



SPECIFICATIONS

SOLICITATION #: 16-22031

BUILDING: M36
1200 Montreal Road,
Ottawa, Ontario

PROJECT: M-36 Modernization of Passenger Elevator

PROJECT #: M36-5217

Date: May 2016

SPECIFICATION

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Directions to the Ottawa Research Facilities – Montreal Road

1200 Montréal Road
Ottawa, Ontario, Canada K1A 0R6

Tel: 613-993-9101

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NRC Institute For Information Technology (NRC-IIT)	M-2, M-50
NRC Institute For Microstructural Sciences (NRC-IMS)	M-36, M-37, M-50
NRC Institute For National Measurements Standards (NRC-INMS)	M-35, M-36, M-51
NRC Institute For Research In Construction (NRC-IRC)	M-20, M-24, M-25, M-27, M-42, M-48, M-59
NRC Strategy and Development Branch (NRC-SDB)	M-58

By Road, from the OTTAWA International Airport

1. From the airport take the AIRPORT PARKWAY to RIVERSIDE DR EAST
2. Follow RIVERSIDE DR EAST to HIGHWAY 417 EAST
3. Take HIGHWAY 417 EAST, past the ST-LAURENT BLVD exit, where HIGHWAY 417 splits, continue LEFT on HIGHWAY 174 (ROCKLAND)
4. Exit HIGHWAY 174 on BLAIR RD NORTH
5. Proceed on BLAIR RD NORTH, cross OGILVIE RD, and continue on to the traffic lights at the intersection of BLAIR and MONTREAL RD
6. Turn left onto MONTREAL RD and take the first immediate right onto the ramp leading down to the traffic circle. Stop at Building M-1 on the north side of the traffic circle. Ask the commissionaires in M-1 for directions to the NRC building, institute or staff member you seek.

By Road, from MONTRÉAL

1. Take MÉTROPOLITAIN 40 WEST and follow signs for OTTAWA and HIGHWAY 417 WEST
2. Follow 417 WEST to reach OTTAWA
3. Exit at HIGHWAY 174 EAST (ROCKLAND) when entering OTTAWA
4. Follow 174 EAST and exit at BLAIR RD NORTH (first exit after entering 174 EAST)
5. Follow BLAIR RD NORTH, cross OGILVIE RD, and continue on to the traffic lights at the intersection of BLAIR and MONTREAL RD
6. Turn left onto MONTREAL RD and take the first immediate right onto the ramp leading down to the traffic circle. Stop at Building M-1 on the north side of the traffic circle. Ask the commissionaires in M-1 for directions to the NRC building, institute or staff member you seek.



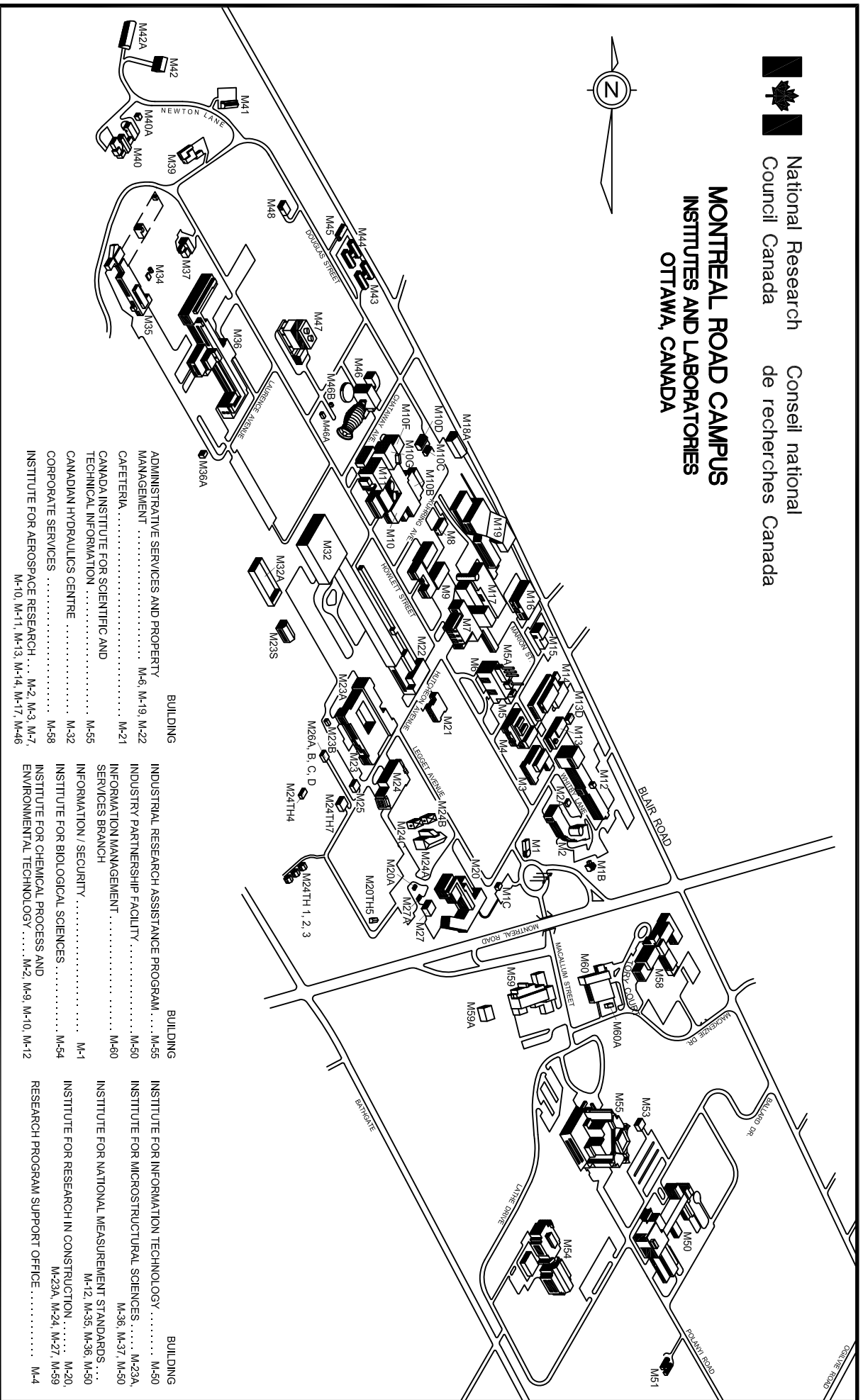


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|--|---|---|---|---|
|  NRC Institute |  Major HWY |  Airport |  Ferry |  Metro |
|  Trans Canada HWY |  Secondary HWY |  Train Station |  Bus Station | |



National Research Council Canada
Conseil national de recherches Canada

MONTREAL ROAD CAMPUS INSTITUTES AND LABORATORIES OTTAWA, CANADA



- BUILDING**
- ADMINISTRATIVE SERVICES AND PROPERTY MANAGEMENT M-6, M-19, M-22
 - CAFETERIA M-21
 - CANADA INSTITUTE FOR SCIENTIFIC AND TECHNICAL INFORMATION M-55
 - CANADIAN HYDRAULICS CENTRE M-32
 - CORPORATE SERVICES M-58
 - INSTITUTE FOR AEROSPACE RESEARCH M-2, M-3, M-7, M-10, M-11, M-13, M-14, M-17, M-46

- BUILDING**
- INDUSTRIAL RESEARCH ASSISTANCE PROGRAM M-55
 - INDUSTRY PARTNERSHIP FACILITY M-50
 - INFORMATION MANAGEMENT SERVICES BRANCH M-60
 - INFORMATION / SECURITY M-1
 - INSTITUTE FOR BIOLOGICAL SCIENCES M-54
 - INSTITUTE FOR CHEMICAL PROCESS AND ENVIRONMENTAL TECHNOLOGY M-2, M-9, M-10, M-12

- BUILDING**
- INSTITUTE FOR INFORMATION TECHNOLOGY M-50
 - INSTITUTE FOR MICROSTRUCTURAL SCIENCES M-23A, M-36, M-37, M-50
 - INSTITUTE FOR NATIONAL MEASUREMENT STANDARDS M-12, M-35, M-36, M-50
 - INSTITUTE FOR RESEARCH IN CONSTRUCTION M-20, M-23A, M-24, M-27, M-59
 - RESEARCH PROGRAM SUPPORT OFFICE M-4

National Research Council Conseil national de recherches
Canada Canada

Administrative Services Direction des services
& Property management administratif et gestion
Branch (ASPM) de l'immobilier (SAGI)

Construction Tender Form

Project Identification **M36- Modernization of Passenger Elevator**

Tender No.: **16-22031**

1.2 Business Name and Address of Tenderer

Name _____

Address _____

Contact Person(Print Name) _____

Telephone (_____) _____ **Fax:** (_____) _____

1.3 Offer

I/We the Tenderer, hereby offer to Her Majesty the Queen in Right of Canada (hereinafter referred to as "Her Majesty") represented by the National Research Council Canada to perform and complete the work for the above named project in accordance with the Plans and Specifications and other Tender Documents, at the place and in the manner set out therein for the Total Tender Amount (to be expressed in numbers only) of: \$_____. _____ **in lawful money of Canada (excluding GST/HST)**

The above amount is inclusive of all applicable (*) Federal, Provincial and Municipal taxes except that in the event of a change in any tax imposed under the Excise Act, the Excise Tax Act, the Old Age Security Act, the Customs Act, the Customs Tariff or any provincial sales tax legislation imposing a retail sales tax on the purchase of tangible personal property incorporated into Real Property, that occurs

- .1 after the date this tender was mailed or delivered, or
- .2 if this tender is revised, after the date of the last revision

the amount of this offer shall be decreased or decreased in the manner provided for in GC22 of the General Conditions of the Contract Documents.

National Research Council Canada	Conseil national de recherches Canada
Administrative Services & Property management Branch (ASPM)	Direction des services administratif et gestion de l'immobilier (SAGI)

1.3.1 Offer (continued)

(*) For the purpose of this tender, the Goods and Services Tax (GST) is not to be considered as an applicable tax.

In the province of Quebec, the Quebec Sales Tax is not to be included in the tender amount because the Federal Government is exempt from this tax. Tenderers shall make arrangements directly with the provincial Revenue Department to recover any tax they may pay on good and servives acquired in the performance of this contract. However, tenderers should include in their tender amount Quebec Sales Tax for which an Input Tax Refund is not available.

1.4 Acceptance and Entry into Contract

I/We undertake, within fourteen (14) days of notification of acceptance of my/our offer, to sign a contract for the performance of the work provided I/we are notified, by the Department, of the acceptance of my/our offer within 30 days of the tender closing date.

1.5 Construction Time

I/We Agree to complete the work within the time stipulated in the specification from the date of notification of acceptance of my/our offer.

1.6 Bid Security

I/We herewith enclose tender security in accordance with Article 5 of the General Instruction to Tenderers.

I/We understand that if a security deposit is furnished as tender security and if I/we refuse to enter into a contract when called upon to do so, my/our security deposit shall be forfeited but the Minister may, if it is in the public interest, waive the right of Her Majesty to forfeit the security deposit.

I/We understand that if the security furnished is not in the approved form as described in Article 5 of the General Instructions to Tenderers, my/our tender is subject to disqualification.

National Research Council Conseil national de recherches
Canada Canada

Administrative Services Direction des services
& Property management administratif et gestion
Branch (ASPM) de l'immobilier (SAGI)

1.7 Contract Security

Within fourteen (14) days after receipt of written notification of the acceptance of my/our offer, I/we will furnish contract security in accordance with the Contract Conditions "F" of the Contract Documents.

I/We understand that the contract security referred to herein, if provided in the form of a bill of exchange, will be deposited into the Consolidated Revenue Fund of Canada.

1.8 Appendices

This Tender Form includes Appendix No. ____N/A_____.

1.9 Addenda

The Total Tender Amount provides for the Work described in the following Addenda:

NUMBER	DATE	NUMBER	DATE

(Tenderers shall enter numbers and dates of addenda)

National Research Council Canada	Conseil national de recherches Canada
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Administrative Services & Property management Branch (ASPM)	Direction des services administratif et gestion de l'immobilier (SAGI)
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1.10 Execution of Tender

The Tenderer shall refer to Article 2 of the General Instructions to Tenderers.

**SIGNED, ATTESTED TO AND DELIVERED on the _____ day of
_____ on behalf of**

(Type or print the business name of the Tenderer)

AUTHORIZED SIGNATORY (IES)

(Signature of Signatory)

(Print name & Title of Signatory)

(Signature of Signatory)

(Print name & Title of Signatory)

SEAL

BUY AND SELL NOTICE

M-36 Modernization of Passenger Elevator

The National Research Council Canada, 1200 Montreal Road, Ottawa, ON has a requirement for a project that includes:

The modernization of the elevator located at building M-36.

1. GENERAL

Questions regarding any aspect of the project are to be addressed to and answered only by the Departmental Representative (or his designate) or the Contracting Authority.

Any information received other than from the Departmental Representative (or his designate) or the Contracting Authority will be disregarded when awarding the contract and during construction.

Firms intending to submit tenders on this project should obtain tender documents through the Buyandsell.gc.ca TMA services provider. Addenda, when issued, will be available from the Buyandsell.gc.ca TMA service provider. Firms that elect to base their bids on tender documents obtained from other sources do so at their own risk and will be solely responsible to inform the tender calling authority of their intention to bid. Tender packages are not available for distribution on the actual day of tender closing.

2. MANDATORY SITE VISIT

It is mandatory that the bidder attends one of the site visits at the designated date and time. At least one representative from proponents that intend to bid must attend.

The site visits will be held on June 8th and June 10th 2016 at **9:00**. Meet Mark O'Connor at Building M-36, Main Entrance, 1200 Montreal Road, Ottawa, ON. Bidders who, for any reason, cannot attend at the specified date and time will not be given an alternative appointment to view the site and their tenders, therefore, will be considered as non-responsive. **NO EXCEPTIONS WILL BE MADE.**

As proof of attendance, at the site visit, the Contracting Authority will have an Attendance Form which **MUST** be signed by the bidder's representative. It is the responsibility of all bidders to ensure they have signed the Mandatory Site Visit Attendance form prior to leaving the site. Proposals submitted by bidders who have not attended the site visit or failed to sign the Attendance Form will be deemed non-responsive.

3. CLOSING DATE

Closing date is June 29th, 2016 at 14:00.

4. TENDER RESULTS

Following the Tender closing, the tender results will be sent by facsimile to all Contractors who submitted a tender

5. SECURITY REQUIREMENT FOR CANADIAN CONTRACTORS

5.1 MANDATORY SECURITY REQUIREMENT:

This procurement contains a mandatory security requirement as follows:

- 1 The Contractor must, at all times during the performance of the Contract, hold a valid Designated Organization Screening (DOS), issued by the Canadian Industrial Security Director (CISD), Public Works Government Services Canada.
- 2 The Contractor personnel requiring access to sensitive work site(s) must EACH hold a valid RELIABILITY STATUS, granted or approved by CISD/PWGSC.
- 3 The Contractor must comply with the provisions of the:
 - a. Security Requirements Checklist attached at Appendix "D"
 - b. Industrial Security Manual (Latest Edition) available at: <http://ssi-iss.tpsgc-pwgsc.gc.ca/ssi-iss-services/eso-oss-eng.html>

5.2 VERIFICATION OF SECURITY CLEARANCE AT BID CLOSING

- 1 The Bidder must hold a valid Designated Organization Screening (DOS) issued by the Canadian Industrial Security Directorate (CISD), Public Works and Government Services Canada (PWGSC), **TO BE INCLUDED WITH THEIR TENDER OR PROVIDED WITHIN 48 HOURS FROM THE DATE AND TIME OF TENDER CLOSING.** Verifications will be made through CISD to confirm the security clearance status of the Bidder. Failure to comply with this requirement will render the bid non-compliant and no further consideration will be given to the bid.
- 2 Within 72 hours of tender closing, the General Contractor must name all of his sub-contractors, each of whom **must hold a valid RELIABILITY STATUS**, granted or approved by CISD/PWGSC, or any other Federal Department or Agency along with the names and birthdates or security clearance certificate numbers of all personnel who will be assigned to the project.
- 3 It is to be noted that any subcontractor required to perform any part of the work during the performance of the subsequent contract must also adhere to the mandatory security requirement of the contract. As well, no personnel without the required level of security will be allowed on site. It will be the responsibility of the successful bidder to ensure that the security requirement is met throughout the performance of the contract. The Crown will not be held liable or accountable for any delays or additional costs associated with the contractor's non-compliance to the mandatory security requirement. Failure to comply with the mandatory security requirement will be grounds for being declared in default of contract.
- 4 For any enquiries concerning the project security requirement during the bidding period, the Bidder/Tenderer must contact the Security Officer @ 613-993-8956.

6.0 WSIB (WORKPLACE SAFETY AND INSURANCE BOARD)

- 1 All Bidders must provide a valid WSIB certificate with their Tender or prior to contract award.

7.0 OFFICE OF THE PROCUREMENT OMBUDSMAN

1 Dispute Resolution Services

The parties understand that the Procurement Ombudsman appointed pursuant to Subsection 22.1(1) of the *Department of Public Works and Government Services Act* will, on request or consent of the parties to participate in an alternative dispute resolution process to resolve any dispute between the parties respecting the interpretation or application of a term and condition of this contract and their consent to bear the cost of such process, provide to the parties a proposal for an alternative dispute resolution process to resolve their dispute. The Office of the Procurement Ombudsman may be contacted by telephone at 1-866-734-5169 or by e-mail at boa.opo@boa-opo.gc.ca.

2 Contract Administration

The parties understand that the Procurement Ombudsman appointed pursuant to Subsection 22.1(1) of the *Department of Public Works and Government Services Act* will review a complaint filed by [*the supplier or the contractor or the name of the entity awarded this contract*] respecting administration of this contract if the requirements of Subsection 22.2(1) of the *Department of Public Works and Government Services Act* and Sections 15 and 16 of the *Procurement Ombudsman Regulations* have been met, and the interpretation and application of the terms and conditions and the scope of the work of this contract are not in dispute. The Office of the Procurement Ombudsman may be contacted by telephone at 1-866-734-5169 or by e-mail at boa.opo@boa-opo.gc.ca.

- 3 The Office of the Procurement Ombudsman (OPO) was established by the Government of Canada to provide an independent avenue for suppliers to raise complaints regarding the award of contracts under \$25,000 for goods and under \$100,000 for services. You have the option of raising issues or concerns regarding the solicitation, or the award resulting from it, with the OPO by contacting them by telephone at 1-866-734-5169 or by e-mail at boa.opo@boa-opo.gc.ca. You can also obtain more information on the OPO services available to you at their website at www.opo-boa.gc.ca.

The Departmental Representative or his designate for this project is: **Mark O'Connor**
Telephone: **613 991-9873**.

Contracting Authority for this project is: **Alain Leroux** alain.leroux@nrc-cnrc.gc.ca
Telephone: **613 991-9980**.

INSTRUCTIONS TO BIDDERS

Article 1 – Receipt of Tender

- 1a) Tenders must be received not later than the specified tender closing time. Tenders received after this time are invalid and shall not be considered, regardless of any reason for their late arrival.
- 1b) A letter of printed telecommunication from a bidder quoting a price shall not be considered as a valid tender unless a formal tender has been received on the prescribed Tender Form.
- 1c) Bidders may amend their tenders by letter or printed telecommunication provided that such amendments are received not later than the specified tender closing time.
- 1d) Any amendments to the tender which are transmitted by telefax must be signed and must clearly identify the tenderer.

All such amendments are to be addressed to:
National Research Council of Canada
Alain Leroux, Senior Contracting Officer
Building M-22
Montreal Road, Ottawa, Ontario
K1A 0R6

Fax: (613) 991-3297

Article 2 – Tender Form & Qualifications

- 1) All tenders must be submitted on the Construction Tender Form and the tender must be signed in compliance with the following requirements:
 - a) Limited Company: The full names of the Company and the name(s) and status of the authorized signing officer(s) must be printed in the space provided for that purpose. The signature(s) of the authorized officer(s) and the corporate seal must be affixed.
 - b) Partnership: The firm name and the name(s) of the person(s) signing must be printed in the space provided. One or more of the partners must sign in the presence of a witness who must also sign. An adhesive coloured seal must be affixed beside each signature.
 - c) Sole Proprietorship : The business name and the name of the sole proprietor must be printed in the space provided. The sole proprietor must sign in the presence of a witness who must also sign. An adhesive coloured seal must be affixed beside each signature.
- 2) Any alterations in the printed part of the Construction Tender Form or failure to provide the information requested therein, may render the tender invalid.
- 3) All space in the Construction Tender Form must be completed and any handwritten or typewritten corrections to the parts so completed must be initialed immediately to the side of the corrections by the person or persons executing the tender on behalf of the the tenderer.
- 4) Tenders must be based on the plans, specifications and tender documents provided.

Article 3 - Contract

- 1) The Contractor will be required to sign a contract similar to the Standard Contract Form for Fixed Price Construction Contracts, a blank specimen of which is enclosed in the package for reference purposes.

Article 4 – Tender Destination

- 1a) Tenders are to be submitted in sealed envelopes to:
National Research Council Canada
Administrative Services and Property Management Branch
1200 Montreal Road
Building M-22
Ottawa, ON
K1A 0R6

Endorsed "Tender for (insert title of work as it appears in the drawings and specifications)" and must bear the name and address of the tenderer.

- 1b) Unless otherwise specified, the only documents required to be submitted with the tender are the Tender form and the Bid Security.

Article 5 - Security

- 1a) Bid Security is required and must be submitted in one of the following forms:
 - i) a certified cheque payable to the Receiver General for Canada and drawn on a member of the Canadian Payments Association or a local cooperative credit society that is a member of a central cooperative credit society having membership in the Canadian Payments Association; **OR**
 - ii) bonds of the Government of Canada, or bonds unconditionally guaranteed as to principal and interest by the Government of Canada; **OR**
 - iii) a bid bond.
- 1b) Regardless of the Bid Security submitted, it should never be more than \$250,000 maximum, calculated at 10% of the first \$250,000 of the tendered price, plus 5% of any amount in excess of \$250,000.
- 2a) Bid Security shall accompany each tender or, if forwarded separately from the tender, shall be provided not later than the specified tender closing time. Bid Security must be in the **ORIGINAL** form. Fax or photocopies and **NOT** acceptable. **FAILURE TO PROVIDE THE REQUIRED BID SECURITY SHALL INVALIDATE THE TENDER.**
- 2b) If the tender is not accepted, the Bid Security submitted pursuant to Article 8 shall be returned to the tenderer.
- 3a) The successful tenderer is required to provide security within 14 days of receiving notice of tender acceptance. The tenderer must furnish **EITHER**:
 - i) a Security Deposit as described in 1(b) above together with a Labour and Material Payment Bond in the amount of at least 50% of the amount payable under the contract, **OR**

- ii) a Performance Bond and a Labour and Material Payment Bond – each in the amount of 50% of the amount payable under the contract.
- 3b) Should it not be possible to obtain a Labour Material Payment Bond as required under 3(a) above, on making application thereof to at least two acceptable Bonding Companies, an additional Security Deposit of a straight 10% of the amount payable under the contract must be furnished.
- 3c) Where a tender has been accompanied by a Security Deposit, as described in 1(b) above, the amount of the Security Deposit required under 3(a) above may be reduced by the amount of the Security Deposit which accompanied the tender.
- 3d) Bonds must be in an approved form and from the companies whose

bonds are acceptable to the Government of Canada. Samples of the approved form of Bid Bond, Performance Bond and Labour and Material Payment Bond and a list of acceptable Bonding Companies may be obtained from the Contracting Officer, National Research Council, Building M-22, Montreal Road, Ottawa, Ontario, K1A 0R6.

Article 6 – Interest On Security Deposits

- 1) Tenderers are notified that they must make their own arrangements with their bankers as to the interest, if any, on the amount of the certified cheque accompanying their tender. The Council will not pay interest on said cheque pending the awarding of the contract nor be responsible for the payments of interest under any arrangement made by the tenderers.

Article 7 – Sales Tax

- 1) The amount of the tender shall include all taxes as levied under the Excise Act, the Excise Tax Act, the Old Age Security Act, the Customs Act or the Customs Tariff, in force or applicable at the time.
- 2) In Quebec, the Provincial Sales Tax should not be included in the Tender Price as the Federal Government is exempt. Tenderers should contact the Provincial Revenue Minister to recover all taxes paid for goods and services rendered under this contract.

Tenderers must include in their Tender Price the amount of Provincial Sales Tax for which the exemption does not apply.

Article 8 – Examination of Site

- 1) All parties tendering shall examine the sites of the proposed work before sending in their tender and make themselves thoroughly acquainted with the same and obtain for themselves any and all information that may be necessary for the proper carrying out of the Contract. No after claim will be allowed or entertained for any work or material that may be requisite and necessary for the proper execution and completion of this Contract with the exception of that provided for under GC 35 in the General Conditions of the General Specification.

Article 9 – Discrepancies, Omissions, Etc.

- 1a) Bidders finding discrepancies in, or omissions from, drawings, specifications or other documents, or having any doubt as to the meaning or intent of any part thereof, should at once notify the Engineer who will send written instructions or explanation to all bidders.
- 1b) Neither the Engineer nor the Council will be responsible for oral instructions.
- 1c) Addenda or corrections issued during the time of the bidding shall be covered in the proposal. However, the contract supersedes all communications, negotiations and agreements, either written or oral, relating to the work and made prior to the date of the contract.

Article 10 – No additional Payments for Increased Costs

- 1) The only other adjustments in the contract price allowed are those specified in the General Conditions of the General Specification. The contract price will not be amended for change in freight rates, exchange rates, wage rates or cost of materials, plant or services.

Article 11 – Awards

- 1a) The Council reserves the power and right to reject tenders received from parties who cannot show a reasonable acquaintance with and preparation for the proper performance of the class of work herein specified and shown on plans. Evidence of such competence must be furnished by the tenderers if required to do so.
- 1b) A tenderer may be required to furnish to the Contracting Office, National Research Council of Canada, Building M-22, 1200 Montreal Road, Ottawa, Ontario, K1A 0R6, Canada, unsigned copies of the insurance requirements as covered by the Insurance Conditions of the General Specification.
- 1c) The Council does not bind itself to accept the lowest or any tender.

Article 12 – Harmonized Sales Tax

- 1) The Harmonized Sales Tax (HST) which is now in effect shall be considered an applicable tax for the purpose of this tender. However, the bidder shall NOT include any amount in the bid price for said HST. The successful contractor will indicate on each application for payment as a separate amount the appropriate HST the Owner is legally obliged to pay. This amount will be paid to the Contractor in addition to the amount certified for payment under the Contract in addition to the amount certified for payment under the Contract and will therefore not affect the Contract Price. The Contractor agrees to remit any HST collected or due to Revenue Canada.

