</p> <p>11) Look for oil leaks and excessive rust.</p> <p>12) Check the oil level.</p> <p>13) For voltages above 44 kV, test the bushings using the potential gradient method.</p> <p>14) Test electrically that the electric mass is grounded at a single point only.</p> <p>15) Make sure the transformer taps are returned to the specified positions.</p>
	.2	<p><u>Main distribution station</u></p> <ul style="list-style-type: none"> <li>1) Thoroughly clean equipment and devices, including the inside and outside of all components to be inspected.</li> <li>2) Remove any coatings or deposits of grease, dust, etc. Check the busbars and tightness of all bolts with a torque wrench. Check and retighten all connections, if required.</li> <li>3) Inspect the condition of cables and insulators.</li> </ul>

## APPENDIX B MAINTENANCE SCHEDULE

		<ol style="list-style-type: none"> <li>4) Check the ground integrity and continuity.</li> <li>5) Clean the relays and measuring instruments, check the tightness of electrical connections and check that each component operates properly within its respective adjustment range.</li> <li>6) Clean and vacuum all cells.</li> <li>7) In the report, record at least three temperature readings for the main electrical room, taken during the day and at regular intervals when all devices are operating.</li> <li>8) Check load level and balancing.</li> </ol>
	.3	<p><u>Low voltage circuit breakers</u></p> <p><u>A. Visual and mechanical inspections:</u></p> <ol style="list-style-type: none"> <li>1) Pull out the circuit breaker and ensure that it cannot touch the contacts.</li> <li>2) Remove the circuit breaker from its housing and clean it.</li> <li>3) Inspect the clamps on the circuit breaker's release mechanism.</li> <li>4) Clean the main and auxiliary connection pins.</li> <li>5) Clean the circuit breaker.</li> <li>6) Remove the interrupter chambers and inspect for pieces of porcelain or bakelite that might be broken.</li> <li>7) Switch the circuit breaker on and off at least three times to ensure movement without rubbing or sticking.</li> <li>8) Check the alignment and pressure of the contacts.</li> <li>9) Adjust the stop on the trip bar to ensure that the bar has a clear path at all times and will trip properly.</li> <li>10) Inspect the trip coil and auxiliary circuits of electrically operated circuit breakers.</li> <li>11) Clean the contacts after the electrical tests.</li> </ol>
	.4	<p><u>B. Electrical tests:</u></p> <ol style="list-style-type: none"> <li>1) Check the operating threshold of the timing unit on the circuit breakers with removable pneumatic and hydraulic damping mechanisms. The check cannot be carried out on circuit breakers with fixed hydraulic damping mechanisms on which the timing unit cannot be removed. Adjust the operating threshold of the timing unit to the co-ordination curves available; otherwise, adjust it to the values supplied by the client or to standard curves.</li> <li>2) Check the characteristics of the current time at two locations and compare them to the co-ordination curves. Adjust as required so that the settings</li> </ol>

## APPENDIX B MAINTENANCE SCHEDULE

		<p>match the co-ordination curve, the values supplied by the client or standard curves.</p> <ol style="list-style-type: none"> <li>3) Adjust the operating threshold for the instantaneous unit to the co-ordination curves or standard curves. Check that this value is reached.</li> <li>4) Adjust the motion threshold for the time-delayed unit to the co-ordination curves or standard curves. Check that this value is reached. Conduct another test at a value that is significantly higher than the threshold to be certain that it operates within the time required.</li> <li>5) Measure the resistance of the poles using a Ducter (device used to measure the very low resistance of contacts) or an equivalent approved device, after burnishing the contacts.</li> <li>6) Measure the insulation resistance at 1000VDC.</li> <li>7) Produce a test report.</li> </ol>
	.5	<p><u>Moulded-case circuit breakers</u></p> <ol style="list-style-type: none"> <li>.1 Ensure that circuit breakers have not overheated.</li> <li>.2 Check at 300% of the rated value of the trip unit and compare the results with the manufacturer's specifications (<b>see note, page 1 of 6</b>).</li> <li>.3 Check the instantaneous trip unit and adjust it to the values of the co-ordination curve or the values supplied by the client.</li> <li>.4 Check the tightness of all connections.</li> </ol>
	.6	<p><u>Disconnects</u></p> <ol style="list-style-type: none"> <li>1. Inspect the connections at the terminals.</li> <li>2. Check the mechanism's condition and that it operates properly.</li> <li>3. Inspect the mountings and fuse holder.</li> <li>4. Check the load.</li> </ol>
	.8	<p><u>Power factor controller</u></p> <ol style="list-style-type: none"> <li>1) Clean according to 1.1) above.</li> <li>2) Inspect and tighten, as needed, all connections.</li> <li>3) Inspect the capacitors and after the work, ensure that the number of capacitors connected maintains the total reactance below 240 Kvar.</li> </ol>
	.9	<p><u>Charge controller</u></p> <ol style="list-style-type: none"> <li>1) Clean according to 1.1) above.</li> <li>2) Check and tighten, as necessary, all connections.</li> </ol>
	.10	<p><u>Label</u></p> <ol style="list-style-type: none"> <li>.1 Affix a label to the cell of the main circuit breaker, enter the date of the last maintenance service, the Contractor's name and the reference.</li> </ol>
	.11	<p>Cable troughs for busbars</p> <ol style="list-style-type: none"> <li>1) Inspect the mountings.</li> <li>2) Check the busbars and tightness of all bolts with a torque wrench.</li> </ol>