Non-resident contractors

RST guide 804

Published August 2006

ISBN: 1-4249-2007-8 (Print), **1-4249-2009-4 (PDF)**, **1-4249-2008-6 (HTML)**

Publication Archived

Notice to the reader: For Retail Sales Tax (RST) – On July 1, 2010 the 13 per cent Harmonized Sales Tax (HST) took effect in Ontario replacing the existing provincial Retail Sales Tax (RST) and combining it with the federal Goods and Services Tax (GST). As a result, RST provisions described on this page and in other publications ended on June 30, 2010.

Effective July 1, 2010 this publication was archived for RST purposes **only**. Use caution when you refer to it, since it reflects the law in force for RST at the time it was released and may no longer apply.

- The information in this Guide explains the Retail Sales Tax (RST) responsibilities of a non-resident contractor who is awarded a construction contract to perform work in Ontario and their Ontario customers. Please note that this Guide replaces the previous version dated March 2001.

Non-Resident Contractor Defined

A non-resident contractor is a contractor located outside Ontario who has been awarded a construction contract to perform work in Ontario, and who has not maintained a permanent place of business in Ontario continuously for twelve months immediately prior to signing the contract, or which is not a company incorporated under the laws of Ontario. A construction contract is a contract for the erection, remodelling or repair of a building or other structure on land.

A contractor is a person who is in the business of constructing, altering, repairing or improving real property and includes, but is not limited to,

1. a general contractor and subcontractor,
2. a carpenter, bricklayer, stonemason, electrician, plasterer, plumber, painter, decorator, paver, and bridge builder,
3. a sheet metal, tile and terrazzo, heating, air conditioning, insulation, ventilating, papering, road, roofing and cement contractor, who installs or incorporates items into real property. (See RST [Guide 206 - Real Property and Fixtures](#)).

Registration and Guarantee Deposit

Non-resident contractors who are awarded a construction contract in Ontario are required to register with the Ministry of Finance (ministry), Centralized Programs Unit and post a guarantee equal to 4 per cent of the total of each Ontario contract. The guarantee can be paid in cash, by certified cheque (payable to the Minister of Finance), letter of credit or by a guarantee bond.

To register with the ministry and to obtain further information on posting a guarantee, contractors should contact the ministry's Centralized Programs Unit, 33 King Street West, PO Box 623, Oshawa, Ontario, L1H 8H7, toll-free 1 866 ONT-TAXS (1 866 668-8297) or fax to 905 435-3617.

Non-resident contractors who sell taxable goods on a supply only basis to Ontario customers, or provide taxable services in Ontario, may obtain a regular Vendor Permit to collect and remit RST on their sales. Non-resident contractors who have been issued a regular Vendor Permit must still register separately with the ministry and post a guarantee if they are awarded a construction contract in Ontario.

Letter of Compliance

After receiving the guarantee, the ministry mails out two copies of a "letter of compliance" to the contractor certifying the Retail Sales Tax (RST) requirements have been met. Contractors must give a copy of the letter to their customers.

If a copy of the compliance letter is not provided, the customer must withhold 4 per cent of all amounts payable to the non resident contractor and pay the withheld amounts to the Minister of Finance (minister). Details relating to the contract should be sent along with the payments to the Centralized Programs Unit. Customers may give the minister a guarantee bond equal to 4 per cent of the total contract price instead of making the 4 per cent payments.

Note: Customers who do not follow these requirements may be held liable for 4 per cent of all amounts payable to the non resident contractor or any other amount that the Ministry deems to be the RST payable resulting from the performance of the contract.

Calculation of RST

Fair Value

RST is payable on the "fair value" of materials, purchased or brought into Ontario, to be used for work performed in Ontario. "Fair value" includes:

- the purchase price in Canadian funds;
- all charges by the supplier for handling and delivery, and
- any federal customs duties and excise taxes paid (but not the federal Goods and Services Tax (GST)).

Contractors are also required to pay RST to Ontario suppliers on the purchase, rental or lease of taxable services, materials, machinery, or equipment.

Machinery and Equipment - Leased

If machinery or equipment is leased from a supplier outside Ontario and brought into the province, RST is payable on the lease payments for the period the machinery or equipment is in Ontario.

Machinery and Equipment - Owned by Contractor

If machinery or equipment is owned by the contractor, RST may be calculated in one of the following ways:

- a. If a contractor brings machinery and equipment into Ontario for less than 12 months' use, RST is to be calculated using the following formula:

$$1/36 \times \text{net book value at date of import} \times \text{number of months in Ontario} \times \text{tax rate}$$

For the purpose of this formula, RST is payable for each month or part of a month that the goods are in Ontario. A month is considered 31 consecutive days and a part month is considered more than 12 days. The RST payable is based on the number of days the machinery and equipment are located in Ontario and not the number of days the items are actually used.

Example: Equipment is brought into Ontario on March 28 and taken out on May 8. The items were in the province for 41 days. RST is payable on the first 31 days' temporary stay in Ontario vs. use of the equipment. Since the remainder (10 days) is not considered part of a month, no RST is payable on this portion.

- b. If, at the time the goods are brought into Ontario, it is expected that the machinery or equipment will be in Ontario for more than twelve months, contractors must pay Retail Sales Tax (RST) on the following basis:

net book value at date of import x tax rate

If, at the time of import, the length of time is not known, vendors may use the formula under (a). If they later find it necessary to keep the machinery and equipment in Ontario for more than 12 months, the RST paid under (a) may be deducted from the RST payable under (b).

Using formula (a) or (b) above, contractors will calculate and remit the RST payable on the return that is filed when the contract is finished.

(See Completion of Contract section)

M a n u f a c t u r i n g f o r O w n U s e

Contractors may need to manufacture items, such as doors and windows, for their construction contracts. Manufacturing is work done in a factory away from a construction site, or in a mobile unit or workshop that is on or near the construction site. Manufacturing occurs when raw materials are changed into manufactured goods for use in real property contracts.

Contractors are considered to be manufacturing contractors if they produce goods:

1. for their own use in real property contracts, and
2. the manufactured cost of the goods is more than \$50,000 a year.

(See RST Guide 401 - Manufacturing Contractors)

C o n t r a c t s w i t h t h e F e d e r a l G o v e r n m e n t

Where a non-resident contractor enters into a construction contract with the federal government, for the construction of a building and/or the installation of equipment, the nature of the equipment will determine whether the contract should be let on a tax-included or tax excluded basis.

Contracts for the construction of a building and the installation of equipment that directly services that building (i.e., elevators, escalators, light fixtures, central heating and air conditioning, etc.) should be tendered on a tax -included basis. Contractors are the consumers of the materials used in fulfilling these contracts and must pay or account for RST on the materials used to complete the contracts. There is NO exemption just because the contract is with the federal government.

Contracts for the installation of equipment that becomes a fixture and does not directly service a building (i.e., material handling equipment, production machinery, communication equipment, training equipment) may be tendered on a tax-excluded basis. Contractors engaged in contracts of this nature are permitted to make tax exempt purchases of such equipment by issuing a valid Purchase Exemption Certificate (PEC) to their supplier. Only non-resident contractors who have registered with the ministry and posted a guarantee may issue a PEC.

E x e m p t i o n s

Contractors may supply and install equipment or materials for certain customers that may be entitled to an exemption from RST (e.g., manufacturers, Indian band councils, farmers and diplomatic organizations). The equipment or materials, when installed, becomes real property if it is permanently attached to land, or a fixture if it is permanently attached to a building or real property structure. Since

contractors are liable for RST, they should contact the ministry to find out if the customer qualifies for exemption before tendering the contract on a tax-excluded basis.

Status Indians, Indian Bands and Band Councils

Non-resident contractors may purchase building materials exempt from Retail Sales Tax (RST) for certain buildings and structures situated on reserves. The cost of such projects must be paid by the band council, and the buildings must provide a community service for the reserve. Contracts for the construction of an exempt community building project should be made on an RST-excluded basis. Non-resident contractors may purchase the materials exempt from RST by providing suppliers with a valid Purchase Exemption Certificate (PEC). As noted previously, only non-resident contractors who have registered with the ministry and posted a guarantee may issue a PEC. (See RST Guide [204 - Purchase Exemption Certificates](#)).

Non-resident contractors must pay RST on items purchased for incorporation into a building or structure built for individual status Indians on a reserve. (See RST [Guide 808 - Status Indians, Indian Bands and Band Councils](#)).

Completion of Contract

When a contract is completed, non-resident contractors who were required to post a guarantee must complete a [Non-Resident Contractor Retail Sales Tax Return \[PDF - 92 KB\]](#) that is provided by the ministry.

If a contractor's guarantee was given in cash or by certified cheque, the amount of the deposit can be deducted from the RST liability owed by the contractor. If the liability is greater than the deposit, the amount remaining must be paid by the contractor. If the deposit is more than the liability, the contractor will receive a refund.

If a guarantee bond was posted instead of cash, the bond will be discharged once the RST liability is paid in full.

All returns are subject to audit.

Legislative References

- Retail Sales Tax Act, Subsections 19(2) and 39(3)(4) and (5)
- Regulation 1012 under the Act, Subsections 15.3(1)(2)(5)(6) and (7)
- Regulation 1013 under the Act, Sections 1 and 3

For More Information

The information contained in this publication is only a guideline. For more information, please contact the Ontario Ministry of Finance at 1 866 ONT-TAXS (1 866 668-8297) or visit our website at ontario.ca/finance.

Acceptable Bonding Companies

Published September 2010

The following is a list of insurance companies whose bonds may be accepted as security by the government.

1. Canadian Companies

- ACE INA Insurance
- Allstate Insurance Company of Canada
- Ascentus Insurance Ltd. (Surety only)
- Aviva Insurance Company of Canada
- AXA Insurance (Canada)
- AXA Pacific Insurance Company
- Canadian Northern Shield Insurance Company
- Certas Direct Insurance Company (Surety only)
- Chartis Insurance Company of Canada (formerly AIG Commercial Insurance Company of Canada)
- Chubb Insurance Company of Canada
- Commonwealth Insurance Company
- Co-operators General Insurance Company
- CUMIS General Insurance Company
- The Dominion of Canada General Insurance Company
- Echelon General Insurance Company (Surety only)
- Economical Mutual Insurance Company
- Elite Insurance Company
- Everest Insurance Company of Canada
- Federated Insurance Company of Canada
- Federation Insurance Company of Canada
- Gore Mutual Insurance Company
- Grain Insurance and Guarantee Company
- The Guarantee Company of North America
- Industrial Alliance Pacific General Insurance Corporation
- Intact Insurance Company
- Jevco Insurance Company (Surety only)
- Lombard General Insurance Company of Canada
- Lombard Insurance Company
- Markel Insurance Company of Canada
- The Missisquoi Insurance Company
- The Nordic Insurance Company of Canada
- The North Waterloo Farmers Mutual Insurance Company (Fidelity only)
- Novex Insurance Company (Fidelity only)
- The Personal Insurance Company
- Pilot Insurance Company
- Quebec Assurance Company
- Royal & Sun Alliance Insurance Company of Canada
- Saskatchewan Mutual Insurance Company
- Scottish & York Insurance Co. Limited
- The Sovereign General Insurance Company
- TD General Insurance Company
- Temple Insurance Company
- Traders General Insurance Company

- Travelers Guarantee Company of Canada
- Trisura Guarantee Insurance Company
- The Wawanesa Mutual Insurance Company
- Waterloo Insurance Company
- Western Assurance Company
- Western Surety Company

2. Provincial Companies

Surety bonds issued by the following companies may be accepted provided that the contract of suretyship was executed in a province in which the company is licensed to do business as indicated in brackets.

- AXA Boreal Insurance Company (P.E.I., N.B., Que., Ont., Man., B.C.)
- AXA Boreal Insurance Company (P.E.I., N.B., Que., Ont., Man., B.C.)
- ALPHA, Compagnie d'Assurances Inc. (Que.)
- Canada West Insurance Company (Ont., Man., Sask, Alta., B.C., N.W.T.) (Surety only)
- The Canadian Union Assurance Company (Que.)
- La Capitale General Insurance Inc. (Nfld. & Lab., N.S., P.E.I., Que.(Surety only), Man., Sask., Alta., B.C., Nun., N.W.T., Yuk.)
- Coachman Insurance Company (Ont.)
- Continental Casualty Company (Nfld. & Lab., N.S., P.E.I., N.B., Que., Ont., Man., Sask., Alta., B.C., Nun., N.W.T., Yuk.)
- GCAN Insurance Company (Nfld. & Lab., N.S., P.E.I., N.B., Que., Ont., Man., Sask., Alta., B.C., Nun., N.W.T., Yuk.)
- The Insurance Company of Prince Edward Island (N.S., P.E.I., N.B.)
- Kingsway General Insurance Company (N.S., N.B., Que., Ont., Man., Sask., Alta., and B.C.)
- Liberty Mutual Insurance Company (Nfld. & Lab., N.S., P.E.I., N.B., Que., Ont., Man., Sask., Alta., B.C., Nun., N.W.T., Yuk.)
- Manitoba Public Insurance Corporation (Man.)
- Norgroupe Assurance Générales Inc.
- Orleans General Insurance Company (N.B., Que., Ont.)
- Saskatchewan Government Insurance Office (Sask.)
- SGI CANADA Insurance Services Ltd. (Ont., Man., Sask., Alta.)
- L'Unique General Insurance Inc. (Nfld. & Lab., N.S., P.E.I., N.B., Que.(Surety only), Ont.(Surety only), Man., Sask., Alta., B.C.(Surety only), Nun., N.W.T., Yuk.)

3. Foreign Companies

- Aspen Insurance UK Limited
- Compagnie Française d'Assurance pour le Commerce Extérieur (Fidelity only)
- Eagle Star Insurance Company Limited
- Ecclesiastical Insurance Office Public Limited Company (Fidelity only)
- Lloyd's Underwriters
- Mitsui Sumitomo Insurance Company, Limited
- NIPPONKOA Insurance Company, Limited
- Sompo Japan Insurance Inc.
- Tokio Marine & Nichido Fire Insurance Co., Ltd.
- XL Insurance Company Limited (Surety only)
- Zurich Insurance Company Ltd

Articles of Agreement

Standard Construction Contract – Articles of Agreement
(23/01/2002)

- A1 Contract Documents
- A2 Date of Completion of Work and Description of Work
- A3 Contract Amount
- A4 Contractor's Address
- A5 Unit Price Table

Articles of Agreement

These Articles of Agreement made in duplicate this day of .

Between

Her Majesty the Queen, in right of Canada (referred to in the contract documents as “ Her Majesty”) represented by the National Research Council Canada (referred to in the contract documents as the “Council”)

and

(referred to in the contract documents as the “Contractor”)

Witness that in consideration for the mutual promises and obligations contained in the contract, Her Majesty and the Contractor covenant and agree as follows:

A1 Contract Documents

(23/01/2002)

1.1 Subject to A1.4 and A1.5, the documents forming the contract between Her Majesty and the Contractor, referred to herein as the contract documents, are

1.1.1 these Articles of Agreement,

1.1.2 the document attached hereto, marked “A” and entitled “Plans and Specifications”, referred to herein as the Plans and Specifications,

1.1.3 the document attached hereto, marked “B” and entitled “Terms of Payment”, referred to herein as the Terms of Payment,

1.1.4 the document attached hereto, marked “C” and entitled “General Conditions”, referred to herein as the General Conditions,

1.1.5 the document attached hereto, marked “D” and entitled “Labour Conditions”, referred to herein as the Labour Conditions,

1.1.6 the document attached hereto, marked “E” and entitled “Insurance Conditions”, referred to herein as the Insurance Conditions,

1.1.7 the document attached hereto, marked “F” and entitled “Contract Security Conditions”, referred to herein as the Contract Security Conditions, and

1.1.8 any amendment or variation of the contract documents that is made in accordance with the General Conditions.

1.1.9 the document entitled Fair Wage Schedules for Federal Construction Contracts referred to herein as Fair Wage Schedules

1.1.10

Articles of Agreement

The Council hereby designates _____ of _____ of the Government of Canada as the Engineer for the purposes of the contract, and for all purposes of or incidental to the contract, the Engineer's address shall be deemed to be:

1.2 In the contract

1.3.1 "Fixed Price Arrangement" means that part of the contract that prescribes a lump sum as payment for performance of the work to which it relates; and

1.3.2 "Unit Price Arrangement" means that part of the contract that prescribes the product of a price multiplied by a number of units of measurement of a class as payment for performance of the work to which it relates.

1.3 Any of the provisions of the contract that are expressly stipulated to be applicable only to a Unit Price Arrangement are not applicable to any part of the work to which a Fixed Price Arrangement is applicable.

1.4 Any of the provisions of the contract that are expressly stipulated to be applicable only to a Fixed Price Arrangement are not applicable to any part of the work to which a Unit Price Arrangement is applicable.

A2 Date of Completion of Work and Description of Work

(23/01/2002)

2.1 The contractor shall, between the date of these Articles of Agreement and the _____, _____, in the careful and workmanlike manner, diligently perform and complete the following work:

which work is more particularly described in the Plans and Specifications.

Articles of Agreement

A3 Contract Amount

(23/01/2002)

- 3.1 Subject to any increase, decrease, deduction, reduction or set-off that may be made under the Contract, Her Majesty shall pay the Contractor at the times and in the manner that is set out or referred to in the Terms of Payment
- 3.1.1 the sum of _____ (GST/HST extra), in consideration for the performance of the work or the part thereof that is subject to Fixed Price Arrangement, and
- 3.1.2 a sum that is equal to the aggregate of the products of the number of units of Measurement of each class of labour, plant and material that is set out in a Final Certificate of Measurement referred to in GC44.8 multiplied in each case by the appropriate unit price that is set out in the Unit Price Table in consideration for the performance of the work or the part thereof that is subject to a Unit Price Arrangement.
- 3.2 For the information and guidance of the Contractor and the persons administering the contract on behalf of Her Majesty, but not so as to constitute a warranty , representation or undertaking of any nature by either party, it is estimated that the total amount payable by Her Majesty to the Contractor for the part of the work to which a Unit Price Arrangement is applicable will be approximately \$N/A
- 3.3 A3.1.1 is applicable only to a Fixed Price Arrangement.
- 3.4 A3.1.2 and A3.2 applicable only to a Unit Price Arrangement.

A4 Contractor's Address

(23/01/2002)

- 4.1 For all purposes of or incidental to the contract, the Contractor's address shall be deemed to be:

Articles of Agreement

A5 Unit Price Table

(23/01/2002)

5.1 Her Majesty and the Contractor agree that the following table is the Unit Price Table for the purposes of the contract.

Column 1 Item	Column 2 Class of Labour Plant Or Material	Column 3 Unit of Measurement	Column 4 Estimated Total Quantity	Column 5 Price per Unit	Column 6 Estimated Total Price
		N/A			

5.2 The Unit Price Table that is set out in A5.1 designates the part of the work to which a Unit Price Arrangement is applicable.

5.3 The part of the work that is not designated in the Unit Price Table referred to in A5.2 is the part of the work to which a Fixed Price Arrangement is applicable.

Articles of Agreement

Signed on behalf of Her Majesty by

as Senior Contracting Officer

and _____

as _____

of the **National Research Council Canada**

on the _____

day of _____

Signed, sealed and delivered by

as _____ and
Position

by _____

as _____ and
Position

of

on the _____

day of _____

Seal

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END OF TABLE

1. SCOPE OF WORK

- .1 Work under this contract covers the modernization of the passenger elevator No. 21149 in the Council's Building M36 of the National Research Council.

2. DRAWINGS

- .1 The following drawings illustrate the work and form part of the contract documents:
5217-EO1

3. COMPLETION

- .1 Complete all work within twenty (20) week(s) after receipt of notification of acceptance of tender.

4. GENERAL

- .1 The word "provide" in this Specification means to supply and install.
- .2 Provide items mentioned in either the drawings or the specification.

5. SPECIFIED ACCEPTABLE & ALTERNATIVE EQUIPMENT & MATERIALS

- .1 Materials and equipment scheduled and/or specified on the drawings or in the specifications have been selected to establish a performance and quality standard. In most cases, acceptable manufacturers are stated for any material or equipment specified by manufacturer's name and model number. Contractors may base their tender price on materials and equipment supplied by any of the manufacturers' names as acceptable for the particular material or equipment.
- .2 In addition to the manufacturers specified or named as acceptable, you may propose alternative manufacturers of materials or equipment to the Departmental Representative for acceptance. For a product to be considered as an alternative product substitute, make a written application to the Departmental Representative during the tender period, not later than ten (10) working days before tender closing.
- .3 Certify in writing that the alternative meets all requirements of the specified material or equipment. In addition, it shall be understood that all costs required by or as a result of acceptance or proposed alternatives, will be borne by the contractor.
- .4 Approval of alternatives will be signified by issue of an Addendum to the Tender Documents.
- .5 Any alternative manufacturers or materials submitted which are incomplete and cannot be evaluated, or are later than ten (10) working days before tender closing date or after the tender period, will not be considered.

6. MINIMUM STANDARDS

- .1 Conform to or exceed minimum acceptable standards of the various applicable federal, provincial and municipal codes such as The National Building Code, The National Fire Code, Canadian Plumbing Code, Canadian Electrical Code, Canadian Code for Construction Safety and the Provincial Construction Safety Act.
- .2 Work to conform to referenced standards and codes as reaffirmed or revised to date of specification.

7. WORKPLACE HAZARDOUS MATERIAL INFORMATION SYSTEM (WHMIS)

- .1 The general contractor shall comply with Federal and Provincial legislation regarding the WHMIS. The contractor's responsibilities include, but are not limited to the following:
 - .1 To ensure that any controlled product brought on site by the contractor or sub-contractor is labeled;
 - .2 To make available to the workers and the Departmental Representative, Material Safety Data Sheets (MSDS) for these controlled products;
 - .3 To train own workers about WHMIS, and about the controlled products that they use on site;
 - .4 To inform other contractors, sub-contractors, the Departmental Representative, authorized visitors and outside inspection agency personnel about the presence and use of such products on the site.
 - .5 The site foreman or superintendent must be able to demonstrate, to the satisfaction of the Departmental Representative, that he/she has had WHMIS training and is knowledgeable in its requirements. The Departmental Representative can require replacement of this person if this condition or implementation of WHMIS is not satisfactory.

8. REQUIREMENTS OF BILL 208, SECTION 18(a)

Under the requirements of Bill 208 of the Ontario Ministry of Labour Occupational Health & Safety Act, the following designated substances may be encountered while performing the work described in these contract documents:

- .1 Acrylonitrile, Isocyanates, Arsenic, Lead, Asbestos, Mercury, Benzene, Silica, Coke Oven Emissions, Vinyl Chloride, and Ethylene Oxide
 - .1 It is the responsibility of the general contractor to ensure that each prospective subcontractor for this project has received a copy of the above list.
 - .2 The general contractor is advised to take the following precautions when dealing with the above substances from demolition where these designated substances may occur that the workers are trained and are protected through the use of appropriate personal protective equipment.

9. COST BREAKDOWN

- .1 Submit, for approval by the Departmental Representative, a cost breakdown of tender 72 hours after the contract is awarded.

.2 Use the approved cost breakdown as the basis for submitting all claims.

.3 Request Departmental Representative's verbal approval to amount of claim prior to preparing and submitting the claim in its final form.

10. SUB-TRADES

.1 Submit no later than 72 hours after tender closing, a complete list of sub trades for the Departmental Representative's review.

11. PERSONNEL SECURITY AND IDENTIFICATION

.1 All persons employed by the contractor, or by any subcontractor and present on the site must be security cleared in accordance with the requirements of the Section entitled Special Instructions to Tenderers.

.2 All such persons must wear and keep visible identification badges as issued by the Security Office of NRC.

12. WORKING HOURS AND SECURITY

.1 Normal working hours on the NRC property are from 8:00 a.m. until 4:30 p.m., Monday to Friday inclusive, except statutory holidays.

.2 At all other times, special written passes are required for access to the building site.

.3 Before scheduling any work outside normal working hours, obtain permission from the Departmental Representative to perform the specific tasks.

.4 An escort may be required whenever working outside normal hours. Contractor to bear the associated costs.

13. SCHEDULE

.1 The contractor shall prepare a detailed schedule, fixing the date for commencement and completion of the various parts of the work and update the said schedule. Such schedule shall be made available to the Departmental Representative not later than two weeks after the award of the contract and prior to commencement of any work on site.

.2 Notify Departmental Representative in writing of any changes in the schedule.

.Ten (10) day(s) before the scheduled completion date, arrange to do an interim inspection with the Departmental Representative.

14. PROJECT MEETINGS

.1 Hold regular project meetings at times and locations approved by the Departmental Representative.

.2 Notify all parties concerned of meetings to ensure proper coordination of work.

- .3 Departmental Representative will set times for project meetings and assume responsibility for recording and distributing minutes.

15. SHOP DRAWINGS

- .1 Submit to Departmental Representative for review, shop drawings, product data and samples specified within three (3) week(s) after contract award.
- .2 Submit to Departmental Representative for review a complete list of all shop drawings, product data and samples specified and written confirmation of corresponding delivery dates within one (1) week after shop drawings, product data and samples approval date. This list shall be updated on a weekly basis and any changes to the list shall be immediately notified in writing to the Departmental Representative.
- .3 Review shop drawings, data sheets and samples prior to submission.
- .4 Submit electronic copy of all shop drawings and product data and samples for review, unless otherwise specified.
- .5 Review of shop drawings and product data by the Departmental Representative does not relieve the contractor of the responsibility for errors and omissions and for the conformity with contract documents.

16. SAMPLES AND MOCK-UPS

- .1 Submit samples in sizes and quantities as specified.
- .2 Where colour, pattern or texture is criterion, submit full range of samples.
- .3 Construct field samples and mock-ups at locations acceptable to Departmental Representative.
- .4 Reviewed samples or mock-ups will become standards of workmanship and material against which installed work will be checked on the project.

17. MATERIALS AND WORKMANSHIP

- .1 Install only new materials on this project unless specifically noted otherwise.
- .2 Only first class workmanship will be accepted, not only with regard to safety, efficiency, durability, but also with regard to neatness of detail and performance.

18. WORK & MATERIALS SUPPLIED BY OWNER

- .1 Work and materials not included in this contract are described on drawings and in this specification.
- .2 Deliver to a storage place, as directed by the Departmental Representative, all materials returned to the Owner.

- .3 Unless otherwise specified, accept owner-supplied materials at their storage location and provide all transportation as required.
- .4 General Contractor's duties:
 - .1 Unload at site.
 - .2 Promptly inspect products and report damaged or defective items.
 - .3 Give written notification to the Departmental Representative for items accepted in good order.
 - .4 Handle at site, including uncrating and storage.
 - .5 Repair or replace items damaged on site.
 - .6 Install, connect finished products as specified.

19. SITE ACCESS

- .1 Make prior arrangements with the Departmental Representative before starting work or moving materials and equipment on site.
- .2 Obtain approval of Departmental Representative for regular means of access during the construction period.
- .3 Obtain approval of Departmental Representative before temporarily suspending operations on site; before returning to the site and before leaving the site at the end of the job.
- .4 Provide and maintain access to site.
- .5 Build and maintain temporary roads and provide snow removal during period of work.
- .6 Make good any damage and clean up dirt, debris, etc., resulting from contractor's use of existing roads.

20. USE OF SITE

- .1 Restrict operations on the site to the areas approved by the Departmental Representative
- .2 Locate all temporary structures, equipment, storage, etc., to the designated areas.
- .3 Restrict parking to the designated areas.

21. ACCEPTANCE OF SITE

- .1 Inspect the site before commencing work, review any unexpected conditions with the Departmental Representative.
- .2 Commencement of work will imply acceptance of existing conditions.

22. SITE OFFICE & TELEPHONE

- .1 Contractor to erect a temporary site office at his own expense.
- .2 Install and maintain a telephone, if necessary.

- .3 Use of NRC phones is not permitted unless in the case of an emergency.

23. SANITARY FACILITIES

- .1 Obtain permission from the Departmental Representative to use the existing washroom facilities in the building bear all associated costs.

24. TEMPORARY SERVICES

- .1 A source of temporary power will be made available in the area. Bear all costs to make connections to the power source and perform distribution on site.
- .2 Provide all load centres, breakers, conduit, wiring, disconnects, extension cords, transformers, as required from the source of power.
- .3 Power is to be used only for power tools, lighting, controls, motors, and not for space heating.
- .4 A source of temporary water will be made available if required.
- .5 Bear all costs associated with distributing the water to the required locations.
- .6 Comply with NRC requirements when connecting to existing systems in accordance with the articles entitled "Co-operation" and "Service Interruptions" of this section.

25. DOCUMENTS REQUIRED AT WORK SITE

- .1 The contractor shall keep on the site, one (1) up-to-date copy of all contract documents, including specifications, drawings, addenda, shop drawings, change notices, schedule and any reports or bulletins pertaining to the work, in good order, available to the Departmental Representative and to his / her representatives at all times.
- .2 At least one (1) copy of specifications and drawings shall be marked by the contractor to show all work "As Built" and shall be provided to the Departmental Representative with the Application for Payment and for the Final Certificate of Completion.

26. CO-OPERATION

- .1 Co-operate with NRC staff in order to keep disruption of normal research work to an absolute minimum.
- .2 Work out in advance, a schedule for all work which might disrupt normal work in the building.
- .3 Have schedule approved by the Departmental Representative.
- .4 Notify the Departmental Representative in writing, 72 hours prior to any intended interruption of facilities, areas, corridors, mechanical or electrical services and obtain requisite permission.

27. PROTECTION AND WARNING NOTICES

- .1 Provide all materials required to protect existing equipment.
- .2 Erect dust barriers to prevent dust and debris from spreading through the building.
- .3 Place dust protection in the form of cover sheets over equipment and furniture and tape these sheets to floors, to ensure no dust infiltration.
- .4 Repair or replace any and all damage to Owner's property caused during construction, at no cost to the Owner and to the satisfaction of the Departmental Representative.
- .5 Protect the buildings, roads, lawns, services, etc. from damage which might occur as a result of this work.
- .6 Plan and co-ordinate the work to protect the buildings from the leakage of water, dust, etc.
- .7 Ensure that all doors, windows, etc., that could allow transfer of dust, noise, fumes, etc., to other areas of the building are kept closed.
- .8 Be responsible for security of all areas affected by the work under the Contract until acceptance by NRC. Take all necessary precautions to prevent entry to the work area by unauthorized persons and guard against theft, fire and damage by any cause. Secure working area at the end of each day's work and be responsible for same.
- .9 Provide and maintain adequate safety barricades around the work sites to protect NRC personnel and the public from injury during the construction.
- .10 Post warnings, in all instances where possible injury could occur such as Work Overhead, Hard Hat Areas, etc. or as required by the Departmental Representative.
- .11 Provide temporary protective enclosures over building entrances and exits to protect pedestrians. All enclosures to be structurally sound against weather and falling debris.

28. BILINGUALISM

- .1 Ensure that all signs, notices, etc. are posted in both official languages.
- .2 Ensure that all identification of services called for by under this contract are bilingual.

29. LAYOUT OF WORK

- .1 Location of equipment, fixtures, outlets and openings indicated on drawings or specified are to be considered as approximate.
- .2 Locate equipment, fixtures and distribution systems to provide minimum interference and maximum usable space and in accordance with the manufacturer's recommendations for safety, access and maintenance.
- .3 Employ competent person to lay out work in accordance with the contract documents.

30. DISCREPANCIES & INTERFERENCES

- .1 Prior to the start of the work, examine drawings and specifications. Report at once to the Departmental Representative, any defects, discrepancies, omissions or interferences affecting the work.
- .2 Contractor to immediately inform the Departmental Representative in writing, of any discrepancies between the plans and the physical conditions so the Departmental Representative may promptly verify same.
- .3 Any work done after such a discovery, until authorized, is at the contractor's risk.
- .4 Where minor interferences as determined by the Departmental Representative are encountered on the job and they have not been pointed out on the original tender or on the plans and specifications, provide offsets, bends or reroute the services to suit job conditions at no extra cost.
- .5 Arrange all work so as not to interfere in any way with other work being carried out.

31. MANUFACTURER'S INSTRUCTIONS

- .1 Unless otherwise specified, comply with manufacturer's latest printed instructions for materials and installation methods.
- .2 Notify the Departmental Representative in writing of any conflict between these specifications and manufacturer's instruction. Departmental Representative will designate which document is to be followed.

32. TEMPORARY HEATING AND VENTILATING

- .1 Bear the costs of temporary heat and ventilation during construction including costs of installation, fuel, operation, maintenance, and removal of equipment.
- .2 Use of direct-fired heaters discharging waste products into the work areas will not be permitted unless prior approval is given by the Departmental Representative.
- .3 Furnish and install temporary heat and ventilation in enclosed areas as required to:
 - .1 Facilitate progress of work.
 - .2 Protect work and products against dampness and cold.
 - .3 Reduce moisture condensation on surfaces to an acceptable level.
 - .4 Provide ambient temperature and humidity levels for storage, installation and curing of materials.
 - .5 Provide adequate ventilation to meet health regulations for a safe working environment.
- .4 Maintain minimum temperature of 10 °C (50 °F) or higher where specified as soon as finishing work is commenced and maintain until acceptance by the Departmental Representative. Maintain ambient temperature and humidity levels as required for comfort of NRC personnel.

- .5 Prevent hazardous or unhealthy accumulations of dust, fumes, mists, vapours or gases in areas occupied during construction including also, storage areas and sanitary facilities.
 - .1 Dispose of exhaust materials in a manner that will not result in a harmful or unhealthy exposure to persons.
- .6 Maintain strict supervision of operation of temporary heating and ventilating equipment.
 - .1 Enforce conformance with applicable codes and standards.
 - .2 Comply with instructions of the Departmental Representative including provision of full-time watchman services when directed.
 - .3 Enforce safe practices.
 - .4 Vent direct-fired combustion units to outside.
- .7 Submit tenders assuming existing or new equipment and systems will not be used for temporary heating and ventilating.
- .8 After award of contract, Departmental Representative may permit use of the permanent system providing agreement can be reached on:
 - .1 Conditions of use, special equipment, protection, maintenance, and replacement of filters.
 - .2 Methods of ensuring that heating medium will not be wasted and in the case of steam, agreement on what is to be done with the condensate.
 - .3 Saving on contract price.
 - .4 Provisions relating to guarantees on equipment.

33. CONNECTIONS TO AND INTERRUPTIONS TO EXISTING SERVICES

- .1 Where work involves breaking into or connecting to existing services, carry out work at times and in the manner agreed to by the Departmental Representative and by authorities having jurisdiction, with minimum disruption to NRC Personnel and vehicular traffic and minimum service interruption. Do not operate any NRC equipment or plant.
- .2 Before commencing work, establish location and extent of service lines in area of work and notify Departmental Representative of findings.
- .3 Submit a schedule to and obtain approval from the Departmental Representative for any shut-down or closure of active service or facility; allow minimum 72 hours notice. Adhere to approved schedule and provide notice to the Departmental Representative.
- .4 Where unknown services are encountered, immediately advise Departmental Representative and confirm findings in writing.
- .5 Provide detours, bridges, alternate feeds, etc., as required to minimize disruptions.
- .6 Protect existing services as required and immediately make repairs if damage occurs.
- .7 Remove any abandoned service lines as indicated on the contract documents and as approved by the Departmental Representative; cap or otherwise seal lines at cut-off points.

Record and provide a copy to the Departmental Representative of locations of maintained, re-routed and abandoned service lines.

34. CUTTING AND PATCHING

- .1 Cut existing surfaces as required to accommodate new work.
- .2 Remove all items as shown or specified.
- .3 Patch and make good with identical materials, the surfaces that have been disturbed, cut or damaged, to the satisfaction of the Departmental Representative.
- .4 Where new pipes pass through existing construction, core drill an opening. Size openings to leave 12mm (1/2") clearance around the pipes or pipe insulation. Do not drill or cut any surface without the approval of the Departmental Representative.
- .5 Obtain written approval of the Departmental Representative before cutting openings through existing or new structural members.
- .6 Seal all openings where cables, conduits or pipes pass through walls with an acoustic sealant conforming to CAN/CGSB-19.21-M87.
- .7 Where cables, conduits and pipes pass through fire rated walls and floors, pack space between with compressed glass fibres and seal with fire stop caulking in accordance with CAN/CGSB-19.13-M87 AND NBC 3.1.7.

35. FASTENING DEVICES

- .1 Do not use explosive actuated tools, without first obtaining permission from the Departmental Representative.
- .2 Comply with the requirements of CSA A-166 (Safety Code for Explosive Actuated Tools).
- .3 Do not use any kind of impact or percussion tool without first obtaining permission from the Departmental Representative.

36. OVERLOADING

- .1 Ensure that no part of the building or work is subjected to a load which will endanger safety or cause permanent deformation or structural damage.

37. DRAINAGE

- .1 Provide temporary drainage and pumping as required to keep excavations and site free of water.

38. ENCLOSURE OF STRUCTURES

- .1 Construct and maintain all temporary enclosures as required to protect foundations, sub-soil, concrete, masonry, etc., from frost penetration or damage.

- .2 Maintain in place until all chances of damage are over and proper curing has taken place.
- .3 Provide temporary weather tight enclosures for exterior openings until permanent sash and glazing and exterior doors are installed.
- .4 Provide lockable enclosures as required to maintain the security of NRC facilities and be responsible for the same.
- .5 Provide keys to NRC security personnel when required.
- .6 Lay out the work carefully and accurately and verify all dimensions and be responsible for them. Locate and preserve general reference points.
- .7 Throughout the course of construction, keep continuously acquainted with field conditions, and the work being developed by all trades involved in the project. Maintain an awareness of responsibility to avoid space conflict with other trades.
- .8 Conceal all services, piping, wiring, ductwork, etc., in floors, walls or ceilings except where indicated otherwise.

39. STORAGE

- .1 Provide storage as required to protect all tools, materials, etc., from damage or theft and be responsible for the same.
- .2 Do not store flammable or explosive materials on site without the authorization of the Departmental Representative.

40. GENERAL REVIEW

- .1 Periodic review of the contractor's work by the Departmental Representative does not relieve the contractor of the responsibility of making the work in accordance with contract documents. Contractor shall carry out his own quality control to ensure that the construction work is in accordance with contract documents.
- .2 Inform the Departmental Representative of any impediments to the installation and obtain his / her approval for actual location.

41. INSPECTION OF BURIED OR CONCEALED SERVICES

- .1 Prior to concealing any services that are installed, ensure that all inspection bodies concerned, including NRC, have inspected the work and have witnessed all tests. Failure to do so may result in exposing the services again at the contractor's expense.

42. TESTING

- .1 On completion, or as required by local authority inspectors and/or Departmental Representative during progress of work and before any services are covered up and flushing is complete, test all installations in the presence of the Departmental Representative.

- .2 Obtain and hand to the Departmental Representative all acceptance certificates or test reports from authority having jurisdiction. The project will be considered incomplete without the same.

43. PARTIAL OCCUPANCY

- .1 NRC may request partial occupancy of the facility if the contract extends beyond the expected completion date.
- .2 Do not restrict access to the building, routes, and services.
- .3 Do not encumber the site with materials or equipment.

44. DISPOSAL OF WASTES

- .1 Dispose of waste materials including volatiles, safely off NRC property. Refer to the section entitled "General and Fire Safety Requirements" included as part of this specification.

45. CLEAN-UP DURING CONSTRUCTION

- .1 On a daily basis, maintain project site and adjacent area of campus including roofs, free from debris and waste materials.
- .2 Provide on-site dump containers for collection of waste materials and rubbish.

46. FINAL CLEAN-UP

- .1 Upon completion do a final clean-up to the satisfaction of the Departmental Representative.
- .2 Clean all new surfaces, lights, existing surfaces affected by this work, replace filters, etc.
- .3 Clean all resilient flooring and prepare to receive protective finish. Protective finish applied by NRC

47. WARRANTY AND RECTIFICATION OF DEFECTS IN WORK

- .1 Refer to General Conditions "C", section GC32.
- .2 Ensure that all manufacturers' guarantees and warranties are issued in the name of the **General Contractor** and the National Research Council.

48. MAINTENANCE MANUALS

- .1 Provide three (3) bilingual copies of maintenance manuals or two English and two French maintenance manuals immediately upon completion of the work and prior to release of holdbacks.
- .2 Manuals to be neatly bound in hard cover loose leaf binders.

- .3 Manuals to include operating and maintenance instructions, all guarantees and warranties, shop drawings, technical data, etc., for the material and apparatus supplied under this contract.

END OF SECTION

1. GENERAL CONSTRUCTION SAFETY REQUIREMENTS

- .1 The Contractor shall take all necessary steps to protect personnel (workers, visitors, general public, etc.) and property from any harm during the course of the contract.
- .2 The Contractor shall be solely responsible for the construction safety of both its employees and those of its sub-contractors at the work site, and for initiating, maintaining and supervising safety precautions, programs and procedures in connection with the performance of the work.
- .3 The Contractor shall comply with all Federal, Provincial and Municipal safety codes and regulations and the Occupational Health and Safety Act and the Workplace Safety and Insurance Board. In the event of any conflict between any provisions in legislation or codes, the most stringent provisions shall apply.
- .4 Periodic review of the contractor's work by the Departmental Representative, using the criteria of the contract documents, does not relieve the contractor of his safety responsibilities in carrying out the work in accordance with the contract documents. The contractor shall consult with the Departmental Representative to ensure that this responsibility is carried out.
- .5 The Contractor shall ensure that only competent personnel are permitted to work on site. Throughout the term of the contract, any person will be removed from the site who is not observing or complying with the safety requirements.
- .6 All equipment shall be in safe operating condition and appropriate to the task.
- .7 Following a project and site hazard assessment, the Contractor shall develop a Site Specific Safety Plan based on the following minimum requirements:
 - .1 Provide a safety board mounted in a visible location on the project site, with the following information included thereon:
 - .1 Notice of Project
 - .2 Site specific Safety Policy
 - .3 Copy of Ontario Health and Safety Act
 - .4 Building Schematic showing emergency exits
 - .5 Building emergency procedures
 - .6 Contact list for NRC, Contractor and all involved sub-contractors
 - .7 Any related MSDS sheets
 - .8 NRC Emergency phone number
- .8 The Contractor shall provide competent personnel to implement its safety program and those of any Health and Safety Act legislation applicable at this project location, and to ensure they are being complied with.
- .9 The Contractor shall provide safety orientation to all its employees as well as those of any subcontractors under its jurisdiction.

- .10 The Departmental Representative will monitor to ensure that safety requirements are met and that safety records are properly kept and maintained. Continued disregard for safety standards can cause the contract to be cancelled and the Contractor or sub-contractors removed from the site.
- .11 The Contractor will report to the Departmental Representative and jurisdictional authorities, any accident or incident involving Contractor or NRC personnel or the public and/or property arising from the Contractor's execution of the work.
- .12 If entry to a laboratory is required as part of the work of the Contractor, a safety orientation shall be provided to all his employees as well as those of any subcontractors regarding lab safety requirements and procedures, as provided by the Researcher or the Departmental Representative.

2. FIRE SAFETY REQUIREMENTS

.1 Authorities

- 1. The Fire Commissioner of Canada (FC) is the authority for fire safety at NRC.
- 2. For the purpose of this document, "Departmental Representative" will be deemed as the NRC person in charge of the project and who will enforce these Fire Safety Requirements.
- 3. Comply with the following standards as published by the Office of the Fire Commissioner of Canada:
 - a. Standard No. 301 - June 1982 "Standard for Construction Operations";
 - b. Standard No. 302 - June 1982 "Standard for Welding and Cutting".

.2 Smoking

- .1 Smoking is prohibited inside all NRC buildings, as well as roof areas.
- .2 Obey all "NO SMOKING" signs on NRC premises.

.3 Hot Work

- .1 Prior to commencement of any "Hot Work" involving welding, soldering, burning, heating, use of torches or salamanders or any open flame, obtain a Hot Work Permit from the Departmental Representative.
- .2 Prior to commencement of "Hot Work", review the area of hot work with the Departmental Representative to determine the level of fire safety precautions to be taken.

.4 Reporting Fires

- .1 Know the exact location of the nearest Fire Alarm Pull Station and telephone, including the emergency phone number.
- .2 REPORT immediately, all fire incidents as follows:
 - .1 Activate nearest fire alarm pull station and;

.2 Telephone the following emergency phone number as appropriate:

FROM AN NRC PHONE	333
FROM ANY OTHER PHONE	(613) 993-2411

4. When reporting a fire by phone, give the location of fire, building number and be prepared to verify location.
5. The person activating fire alarm pull station must remain at a safe distance from the scene of the fire but readily available to provide information and direction to the Fire Department personnel.

.5 Interior and Exterior Fire protection & Alarm Systems

- .1 DO NOT OBSTRUCT OR SHUT OFF FIRE PROTECTION EQUIPMENT OR SYSTEMS, INCLUDING BUT NOT LIMITED TO FIRE ALARM SYSTEMS, SMOKE/HEAT DETECTORS, SPRINKLER SYSTEM, PULL STATIONS, EMERGENCY CALL BUTTONS AND PA SYSTEMS, WITHOUT AUTHORIZATION FROM THE DEPARTMENTAL REPRESENTATIVE.
- .2 WHEN ANY FIRE PROTECTION EQUIPMENT IS TEMPORARILY SHUT DOWN, ALTERNATIVE MEASURES AS PRESCRIBED BY THE DEPARTMENTAL REPRESENTATIVE SHALL BE TAKEN TO ENSURE THAT FIRE PROTECTION IS MAINTAINED.
- .3 DO NOT LEAVE FIRE PROTECTION OR ALARM SYSTEMS INACTIVE AT THE END OF A WORKING DAY WITHOUT NOTIFICATION AND AUTHORISATION FROM THE DEPARTMENTAL REPRESENTATIVE. THE DEPARTMENTAL REPRESENTATIVE WILL ADVISE THE (FPO) OF THE DETAILS OF ANY SUCH EVENT.
- .4 DO NOT USE FIRE HYDRANTS, STANDPIPES AND HOSE SYSTEMS FOR OTHER THAN FIRE FIGHTING PURPOSES UNLESS AUTHORISED BY DEPARTMENTAL REPRESENTATIVE.

.6 Fire Extinguishers

- .1 Provide a minimum of 1-20 lb. ABC Dry Chemical Fire Extinguisher at each hot work or open flame location.
- .2 Provide fire extinguishers for hot asphalt and roofing operations as follows:
 - a. Kettle area - 1-20 lb. ABC Dry Chemical;
 - b. Roof - 1-20 lb. ABC Dry Chemical at each open flame location.
- .3 Provide fire extinguishers equipped as below:
 - c. Pinned and sealed;
 - d. With a pressure gauge;
 - e. With an extinguisher tag signed by a fire extinguisher servicing company.

- .4 Carbon Dioxide (CO₂) extinguishers will not be considered as substitutes for the above.

.7 Roofing Operations

- .1 Kettles:
 - .1 Arrange for the location of asphalt kettles and material storage with the Departmental Representative before moving on site. Do not locate kettles on any roof or structure and keep them at least 10m (30 feet) away from a building.
 - .2 Equip kettles with 2 thermometers or gauges in good working order; a hand held and a kettle-mounted model.
 - .3 Do not operate kettles at temperatures in excess of 232°C (450 °F).
 - .4 Maintain continuous supervision while kettles are in operation and provide metal covers for the kettles to smother any flames in case of fire. Provide fire extinguishers as required in article 2.6.
 - .5 Demonstrate container capacities to Departmental Representative prior to start of work.
 - .6 Store materials a minimum of 6m (20 feet) from the kettle.
- .2 Mops:
 - .1 Use only glass fibre roofing mops.
 - .2 Remove used mops from the roof site at the end of each working day.
- .3 Torch Applied Systems:
 - .1 DO NOT USE TORCHES NEXT TO WALLS.
 - .2 DO NOT TORCH MEMBRANES TO EXPOSED WOOD OR CAVITY
 - .3 Provide a Fire Watch as required by article 2.9 of this section.
- .4 Store all combustible roofing materials at least 3m (10 feet) away from any structure.
- .5 Keep compressed gas cylinders a minimum of 6m (20 feet) away from the kettle, protected from mechanical damage and secured in an upright position.

.8 Welding / Grinding Operations

- .1 Contractor to provide fire blankets, portable fume extraction devices, screens or similar equipment to prevent exposure to welding flash, or sparks from grinding.

.9 Fire Watch

- .1 Provide a fire watch for a minimum of one hour after the termination of any hot work operation.
- .2 For temporary heating, refer to General Instructions Section 00 010 00.
- .3 Equip fire watch personnel with fire extinguishers as required by article 2.6.

.10 Obstruction of access/egress routes-roadways, halls, doors, or elevators

- .1 Advise the Departmental Representative in advance of any work that would impede the response of Fire Department personnel and their apparatus. This includes violation of minimum overhead clearance, erection of barricades and the digging of trenches.
- .2 Building exit routes must not be obstructed in any way without special permission from the Departmental Representative, who will ensure that adequate alternative routes are maintained.
- .3 The Departmental Representative will advise the FPO of any obstruction that may warrant advanced planning and communication to ensure the safety of building occupants and the effectiveness of the Fire Department.

.11 Rubbish and Waste Materials

- .1 Keep rubbish and waste materials to a minimum and a minimum distance of 6m (20 feet) from any kettle or torches.
- .2 Do not burn rubbish on site.
- .3 Rubbish Containers
 - .1 Consult with the Departmental Representative to determine an acceptable safe location for any containers and the arrangement of chutes etc. prior to bringing the containers on site.
 - .2 Do not overfill the containers and keep area around the perimeter free and clear of any debris.
- .4 Storage
 - .1 Exercise extreme care when storing combustible waste materials in work areas. Ensure maximum possible cleanliness, ventilation and that all safety standards are adhered to when storing any combustible materials.
 - .2 Deposit greasy or oily rags or materials subject to spontaneous combustion in CSA or ULC approved receptacles and remove at the end of the work day or shift, or as directed.

.12 Flammable Liquids

- .1 The handling, storage and use of flammable liquids is governed by the current National Fire Code of Canada.
- .2 Flammable Liquids such as gasoline, kerosene and naphtha may be kept for ready use in quantities not exceeding 45 litres (10 imp gal), provided they are stored in approved safety cans bearing the ULC seal of approval and kept away from buildings, stockpiled combustible materials etc. Storage of quantities of flammable liquids exceeding 45 litres (10 imp gal) for work purposes, require the permission of the Departmental Representative.

-
- .3 Flammable liquids are not to be left on any roof areas after normal working hours.
 - .4 Transfer of flammable liquids is prohibited within buildings.
 - .5 Do not transfer flammable liquids in the vicinity of open flames or any type of heat producing device.
 - .6 Do not use flammable liquids having a flash point below 38 °C (100 °F) such as naphtha or gasoline as solvents or cleaning agents.
 - .7 Store flammable waste liquids for disposal in approved container located in a safe, ventilated area. Waste flammable liquids are to be removed from the site on a regular basis.
 - .8 Where flammable liquids, such as lacquers or urethane are used, ensure proper ventilation and eliminate all sources of ignition. Inform the Departmental Representative prior to, and at the cessation of such work.

3. Questions and/or clarifications

- .1 Direct any questions or clarification on Fire or General Safety, in addition to the above requirements, to the Departmental Representative.

END OF SECTION

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PART 1 - GENERAL

1.1 SCOPE OF WORK

1. The Work described herein includes for all labour and material, including overtime required to meet the project schedule, to modernize One (1) geared traction elevator located at NRC Building M36,1200 Montreal Road, provincial number 21149. Provide all work required for a completed project, accepted by the Authority Having Jurisdiction including:
 2. New geared traction machine and A.C. hoist motor.
 3. New, regenerative, motor drive.
 4. New non-proprietary, microprocessor-based, solid state electrical controller.
 5. New overspeed and uncontrolled speed protection for car and counterweight.
 6. New car door operator, door locks, relating system, door closers and related hardware.
 7. Completely refurbish the cab interior finishes.
 8. New signals including car direction and position indicators and lobby position indicators.
 9. New speed governor, rope and idler sheave.
10. Provision of automatic emergency recall and in-car emergency service.
11. Full parts, labour and all associated code required preventive maintenance which shall include all system shut down call backs on all elevator components for a subsequent Twelve (12) month period after the final inspection certificate has been signed by Owner.
12. Provide required demolition and removal of existing elevator system including machine room, hoistway and hall fixtures.
13. Provide required engineering and co-ordination of various elements and suppliers to provide a complete code compliant project.
14. Provide equipment guarding in accordance with MOL O.Reg 851 and TSSA document: Elevator Machine Room Equipment Guarding - Best Practices.

15. Related work specified in General Instructions (00 10 00), General and Fire Safety Instructions (00 15 45), Common Work Electrical (26 05 00) and Fire Alarm Systems (28 21 00).
16. Above is a brief description only. The following specifications detail the Work.