## APPENDIX B MAINTENANCE SCHEDULE

		<ul style="list-style-type: none"> <li>3) Inspect and tighten all connections as required.</li> <li>4) Check the ground integrity and continuity.</li> <li>5) Remove any coatings or deposits of grease, dust, etc., on all inside and outside surfaces.</li> </ul>
	.12	<p><u>Dry-type transformers</u></p> <ul style="list-style-type: none"> <li>.1 Inspect the magnetic ground, windings, connection terminals, voltage taps, bushings and surfaces of the transformer to detect broken parts, foreign bodies or humidity.</li> <li>.2 Using a Megger with a resolution of 50,000 megohms, check the insulation resistance and adjust the value of the readings to 20 °C. <ul style="list-style-type: none"> <li>- Between the high voltage and ground, with the low voltage connected to the ground for the duration of the test.</li> <li>- Between the low voltage and ground, with the high voltage connected to the ground for the duration of the test.</li> <li>- Between the high and low voltage, connected to each other and ground.</li> </ul> </li> <li>.3 Check the tightness of all connections.</li> <li>.4 Electronically check that the magnetic ground is grounded at a single point only.</li> <li>.5 Check the transformer ratio on all the transformer taps.</li> <li>.6 Ensure that transformer taps are set at the value to give the required output voltage (on non-automatic voltage taps).</li> <li>.7 Ensure that clamps and transportation bracing have been removed.</li> <li>.8 Inspect the fan system to ensure it is working properly.</li> </ul>
	.13	<p><u>Junction boxes, distribution panelboards and lighting panelboards</u></p> <ul style="list-style-type: none"> <li>.1 Inspect the mountings.</li> <li>.2 Inspect the terminal connections.</li> <li>.3 Inspect the circuit breakers and fuses.</li> <li>.4 Check the voltage and amperage.</li> <li>.5 Check the ground and fastness of conduits and connectors.</li> <li>.6 Inspect the condition of the housing.</li> </ul>
	.14	<p><u>Motor control centre</u></p> <ul style="list-style-type: none"> <li>1. Clean according to 1.1) above.</li> <li>2. Remove any coatings or deposits of grease, dust, etc. Check the busbars and tightness of all bolts with a torque wrench. Check and retighten all connections, if required.</li> <li>3. Inspect the condition of cable insulation and busbar mountings.</li> </ul>

## APPENDIX B MAINTENANCE SCHEDULE

		<ol style="list-style-type: none"> <li>4. Check the ground integrity and continuity.</li> <li>5. Check the voltage between the phases.</li> <li>6. Check the amperage between phases A-B, B-C and C-A.</li> <li>7. Clean the relays and measuring instruments, check the tightness of electrical connections and check that each component operates properly within its respective adjustment range.</li> <li>8. Clean and vacuum all cells.</li> <li>9. Inspect the circuit breakers according to 1.4 above.</li> <li>10. Inspect the relays, terminal blocks, starters, magnetic contactors, control transformers, selectors, push-buttons, annunciator lamps, etc., as follows: <ul style="list-style-type: none"> <li><input type="checkbox"/> Check the operation.</li> <li><input type="checkbox"/> Check the operating sequences.</li> <li><input type="checkbox"/> Clean the different components.</li> <li><input type="checkbox"/> Inspect the terminal connections.</li> <li><input type="checkbox"/> Inspect the condition of the insulation of the conductors.</li> <li><input type="checkbox"/> Check the rating of the overload and short-circuit protection and adjust as required.</li> <li><input type="checkbox"/> Check the ground leakage.</li> <li><input type="checkbox"/> Inspect the condition of contacts and coils.</li> <li><input type="checkbox"/> Check the operating voltage and amperage.</li> <li><input type="checkbox"/> Inspect the mounting and condition of the housing.</li> </ul> </li> </ol>
	.15	<p><u>Grounding network</u></p> <p>Every five (5) years only:</p> <ol style="list-style-type: none"> <li>1) Check the grounding connection at the entrance of the metal hydraulic network or artificial earth electrodes.</li> <li>2) Check the integrity of the wire grounding clamp or other means of connection; replace if the integrity has been compromised by excessive rust or corrosion.</li> <li>3) Make sure that the grounding connection is protected against mechanical damage.</li> <li>4) Make sure that the grounding is not defective, and repair as needed.</li> <li>5) Test the resistance of the earth electrode.</li> </ol>