1.2 RELATED WORK -
INCLUDED AS ELEVATOR
CONTRACTOR'S
RESPONSIBILITY

Include subcontracts and all coordination and supervision of related work usually covered off by others trades to accomplish a working elevator system, accepted by provincial authorities and suitable for intended use including:

- .1 Electrical:
 - .1 Install new fire signals to the elevator controllers. This includes signal for main fire alarm, signal for a fire alarm emanating from the elevator machine room and/or elevator hoistway and thirdly a signal for a fire alarm emanating from the ground floor - used to drive the elevator to the recall floor. Include for new fire sensing devices in front of the elevator at each floor's lobby. Provide for this work being done by a certified fire alarm technician and provide required commissioning and testing of modifications to the fire alarm panel.
 - .2 Accommodate existing three-phase disconnect switch. Provide new earth ground.
 - .3 Accommodate existing 120 V 15 amp disconnect switch for elevator cab lighting.
 - .4 Existing machine room lighting can be retained if adequate (200 lux). If additional lighting is required by new equipment layout, provide new lighting in the elevator machine room, operated by new switch. Lighting to provide 200 Lux ambient at the machine room floor level employing a minimum of two, dual 48" T8-style LED fixtures. Provide mechanical guarding of the lights.
 - .5 Provide a minimum of one 15 amp GFI convenience receptacle at the machine room, pit and car top.
 - .6 Arrange for connection to owner's emergency cab communication system to the new telephone provided in the elevator cab. Include for any required assistance by communications contractor to make system functional.
 - .7 Provide new Vapour Proof guarded lighting in the pit. Guard with substantial, rust proof metal cages over polycarbonate lens. Lighting to provide 100 Lux ambient at the pit floor level employing a minimum of dual 24" LED strips. Provide illuminated light switch.

- .8 Engage fire alarm subcontractor to disable fire detectors as required during course of work - respecting Owner's fire regulations.
 - .9 Include electrician subcontract to accomplish all required conductor and conduit runs. Run new grounds as required. Provide all required hydro inspections.
 - .10 Provide 110 v power supply to Rescue Telephone fixture.
 - .11 Provide stainless steel drip pans with drainage where new equipment is installed directly under a sprinkler line, roof drain or any other existing pipes containing liquid.
 - .12 Provide new switches and conductors for all lighting and new pit stop buttons.
- .2 General:
- .1 Include complete removal of redundant elevator components while working in an occupied building.
 - .2 Include for plywood hoarding outside each elevator entrance to provide a working area while keeping the adjacent corridor free for tenant movement.
 - .3 Include for exterior storage container if site storage is limited.
 - .4 Include full costs of material movement - new materials in and redundant materials out, including crane costs, permits, removals of walls (to be made good after). Include for overtime costs of disruptive work.
 - .5 Include for required protection of work area - signage, dust control, floor protection and barricades - to accomplish elevator modernization in an occupied building.
 - .6 Carry out all noisy and disruptive work after hours including any work audible at more than 30 dB over ambient measured 1 meter on the tenant's side of barricades.
 - .7 Supply any required garbage dumpster. Keep building cleared of rubbish.
 - .8 Provide required cutting, patching and making good of new fixtures.
 - .9 Provide new Code compliant pit ladder, including retractable with electrical switch, if required by new equipment arrangement.
 - .10 Provide any required hoistway repairs including patching of holes, fire stopping and bevelling of ledges or setbacks 100 mm or greater.
 - .11 Provide all required supervision, coordination, safety meetings as required by multiple trades on site. The Division 14 contract will be the General Contractor. Include for required municipal and provincial work permits.
 - .12 Modify elevator machine room door as required to ensure self-closing and self-locking - key to NRC standard.

- .13 Provide hoisting plan to Owner with shop drawings. Before moving the new geared machine and or controller to the elevator machine room, provide the Project Manager with a short written plan of how the equipment will be transported to the machine room. Plan to indicate whether a crane will be used or the equipment will be transported in the elevator. The plan is to also detail if cutouts will be required in the machine room walls or ceiling, or removal of vents or windows, etc. to allow for the movement of the new equipment into the machine room or the removal of the redundant equipment. If required by the Project Manager, a site meeting will take place to review the plan. The Project Manager must approve the plan or another alternative method must be considered. No work is to proceed until approval has been given by the Project Manager.
- .14 Retain redundant controller for collection by Owner to be used as spare parts.

1.3 RELATED WORK BY OWNER

- .1 Arrange for live telephone line to the elevator machine room if none existing. Phone line to be dedicated and monitored 24/7.

1.4 REFERENCE STANDARDS

- .2 Perform work to the following minimum standards:
- .1 CAN/CSA-B44-2010 Safety Code for Elevators including updates
 - .2 CSA C22. No.77 Motors with Inherent Overheating Protection.
 - .3 CSA C22.2 No. 141 Unit Equipment for Emergency Lighting.
 - .4 Technical Standards and Safety Act 2000 and Ontario Regulation 209/01.
 - .5 C22.1 Canadian Electrical Code, particularly Section 38.
 - .6 National Building Code.
 - .7 CAN/CSA B651 Barrier Free Design
 - .8 CAN/CSA Z320 Building Commissioning Standards.
 - .9 Canada Labour Code, Part 2, Occupational Safety and Health Regulations including Section 13.13.
 - .10 Occupational Health and Safety Act including Section 109 of Ontario Regulation 213/91.
 - .11 CSA Z432-04 Safeguarding of Machinery.
 - .12 TSSA document: Elevator Machine Room Equipment Guarding - Best Practices.
 - .13 TSSA Code Adoption Document 261-13 or latest amendment.

.14 Addendum to ANSI/ASHRAE/IESNA Standard 90.1-2007, Energy Standard for Buildings (cab lighting systems to have efficacy of not less than 35 lumens per watt, cab ventilation fans shall not consume over .33 watts/cfm at maximum speed and when stopped and unoccupied with doors closed for over 15 minutes, cab interior lighting and ventilation shall be de-energized until required for operation).

In case of discrepancy, the above standards take precedence over details elsewhere in this specification.

1.5 POWER SUPPLY

- .1 Make all necessary modifications to the electrical services relating to the elevator such as supplementary disconnect devices and connections to the controller.
- .2 Design equipment to operate using the existing 3 phase power supply.
- .3 Provide necessary grounding, shielding, or bonding required to accommodate the new elevator equipment.
- .4 Carry out any electrical modifications outside of the hoistway and machine room by a Licensed Electrician and arrange and pay for inspection by hydro utility as required. Provide a copy of utility permit to the Owner.

1.6 PERMITS AND INSPECTIONS

- .1 Complete Design Submission and related research necessary for regulatory approval of Work. Make submission to Province within 2 weeks of approved General Arrangement Drawings.
- .2 Obtain and pay for necessary Municipal or Provincial inspections and permits and make such tests as are called for by the regulations of such authorities. Make tests in the presence of the authorized representatives of authorities.
- .3 Provide the Owner with copies of inspection reports the same day they are received from authorities.

1.7 TAXES

- .1 Pay all taxes properly levied by law including Federal, Provincial and Municipal. HST to be invoiced as an identified extra.

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- 1.8 MEASUREMENTS .1 Before the execution of the work, verify all dimensions with the actual site conditions.
- 1.9 QUALITY OF WORK .1 Perform Work by mechanics skilled in the installation of elevators and with a minimum of five (5) years documented experience in installing the control system to be used.
- .2 Comply with all applicable provisions of all federal, provincial and local labour laws.
- 1.10 SAMPLES .1 Submit to the Owner for approval, upon request, samples of any visible elevator finishes including:
1. Cab wall finishes;
 2. Cab ceilings;
 3. Buttons;
 4. Fixture faceplates.
- 1.11 GENERAL ARRANGEMENT DRAWINGS, SHOP DRAWINGS AND PRODUCT DATA .1 Before beginning work, prepare all drawings to show the general arrangement of the elevator equipment and other data which is called for and are to be submitted for review. Provide these drawings within three (3) weeks of notification of award of contract.
- .2 Drawing review is for the sole purpose of ascertaining conformance with the general design concept and does not mean approval of the design details inherent in the shop drawings, responsibility for which shall remain with the Contractor. Such review shall not relieve the Contractor of responsibility for errors or omissions in the shop drawings or of his responsibility for meeting all requirements of the Contract including this specification.
- .3 Use metric units of measurement.
- .4 Provide soft version in AutoCAD format and submit three (3) copies of each shop drawing for review. Format for printing as 280mm x 432 mm (11" x 17").
- .5 Indicate to scale on general arrangement drawings, stamped by a Professional Engineer registered in the province:
- .1 Plan view of driving machine, controller, governor and all other components in machine room.
 - .2 Location of circuit breaker, switchboard panel or disconnect switch, light switch and feeder extension points in machine room.

- .3 Location in hoistway or machine room for connection of travelling cables for car light and communication system.
 - .4 Signal and operating fixtures.
 - .5 Locations and size of trap doors and access doors and load on hoist beam and location of trolley beams.
 - .6 Heat dissipation of elevator equipment in machine room.
 - .7 Location of equipment guarding/fencing.
- .6 Indicate on shop drawings:
- .1 Detailed drawing showing all fixtures, position indicators, push buttons, car operating stations, corridor control panels, and any other special fixtures pertaining to the project.
 - .2 Include catalogue illustrations of operating and signal fixtures.
- .7 Provide detailed elevator cab interior drawings.
- .8 Do not commence manufacture or order materials before shop drawings are approved as well as stamped by a Professional Engineer in the province of work and submitted to the provincial safety authority.

1.12 PROJECT RECORD DOCUMENTS

- .1 Before final acceptance of equipment, provide three (3) sets of reproducible as-built wiring diagrams as well as three (3) sets of all final issue shop drawings including General Arrangement Drawings - machine room plan, hoistway plan and hoistway section. All drawings to be laminated or enclosed in plastic protectors and marked "as-built". Provide all drawings stamped as "as built" by a Professional Engineer registered in the province.
- .2 Provide one (1) soft copy of the above information in AutoCAD format.
- .3 Mark up all field changes or additions to original wiring diagrams in red.
- .4 Submit drawings and data in accordance with General Requirements specification, if distributed with this tender.

1.13 OPERATION AND MAINTENANCE DATA

- .1 Provide three (3) hard copies and one (1) soft copy of manufacturer's instructions and operation and maintenance manuals.
- .2 Include the following maintenance data:

- .1 Description of elevator system's method of operation and control including motor control system, door operation, emergency recall operation and special or non-standard features provided.
- .2 Consolidated replacement parts list.
- .3 Include all as built wiring diagrams for all equipment on controllers.
- .4 Maintenance: Use clear drawings, diagrams or manufacturers' literature which detail the following:
 - lubrication products and schedules
 - trouble shooting procedures
 - adjustment techniques
 - operational checks.
- .5 Spare Parts:
 - List recommended spares to be maintained on site to ensure optimum efficiency
 - List all special tools and appropriate unique applications.
 - Detail manufacturer and supplier names and addresses.

- .3 Include in the manuals a copy of the registered design submission and safety authority design submission and inspection reports.
- .4 Provide further information that is required for the safe and efficient maintenance of the elevator equipment, including any solid state equipment or devices supplied under these specifications.

1.14 MAINTENANCE
SERVICE - INTERIM AND
WARRANTY

- .1 Include at no extra cost Interim maintenance of existing equipment covered under this project from the award of contract, through the shop drawing and material ordering stage, and continue maintenance for an additional period of twelve (12) months from the date of the Final Certificate of Completion of the project.
- .2 Carry out maintenance inspections and tests in accordance with provincial regulations, Section 8.6 of the ASME 17.1/CSA B44-10 Safety Code for Elevators and Escalators and owner standard Elevating Devices Maintenance Specification distributed with this tender, as a minimum.
- .3 Systematically clean, lubricate and adjust all of the equipment as required.
- .4 Repair or replace electrical and mechanical parts of any equipment as required, whether due to defect or normal wear and tear.

- .5 Use only genuine standard parts of manufacturer of equipment.
- .6 Perform work by competent personnel under supervision and in direct employ of manufacturer, or manufacturer's licensed agent.
- .7 Schedule work during regular Elevator Trade working hours with Owner.
- .8 Maintain locally an adequate stock of parts for replacement or emergency purposes and have qualified staff available to ensure fulfilment of parts requirements in a timely fashion.
- .9 Include 24 hour call-back service required by equipment stoppage or malfunction at all times at no additional cost. Provide staffing to ensure 30 minute response to emergency calls throughout interim and warranty maintenance. Provide full coverage of monitoring system including modem and internet elements with 48 hour deadline to restore system to full operation.
- .10 Ensure no unit is out of service longer than 12 hours - keep Owner completely informed of equipment malfunctions on a continuing basis.
- .11 Provide a storage cabinet in the machine room suitable for storing spare parts and project documents.
- .12 Provide an approved container in the machine room for the storage of oil and rags. Empty on a regular basis.
- .13 Remove garbage monthly.

1.15 LAYOUT

- .1 Design equipment to suit existing space or space as modified by this division's work, including hoistway cross-sections, overhead, pit depth, machine room dimensions and machine room location.
- .2 In the event that design changes are proposed by the Contractor with respect to any of the above-noted dimensions, required either for convenience or by physical necessity, notify Owner in writing without delay.

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- 1.16 WARRANTY
- .1 Provide a warranty that the materials and workmanship of the apparatus installed under these specifications are first-class in every respect and make good any defects, not due to improper use or care, which may develop within one (1) years from the date of acceptance.
 - .2 Commence warranty at date of certification of Final Completion, as certified by the Owner.
- 1.17 CERTIFICATION OF PAYMENT
- .1 The Owner will certify progress payments for work only after it has been installed.
 - .2 Progress payments may be withheld for, whether or not certified by the Owner, for any of the following:
 - .1 Defective work or deficiencies not corrected.
 - .2 Failure of Contractor to make payments properly to Sub-contractor(s) or for material and labour.
 - .3 Failure to work to schedule.
 - .4 Damage to the building or another contractor.
 - .5 Failure to meet specifications or performance criteria.
- 1.18 USE OF ELEVATOR BY PERSONS WITH PHYSICAL DISABILITIES
- .1 Arrange all controls and fixtures to be easily reached and operated by disabled persons. Meet requirements of Appendix E of the CAN/CSA-B44 Safety Code for Elevators, including:
 - .2 Provide car direction indication with stainless steel faceplates, lexan covers, LED illuminated bulbs and new electronic chimes to sound once for UP direction and twice for DOWN. Chime volume to be adjustable.
 - .3 Provide all new metal hall braille/tactile plates.
 - .4 Provide voice annunciation indication of each floor, when served and of car direction. Provide volume control adjustable from behind car station. Provide high- power speakers, minimum of two (2) per car so no distortion is readily noticeable to passengers. Provide sample of annunciations, to be in French and English language and in a feminine voice, with shop drawings.

1.19 ELEVATOR
PERFORMANCE

- .1 With equipment adjusted to the required parameters, operate elevator with smooth acceleration and provide a comfortable and agreeable ride to the passengers.
- .2 Meet required parameters in conjunction with dependable, consistent elevator operation and without undue wear or excessive maintenance over the life of the elevator installation.
- .3 Provide brake to brake time of 7.7 sec. (125 fpm car speed) based on typical 11 foot floor heights.
- .4 Set side open two speed doors to safely open in 2.7 seconds and close in 4.5 seconds.
- .5 Provide adjustable dwell times and independent dwell settings for car and hall calls. Set the dwell times to 4 seconds for car, and 6 seconds for hall initially.
- .6 Maintain floor levelling accuracy of 5 mm or better.
- .7 Set door detector interrupt and nudging time to 20 seconds. Set door to close at reduced speed in nudging mode. Disable detector when in nudging mode.
- .8 Limit cab noise levels to 60 dB when moving and 68 dB during a door operation cycle, as measured by a sound meter located in the centre of the cab and set on the "A" scale with an "F" response.
- .9 Limit horizontal vibrations in both the post-to-post and front-to-back axis to 20 milli-g in the 2 - 10 hz range.
- .10 Limit vertical vibrations to 20 milli-g.
- .11 Adjust typical acceleration rate to 0.03 g.
- .12 Limit jerk rate (change in rate of acceleration) to 2.44 m/s³.
- .13 Provide car speed to within 5% of contract speed in both directions.

PART 2 - PRODUCTS

2.1 DESCRIPTION OF
ELEVATOR

- .1 Modernize existing geared traction elevator.
 - .2 Class: Passenger.
 - .3 Capacity: 1360kg (3000lbs).
 - .4 Speed: 0.62 m/s (125fpm).
 - .5 Control: Simplex, selective collective
 - .6 Roping: 5 x ½" or better
 - .7 Doors: 1219mm (48") wide, 2134 mm (84") high
Two speed side opening
 - .8 Landings: B, 1 and 2
 - .9 Travel: Per existing site conditions.
 - .10 Overhead: Per existing site conditions
 - .11 Pit Depth: Per existing site conditions
- Special Features: Independent service operation;
FEO operation, phase 1 and phase 2.
- Signals: Dupar US 91 buttons or equivalent;
Car position indicator;
Hall position indicator at main
landing;
New car riding lanterns with new
electronic chime and LED illumination;
Out of service indicators;
Full compliance with Appendix "E" of
CAN/CSA-B44 Safety Code for Elevators
All signals to be LED-illuminated

2.2 COMPONENTS

- .1 Use major elevator components from standard product line of one manufacturer unless otherwise approved in writing or unless product is specifically named in this document.

- .2 Use components only which have performed satisfactorily together under conditions of normal use in not less than three (3) other elevator installations of similar design and for a period of at least two (2) years. Furnish names and addresses of owners or managers of buildings, in which proposed combination of major components has so performed.
- .3 Major components are defined to include motors, motor drives, controllers and machines.
- .4 Furnish materials and equipment new, the best of their respective kinds and installed in a neat, accurate, workmanlike manner.
- .5 Provide only system designs field tested for the application, with adequate capacity to meet all performance criteria and to provide long term, reliable operation.
- .6 Provide stainless steel to ASTM A480M, type 304, no. 4 satin finish.

2.3 ELECTRICAL COMPONENTS

- .1 Furnish and install all new insulated wiring to connect all parts of the equipment including travelling cable, all wiring in hoistway, new components on car top and new wiring from disconnect switch to controllers and motors.
- .2 Use steel set screw type fittings where electrical metallic tubing is used.
- .3 Provide a communication system junction box on the outside of the controller appropriately identified. Provide shielded wiring from the assistance button in car and the speaker in the car to a junction box located at controller in machine room.
- .4 Provide new wiring and conduit from the main line and car lighting disconnect switches to the terminal blocks in the controllers.
- .5 Provide a separately-identified box for the fire alarm connection.
- .6 Include at least 10% spare conductors in each cable. Tape and legibly identify all spare wires.
- .7 In travelling cable and terminating at controller and car station, include at least six (6) pairs of 18 gage twisted/shielded wires for audio or other electronic equipment. Include one (1) co-ax RG-59 or CAT 5 for video signal.

- .8 Do not parallel conductors to increase current carrying capacity unless individually fused.
- .9 Install a separate green bond wire in all raceway, including EMT and flexible conduit.
- .10 Provide additional disconnect switches and wiring if required by Code, to suit new machine room layout.
- .11 Include wiring, and connections to elevator devices remote from hoistway and between elevator machine rooms.
- .12 Connect all wiring where required to building fire alarm system.
- .13 Limit use of flexible conduit to items that require movement or periodic adjustment.
- .14 Provide insulated wiring having a flame retarding and moisture resisting outer cover.
Wiring shall be run in metal conduit, metallic tubing or wire ducts.
- .15 When using conduits or troughs through floor, extend conduit or trough at least 100 mm above floor.
- .16 Do not run conduit or wiring along the pit floor. Install all conduit and wiring a minimum of 150 mm above pit floor.
- .17 Existing trough or conduit may be retained where is serviceable condition.
- .18 Use type ETT travelling cables.
- .19 Suitably suspend the travelling cables to relieve strain in the individual conductors.
- .20 Install travelling cables with a continuous run from the controller to the elevator cab. Do not terminate or couple the travelling cables under the car or in the hoistway.
- .21 Protect travelling cables from damage where they make contact with the hoistway, hoistway equipment or trimmer beams.
- .22 Run high voltage wiring in electrical metallic tubing or other galvanized steel raceway. Include a covered ground wire same size as feeders in the raceway.

- .23 Fabricate wiring that is run in conduit or tubing to Table 6 of CEC Part 1.
- .24 Do not use metal wiring conduit as a grounding conductor.
- .25 Any existing conduit or trough in acceptable condition may be retained and refurbished to "like-new" condition.

2.4 SOUND ISOLATION

- .1 Include resilient pads to effectively isolate machine from machine beams or flooring. Design for transmissivity of less than 10% at full speed and full load. Use a minimum of 37 mm thick pads. Do not use built-up pads.
- .2 Prevent lateral displacement of machine.

2.5 CAR AND COUNTERWEIGHT GUIDES

- .1 Equip car and counterweight with heavy duty roller guides, individually spring loaded, mounted on top and bottom of car and counterweight frames. Provide minimum diameter 102mm (4") for car, 76mm (3") for counterweight. Include auxiliary guides to rails.
- .2 Provide each guide with durable, oil resistant and resilient tired ball bearing rollers to run on three finished rail surfaces.
- .3 Do not lubricate guide rails. Maintain each roller on its respective guide in uniform contact with rail surface at all times by means of substantial adjustable springs or by resilient mountings.
- .4 Provide guide operation, which is inaudible to passengers in car or outside hoistway with car operating at rated speed and car fan turned off.
- .5 Use roller tire material which will not develop flat spots after standing idle for 72 hours under average environmental conditions.

2.6 GUIDE RAILS AND BRACKETS

- .1 Provide new T rail for car and counterweight - 15 lbs/ft and counterweight rails of 8 lbs/ft minimum or alternatively re use existing if compatible and refurbished to the standards of this section.
- .2 Align and file all joints.

- .3 Erect guide rails plumb and parallel within maximum deviation of 1.6 mm per any 6,000 mm section and 0.1 mm per any 25 mm section.
- .4 Use metal shims only and provide lockwashers under nuts and tapped bolts.
- .5 Compensate for expansion and contraction of guide rails.
- .6 Use splice plates and guide rails with contact surfaces accurately machined to form smooth joints.
- .7 Provide planed steel tees, erected plumb and fasten to hoistway by heavy steel brackets.
- .8 Use "T" shape tongue and groove rails, connect with steel splice plates.
- .9 Extend rails to approximately 150 mm from underside of overhead machine beams.
- .10 Bolt or weld brackets directly to steel. Do not use clips.
- .11 In concrete structures, provide inserts in concrete formwork or self-drilling expansion shell bolt anchors for support of brackets. Where Owner or their Representative considers any concrete fastener improperly installed either replace fastener or demonstrate stability of fastener by performing on site test under which fastener is subjected to four times manufacturer's safe pull out or working load. Use self-drilling expansion shell bolt.
- .12 Do not burn out fastening holes.
- .13 Where pits are waterproofed, anchor guide rails in pit so as not to reduce effectiveness of waterproofing.
- .14 Include steel reinforcement for car and counterweight guide rails where necessary.

2.7 ROPES

- .1 Provide new hoist ropes, 1:1 system, from same factory production run in accordance with good practice and the CSA Elevator Code.
- .2 Provide springs on the counterweight end of hoist ropes.
- .3 Only use approved type wedge clamp type sockets.

- .4 Secure the returned end of the wire ropes with two retaining clips. Set first clip approximately 50 mm (2") above top of wedge clamp, and second clip 100 mm (4") above first clip. Use proper seizing of wire rope ends and securely fasten excess rope.
- .5 Provide system engineered for expected hoist rope life of 8 years minimum based on four trips to the lobby per day per building occupant and considering information: car weight, car capacity, car speed, type of car guide, percent counter weight, roping ratio, angle of wrap, drive sheave diameter, undercut profile and angle, deflector sheaves, number of reverse bends, number of ropes, rope diameter, rope grade, lay direction, rope type/construction and bending length. Provide this calculation and the above data with shop drawing submission.

2.8 COMPENSATION
MEANS

- .1 Design electrical drive system to compensate weight of hoist ropes and travelling cables.

2.9 CAR AND COUNTER-
WEIGHT BUFFERS

- .1 Provide new buffers, stands and associated pit steel. Use non-standard reduced stroke buffers and emergency terminal stopping devices where pit depth or overhead height does not permit installation of normal stroke buffers.
- .2 Be responsible for all pit equipment.
- .3 Mount any conduit approximately 300 mm (12") above pit floor. Suitably support this conduit.
- .4 Provide final coat of paint for all pit equipment.
- .5 Provide data plates on all buffers to Code.

2.10 COUNTERWEIGHT

- .1 Retain existing counterweight. Thoroughly clean off and examine counterweight sheave.
- .2 Provide steel retaining arrangement to prevent counterweight from leaving guide rails in event roller guide assemblies leave their attachments. Retaining arrangement to be fastened to counterweight frame independent of primary guiding means.

- .3 Weigh the car, frame and accessories, rebalance counterweight, Rebalance counterweight to ensure counterweight is equal to complete elevator cab plus between 40% to 42.5% of the contract load. Record the car weight in the log book.
- .4 Statically balance the counterweight so that, at the centre of the hoistway, the counterweight hangs in the centre of the rails with top roller guides removed.
- .5 Provide maximum runby sign on pit wall in vicinity of counterweight. Stencil to be used to provide a legible sign.

2.11 SAFETIES AND GOVERNOR

- .1 Provide new type B car safeties or retain and fully refurbish existing if suitable for modernized system and code compliant.
- .2 Provide new governor, governor rope and governor tension sheaves.
- .3 Lubricate all pivot points on safeties under car.
- .4 Test under car safeties at governor tripping speed at completion of project and display a certificate of test in machine room. Provide a copy in the maintenance manual.

2.12 MACHINE

- .1 Provide single-worm type, geared traction machine with all units mounted on a steel or cast iron bed plate. Provide all necessary machine beams, bearing/mounting plates and tie-down supports.
- .2 If geared machine must be dismantled to be conveyed to the machine room all moveable components must be dowelled before machine is dismantled. Ensure that the motor, brake and worm shaft are all aligned as part of the re-assembly. Use of a dial gauge is mandatory.
- .3 Provide robust equipment capable of reliable operation with ambient temperature between 5 and 40° C.
- .4 Provide single worm geared traction machine with motor, brake, gearing, and driving sheave mounted on or integral with cast iron or steel bedplate.
- .5 Use steel worm, integral with worm shaft with ball or roller bearing thrust unit to withstand worm thrust in both directions.

- .6 Design to permit removal of thrust unit without dismantling machine.
- .7 Hob gear from bronze rim and shrink fit or press and bolt to gear spider with fitted body bolts.
- .8 Include means for lubrication and provide oil tight inspection ports for worm gear face, gear contact and gear mounting bolts.
- .9 Design brake to be spring applied electromagnetically released and quietly operated by direct current. Clean and lubricate all brake pins.
- .10 Press and key brake drum securely onto worm shaft.
- .11 Provide a driving sheave with a pitch diameter no less than 40 times the diameter of hoist ropes.
- .12 Press and key sheave shaft into worm gear and traction sheave centre or fit integral traction sheave and worm gear centre to bearings on sheave shaft.
- .13 Provide gearing which operates without appreciable noise and which cause no noticeable vibration in car.
- .14 Prevent lateral displacement of machine.
- .15 Reduce all cable holes to a minimum. Provide guards around cable holes.
- .16 If geared machine must be dismantled to be conveyed to the machine room all moveable components must be dowed before machine is dismantled. Notify Engineer before dismantling machines.
 - .1 Provide a procedure for the disassembly/re-assembly of the machine to the Engineer and owner for review. The procedure shall outline the manner in which the motor, brake and gears will be aligned.
 - .2 The Contractor shall employ the services of a specialized motor alignment company, as a sub-contractor, for the assembly of a geared machine that has been dismantled. Provide a signed confirmation letter from the sub-contractor that the re-assembled machine has been operated, tested, is vibration free and meets the operating tolerances of the equipment manufacturer.
- .16 After brake spring has been adjusted for correct tension drill the brake spring nuts and rod and insert a cotter pin to minimize the possibility of

future incorrect brake adjustment.

- .17 Provide a brake setting data plate to code requirements.
- .18 Include resilient pads to effectively isolate machine from machine beams or flooring. Use bridge bearing neoprene pads to manufacturer's recommendations for this duty. Do not use built-up pads.
- .1 Include AC reversible type motor designed for elevator service and recommended by manufacturer of drive, as follows:
 - .2 Provide Class F or H insulation system.
 - .3 Provide 60 minute duty based on 180 stops per hour.
 - .4 Provide less than 3% slip at full load.
 - .5 Thermally protect motor.
 - .6 Provide high tensile, 724 mPa (105,000 psi) or better steel shaft with 32 micro finish or better.
 - .7 Impregnate windings with insulation and bake to prevent absorption of moisture and oil.
 - .8 Provide not less than one megohm insulation resistance between motor windings and motor frame.
 - .9 Provide sealed bearings. Do not use motor bearings as thrust for worm shaft.
 - .10 Provide 28 poles for smooth, quiet operation.
 - .11 Design so that surface temperature of machine does not exceed 38 degrees C during heavy operation.

2.13 AC MOTOR

2.14 MOTOR DRIVE

- .1 Provide regenerative Variable Voltage Variable Frequency AC flux vector drive system. Design equipment to operate unaffected under minor levels of voltage fluctuations and harmonics generated from within and outside the building.
- .2 Make drive system capable of producing full torque at zero speed and utilize a shaft mounted position transducer to accurately monitor the rotating frequency.
- .3 Provide robust equipment capable of reliable operation with ambient temperature between 5 and 40° C.

- .4 Take power for system from existing building 3 phase power supply.
- .5 Change AC voltage to DC, and a power transistor inverter circuit will change the DC voltage to AC to power the elevator motor.
- .6 Control motor speed and torque by varying the frequency and amplitude of AC voltage.
- .7 Eliminate surges on the AC line which might cause blowing of the DC line fuses or which might cause trouble in other equipment connected to AC line. Filter DC if necessary.
- .8 Modify frequencies emanating from rectifier drive which are objectionable to personnel or which interact with any building equipment.
- .9 Produce no voltage distortion or notches in excess of the limits suggested in IEEE 519. Limit EMI through the use of shielding, efficient power conductor run and filters.
- .10 Provide stepless acceleration and deceleration and smooth operation at all speeds.
- .11 Limit machine room noise level, with elevator operating, to 70 dBA as measured from the centre of the machine room on an "S" response.
- .12 Include braking of motor during deceleration by feeding power generated by motor, back to ac power lines. Failure of the drive's system to remove regenerated power shall cause the drive's output to be removed from the hoist motor.
- .13 Provide closed loop tachometer feedback control. Continuously monitor the elevator speed signal from the velocity transducer and compare it with the intended signal to verify proper and safe operation of the elevator and to correct the actual elevator speed to match the intended speed.
- .14 Automatically re-start equipment which has stopped due to ac power failure.
- .15 Limit Voltage Total Harmonic Distortion to 2%, and limit any individual harmonics to 0.5%.
- .16 Limit Current Total Harmonic Distortion to 5%, and limit any individual harmonics to 3%.

2.15 ASCENDING CAR
OVERSPEED AND
UNINTENDED CAR
MOVEMENT PROTECTION

- .1 Equip elevator with a safety device to provide UP direction car overspeed protection.
- .2 Equip elevator with protection against unintended movement outside of door zone.
- .3 Arrange device to be reset from a single button so-indicated in the controller.
- .4 Design safety device to be capable of setting repeatedly without damaging itself, the elevator machine or ropes.
- .5 Do not use devices which employ cylinders pressurized with air or other gasses to apply to ropes.

2.16 SHEAVES AND
SUPPORTING BEAMS

- .1 Thoroughly clean off and examine all sheaves and supporting beams.
- .2 If existing sheaves are retained, refurbish where required to new condition. Lubricate all sheaves as required.
- .3 Provide any deflector sheaves and bearings and any beams necessary to obtain the proper lead of the ropes to car and counterweight.
- .4 Provide new sheaves of cast iron, accurately machined and grooved for the diameter of ropes used and supported by steel beams or channels furnished in place by Elevator Contractor.
- .5 Provide all sheaves sufficiently larger than that required by Code, in pitch diameter and thickness, to permit at least one regrooving of sheave.

2.17 CONTROLLER AND
CABINET

- .1 Provide non-proprietary controller with flux vector drive - use only one of JRT, MCE, GAL or SmartRise.
- .2 Enclose the controller in enamelled, ventilated, sheet steel cabinet, with swing-type doors at front.
- .3 Provide robust equipment capable of reliable operation with ambient temperature between 5 and 34° C.

- .4 Provide air conditioning system integrated into the elevator controller cabinet to cool controller interior to below 26° C, with elevator under heavy use, and ambient machine room temperature of 38° C. Include all electrical connections and related work for a working system.
- .5 Provide relays and contactors particularly designed for elevator duty.
- .6 Provide separate plexiglass cover over high voltage sections, including 600 V elements, to allow working on the controller with the main doors open.
- .7 Mechanically fasten all conductors in controller. Do not employ plastic adhesive clips or brackets.
- .8 Provide battery back-up for all circuits containing volatile memory.
- .9 Provide a suitable communication system junction box on the outside of the controller and identify it accordingly. Provide a separate identified box for the fire alarm connection and emergency power signal.
- .10 Cord all field wiring and insulate from metal contact.
- .11 Permanently label all switches, fuses and relays.
- .12 Provide protection against reverse and open phasing of main feeders.
- .13 Include properly sized primary and secondary fuses for each transformer used in the controller. Provide a solid state controller equipped with programmable logic microprocessor controls and self-diagnostic features.
- .14 Provide permanently marked junction studs in a designated area in the controller connecting all field wiring.
- .15 Include properly sized primary and secondary fuses for each transformer used in the controller.
- .16 Govern car motion control by means of real position of car in hoistway. Do not employ stepper relays.
- .17 Arrange that accidental grounding in the control system will not defeat the safety circuits.
- .18 Provide fully non-proprietary version of all control equipment including:
 - .1 All required diagnostic are "on board".

.2 All programming and diagrams required for long-term maintenance are provided. All elements required for unrestricted access to all parameters, levels of adjustment, monitoring and flags necessary for long-term maintenance are provided. This includes suspension belt monitoring devices.

.3 The controller will not shut down or alter its functionality in any way after a pre-determined increment of time or use.

.4 Parts including circuit boards shall be available for direct purchase from the factory in quantities and not on an one-for-one "exchange only" basis. Parts to be stocked to allow for overnight shipment.

.5 All circuit boards shall be available for purchase at the published price they sell to their own workforce or local manufacturing representatives as to be demonstrated by a comprehensive parts list supplied with shop drawings.

.6 Manufacturer offers engineering support and technician training directly to the Owner, their Representative and any service contractor at no costs during the installation period and during the warranty period. Manufacturer also offers a support telephone hotline.

.7 Manufacturer will provide factory training to the Owner and their Representative.

.8 Replacement of documentation, manuals, wiring diagrams and any diagnostic elements are available at no costs.

.9 Controller and associated equipment must be approved by the Owner and their Representative.

2.18 CONTROL AND OPERATION

- .1 Provide microprocessor-based simplex selective collective automatic control optimized to minimize passenger waiting times. Submit a full description of proposed control systems including their features, the conditions which bring these into operation and response time.
- .2 Provide dispatching programs in ready-only-memory, with a minimum of 40% spare capacity.
- .3 In the event of failure of the automatic dispatch system, provide alternate dispatching means to ensure service to all landings and for both travel directions.
- .4 When lifting rated load, do not permit car speed to vary from rated speed by more than 5%.

- .5 In the controller, include absolute floor encoding which, upon power up, shall move the car to the closest floor to identify the position of the elevator.
- .6 Arrange elevator so that momentary pressure of one or more of its car buttons causes car to start.
- .7 Provide a time delay to hold the car for an adjustable interval at landings at which stops are made to enable passengers to enter or leave the car.
- .8 Do not start car unless the car door is in the closed position and all hoistway doors are locked in the closed position.
- .9 If down landing buttons are pressed while the car is travelling up, the car shall not stop at these landings, but shall allow these calls to remain registered.
- .10 After the highest car and landing calls have been answered and the door interlock circuit is established, the car shall automatically reverse and respond to down car and landing calls.
- .11 Cause the car to start before this time upon registration of a car button for another landing.
- .12 Permit car to be registered to establish direction of travel when car has answered the furthest call, even if other landing calls are registered.
- .13 When the car has been started, either in response to its own car button calls or to landing calls, respond to its own car button calls and to landing calls registered for direction in which car is travelling in order in which landings are reached, irrespective of sequence in which calls were registered. When travelling down the car will not respond to up calls, but these will remain registered and be answered on the next up trip.
- .14 If no car buttons are pressed and a car starts up in response to several down calls, it shall proceed first to the highest down call and reverse to collect other down calls. Similarly, up calls shall be collected when the car starts down in response to such calls.
- .15 If the car stops for a landing call and a car button is pressed within a pre-determined interval thereafter, corresponding to the direction in which the car is travelling, the car shall proceed in the same direction regardless of other landing calls registered.

- .16 Provide the elevator with a self-levelling feature that will automatically bring the car to the floor landings. Self-levelling shall, within its zone, be entirely automatic and independent of the operating device, shall correct for over travel or under travel and shall maintain the car within 10 mm of the landing irrespective of load and direction of travel.
- .17 The main floor as described in this section is the first floor.

2.19 EMERGENCY POWER
OPERATION

- .1 Make provisions within controller for future emergency power source.

2.20 PHASE I EMERGENCY
RECALL OPERATION

- .1 Provide emergency recall service which will be initiated automatically or manually by any recall switch. When recall has been initiated:
- .1 The elevator controlled by the recall switch and on automatic operation, including independent service operation, shall return directly to the recall level where the doors shall open and remain open. The elevator shall not respond to the landing or car call buttons. Travelling to a terminal landing first and then reversing to travel to the recall level is not acceptable.
- .2 The elevator that is stopped with the doors closed, or is travelling towards the recall level, shall proceed non-stop to the recall level.
- .3 The elevator travelling away from the recall level shall reverse at or before the next available landing without opening its doors.
- .4 A car stopped at a landing shall have its emergency stop switch rendered inoperative as soon as the doors are closed and the car starts to move. A moving car shall have its emergency stop switch rendered inoperative.
- .5 All call registered lights and directional lanterns shall be extinguished and remain inoperative. Position indicators, in the car and at the recall level, should remain in service.
- .6 The car shall be provided with a visual and audible signal system which shall be activated to alert passengers that the car is on the emergency recall operation and at least the visual signal shall remain operative until the car reaches the recall level.
- .7 An elevator stopped at a floor other than the recall level with doors open shall close its doors and proceed non-stop to the recall level.

.8 Door re-opening devices that may be affected by smoke or hot gases shall be rendered inoperative.

.9 If the elevator is on inspection operation, a signal shall warn the inspector to return the car to the recall level. The elevator shall remain under the control of the inspector.

.2 The recall operation shall be terminated when both switches at the main control panel and lobby panel are in the "RESET" or "OFF" position, as is appropriate.

.3 Include for connecting the fire alarm signal through the recall switch.

2.21 PHASE II EMERGENCY .1
IN-CAR OPERATION

Provide in-car emergency service for the elevator initiated by a key switch located in the car. The switch shall be marked "OFF - HOLD - ON" and the key shall be removable in the OFF and HOLD positions. The switch shall become effective in initiating in-car emergency operation when in the "ON" position, provided the emergency recall operation is in effect and the car has returned to the recall level. During emergency in-car operation, the elevator shall operate as follows:

.1 The elevator shall be operable only by a person in the elevator.

.2 The elevator shall not respond to elevator landing calls.

.3 The opening of power-operated doors shall be controlled only by continuous pressure on the "DOOR OPEN" button. If the "DOOR OPEN" button is released during the "OPEN" motion, the door shall reclose immediately. When doors are fully open, they shall remain open until closed.

.4 Door re-opening devices for power-operated doors shall be rendered inoperative.

.5 The doors shall be closed and the car started by registering a car call and constant pressure on the "DOOR CLOSE" button or on any car call button.

.6 Momentary operation of the in-car emergency service switch to the "HOLD" position shall cancel registered car calls.

.7 When the car is at a landing and the key switch in the car is turned to the "HOLD" position, the doors shall remain open and car calls cannot be registered.

.8 When the car is at a landing and the key switch in the car is turned to the "OFF" position, the car shall automatically return to the recall level as on emergency recall operation regardless of the position of the emergency recall switch.

.9 The elevator shall be returned from In-car operation only when the car is at the recall level and the in-car switch is in the "OFF" position.

2.22 INDEPENDENT SERVICE

- .1 Include independent service by means of key-operated switch in car service panel to allow removal of a car from group service and to operate independently in response to car calls only and as follows:
- .1 Render the hall lanterns and/or car riding lanterns inoperative.
- .2 Cause the car to park with the doors open. Arrange the controls so that the car responds to any car calls registered if a button is held until the doors are closed and the interlocks made-up.
- .3 Cause the doors to reopen if the button is released at any time up to the point at which the elevator starts to move. Render inoperative the normal door protective devices.

2.23 LOAD WEIGHING

- .1 Provide load weighing with means to measure the load in the car within 5% of the elevator capacity.
- .2 Adjust the load weighing device to ensure that it will operate over the required range of settings.
- .3 Verify that the load weighing device has a long term stability such that the settings do not require re-adjustment more frequently than every two years.
- .4 Use load weighing to pre-torque elevator and prevent movement in reverse direction when leaving a floor.

2.24 ACCESS TO PIT, HOISTWAY AND TOP OF CAR INSPECTION

- .1 At the top landings, provide keyed-access to car top.
- .1 Provide between car crosshead and hoistway door, a single operating fixture containing the following: 120 volt GFI Fixture, an emergency stop switch, continuous pressure buttons for operating the car and a switch for making the buttons on top of the car operable. Operation from top of the car shall be obtained by simultaneous, continuous pressure of the appropriate direction button and a safety operating button after these buttons have been made effective.
- .2 Operation from top of the car shall not be possible unless all electric door contacts are closed.

- .3 Means shall also be provided so that when the car is to be operated from the top of the car, automatic levelling, power door operation and the normal operating devices car and landing are made ineffective.
 - .4 Arrange circuits to prevent car moving away, when on top of car operation, by any other means.
 - .5 Limit the speed of the elevator shall be not more than .76 m/s and not less than 0.25 m/s.
 - .6 provide appropriate circuitry so that top of car operation accomplishes smooth start and stop when operated by any sequence of car top buttons.
- .2 At all landings provide a hoistway door unlocking device. Provide a stainless steel collar for holes.
 - .3 Provide a car top guard rail on all non-access sides of the elevator car top except where the distance to a wall does not exceed 356 mm. Comply with TSSA Director's Order 245/10.
 - .1 Include for an intermediate rail and toe board.
 - .2 Weigh the elevator before and after installation.
 - .3 On the crosshead data plate, record the pre-alteration weight, weight added to elevator and/or counter-weight, current weight, installation date, contactor name and alteration type.
 - .4 Provide an alteration data plate on the controller and record work performed in the maintenance log book.
 - .5 Where overhead does not allow standard railings, provide collapsible railings including all safety switches outlined in section 4.2 of Director's Order 245/10.
 - .6 Paint the railing and toe board yellow.
 - .7 Provide an outline of the top of car refuge area.
 - .4 Provide a new knife or fused type stop switch located in the elevator pit in the vicinity of the pit ladder and accessible from the landing entrance and pit floor. Provide additional switches as required. Switch to be RED in colour.

2.25 WORK LIGHTS AND
RECEPTACLES

- .1 Provide suitable protection for all light fixtures.
- .2 Supply and install all wiring and conduit required.
- .3 Provide two (2) permanently wired, guarded light fixtures on car top. One light to be a moveable unit to be used as a hand-held light.

- .4 Provide new two-tube, 1220 mm long, high efficiency, LED light fixture (T8-style) in each elevator pit producing 100 lux light level measured at the pit floor.
- .5 Provide new two-tube, 1220 mm long, high efficiency, fluorescent light fixtures (T8 lamps or better) in the machine room to achieve a light level of 200 lux at the floor level.
- .6 Provide 110 volt duplex (GFIC) receptacles on car top, pit and machine room.

2.26 EMERGENCY LIGHTING

- .1 Include emergency in car lighting, with a minimum of two (2) fixtures.
- .2 Use dry cell type battery operated emergency lighting equipment, to CSA C22.2 No.141, to provide general illumination in car and 10 Lx minimum illumination at operating panels measured at any point 1225 mm and 890 mm above the car floor and approximately 300 mm in front of a car operating panel for 4 hour minimum.
- .3 Include means for convenient manual operation and testing of the unit from within car. Testing means to be spring loaded or self-centring key switch.
- .4 Design battery unit of sufficient strength to support 90 KG person without causing malfunction or damage.
- .5 Include means of containing any leakage or spillage of electrolyte.
- .6 Arrange battery unit as a source of power for alarm bell during power failure.
- .7 Emergency light unit is to be an integral part of the car station.

2.27 CAR PLATFORM AND FRAME

- .1 Provide nickel-silver threshold to accept flooring thickness chosen by the Owner.
- .2 Existing car sling, frame and steel platform may be retained if compatible to specified new equipment and refurbished including the correction of all deficiencies such as broken welds.

- .3 Provide isolation pads. Vulcanize steel plates to top and bottom of pads. Arrange for fastening top plate to platform and bottom plate to isolation frame.
- .4 Provide rubber isolation of car enclosure to sides of uprights.
- .5 Install a sub floor made of plywood as required for class of loading.
- .6 Ensure clearance between the car and all hall sills is within code requirements. Make any necessary adjustments.

2.28 CAR INTERIOR

- .1 Totally enclose and conceal all wiring from view within the car.
- .2 Remove existing light fixtures, wiring and light valance. Patch any redundant holes in the ceiling or walls. Paint ceiling with white gloss paint. Provide six (6) new removable SLIM LINE pan type dropped ceiling panels constructed of .95mm stainless steel #4 satin finish set in heavy duty extruded aluminum frames. Mount ceiling panels as close as possible to the existing ceiling. Provide in the stainless steel pans, four (4) new 9 watt LED DISC type light fixtures. Arrange panels to provide access to the emergency exit on the car top..
- .3 At shop drawing review provide CAD-generated cab approval drawing, one-file drawing covering all surfaces, to scale and in colour. Provide any necessary samples at this time.
- .4 Skin entrance return panels, entrance columns and car doors of matching, integral brushed stainless steel Avesta Deco 1, 20 gage. Run grain vertically.
- .5 Ventilate by an exhaust air handling unit through roof and through concealed perforations at base. Limit total fan noise to 55 dBA, measured on an "S" response scale, measured 0.9 m above floor with fan on high speed. Include two speed operation of ventilation system.
- .6 Automatically extinguish cab lighting after approximately 120 seconds has elapsed with elevator dormant, when sitting with doors closed. Turn on lights automatically as soon as a hall call or call is registered for the elevator with lights extinguished. Provide a master override switch for the automatic extinguishing of cab lighting, within

the elevator cab. Arrange circuits so that any malfunction rendering the elevator inoperable, will disable this feature entirely.

- .7 Provide emergency exit on top of the car of suitable size, equipped with an electrical device which will prevent operation of the elevator if the exit cover is open more than 50 mm and designed to comply with elevator code.
- .8 Provide flush mounted, hands-free, auto-dial telephone. Program telephone to number provided by owner.
- .9 Provide single-sheet rubberized flooring, Amtico rubber flooring -colour MLS 133 Polished Pewter Slate finish. Provide a minimal and even seam at perimeter.
- .10 Provide a 150mm handrail mounting panel clad with #4 stainless steel complete with phenolic backer. Provide handrails at 900 mm above floor, on all non accessible walls with ends returned close to panels. Design handrails to be removable from inside the car. Space handrails 35mm to 45mm from wall. Handrails to be constructed of tubular stainless steel, and returned to the wall at each end.
- .11 Provide rigid structure to cab walls capable of resisting 20 lbs force horizontally at any point without noticeable (temporarily) deflecting and 100 lb force without permanently deforming.
- .12 Use bolts fitted with washers and lockwashers and fabric separators, if necessary, to assemble and guarantee entire structure to operate entirely free from squeaks and metallic sounds.
- .13 Provide 2438 mm clear height in cab under suspended ceiling for elevators.
- .14 Provide clear car entrance height of 2135 mm.
- .15 Provide new stainless steel licence holders in cabs sized to fit standard Provincial licenses as issued at time of project completion.

- .16 Provide on each side and rear wall from the base plate to within 50 mm of the underside of the ceiling, horizontal applied panels clad with Avesta stainless steel Deco 1 pattern. Provide four(4) panels on ALL walls. Provide 3mm stainless steel corner edge on panels. Panels to be constructed of 11mm FRPB. Provide corner reveals of approximately 50mm between panels and corners. Clad reveal strips in 20 ga. stainless steel #4 satin finish. Provide 3mm aluminium panel interlock between panels.
- .17 Provide new base plates constructed of FRPB clad in #4 stainless steel.
- .18 Design base plates so that the face of the kick plate protrudes flush with the wall panels.
- .19 Take possession of any existing cab signage and reinstall in a permanent and aesthetically pleasing manner in completed elevator.
- .20 Provide pad hooks around entire perimeter of cab including return panels. Provide one set of protective pads to cover all walls including the front return panel (provide cut-out to accommodate car operating station).
- .21 Provide an aesthetically pleasing finished product including square joints, flush surfaces, even finishes and firm bonding/fastening throughout.

2.29 CAR DOORS

- .1 Provide flush, steel clad in stainless steel, Avesta Deco 1, horizontal-slide doors. Do not use binder angles.
- .2 Provide two (2) steel pins per door panel extending from the door into the centre of the threshold grooves to prevent the door swinging into the hoistway, should the lower guides become dislodged.
- .3 Adjust car doors for smooth and quiet operation. Do not employ felt-covered gibs.
- .4 Install main guides, one at each end of each door panel.
- .5 Provide an auxiliary closing device for multi-section doors.
- .6 Provide new cold drawn or cold rolled steel door tracks with two-point suspension hanger tracks for each panel.

2.30 HOISTWAY DOOR
HANGERS, LOCKS, TRACKS
AND CLOSING DEVICES

- .1 Existing hangers and tracks may be retained and refurbished if compatible with the new equipment. Provide thorough cleaning and wire brush of existing tracks and hangers. Include provision of new hangar rollers. Use self-lubricating ball or roller bearings sealed to retain grease lubrication and wipers to maintain rollers and track in clean condition. Provide thorough cleaning of hall headers to remove grease and dirt.
- .2 Provide spring-type, sill-mounted closing devices or alternatively heavy-duty spirator devices.
- .3 Provide new positive electric interlocks and pick-up roller assemblies. Provide new wiring to door locks including a separate green ground wire back to controller.
- .4 Provide new low-friction lower guides. Provide door safety retainers to prevent door panel displacement should the replaceable primary guiding means fail.
- .5 Dowel all hoistway door pick-up roller assemblies after final adjustments have been made.
- .6 Provide all new astragals. Adjust any loose site guards.
- .7 Absorb upthrust with adjustable eccentric rollers equipped with ball or roller bearings.
- .8 Design for replacement of gibs without removing door from hanger tracks.
- .9 Provide retainers top and bottom to requirements of authority having jurisdiction.

2.31 CAR AND HOISTWAY
DOOR OPERATOR

- .1 Provide a heavy-duty door operator to open and close the car and hoistway doors quietly and smoothly. Provide high speed, electric door operator, with solid state feedback (closed loop) control. Use only ECI/GAL VFE2500 H (heavy duty), ½ HP or approved equal. Provide door open speed of at least 0.61 m/s.
- .2 Provide all new car door clutch system. Operate the car door and hoistway doors simultaneously.
- .3 Provide new heavy duty car door restrictor system.
- .4 Provide electrical cushioning at each end of travel.

- .5 Provide a gate switch operated by a roller attached to each door panel (two per door on center parting doors).

2.32 CAR DOOR
PROTECTIVE DEVICES

- .1 Provide a three-dimensional sensing, solid state door reversal device on the leading edge(s) of car door panel(s). The device shall contain systems specifically designed for the application and enclosed in an insulated chassis. Arrange the device to:
 - .1 Provide long term reliable operation, include no moving parts;
 - .2 Upon failure of the device, shut the car down at the next available floor, with doors in the fully open position;
 - .3 Provide totally silent operation;
 - .4 Include visible diagnostics on the device to permit verification that the unit is functioning;
 - .5 Have all components installed behind the door jamb, so as to provide a clear opening and present a clean architectural appearance.
- .2 Design the device to provide a zone of detection a minimum of 80 mm in advance of the leading edge of each car door and arrange the operation as follows:
 - .1 Trigger the protection system when any object is located in the entrance and cause the door to reopen without engaging the object;
 - .2 Permit the protection system to be active over the full travel of the doors;
 - .3 After elapse of the normal door open dwell time, provide a limited door reversal operation. Arrange the operation so that the door retracts sufficiently to permit only the immediate entering passenger to pass. Continue closing of the door after the passenger leaves detection zone.

2.33 FIRE RATED
ELEVATOR ENTRANCES

- .1 Entrance frames and doors may be retained and refurbished if compatible to specified new equipment.
- .2 Provide new brushed stainless steel skin for complete entrances, doors and frames, at the main floor.
- .3 Install 50mm high stainless steel arabic numerals on both sides of entrance frame and provide appropriate braille markings. Centre-line of numerals to be 1524mm above finished floor.

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- 2.34 FLUSH TYPE
HOISTWAY DOORS
- .1 Install new lower guides on all hoistway doors. Two guides per door panel equally spaced to prevent excessive movement during travel at speed.
 - .2 Adjust all hoistway doors for smooth and quiet operation.
 - .3 Adjust all hoistway doors to fully clear the elevator entrance when fully opened.
 - .4 Cushion opening doors and closing doors with rubber astragals. Replace any worn astragals.
- 2.35 HALL SILLS
- .1 Retain existing sills. Wire brush and thoroughly clean the full length of all sills.
 - .2 Examine existing hall sills and repair defects.
- 2.36 FASCIAS AND
TOEGUARDS
- .1 Provide fascia and extended toe-guard to full width of entrance plus overlap.
 - .2 Reinforce to walls where necessary to prevent deflection of fascia and securely fasten to entrance arrangement.
 - .3 Provide final coat of paint on unfinished steel. Paint floor characters 100 mm on fascias approximately 150 mm below landing sill.
 - .4 Ensure apron plates comply with current Code requirements (size and fastening).
- 2.37 IDENTIFICATION
- .1 Provide 100 mm (4") numerals corresponding to floor level on hoistway side to fascia plates and locate numerals as required by Code.
 - .2 Provide all bilingual engraving on faceplates as required by the Owner in Helvetica medium, upper and lower case.
 - .3 Provide 50 mm (2") numerals on all elevator equipment.
 - .4 Identify elevator(s) at the recall level. Use formed metal or aluminum-coloured plastic numerals 75 mm in height and 10 mm thick. Final location and form to be confirmed at time of shop drawing review.

- .5 Provide six (6) keys of each type used with key rings and engraved gravoply discs, identifying use of key.

2.38 CAR DIRECTION
SIGNAL

- .1 Provide new surface mount hall lanterns, complete with boxes, and electronic "Chime" type gongs.
- .2 Provide up and down directional lanterns for intermediate floors and single directional lanterns for the top and bottom floors. Include lamps with minimum 20,000 hour rating. Perform cutting and finish patching as required to install new boxes.
- .3 Arrange lanterns so that as soon as the car has initiated a stop at a floor, the corresponding hall lantern illuminates and the gong operates in advance of the stop. Provide an audible signal to sound when the car stops at a floor. Signal volume to be adjustable between 60 and 90 dBA. Lantern to remain illuminated until the car closes its doors.
- .4 In case of over travel ensure that the hall lantern for that floor remains illuminated indicating original direction of travel.
- .5 Sound chime once for "UP" stops and twice for "DOWN" stops.
- .6 Provide stainless steel faceplates.
- .7 Fasteners shall be concealed.
- .8 Do not mount lantern equipment on the faceplate.
- .9 Submit layout drawing and sample of hall lantern to Consultant for review.

2.39 HALL BUTTON
FIXTURES

- .1 Provide new riser of BLUE LED illuminated stainless steel buttons and faceplates at all landings to match those in car. LED's to be rated for 100,000 hours illumination. Use DUPAR US 91 buttons or equivalent.
- .2 Illuminate each button in the hall fixture when pressed to indicate a call has been registered and maintain illumination until the call has been answered.

- .3 Provide an out of service indicator light minimum 50mm by 50mm in size in each fixture. Include an out of service toggle switch at controller. Out of service indicator is to illuminate any time service is denied to the hall buttons.
- .4 Provide a digital position indicator in all fixtures. Display numerals minimum 25mm in height.
- .5 Locate centreline of new buttons to be 1066mm above the floor. Provide a ground wire to properly ground the hall button fixture covers.
- .6 Include for any cutting, patching and re-finishing of walls to pre-mod condition.
- .7 Provide "UP" pushbuttons at lowest landing and "DOWN" pushbutton at top floor and "UP and DOWN" buttons at typical floors.

2.40 SPECIAL HALL
FIXTURE AT MAIN FLOOR

- .1 Provide at the recall level a surface mounted stainless steel fixture containing a recall switch with pilot light.
- .2 The key switch shall be a three (3) position switch; RESET - OFF - ON for the emergency recall service.
- .3 Provide at recall level near elevator hoistway a box conspicuously located and identified containing the emergency recall service keys.
- .4 Provide an audible and illuminated visual signal adjacent to the "Fire Recall" switch labelled "ELEVATOR COMMUNICATIONS FAILURE" in red letters a minimum of 5 mm in height. Include a keyswitch to reset the alarm.
- .5 Include for cutting and patching of lobby wall to accommodate these fixtures.

2.41 POSITION
INDICATORS AND VOICE
ANNUNCIATION

- .1 Install new digital display position indicator in the car station.
- .2 Use characters at least 50 mm high. Provide BLUE LED illumination. LED's to be rated for 100,000 hours illumination.
- .3 Provide matching new digital display hall position indicators at the main floor. Locate new position indicators in location approved by Owner.

2.42 CAR OPERATING
STATION

- .4 Provide voice announcement indication of each floor, when served and of car direction. Provide volume control adjustable from behind car station. Provide high- power speakers, minimum of two (2) per car so no distortion is readily noticeable to passengers. Provide sample of announcements, to be in English, and French with shop drawings.
- .1 Provide one (1) new car operating station in the cab. Incorporate a lockable service cabinet into the car operating station. Service panel to be at bottom of the car operating panel. Provide in the service cabinet key operated switches for lighting, 2 speed fan, emergency light test and independent service. Provide one spare key switch with temporary label.
- .2 Provide a separate lockable "Firefighter's Operation" cabinet located at the top of the car operating panel (no higher than 1800 mm from finished cab floor) housing the Fire Operation key switch, Call Cancel button, STOP switch, DOOR OPEN and DOOR CLOSE buttons, additional indicator light and operating instructions.
- .3 Provide new stainless steel faceplate.
- .4 Engrave all characters on plate and fill with enamel.
- .5 Provide Dupar US 91 Compact 2 stainless steel Bi Colour White - Blue illumination. Provide square slim line raised numerals with braille to the left of each button. Surface mounted plates will not be accepted.
- .6 Locate top floor button to be no more than 1220 mm above floor.
- .7 Provide a key operated stop switch, door open and close buttons, three position key switch for in-car emergency service, indicator light and buzzer for emergency recall.
- .8 Make all identification engraved in upper or lower case, Helvetica medium, minimum 10 mm filled with red or black enamel, as required.
- .9 Engrave the maximum capacity in kilograms and persons and Provincial Installation number on the car station. Include wording "MAXIMUM CAPACITY".
- .10 Engrave the elevator number (ex. "2") on the car station, number to be 25 mm high.

- .11 Use international symbols wherever possible.
- .12 Audible signal to sound when the car stops at or passes a floor. Signal volume to be adjustable between 50 and 70 dBA.
- .11 Include a speaker and grille with assistance button identified on the car operating panel. Include autodialler and all wiring required to be connected to the Owner's telephone system.
 - .1 Provide an international telephone symbol to identify the assistance button with engraved signage "HELP".
 - .2 Provide an LED visual indicator on the car operating station faceplate to indicate the call for assistance has been acknowledged. Locate button 1220 mm from finished cab floor.
 - .3 Provide internal speaker and microphone to enable two-way communication with elevator passengers.
 - .4 Activate through assistance button located on the car operating station faceplate to automatically dial a telephone number of the Owner's choice.
 - .5 Provide ring sensor which shall allow the initiation of a call to the elevator.
 - .6 Include uninterrupted telephone wiring within elevator hoistway, from car cab to a labelled box located on the outside of controller.

2.43 TERMINAL STOPPING DEVICES

- .1 Provide an automatic stopping device, arranged to bring car to a stop at the terminal landings independent of the regular operating device in the car.
- .2 Final limit switches to be provided in the hoistway, operated by the car and arranged to stop the car and prevent normal operation, should it travel beyond the zone of the normal stopping device.
- .3 Dowel final limits to main rails.

2.44 SIGNAL ILLUMINATION

- .1 Illuminate signal fixtures with intensity which produces distinct and well defined indications.

2.45 FIXTURE FASTENING

- .1 Fasten all fixture faceplates, including car-operating station, with tamper-proof screws.

2.46 MARKINGS

- .1 Engrave identification and instructions at least 0.03 mm deep on operating panels and on all signal equipment in both official languages except where design is such that inference is obvious and readily understood. Submit markings and designs for approval.

2.47 OCCUPATIONAL
HEALTH AND SAFETY ACT

- .1 Meet Occupational Health and Safety Act - finished elevator installations are to have appropriate guards and be Health-and-Safety-regulation compliant with respect to physical and electrical hazards to persons in the elevator machine rooms).
- .2 Provide light-weight railing at the car top perimeter conforming to CSA B44 2.10 and TSSA Directors Order 245/10.
 - .1 Construct substantially of metal and include top rail set at 1070 mm, mid-rail and toeboard 127 mm high.
 - .2 Finish and paint entire railing with two coats of "safety yellow" epoxy.
- .3 Provide equipment guarding as per Ontario Reg. 851 Section 24 & 25, Ont. Reg 209/1 and CSA Z432.
 - .1 Provide engineered approval drawings for guarding.
 - .2 If "component" type guarding is used on equipment, allow for visual monitoring of brakes, ropes and governors through the use of vision ports.
 - .3 If "fence" type guarding is used on equipment, provide hinged door access to equipment area(s).

PART 3 - EXECUTION

3.1 PROCEDURE

- .1 Obtain Owner's approval before removing elevator from group operation.
- .2 Make allowances for the existing building access limitations. Including delivery of equipment.

3.2 INSPECTION

- .1 Before fabrication of equipment, survey hoistway, pit, overhead and machine room.

- .2 Confirm electrical power is available and of correct characteristics.
- .3 Report defects or discrepancies in writing to Owner prior to fabrication of equipment.

3.3 WEIGHING OF CAR
AND COUNTER-WEIGHT

- .1 Carry out work to TSSA CAD 261/13, latest revision.
- .2 Prior to the start and at the completion of the alteration, weight each car and counterweight separately. Record both weights and Provide Engineer with a digital photo of the weighing and copy of the recorded weights.
- .3 Where the cumulative increase to the deadweight of the car is 115 kg (255 Lbs.) or less, including all weight changes since the car was originally installed, the following requirements shall apply:
 - a. Weight cars and counterweights prior to the alteration to establish starting weights.
 - b. Weight materials added or removed during the alteration, so as to final weight.
 - c. Permanently post on crosshead: measured car weight prior to the alteration, date of the alteration, weight change to car, weight change to counterweight and the name of the alteration contractor.
- .4 Where there is an increase in the deadweight of the car by more than 115 kg (255 Lbs.) or more than 5% of car and capacity as originally installed including all weight changes since the car was originally installed, the following requirements shall apply:
 - a. All requirements of 2.53.3.
 - b. Provide engineering assessment, including structural assessment, of components affected by the weight change, including but not limited to the following:
 - i. machines
 - ii. car and counterweight frames
 - iii. buffers
 - iv. traction and overbalance
 - v. ropes

3.4 WELDING

- .3 Where welding is used prepare joints and weld in approved manner using welders fully qualified to the requirements of CSA Standard W47.1.

- .4 Identify field welds with welder's identification stamp.

3.5 INSTALLATION

- .1 Provide all necessary fastenings, bearing plates and transfer arrangement to accomplish appropriate tie-down of machines to the machine room layout.
- .2 Arrange equipment in machine room so functioning equipment and other equipment can be removed for repairs or replacement without dismantling or removing other equipment components. Arrange for clear passage to access door.
- .3 Erect guide rails using metal shims with lockwashers under nuts and threaded bolts. Compensate for expansion and contraction of guide rails.
- .4 Use splice plates and guide rails with contact surfaces accurately machined to form smooth joints.
- .5 Provide inserts for placement in concrete form work or self-drilling expansion shell bolt anchors that will perform to four times rated pull-out load.
- .6 Mount copy of master schematic wiring diagrams in framed glass or plastic enclosure on machine room wall. If number of wiring drawings exceeds five (5), then mount drawings protected with clear plastic on rack permanently attached to machine room wall.
- .7 Cut existing surfaces as required to accommodate new work. Patch and make good surface cuts, damaged or disturbed, to Owner's reasonable approval. Match existing material, colour, finish and texture.

3.6 STORAGE

- .1 Co-ordinate delivery and storage of materials with Owner's site representative.

3.7 OCCUPIED BUILDING

- .1 Make allowances for the Work being carried out in an occupied building.
- .2 Take proper care to avoid unnecessary noise, clutter or obstruction in the corridors and arrange for storage of materials and tools where they will cause minimum inconvenience.

- .3 Do not use solvents or other products in quantity that is objectionable to building tenants.
- .4 Where excessive noise, odour or obstruction as determined by the Owner is unavoidable, undertake that portion of the Work after hours and at a time coordinated with the Owner.
- .5 Normal working hours to be 8:00 AM - 4:00 PM each Monday through Friday other than International Union of Elevator Constructors holidays. Staff the Work with a minimum of two employees each day for the duration of the project, except as explicitly directed otherwise by these Specifications or by the Owner.
- .6 Disconnect any elevator being worked on when personnel leave premises.
- .7 Protect building wall and floor finishes from damage where access is required throughout the entirety of the project.
- .8 Provide dust tight screens or partitions to localize dust generating activities and for protection of workers, finished areas of work and public.
 - .1 Maintain and relocate protection until such work is completed.
 - .2 Protect Owner's property adjacent to work area with low fire spread tarps or screens during construction. Remove protection during non-construction hours and leave premises in clean, unencumbered and safe manner for normal daytime function.
- .9 Comply with Canadian Code for Construction Safety and the Provincial Construction Safety Act.
 - .1 Erect hoarding at each floor where there is an unlocked elevator hoistway door. Install plywood hoarding at landing entranceways from floor to ceiling. Plywood to be a minimum of 13 mm thick. Hoarded work space to be at least as wide as the elevator entrance opening and should create a work space inside hoardings of at least 1220 mm deep. Securely fasten hoarding to wall.
 - .2 Upon removal of hoardings and partition make good all damage to surfaces of walls, floors and ceilings.
 - .3 Use hoarded entranceways, and not the in-service elevator, for movement of equipment or garbage.
 - .4 Protect existing floors by covering with 13 mm plywood and tarpaulins as a minimum, when removing or delivering materials.

.5 Do not remove partition or hoarding until Work is complete and approval is given by the Owner.

.6 Confirm that any existing structural beams are safe and suitable before lifting loads.

3.8 FIELD QUALITY CONTROL

- .1 Perform and meet tests required by CAN/CSA-B44-10 Safety Code for Elevators Section 8.10.2.2 providing a check-off list with name of qualified inspector and date completed for each applicable item. Supply instruments and carry out these and other tests specified herein.
- .2 Supply instruments and carry out full load and balance loads tests.
- .3 Before final adjusting commences, statically balance the car so that, at the centre of the hoistway, the car hangs in the centre of the rails with the top roller guides removed.
 - .1 Carry out this test with the car doors closed and an empty car.
 - .2 Use steel weights mounted in steel frame under car to properly balance car.
- .4 Provide 2 days written notice to Owner of date and time of tests.
- .5 Have a copy of the Specifications and approval drawings on site and available to the installation mechanic.
- .6 Provide Owner with copy of all speeds and current readings taken at the time of the provincially-mandated inspection.
- .7 Provide a copy of any Provincial Electrical Safety Authority inspection reports.

3.9 CLEANING AND DISPOSAL

- .1 Completely remove protective coverings from finished surfaces and components.
- .2 Clean surfaces and components before project completion.
- .3 Provide complete cleaning of all retained components including hoistway interiors.

- .4 Remove and dispose of all redundant elevator equipment including electrical controllers, selectors and generators. Removal to be coordinated with Engineer to ensure that no service disruptions to the daily operation of the building. Equipment removal may be required during silent hours.
- .5 Remove all redundant wiring in elevator hoistway and machine room completely back to its source.
- .6 Adequately protect interior of elevator when moving equipment.
- .7 All oil to be removed and disposed of by a licensed handler of hazardous materials. Arrange for site generator number and pay for application cost.

3.10 PAINTING AND
PATCHING

- .1 Thoroughly clean and paint the following equipment:
 - .1 Car tops and crossheads.
 - .2 Rails and strut angles and fascia plates.
 - .3 Machine room floors and walls.
 - .4 Pit floor and walls to the level of the lowest entrance sill.
- .2 Use paint materials listed on the CGSB qualified products list only.
- .3 Provide professional patching and refinishing of any visible services where equipment is removed, including around any removed fixtures.
- .4 Paint materials for each coating formulae to be products of a single manufacturer.
- .5 Prepare masonry, stucco and concrete surfaces to CGSB 85-GP-31M.
- .6 Prepare concrete floors to CGSB 85-GP-32M.
- .7 For concrete block and poured concrete walls and ceilings apply:
 - .1 One coat primer-sealer CGSB 1-GP-119M-Amdt-Sep-80.
 - .2 Two coats semi-gloss enamel CGSB 1-GP-57M.
- .8 For concrete floors apply:
 - .1 One coat enamel CGSB 1-GP-66M reduced by addition of 1 part CGSB 1- GP-70M thinner to eight parts enamel.
 - .2 One coat enamel CGSB 1-GP-66M.

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- 3.11 HOISTWAY
PROJECTIONS AND
FASCIA
- .1 Provide bevelling for projections or recesses in hoistway.
- .2 Provide required fascia above and below passed floors or alternatively car door interlock to the requirements of the Provincial Authority having jurisdiction.
- 3.12 BURNING TORCHES
- .1 Do not employ burning torches in the work. Work with burnt-out holes will be rejected.
- 3.13 CONSULTANT
- .1 The Consultant will carry out one (1) final review and one (1) follow-up review. Other inspections required due to the Elevator Contractors' failure to completely correct deficiencies the responsibility of the Elevator Contractor may be deducted from the contract value.
- .2 Furnish competent and co-operative mechanics for inspections and acceptance tests as the Consultant reasonably requires. Allow up to 8 hours of on-site assistance. Expect to have work briefly interrupted during progress inspections by the Consultant.
- .3 The Consultant is retained for the convenience of the Owner and/or the Architect and the work of the Consultant shall not relieve the Contractor of any of his duties or responsibilities.
- 3.14 NOTIFICATION TO OWNER
- Notify the Owner as follows:
- .1 One week prior to commencement of work.
- .2 On delivery of materials to site.
- .3 On placing of machine and controllers.
- .4 On establishment of a moving platform.
- .5 On booking of each Provincial inspection.
- .6 On successful completion of each Provincial inspection.
- .7 On completion of all deficiencies.
- .8 Upon removal of an elevator from service.

3.15 DEMONSTRATION OF
OPERATION

- .1 In the presence of the Owner, during silent hours of the building, prepare site specific procedures to properly demonstrate and train site O&M personnel.
 - .1 Independent Service Operation.
 - .2 Emergency power operation;
 - .3 Emergency recall and in-car emergency service;
 - .4 Audio Equipment;
 - .5 Dispatching features.
 - .6 Monitoring and Control features.
 - .7 Car door nudging.
 - .8 Any special features provided for the elevator (ie. Voice annunciation, anti-nuisance, etc.)
- .2 Train Owner's forces on operation of system in one half-day session, conducted by a mechanic or adjuster who has worked on the project and is thoroughly familiar with the elevator control system and its operation.

3.16 COMMISSIONING

- .1 Designate one staff person as Contractor's commissioning manager for the project. Manager to be of Adjuster, Supervisor or Manager level or higher. Attend at job site meetings pertaining to the Work.
- .2 After Provincial inspection of each elevator and before turn-over for customer use, test elevators in continuous simulated automatic operation without passenger access.
 - .1 Test for at least (1) hour with no load operating from floor to floor, with or without door operation.
 - .2 Test for at least (1) hour with 100% load operating from floor to floor, with or without door operation.
 - .3 Test for two (2) consecutive hours operating from floor to floor with door operation. Provide barricades and signage to indicate that an elevator test is in progress.
- .3 Before turn-over for customer use, test elevators as following:
 - .1 Running current in up direction with 42% car load.
 - .2 Running current in down direction with 42% car load.
 - .3 Governor overspeed setting.
 - .4 Safety trip setting.
 - .5 Door timings and dwell settings.
 - .6 Operating speed up.

- .7 Operating speed down.
- .8 Door close force.
- .9 Door time-out.

- .4 During warranty maintenance period closely monitor equipment for malfunctions and track reliability. Achieve a target rate of no more than 0.6 malfunction per elevator per month. Not achieving a reliability rate of 1.0 malfunction per elevator per month during the three month period preceding the expiration of the warranty maintenance period will extend the warranty maintenance, including full parts and labour, on the malfunctioning elevator(s) only until the (moving window) 90 day reliability target has been achieved.

TABLE 1 - FIRE SIGNAL VERIFICATION TO BE SUBMITTED BY ELEV. CONTRACTOR

Recall Test Date:		
Elevator Contractor:		
Fire Alarm Testing Contractor:		
Test Performed By:		
Signature:		
DEVICES ACTIVATED:	B44 CODE REQUIREMENT	B44 CODE COMPLIANT
Hoistway Detector	All cars in the hoistway returned to the designated level with fire hats flashing inside the car.	YES / NO
Machine/Control Room Detector	All cars returned to the designated level with fire hats flashing inside the car.	YES / NO
General Fire Alarm Activation Devices from Hall Lobbies	All cars returned to the designated level - fire hats in cars stay illuminated but did not flash.	YES / NO
Dedicated Detector at Designated Level	All cars returned to the alternate floor - fire hats in cars stay illuminated but did not flash.	YES / NO
Recall Switch at the Main Floor and Remote Switch (if applicable)	Indicator light Illuminated on automatic or manual recall.	YES / NO

TABLE 2 - COMMISSIONING DATA - TO BE SUBMITTED BY CONTRACTOR UPON COMPLETION OF EACH CAR.

PARAMETER	MEASURED
Car speed UP 125% load (fpm)	
Car speed DOWN empty (fpm)	
Brake to Brake UP (sec)	
Brake to Brake DOWN (sec)	
Running current UP 42% car load (amps)	
Running current DOWN 42% car load (amps)	
Door open (sec)	
Door close (sec)	
Car call dwell (sec)	
Hall call dwell (sec)	
Governor pull through (pounds)	
Governor overspeed switch, electrical (fpm)	
Safety trip speed (fpm)	
Door stall force (pounds)	
Door timeout (sec)	

1 REFERENCES

- .1 Perform all work to meet or exceed the requirements of the Canadian Electrical Code, CSA Standard C22.1 - (latest edition).
- .2 Consider CSA Electrical Bulletins in force at time of tender submission, while not identified and specified by number in this Division, to be forming part of related CSA Part II standard.
- .3 Do overhead and underground systems in accordance with CSA C22.3 except where specified otherwise.
- .4 Where requirements of this specification exceed those of above mentioned standards, this specification shall govern.
- .5 Notify the NRC Departmental Representative as soon as possible when requested to connect equipment supplied by NRC which is not CSA approved.
- .6 Refer to Sections 00 10 00 & 0015 45.

2 PERMITS AND FEES

- .1 Submit to Electrical Inspection Department and Supply Authority necessary number of drawings and specifications for examination and approval prior to commencement of work.
- .2 Pay all fees required for the performance of the work.

3 START-UP

- .1 Instruct the NRC Departmental Representative and operating personnel in the operation, care and maintenance of equipment supplied under this contract.

4 INSPECTION AND FEES

- .1 Furnish a Certificate of Acceptance from the Authorized Electrical Inspection Department on completion of work.
- .2 Request and obtain Special Inspection approval from the Authorized Electrical Inspection Department for any non-CSA approved control panels or other equipment fabricated by the contractor as part of this contract.
- .3 Pay all fees required for inspections.

5 FINISHES

- .1 Shop finish metal enclosure surfaces by removal of rust and scale, cleaning, application of rust resistant primer inside and outside, and at least two coats of finish enamel.
 - .1 Outdoor electrical equipment "equipment green" finish to EEMAC Y1-1-1955.
 - .2 Indoor switchgear and distribution enclosures light grey to EEMAC 2Y-1-1958.

- .2 Clean and touch up surfaces of shop-painted equipment scratched or marred during shipment or installation, to match original paint.

6 ACOUSTICAL PERFORMANCE

- .1 In general provide equipment producing minimal sound levels in accordance with the best and latest practices established by the electrical industry.
- .2 Do not install any device or equipment containing a magnetic flux path metallic core, such as gas discharge lamp ballasts, dimmers, solenoids, etc., which are found to produce a noise level exceeding that of comparable available equipment.

7 EQUIPMENT IDENTIFICATION

- .1 Identify with 3mm (1/8") Brother, P-Touch non-smearing tape, or an alternate approved by the NRC Departmental Representative, all electrical outlets shown on drawings and/or mentioned in the specifications. These are the lighting switches, recessed and surface mounted receptacles such as those in offices and service rooms and used to plug in office equipment, telecommunication equipment or small portable tools. Indicate only the source of power (Ex. for a receptacle fed from panel L32 circuit #1: "L32-1").
- .2 Light fixtures are the only exceptions for electrical equipment identification (except as noted in 7.13 below). They are not to be identified.
- .3 Identify with lamicoïd nameplates all electrical equipment shown on the drawings and/or mentioned in the specification such as motor control centers, switchgear, splitters, fused switches, isolation switches, motor starting switches, starters, panelboards, transformers, high voltage cables, industrial type receptacles, junction boxes, control panels, etc., regardless of whether or not the electrical equipment was furnished under this section of the specification.
- .4 Coordinate names of equipment and systems with other Divisions to ensure that names and numbers match.
- .5 Wording on lamicoïd nameplates to be approved by the NRC Departmental Representative prior to fabrication.
- .6 Provide two sets of lamicoïd nameplates for each piece of equipment; one in English and one in French.
- .7 Lamicoïd nameplates shall identify the equipment, the voltage characteristics and the power source for the equipment. Example: A new 120/240 volt single phase circuit breaker panelboard, L16, is fed from panelboard LD1 circuit 10.

"PANEL L16
120/240 V
FED FROM LD1-10"

PANNEAU L16
120/240 V
ALIMENTE PAR LD1-10

- .8 Provide warning labels for equipment fed from two or more sources - "DANGER MULTIPLE POWER FEED" black letters on a yellow background. These labels are available from NRC's Facilities Maintenance group in building M-19.
- .9 Lamicoid nameplates shall be rigid lamicoid, minimum 1.5 mm (1/16") thick with:
 - .1 Black letters engraved on a white background for normal power circuits.
 - .2 Black letters engraved on a yellow background for emergency power circuits.
 - .3 White letters engraved on a red background for fire alarm equipment.
- .10 For all interior lamicoid nameplates, mount nameplates using two-sided tape.
- .11 For all exterior lamicoid nameplates, mount nameplates using self-tapping 2.3 mm (3/32") dia. slot head screws - two per nameplate for nameplates under 75 mm (3") in height and a minimum of 4 for larger nameplates. Holes in lamicoid nameplates to be 3.7 mm (3/16") diameter to allow for expansion of lamicoid due to exterior conditions.
 - .1 No drilling is to be done on live equipment.
 - .2 Metal filings from drilling are to be vacuumed from the enclosure interiors.
- .12 All lamicoid nameplates shall have a minimum border of 3 mm (1/8"). Characters shall be 9 mm (3/8") in size unless otherwise specified.
- .13 Identify lighting fixtures which are connected to emergency power with a label "EMERGENCY LIGHTING/ÉCLAIRAGE D'URGENCE", black letters on a yellow background. These labels are available from NRC's Facilities Maintenance group in building M-19.
- .14 Provide neatly typed updated circuit directories in a plastic holder on the inside door of new panelboards.
- .15 Carefully update panelboard circuit directories whenever adding, deleting, or modifying existing circuitry.

8 WIRING IDENTIFICATION

- .1 Unless otherwise specified, identify wiring with permanent indelible identifying markings, using either numbered or coloured plastic tapes on both ends of phase conductors of feeders and branch circuit wiring.
- .2 Maintain phase sequence and colour coding throughout.

9 CONDUIT AND CABLE IDENTIFICATION

- .1 All new conduits to be factory painted colour-coded EMT, type as follows:
 - .1 Fire alarm – red conduit
 - .2 Emergency power circuits – yellow conduit
 - .3 Voice/data – blue conduit
 - .4 Gas detection system – purple conduit
 - .5 Building Automation system – orange conduit

- .6 Security system – green conduit
- .7 Control system – black conduit
- .2 Apply paint to the covers of junction boxes and condulets of existing conduits as follows:
 - .1 Fire alarm – red
 - .2 Emergency power circuits – yellow
 - .3 Voice/data – blue
 - .4 Gas detection system – purple
 - .5 Building Automation system – orange
 - .6 Security system – green
 - .7 Control system - black
- .3 For system running with cable, half-lap wrap with dedicated colored PVC tape to 100 mm width, tape every 5 m and both sides where cable penetrates a wall.
- .4 All other systems need not be coloured.

10 MANUFACTURER'S & APPROVALS LABELS

- .1 Ensure that manufacturer's registration plates are properly affixed to all apparatus showing the size, name of equipment, serial number, and all information usually provided, including voltage, cycle, phase and the name and address of the manufacturer.
- .2 Do not paint over registration plates or approval labels. Leave openings through insulation for viewing the plates. Contractor's or sub-contractor's nameplate not acceptable.

11 WARNING SIGNS AND PROTECTION

- .1 Provide warning signs, as specified or to meet requirements of Authorized Electrical Inspection Department and NRC Departmental Representative.
- .2 Accept the responsibility to protect those working on the project from any physical danger due to exposed live equipment such as panel mains, outlet wiring, etc. Shield and mark all live parts with the appropriate voltage. Caution notices shall be worded in both English and French.

12 LOAD BALANCE

- .1 Measure phase current to new panelboards with normal loads operating at time of acceptance. Adjust branch circuit connections as required to obtain best balance of current between phases and record changes, and revise panelboard schedules.
- .2 Measure phase voltages at loads and adjust transformer taps to within 2% of rated voltage of equipment.

13 MOTOR ROTATION

- .1 For new motors, ensure that motor rotation matches the requirements of the driven equipment.

- .2 For existing motors, check rotation before making wiring changes in order to ensure correct rotation upon completion of the job.

14 GROUNDING

- .1 Thoroughly ground all electrical equipment, cabinets, metal supporting frames, ventilating ducts and other apparatus where grounding is required in accordance with the requirements of the latest edition of the Canadian Electrical Code Part 1, C.S.A. C22.1 and corresponding Provincial and Municipal regulations. Do not depend upon conduits to provide the ground circuits.
- .2 Run separate green insulated stranded copper grounding conductors in all electrical conduits including those feeding toggle switches and receptacles.

15 TESTS

- .1 Provide any materials, equipment and labour required and make such tests deemed necessary to show proper execution of this work, in the presence of the NRC Departmental Representative.
- .2 Correct any defects or deficiencies discovered in the work in an approved manner at no additional expense to the Owner.
- .3 Megger all branch circuits and feeders using a 600V tester for 240V circuits and a 1000V tester for 600V circuits. If the resistance to ground is less than permitted by Table 24 of the Code, consider such circuits defective and do not energize.
- .4 The final approval of insulation between conductors and ground, and the efficiency of the grounding system is left to the discretion of the local Electrical Inspection Department.

16 COORDINATION OF PROTECTIVE DEVICES

- .1 Ensure circuit protective devices such as overcurrent trips, fuses, are installed to values and settings as indicated on the Drawings.

17 WORK ON LIVE EQUIPMENT & PANELS

- .1 NRC requires that work be performed on non-energized equipment, installation, conductors and power panels. For purposes of quotation assume that all work is to be done after normal working hours and that equipment, installation, conductors and power panels are to be de-energized when worked upon.

END OF SECTION

Part 1 General

1.1 RELATED WORK SPECIFIED ELSEWHERE

- .1 Common Work Results - Electrical Section 26 05 00

1.2 MATERIALS

- .1 Provide only new equipment and materials, without blemish or defect, bearing Canadian Standards Association or Authorized Electrical Inspection Department labels, and subject to the approval of the NRC Departmental Representative.
- .2 After a contract is awarded, utilize alternative methods and/or materials only after receiving the NRC Departmental Representative's approval.

1.3 SHOP DRAWINGS AND PRODUCT DATA

- .1 Submit shop drawings and product data in accordance with Section 00 10 00.

1.4 SCOPE OF WORK

- .1 Supply and install all required material, equipment and labour to provide the fire alarm changes and additions as shown on the drawings and indicated by this section of the specification.

1.5 CONTRACTOR QUALIFICATION

- .1 The contractor must ensure the supervisor, site foreman and electrician working on site hold valid fire alarm certificate.

1.6 REFERENCES

- .1 Government of Canada
 - .1 TB OSH Chapter 3-03, [latest edition], Treasury Board of Canada, Occupational Safety and Health, Chapter 3-03, Standard for Fire protection Electronic Data Processing Equipment.
 - .2 TB OSH Chapter 3-04, [latest edition], Treasury Board of Canada, Occupational Safety and Health, Chapter 3-04, Standard for Fire Alarm Systems.
- .2 Treasury Board: Fire Protection Standard effective April 1, 2010
- .3 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .4 Underwriter's Laboratories of Canada (ULC)
 - .1 CAN/ULC-S524-[latest edition], Standard for the Installation of Fire Alarm Systems.
 - .2 CAN/ULC-S525-[latest edition], Audible Signal Device for Fire Alarm Systems.

- .3 CAN/ULC-S526-[latest edition], Visual Signal Devices for Fire Alarm Systems.
- .4 CAN/ULC-S527-[latest edition], Control Units.
- .5 CAN/ULC-S528-[latest edition], Manual Pull Stations for Fire Alarm Systems.
- .6 CAN/ULC-S529-[latest edition], Smoke Detectors for Fire Alarm Systems.
- .7 CAN/ULC-S530-[latest edition], Heat Actuated Fire Detectors for Fire Alarm Systems.
- .8 CAN/ULC-S531-[latest edition], Standard for Smoke Alarms.
- .9 CAN/ULC-S536-S537-[latest edition], Burglar and Fire Alarm Systems and Components.
- .5 National Fire Protection Agency
 - .1 NFPA 72-[latest edition], National Fire Alarm Code.
 - .2 NFPA 90A-[latest edition], Installation of Air Conditioning and Ventilating Systems.

Part 2 Products

2.1 AUTOMATIC ALARM INITIATING DEVICES

- .1 Addressable system
 - .1 Intelligent heat detector. Rate-of-rise rated at 8.3°C (15°F)/min. Optional carbon monoxide sensor. Automatic device mapping, self-diagnostic. Stand-alone operation. Edwards model No. SIGA2-HRS.
 - .2 Intelligent photoelectric smoke detector. Self-diagnostics and history mapping. Automatic device mapping. Stand-alone operation. Edwards model No. SIGA2-PS.
 - .3 Intelligent duct smoke detector. Can be installed in ducts up to 10ft. remote LED and test station accessories. Edwards model No. SIGA-DH.

2.2 MANUAL ALARM STATIONS

- .1 Addressable system
 - .1 Pull lever, breakglass, wall mounted, red, bilingual and with electronic addressing. Edwards model No. SIGC-270B.

2.3 AUDIBLE, VISUAL DEVICES

- .1 Fire bell AC vibrating type, 150 mm (6") Signal size, red and rated for 6VAC, 1.2 A, Edwards Devices model No. 325-6C5.
- .2 Fire bell DC polarized vibrating type, 150 mm (6") size, red and rated for 24VDC, 0.15 A, 92db at 3 m (10'). Edwards model No. 439D-6AWC.
- .3 Addressable system
- .4 Combination horn/strobe device:

- .1 Fire alarm Horn/strobe combination device, red in colour.
 - .2 Adjustable cd output of 15, 20, 75 & 110. Selectable hi/low dB output.
 - .3 Red with red trim ring.
 - .4 Include Synchronization module to synchronize strobes.
 - .5 Standard of acceptance: Chubb Edwards G1R-HDVM.
- .5 Visual Device:
- .1 Fire alarm strobe only, red in colour.
 - .2 Adjustable cd output of 15, 20, 75 & 110.
 - .3 Red with red trim ring.
 - .4 Include Synchronization module to synchronize strobes.
 - .5 Standard of acceptance: Chubb Edwards G1R-VM.

2.4 CONDUIT AND WIRING

- .1 Raceway to be 21mm EMT unless indicated otherwise on the drawings. Wiring between junction box on underside of slab and heat detector junction box in T-bar ceiling to be 21mm flexible conduit.
- .2 All wiring is to be colour coded to match existing system and is to be of stranded copper.
- .3 Zone wiring is to be #16 TEW colour coded stranded copper.
- .4 Signal wiring to be sized to take into account voltage drop and is not to be smaller than #12 TW colour coded stranded copper.
- .5 All fire alarm initiating device circuits wiring to be class "A" using #18 minimum FAS-105 red jacketed twisted shielded pairs cable, and in accordance with manufacturer's requirements. Run each pair of wire in separate conduit to make it true class 'A'.
- .6 All fire alarm signal circuits wiring to be R90/ T90 #16 minimum, and in accordance with manufacturer's requirements.
- .7 All signal circuit wiring to be class "A" using 4#16 TW (or larger) colour coded stranded copper wires. Where series 6 VAC series bells are used, two #12 TW colour coded stranded copper wires are to be used and the bells are to be connected in series.

Part 3 Execution

3.1 MOUNTING OF EQUIPMENT

- .1 Recess mount equipment in all areas except where specified in unfinished areas.
 - .1 Fire alarm stations 1.2m (3'-11") to centreline.
 - .2 Fire alarm bells 2.1m (7'-0") to centreline.
- .2 Mounting heights from floor level to centerline of equipment are as follows:
 - .1 Fire alarm stations 1.2m (3'-11") to centreline.
 - .2 Fire alarm bells, horns, strobes 2.1m (7'-0") to centreline.

3.2 CONDUIT AND WIRING

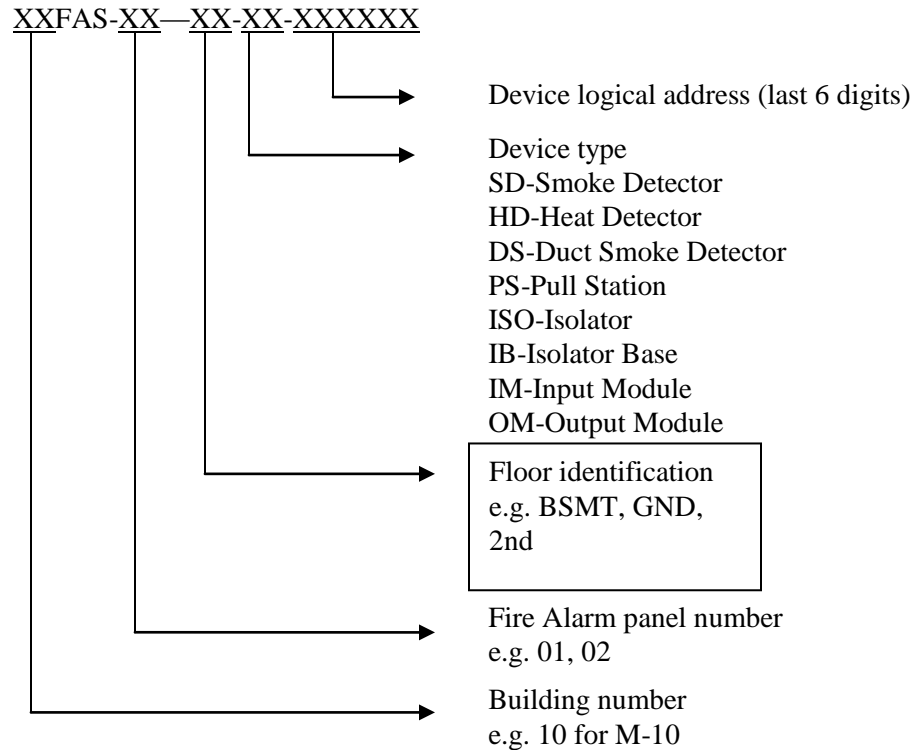
- .1 All conduit to include a #16 TW stranded copper green ground wire.
- .2 Use only uninsulated ring-type STA-KON lugs on screw connections.
- .3 Run conduit tight along underside of ceiling slab or roof deck, unless noted otherwise on drawings.
- .4 In rooms having false ceilings, each fire detection device is to have one junction box secured to the underside of the ceiling slab or roof deck and another firmly supported to the false ceiling tile. The junction box connected to the fire alarm device is not to be used as a raceway for connection to other devices. All splices and routing to other fire alarm devices is to be from the junction box mounted on the underside of the ceiling slab or roof deck.
- .5 Use Tee bar electrical box hangers (Caddy #51224 for 610mm T-bar spacing) to mount heat detectors on T-bar ceiling tiles.
- .6 Install a maximum of 1.5 m (5'-0") 3/4" (21mm) flexible conduit where a heat detector is installed on T-bar ceiling tiles. This is to allow the ceiling tile, having the device, to be shifted two feet either direction for access above the ceiling.
- .7 Leave 6 inch loops of wire in all junction boxes.
- .8 For new installations, no splicing of wires is to be made.
- .9 For renovations, splices may be made in junction boxes other than those at heat detectors after receiving approval of the NRC Departmental Representative. All splices must be soldered and taped.
- .10 Upon awarding of the contract, the NRC Departmental Representative shall provide the contractor with the standard wiring diagram for detection devices, A-7481.
- .11 Prior to installing raceways, submit to the NRC Departmental Representative a proposed method and layout of conduit for approval.

3.3 EQUIPMENT IDENTIFICATION

- .1 Label each manual alarm station and each audible signal device with its unique identification number as per drawings. Use lamicoïd nameplates as per Section 26 05 00.
- .2 Label each initiating device use P-Touch type as per Section 26 05 00. Devices are to be numbered per the format shown below.

Example M-10 fire alarm #1 Heat detector 000001

10FAS-01-GND-HD-000001



- .3 Refer to 26 05 00 for fire alarm conduit color coding.
- .4 Label wires as per drawing and as per Section. 26 05 00.
- .5 Update remote annunciator panels and fire alarm panel zone directories if new zones are added to the system.

3.4 SCHEDULING OF SHUTDOWNS

- .1 Make written shutdown request to the NRC Departmental Representative at least 48 hours in advance. Acceptance of shutdown request will be determined by the NRC Departmental Representative based on building user needs. Fire alarm systems are to be shut down by NRC staff only. **Contractor is not to shutdown system on their own.**

3.5 INTEGRATION INTO SYSTEM MONITORING AT BUILDING M-1

Presently all NRC buildings in Ottawa report back their fire alarm status to the M1 building central monitoring station. The monitoring station consists of a computer graphics terminal showing building layouts of each building, and is linked on an internal NRC network. The new fire alarm system under this contract must communicate all

addressable input points to the existing computer graphics monitoring station, Fireworks by Chubb Edwards. All required modifications to the existing Fireworks station are to be included in this tender.

- .1 Addressable devices:
 - .1 Integrate any new addressable devices installed as part of this project into the monitoring system at building M-1.
 - .2 Remove from the monitoring system at building M-1 any addressable devices removed as part of this project.
 - .3 Make appropriate changes to the monitoring system at building M-1 to reflect any relocated addressable devices.
 - .4 All work on the monitoring system at building M-1 is to be done by factory trained technician.
- .2 Conventional (non-addressable) devices:
 - .1 Integrate any new zones installed as part of this project into the monitoring system at building M-1. This is to be done by factory trained technician.
 - .2 Remove from the monitoring system at building M-1 any zones removed as part of this project.
 - .3 Make appropriate changes to the monitoring system at building M-1 to reflect any zone location changes as appropriate.
 - .4 All work on the monitoring system at building M-1 is to be done by factory trained technician.

3.6 ACCEPTANCE TEST

- .1 Perform tests in accordance with the latest regulations and in the presence of the NRC Departmental Representative and the representative of the regulating authority.
- .2 Test each device and alarm circuit to ensure manual alarm stations, thermal and smoke detectors transmit alarms to control panel and actuate alarm.
- .3 Check annunciator panels to ensure that the correct zones are activated.
- .4 Simulate grounds and breaks on alarm and signalling circuits to ensure proper operation of trouble signals.
- .5 Record amperage drawn by audible signal device circuits if new audible signal devices have been added to the circuit.
- .6 Give the NRC Departmental Representative one set of marked in red prints labelled "As Built".
- .7 Provide the NRC Departmental Representative with a letter of verification from the manufacturer of the equipment stating that the equipment supplied under this contract has been installed as per the latest CAN/ULC S537 and CAN/ULC-S524 standards and as per the latest edition of the Ontario Building Code.
- .8 For new fire alarm systems provide the NRC Departmental Representative with a certificate of verification stating that the equipment has been installed as per the latest

CAN/ULC-S537 and CAN/ULC-S524 standards and as per the latest edition of the National Building Code.

END OF SECTION



TP1 Amount Payable – General

1.1 Subject to any other provisions of the contract, Her Majesty shall pay the Contractor, at the times and in the manner hereinafter set out, the amount by which

1.1.1 the aggregate of the amounts described in TP2 exceeds

1.1.2 the aggregate of the amounts described in TP3

and the Contractor shall accept that amount as payment in full satisfaction for everything furnished and done by him in respect of the work to which the payment relates.

TP2 Amounts Payable to the Contractor

2.1 The amounts referred to in TP1.1.1 are the aggregate of

2.1.1 the amounts referred to in the Articles of Agreement, and

2.1.2 the amounts, if any, that are payable to the Contractor pursuant to the General Conditions.

TP3 Amounts Payable to Her Majesty

3.1 The amounts referred to in TP1.1.2 are the aggregate of the amounts, in any, that the Contractor is liable to pay Her Majesty pursuant to the contract.

3.2 When making any payments to the Contractor, the failure of Her Majesty to deduct an amount referred to in TP3.1 from an amount referred to in TP2 shall not constitute a waiver of the right to do so, or an admission of lack of entitlement to do so in any subsequent payment to the Contractor.

TP4 Time of Payment

4.1 In these Terms of Payment

4.1.1 The “payment period” means a period of 30 consecutive days or such other longer period as is agreed between the Contractor and the Departmental Representative.

4.1.2 An amount is “due and payable” when it is due and payable by Her Majesty to the Contractor according to TP4.4, TP4.7 or TP4.10.

4.1.3 An amount is overdue when it is unpaid on the first day following the day upon which it is due and payable.

4.1.4 The “date of payment” means the date of the negotiable instrument of an amount due and payable by the Receiver General for Canada and given for payment.

4.1.5 The “Bank Rate” means the discount rate of interest set by the Bank of Canada in effect at the opening of business on the date of payment.



- 4.2 The Contractor shall, on the expiration of a payment period, deliver to the Departmental Representative in respect of that payment period a written progress claim that fully describes any part of the work that has been completed, and any material that was delivered to the work site but not incorporated into the work during that payment period.
- 4.3 The Departmental Representative shall, not later than ten days after receipt by him of a progress claim referred to in TP4.2,
- 4.3.1 inspect the part of the work and the material described in the progress claim; and
- 4.3.2 issue a progress report, a copy of which the Departmental Representative will give to the Contractor, that indicates the value of the part of the work and the material described in the progress claim that, in the opinion of the Departmental Representative,
- 4.3.2.1 is in accordance with the contract, and
- 4.3.2.2 was not included in any other progress report relating to the contract.
- 4.4 Subject to TP1 and TP4.5 Her Majesty shall, not later than 30 days after receipt by the Departmental Representative of a progress claim referred to in TP4.2, pay the Contractor
- 4.4.1 an amount that is equal to 95% of the value that is indicated in the progress report referred to in TP4.3.2 if a labour and material payment bond has been furnished by the Contractor, or
- 4.4.2 an amount that is equal to 90% of the value that is indicated in the progress report referred to in TP4.3.2 if a labour and material payment bond has not been furnished by the Contractor.
- 4.5 It is a condition precedent to Her Majesty's obligation under TP4.4 that the Contractor has made and delivered to the Departmental Representative,
- 4.5.1 a statutory declaration described in TP4.6 in respect of a progress claim referred to in TP4.2,
- 4.5.2 in the case of the Contractor's first progress claim, a construction schedule in accordance with the relevant sections of the Specifications, and
- 4.5.3 if the requirement for a schedule is specified, an update of the said schedule at the times identified in the relevant sections of the Specifications.
- 4.6 A statutory declaration referred to in TP4.5 shall contain a deposition by the Contractor that
- 4.6.1 up to the date of the Contractor's progress claim, the Contractor has complied with all his lawful obligations with respect to the Labour Conditions; and
- 4.6.2 up to the date of the Contractor's immediately preceding progress claim, all lawful obligations of the Contractor to subcontractors and suppliers of material in respect of the



work under the contract have been fully discharged.

- 4.7 Subject to TP1 and TP4.8, Her Majesty shall, not later than 30 days after the date of issue of an Interim Certificate of Completion referred to in GC44.2, pay the Contractor the amount referred to in TP1 less the aggregate of
- 4.7.1 the sum of all payments that were made pursuant to TP4.4;
 - 4.7.2 an amount that is equal to the Departmental Representative's estimate of the cost to Her Majesty or rectifying defects described in the Interim Certificate of Completion; and
 - 4.7.3 an amount that is equal to the Departmental Representative's estimate of the cost to Her Majesty of completing the parts of the work described in the Interim Certificate of Completion other than the defects referred to in TP4.7.2.
- 4.8 It is a condition precedent to Her Majesty's obligation under TP4.7 that the Contractor has made and delivered to the Departmental Representative,
- 4.8.1 a statutory declaration described in TP4.9 in respect of an Interim Certificate of Completion referred to in GC44.2, and
 - 4.8.2 if so specified in the relevant sections of the Specifications, and update of the construction schedule referred to in TP4.5.2 and the updated schedule shall, in addition to the specified requirements, clearly show a detailed timetable that is acceptable to the Departmental Representative for the completion of any unfinished work and the correction of all defects.
- 4.9 A statutory declaration referred to in TP4.8 shall contain a deposition by the contractor that up to the date of the Interim Certificate of Completion the Contractor has
- 4.9.1 complied with all of the Contractor's lawful obligations with respect to the Labour Conditions;
 - 4.9.2 discharged all of the Contractor's lawful obligations to the subcontractors and suppliers of material in respect of the work under the contract; and
 - 4.9.3 discharged the Contractor's lawful obligations referred to in GC14.6.
- 4.10 Subject to TP1 and TP4.11, Her Majesty shall, not later than 60 days after the date of issue of a Final Certificate of Completion referred to in GC44.1, pay the Contractor the amount referred to in TP1 less the aggregate of
- 4.10.1 the sum of all payments that were made pursuant to TP4.4; and
 - 4.10.2 the sum of all payments that were made pursuant to TP4.7.
- 4.11 It is a condition precedent to Her Majesty's obligation under TP4.10 that the Contractor has made and delivered a statutory declaration described in TP4.12 to the Departmental Representative.



- 4.12 A statutory declaration referred to in TP4.11 shall, in addition to the depositions described in TP4.9, contain a deposition by the Contractor that all of the Contractor's lawful obligations and any lawful claims against the Contractor that arose out of the performance of the contract have been discharged and satisfied.

TP5 Progress Report and Payment Thereunder Not Binding on Her Majesty

- 5.1 Neither a progress report referred to in TP4.3 nor any payment made by Her Majesty pursuant to these Terms of Payment shall be construed as an admission by Her Majesty that the work, material or any part thereof is complete, is satisfactory or is in accordance with the contract.

TP6 Delay in Making Payment

- 6.1 Notwithstanding GC7 any delay by Her Majesty in making any payment when it is due pursuant to these Terms of Payment shall not be a breach of the contract by Her Majesty.

- 6.2 Her Majesty shall pay, without demand from the Contractor, simple interest at the Bank Rate plus 1 -1/4 per centum on any amount which is overdue pursuant to TP4.1.3, and the interest shall apply from and include the day such amount became overdue until the day prior to the date of payment except that

- 6.2.1 interest shall not be payable or paid unless the amount referred to in TP6.2 has been overdue for more than 15 days following

6.2.1.1 the date the said amount became due and payable, or

6.2.1.2 the receipt by the Departmental Representative of the Statutory Declaration referred to in TP4.5, TP4.8 or TP4.11,

whichever is the later, and

- 6.6.2 interest shall not be payable or paid on overdue advance payments if any.

TP7 Right of Set-off

- 7.1 Without limiting any right of set-off or deduction given or implied by law or elsewhere in the contract, Her Majesty may set off any amount payable to Her Majesty by the Contractor under this contract or under any current contract against any amount payable to the Contractor under this contract.

- 7.2 For the purposes of TP7.1, "current contract" means a contract between Her Majesty and the Contractor

7.2.1 under which the Contractor has an undischarged obligation to perform or supply work, labour or material, or

7.2.2 in respect of which Her Majesty has, since the date of which the Articles of Agreement were made, exercised any right to take the work that is the subject of the contract out of the Contractor's hands.



TP8 Payment in Event of Termination

- 8.1 If the contract is terminated pursuant to GC41, Her Majesty shall pay the Contractor any amount that is lawfully due and payable to the Contractor as soon as is practicable under the circumstances.

TP9 Interest on Settled Claims

- 9.1 Her Majesty shall pay to the Contractor simple interest on the amount of a settled claim at an average Bank Rate plus 1 ¼ per centum from the date the settled claim was outstanding until the day prior to the date of payment.
- 9.2 For the purposes of TP9.1,
- 9.2.1 a claim is deemed to have been settled when an agreement in writing is signed by the Departmental Representative and the Contractor setting out the amount of the claim to be paid by Her Majesty and the items or work for which the said amount is to be paid.
- 9.2.2 an "average Bank Rate" means the discount rate of interest set by the Bank of Canada in effect at the end of each calendar month averaged over the period the settled claim was outstanding.
- 9.2.3 a settled claim is deemed to be outstanding from the day immediately following the date the said claim would have been due and payable under the contract had it not been disputed.
- 9.3 For the purposes of TP9 a claim means a disputed amount subject to negotiation between Her Majesty and the Contractor under the contract.



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GC1 Interpretation

1.1 In the contract

- 1.1.1 where reference is made to a part of the contract by means of numbers preceded by letters, the reference shall be construed to be a reference to the particular part of the contract that is identified by that combination of letters and numbers and to any other part of the contract referred to therein;
- 1.1.2 “contract” means the contract document referred to in the Articles of Agreement;
- 1.1.3 “contract security” means any security given by the Contractor to Her Majesty in accordance with the contract;
- 1.1.4 “Departmental Representative” means the officer or employee of Her Majesty who is designated pursuant to the Articles of Agreement and includes a person specially authorized by him to perform, on his behalf, any of his functions under the contract and is so designated in writing to the Contractor;
- 1.1.5 “material” includes all commodities, articles and things required to be furnished by or for the Contractor under the contract for incorporation into the work;
- 1.1.6 “Minister” includes a person acting for, or if the office is vacant, in place of the Minister and his successors in the office, and his or their lawful deputy and any of his or their representatives appointed for the purposes of the contract;
- 1.1.7 “person” includes, unless the context otherwise requires, a partnership, proprietorship, firm, joint venture, consortium and a corporation;
- 1.1.8 “plant” includes all animals, tools, implements, machinery, vehicles, buildings, structures, equipment and commodities, articles and things other than material, that are necessary for the due performance of the contract;
- 1.1.9 “subcontractor” means a person to whom the Contractor has, subject to GC4, subcontracted the whole or any part of the work;
- 1.1.10 “superintendent” means the employee of the Contractor who is designated by the Contractor to act pursuant to GC19;
- 1.1.11 “work includes, subject only to any express stipulation in the contract to the contrary, everything that is necessary to be done, furnished or delivered by the Contractor to perform the contract.

1.2 The headings in the contract documents, other than in the Plans and Specifications, form no part of the contract but are inserted for convenience of reference only.

1.3 In interpreting the contract, in the event of discrepancies or conflicts between anything in the Plans and Specifications and the General Conditions, the General Conditions govern.



- 1.4 In interpreting the Plans and Specifications, in the event of discrepancies or conflicts between
- 1.4.1 the Plans and Specifications, the Specifications govern;
 - 1.4.2 the Plans, the Plans drawn with the largest scale govern; and
 - 1.4.3 figured dimensions and scaled dimensions, the figured dimensions govern.

GC2 Successors and Assigns

- 2.1 The contract shall inure to the benefit of and be binding upon the parties hereto and their lawful heirs, executors, administrators, successors and assigns.

GC3 Assignment of Contract

- 3.1 The contract may not be assigned by the Contractor, either in whole or in part, without the written consent of the Minister.

GC4 Subcontracting by Contractor

- 4.1 Subject to this General Condition, the Contractor may subcontract any part of the work.
- 4.2 The Contractor shall notify the Departmental Representative in writing of his intention to subcontract.
- 4.3 A notification referred to in GC4.2 shall identify the part of the work, and the subcontractor with whom it is intended to subcontract.
- 4.4 The Departmental Representative may object to the intended subcontracting by notifying the Contractor in writing within six days of receipt by the Departmental Representative of a notification referred to in GC4.2.
- 4.5 If the Departmental Representative objects to a subcontracting pursuant to GC4.4, the Contractor shall not enter into the intended subcontract.
- 4.6 The contractor shall not, without the written consent of the Departmental Representative, change a subcontractor who has been engaged by him in accordance with this General Condition.
- 4.7 Every subcontract entered into by the Contractor shall adopt all of the terms and conditions of this contract that are of general application.
- 4.8 Neither a subcontracting nor the Departmental Representative's consent to a subcontracting by the Contractor shall be construed to relieve the Contractor from any obligation under the contract or to impose any liability upon Her Majesty.

GC5 Amendments



- 5.1 No amendment or change in any of the provisions of the contract shall have any force or effect until it is reduced to writing.

GC6 No Implied Obligations

- 6.1 No implied terms or obligations of any kind by or on behalf of Her Majesty shall arise from anything in the contract and the express covenants and agreements therein contained and made by Her Majesty are the only covenants and agreements upon which any rights against Her Majesty are to be founded.
- 6.2 The contract supersedes all communications, negotiations and agreements, either written or oral, relating to the work that were made prior to the date of the contract.

GC7 Time of Essence

- 7.1 Time is of the essence of the contract.

GC8 Indemnification by Contractor

- 8.1 The Contractor shall indemnify and save Her Majesty harmless from and against all claims, demand, losses, costs, damages, actions, suits, or proceedings by whomever made, brought or prosecuted and in any manner based upon, arising out of, related to, occasioned by or attributable to the activities of the Contractor, his servants, agents, subcontractors and sub-subcontractors in performing the work including an infringement or an alleged infringement of a patent of invention or any other kind of intellectual property.
- 8.2 For the purpose of GC8.1, "activities" includes any act improperly carried out, any omission to carry out an act and any delay in carrying out an act.

GC9 Indemnification by Her Majesty

- 9.1 Her Majesty shall, subject to the Crown Liability Act, the Patent Act, and any other law that affects Her Majesty's rights, powers, privileges or obligations, indemnify and save the Contractor harmless from and against all claims, demands, losses, costs, damage, actions, suits or proceedings arising out of his activities under the contract that are directly attributable to
- 9.1.1 lack of or a defect in Her Majesty's title to the work site whether real or alleged; or
- 9.1.2 an infringement or an alleged infringement by the Contractor of any patent of invention or any other kind of intellectual property occurring while the Contractor was performing any act for the purposes of the contract employing a model, plan or design or any other thing related to the work that was supplied by Her Majesty to the Contractor.

GC10 Members of House of Commons Not to Benefit



- 10.1 As required by the Parliament of Canada Act, it is an express condition of the contract that no member of the House of Commons shall be admitted to any share of part of the contract or to any benefit arising therefrom.

GC11 Notices

- 11.1 Any notice, consent, order, decision, direction or other communication, other than a notice referred to in GC11.4, that may be given to the Contractor pursuant to the contract may be given in any manner.
- 11.2 Any notice, consent, order, decision, direction or other communication required to be given in writing, to any party pursuant to the contract shall, subject to GC11.4, be deemed to have been effectively given
- 11.2.1 to the Contractor, if delivered personally to the Contractor or the Contractor's superintendent, or forwarded by mail, telex or facsimile to the Contractor at the address set out in A4.1, or
- 11.2.2 to Her Majesty, if delivered personally to the Departmental Representative, or forwarded by mail, telex or facsimile to the Departmental Representative at the address set out in A1.2.1.
- 11.3 Any such notice, consent, order, decision, direction or other communication given in accordance with GC11.2 shall be deemed to have been received by either party
- 11.3.1 if delivered personally, on the day that it was delivered,
- 11.3.2 if forwarded by mail, on the earlier of the day it was received and the sixth day after it was mailed, and
- 11.3.3 if forwarded by telex or facsimile, 24 hours after it was transmitted.
- 11.4 A notice given under GC38.1.1, GC40 and GC41, if delivered personally, shall be delivered to the Contractor if the Contractor is doing business as sole proprietor or, if the Contractor is a partnership or corporation, to an officer thereof.

GC12 Material, Plant and Real Property Supplied by Her Majesty

- 12.1 Subject to GC12.2, the Contractor is liable to Her Majesty for any loss of or damage to material, plant or real property that is supplied or placed in the care, custody and control of the Contractor by Her Majesty for use in connection with the contract, whether or not that loss or damage is attributable to causes beyond the Contractor's control.
- 12.2 The Contractor is not liable to Her Majesty for any loss or damage to material, plant or real property referred to in GC12.1 if that loss or damage results from and is directly attributable to reasonable wear and tear.
- 12.3 The Contractor shall not use any material, plant or real property referred to in GC12.1 except for



the purpose of performing this contract.

- 12.4 When the Contractor fails to make good any loss or damage for which he is liable under GC12.1 within a reasonable time after being required to do so by the Departmental Representative, the Departmental Representative may cause the loss or damage to be made good at the Contractor's expense, and the Contractor shall thereupon be liable to Her Majesty for the cost thereof and shall, on demand, pay to Her Majesty an amount equal to that cost.
- 12.5 The Contractor shall keep such records of all material, plant and real property referred to in GC12.1 as the Departmental Representative from time to time requires and shall satisfy the Departmental Representative, when requested, that such material, plant and real property are at the place and in the condition which they ought to be.

GC13 Material, Plant and Real Property Become Property of Her Majesty

- 13.1 Subject to GC14.7 all material and plant and the interest of the Contractor in all real property, licenses, powers and privileges purchased, used or consumed by the Contractor for the contract shall, after the time of their purchase, use or consumption be the property of Her Majesty for the purposes of the work and they shall continue to be the property of Her Majesty.
- 13.1.1 in the case of material, until the Departmental Representative indicates that he is satisfied that it will not be required for the work, and
- 13.1.2 in the case of plant, real property, licenses, powers and privileges, until the Departmental Representative indicates that he is satisfied that the interest vested in Her Majesty therein is no longer required for the purposes of the work.
- 13.2 Material or plant that is the property of Her Majesty by virtue of GC13.1 shall not be taken away from the work site or used or disposed of except for the purposes of the work without the written consent of the Departmental Representative.
- 13.3 Her Majesty is not liable for loss of or damage from any cause to the material or plant referred to in GC13.1 and the Contractor is liable for such loss or damage notwithstanding that the material or plant is the property of Her Majesty.

GC14 Permits and Taxes Payable

- 14.1 The Contractor shall, within 30 days after the date of the contract, tender to a municipal authority an amount equal to all fees and charges that would be lawfully payable to that municipal authority in respect of building permits as if the work were being performed for a person other than Her Majesty.
- 14.2 Within 10 days of making a tender pursuant to GC14.1, the Contractor shall notify the Departmental Representative of his action and of the amount tendered and whether or not the municipal authority has accepted that amount.
- 14.3 If the municipal authority does not accept the amount tendered pursuant to GC14.1 the Contractor shall pay that amount to Her Majesty within 6 days after the time stipulated in GC14.2.



- 14.4 For the purposes of GC14.1 to GC14.3 “municipal authority” means any authority that would have jurisdiction respecting permission to perform the work if the owner were not Her Majesty.
- 14.5 Notwithstanding the residency of the Contractor, the Contractor shall pay any applicable tax arising from or related to the performance of the work under the contract.
- 14.6 In accordance with the Statutory Declaration referred to in TP4.9, a Contractor who has neither residence nor place of business in the province in which work under the contract is being performed shall provide Her Majesty with proof of registration with the provincial sales tax authorities in the said province.
- 14.7 For the purpose of the payment of any applicable tax or the furnishing of security for the payment of any applicable tax arising from or related to the performance of the work under the contract, the Contractor shall, notwithstanding the fact that all material, plant and interest of the Contractor in all real property, licenses, powers and privileges, have become the property of Her Majesty after the time of purchase, be liable, as a user or consumer, for the payment or for the furnishing of security for the payment of any applicable tax payable, at the time of the use or consumption of that material, plant or interest of the Contractor in accordance with the relevant legislation.

GC15 Performance of Work under Direction of Departmental Representative

- 15.1 The Contractor shall
- 15.1.1 permit the Departmental Representative to have access to the work and its site at all times during the performance of the contract;
 - 15.1.2 furnish the Departmental Representative with such information respecting the performance of the contract as he may require; and
 - 15.1.3 give the Departmental Representative every possible assistance to enable the Departmental Representative to carry out his duty to see that the work is performed in accordance with the contract and to carry out any other duties and exercise any powers specially imposed or conferred on the Departmental Representative under the contract.

CG16 Cooperation with Other Contractors

- 16.1 Where, in the opinion of the Departmental Representative, it is necessary that other contractors or workers with or without plant and material, be sent onto the work or its site, the Contractor shall, to the satisfaction of the Departmental Representative, allow them access and cooperate with them in the carrying out of their duties and obligation.
- 16.2 If
- 16.2.1 the sending onto the work or its site of other contractors or workers pursuant to GC16.1 could not have been reasonably foreseen or anticipated by the Contractor when entering into the contract, and



16.2.2 the Contractor incurs, in the opinion of the Departmental Representative, extra expense in complying with GC16.1, and

16.2.3 The Contractor has given the Departmental Representative written notice of his claim for the extra expense referred to in GC16.2.2 within 30 days of the date that the other contractors or workers were sent onto the work or its site,

Her Majesty shall pay the Contractor the cost, calculated in accordance with GC48 to GC50, of the extra labour, plant and material that was necessarily incurred.

GC17 Examination of Work

17.1 If, at any time after the commencement of the work but prior to the expiry of the warranty or guarantee period, the Departmental Representative has reason to believe that the work or any part thereof has not been performed in accordance with the contract, the Departmental Representative may have that work examined by an expert of his choice.

17.2 If, as a result of an examination of the work referred to in GC17.1, it is established that the work was not performed in accordance with the contract, then, in addition to and without limiting or otherwise affecting any of Her Majesty's rights and remedies under the contract either at law or in equity, the Contractor shall pay Her Majesty, on demand, all reasonable costs and expenses that were incurred by Her Majesty in having that examination performed.

GC18 Clearing of Site

18.1 The Contractor shall maintain the work and its site in a tidy condition and free from the accumulation of waste material and debris, in accordance with any directions of the Departmental Representative.

18.2 Before the issue of an interim certificate referred to in GC44.2, the Contractor shall remove all the plant and material not required for the performance of the remaining work, and all waste material and other debris, and shall cause the work and its site to be clean and suitable for occupancy by Her Majesty's servants, unless otherwise stipulated in the contract.

18.3 Before the issue of a final certificate referred to in GC44.1, the Contractor, shall remove from the work and its site all of the surplus plant and material and any waste material and other debris.

18.4 The Contractor's obligations described in GC18.1 to GC18.3 do not extend to waste material and other debris caused by Her Majesty's servants or contractors and workers referred to in GC16.1.

GC19 Contractor's Superintendent

19.1 The Contractor shall, forthwith upon the award of the contract, designate a superintendent.

19.2 The Contractor shall forthwith notify the Departmental Representative of the name, address and telephone number of a superintendent designate pursuant to GC19.1.



- 19.3 A superintendent designated pursuant to GC19.1 shall be in full charge of the operations of the Contractor in the performance of the work and is authorized to accept any notice, consent, order, direction, decision or other communication on behalf of the Contractor that may be given to the superintendent under the contract.
- 19.4 The Contractor shall, until the work has been completed, keep a competent superintendent at the work site during working hours.
- 19.5 The Contractor shall, upon the request of the Departmental Representative, remove any superintendent who, in the opinion of the Departmental Representative, is incompetent or has been conducting himself improperly and shall forthwith designate another superintendent who is acceptable to the Departmental Representative.
- 19.6 Subject to GC19.5, the Contractor shall not substitute a superintendent without the written consent of the Departmental Representative.
- 19.7 A breach by the Contractor of GC19.6 entitles the Departmental Representative to refuse to issue any certificate referred to in GC44 until the superintendent has returned to the work site or another superintendent who is acceptable to the Departmental Representative has been substituted.

GC20 National Security

- 20.1 If the Minister is of the opinion that the work is of a class or kind that involves the national security, he may order the Contractor
- 20.1.1 to provide him with any information concerning persons employed or to be employed by him for purposes of the contract; and
 - 20.1.2 to remove any person from the work and its site if, in the opinion of the Minister, that person may be a risk to the national security.
- 20.2 The Contractor shall, in all contracts with persons who are to be employed in the performance of the contract, make provision for his performance of any obligation that may be imposed upon him under GC19 to GC21.
- 20.3 The Contractor shall comply with an order of the Minister under GC20.1

GC21 Unsuitable Workers

- 21.1 The Contractor shall, upon the request of the Departmental Representative, remove any person employed by him for purposes of the contract who, in the opinion of the Departmental Representative, is incompetent or has conducted himself improperly, and the Contractor shall not permit a person who has been removed to return to the work site.

GC22 Increased or Decreased Costs



- 22.1 The amount set out in the Articles of Agreement shall not be increased or decreased by reason of any increase or decrease in the cost of the work that is brought about by an increase or decrease in the cost of labour, plant or material or any wage adjustment arising pursuant to the Labour Conditions.
- 22.2 Notwithstanding GC22.1 and GC35, an amount set out in the Articles of Agreement shall be adjusted in the manner provided in GC22.3, if any change in a tax imposed under the Excise Act, the Excise Tax Act, the Old Age Security Act, the Customs Act, the Customs Tariff or any provincial sales tax legislation imposing a retail sales tax on the purchase of tangible personal property incorporated into Real Property
- 22.2.1 occurs after the date of the submission by the Contractor of his tender for the contract,
- 22.2.2 applies to material, and
- 22.2.3 affects the cost to the Contractor of that material.
- 22.3 If a change referred to in GC22.2 occurs, the appropriate amount set out in the Articles of Agreement shall be increased or decreased by an amount equal to the amount that is established by an examination of the relevant records of the Contractor referred to in GC51 to be the increase or decrease in the cost incurred that is directly attributable to that change.
- 22.4 For the purpose of GC22.2, where a tax is changed after the date of submission of the tender but public notice of the change has been given by the Minister of Finance before that date, the change shall be deemed to have occurred before the date of submission of the tender.

GC23 Canadian Labour and Material

- 23.1 The Contractor shall use Canadian labour and material in the performance of the work to the full extent to which they are procurable, consistent with proper economy and expeditious carrying out of the work.
- 23.2 Subject to GC23.1, the Contractor shall, in the performance of the work, employ labour from the locality where the work is being performed to the extent to which it is available, and shall use the offices of the Canada Employment Centres for the recruitment of workers wherever practicable.
- 23.3 Subject to GC23.1 and GC23.2, the Contractor shall, in the performance of the work, employ a reasonable proportion of persons who have been on active service with the armed forces of Canada and have been honourably discharged therefrom.

GC24 Protection of Work and Documents

- 24.1 The Contractor shall guard or otherwise protect the work and its site, and protect the contract, specifications, plans, drawings, information, material, plant and real property, whether or not they are supplied by Her Majesty to the Contractor, against loss or damage from any cause, and he shall not use, issue, disclose or dispose of them without the written consent of the Minister, except as may be essential for the performance of the work.



- 24.2 If any document or information given or disclosed to the Contractor is assigned a security rating by the person who gave or disclosed it, the Contractor shall take all measures directed by the Departmental Representative to be taken to ensure the maintenance of the degree of security that is ascribed to that rating.
- 24.3 The Contractor shall provide all facilities necessary for the purpose of maintaining security, and shall assist any person authorized by the Minister to inspect or to take security measures in respect of the work and its site.
- 24.4 The Departmental Representative may direct the Contractor to do such things and to perform such additional work as the Departmental Representative considers reasonable and necessary to ensure compliance with or to remedy a breach of GC24.1 to GC24.3.

GC25 Public Ceremonies and Signs

- 25.1 The Contractor shall not permit any public ceremony in connection with the work without the prior consent of the Minister.
- 25.2 The Contractor shall not erect or permit the erection of any sign or advertising on the work or its site without the prior consent of the Departmental Representative.

GC26 Precautions against Damage, Infringement of Rights, Fire, and Other Hazards

- 26.1 The Contractor shall, at his own expense, do whatever is necessary to ensure that
- 26.1.1 no person, property, right, easement or privilege is injured, damaged or infringed by reasons of the Contractor's activities in performing the contract;
 - 26.1.2 pedestrian and other traffic on any public or private road or waterway is not unduly impeded, interrupted or endangered by the performance or existence of the work or plant;
 - 26.1.3 fire hazards in or about the work or its site are eliminated and, subject to any direction that may be given by the Departmental Representative, any fire is promptly extinguished;
 - 26.1.4 the health and safety of all persons employed in the performance of the work is not endangered by the method or means of its performance;
 - 26.1.5 adequate medical services are available to all persons employed on the work or its site at all times during the performance of the work;
 - 26.1.6 adequate sanitation measures are taken in respect of the work and its site; and
 - 26.1.7 all stakes, buoys and marks placed on the work or its site by or under the authority of the Departmental Representative are protected and are not removed, defaced, altered or destroyed.
- 26.2 The Departmental Representative may direct the Contractor to do such things and to perform such additional work as the Departmental Representative considers reasonable and necessary to ensure



compliance with or to remedy a breach of GC26.1.

- 26.3 The Contractor shall, at his own expense, comply with a direction of the Departmental Representative made under GC26.2.

GC27 Insurance

- 27.1 The Contractor shall, at his own expense, obtain and maintain insurance contracts in respect of the work and shall provide evidence thereof to the Departmental Representative in accordance with the requirements of the Insurance Conditions "E".

- 27.2 The insurance contracts referred to in GC27.1 shall

27.2.1 be in a form, of the nature, in the amounts, for the periods and containing the terms and conditions specified in Insurance Conditions "E", and

27.2.2 provide for the payment of claims under such insurance contracts in accordance with GC28.

GC28 Insurance Proceeds

- 28.1 In the case of a claim payable under a Builders Risk/Installation (All Risks) insurance contract maintained by the Contractor pursuant to GC27, the proceeds of the claim shall be paid directly to Her Majesty, and

28.1.1 the monies so paid shall be held by Her Majesty for the purposes of the contract, or

28.1.2 if Her Majesty elects, shall be retained by Her Majesty, in which event they vest in Her Majesty absolutely.

- 28.2 In the case of a claim payable under a General Liability insurance contract maintained by the Contractor pursuant to GC27, the proceeds of the claim shall be paid by the insurer directly to the claimant.

- 28.3 If an election is made pursuant to GC28.1, the Minister may cause an audit to be made of the accounts of the Contractor and of Her Majesty in respect of the part of the work that was lost, damaged or destroyed for the purpose of establishing the difference, if any, between

28.3.1 the aggregate of the amount of the loss or damage suffered or sustained by Her Majesty, including any cost incurred in respect of the clearing and cleaning of the work and its site and any other amount that is payable by the Contractor to Her Majesty under the contract, minus any monies retained pursuant to GC28.12, and

28.3.2 the aggregate of the amounts payable by Her Majesty to the Contractor pursuant to the contract up to the date of the loss or damage.

- 28.4 A difference that is established pursuant to GC28.3 shall be paid forthwith by the party who is determined by the audit to be the debtor to the party who is determined by the audit to be the



creditor.

- 28.5 When payment of a deficiency has been made pursuant to GC28.4, all rights and obligations of Her Majesty and the Contractor under the contract shall, with respect only to the part of the work that was the subject of the audit referred to in GC28.3, be deemed to have been expended and discharged.
- 28.6 If an election is not made pursuant to GC28.1.2 the Contractor shall, subject to GC28.7, clear and clean the work and its site and restore and replace the part of the work that was lost, damaged or destroyed at his own expense as if that part of the work had not yet been performed.
- 28.7 When the Contractor clears and cleans the work and its site and restores and replaces the work referred to in GC 28.6, Her Majesty shall pay him out of the monies referred to in GC28.1 so far as they will thereunto extend.
- 28.8 Subject to GC28.7, payment by Her Majesty pursuant to GC28.7 shall be made in accordance with the contract but the amount of each payment shall be 100% of the amount claimed notwithstanding TP4.4.1 and TP4.4.2.

GC29 Contract Security

- 29.1 The Contractor shall obtain and deliver contract security to the Departmental Representative in accordance with the provisions of the Contract Security Conditions.
- 29.2 If the whole or a part of the contract security referred to in GC29.1 is in the form of a security deposit, it shall be held and disposed of in accordance with GC43 and GC45.
- 29.3 If a part of the contract security referred to in GC29.1 is in the form of a labour and material payment bond, the Contractor shall post a copy of that bond on the work site.

GC30 Changes in the Work

- 30.1 Subject to GC5, the Departmental Representative may, at any time before he issues his Final Certificate of Completion,
- 30.1.1 order work or material in addition to that provided for in the Plans and Specifications;
and
- 30.1.2 delete or change the dimensions, character, quantity, quality, description, location or position of the whole or any part of the work or material provided for in the Plans and Specifications or in any order made pursuant to GC30.1.1,
- if that additional work or material, deletion, or change is, in his opinion, consistent with the general intent of the original contract.
- 30.2 The Contractor shall perform the work in accordance with such orders, deletions and changes that are made by the Departmental Representative pursuant to GC30.1 from time to time as if they had appeared in and been part of the Plans and Specifications.



- 30.3 The Departmental Representative shall determine whether or not anything done or omitted by the Contractor pursuant to an order, deletion or change referred to in GC30.1 increased or decreased the cost of the work to the Contractor.
- 30.4 If the Departmental Representative determines pursuant to GC30.3 that the cost of the work to the Contractor has been increased, Her Majesty shall pay the Contractor the increased cost that the Contractor necessarily incurred for the additional work calculated in accordance with GC49 or GC50.
- 30.5 If the Departmental Representative determines pursuant to GC30.3 that the cost of the work to the Contractor has been decreased, Her Majesty shall reduce the amount payable to the Contractor under the contract by an amount equal to the decrease in the cost caused by the deletion or change referred to in GC30.1.2 and calculated in accordance with GC49.
- 30.6 GC30.3 to GC30.5 are applicable only to a contract or a portion of a contract for which a Fixed Price Arrangement is stipulated in the contract.
- 30.7 An order, deletion or change referred to in GC30.1 shall be in writing, signed by the Departmental Representative and given to the Contractor in accordance with GC11.

GC31 Interpretation of Contract by Departmental Representative

- 31.1 If, at any time before the Departmental Representative has issued a Final Certificate of Completion referred to in GC44.1, any question arises between the parties about whether anything has been done as required by the contract or about what the Contractor is required by the contract to do, and, in particular but without limiting the generality of the foregoing, about
- 31.1.1 the meaning of anything in the Plans and Specification,
 - 31.1.2 the meaning to be given to the Plans and Specifications in case of any error therein, omission therefrom, or obscurity or discrepancy in their working or intention,
 - 31.1.3 whether or not the quality or quantity of any material or workmanship supplied or proposed to be supplied by the Contractor meets the requirements of the contract,
 - 31.1.4 whether or not the labour, plant or material provided by the Contractor for performing the work and carrying out the contract are adequate to ensure that the work will be performed in accordance with the contract and that the contract will be carried out in accordance with its terms,
 - 31.1.5 what quantity of any kind of work has been completed by the Contractor, or
 - 31.1.6 the timing and scheduling of the various phases of the performance of the work,
- the question shall be decided by the Departmental Representative whose decision shall be final and conclusive in respect of the work.
- 31.2 The Contractor shall perform the work in accordance with any decisions of the Departmental



Representative that are made under GC31.1 and in accordance with any consequential directions given by the Departmental Representative.

GC32 Warranty and Rectification of Defects in Work

- 32.1 Without restricting any warranty or guarantee implied or imposed by law or contained in the contract documents, the Contractor shall, at his own expense,
- 32.1.1 rectify and make good any defect or fault that appears in the work or comes to the attention of the Minister with respect to those parts of the work accepted in connection with the Interim Certificate of Completion referred to GC44.2 within 12 months from the date of the Interim Certificate of Completion;
- 32.1.2 rectify and make good any defect or fault that appears in or comes to the attention of the Minister in connection with those parts of the work described in the Interim Certificate of Completion referred to in GC44.2 within 12 months from the date of the Final Certificate of Completion referred to in GC44.1.
- 32.2 The Departmental Representative may direct the Contractor to rectify and make good any defect or fault referred to in GC32.1 or covered by any other expressed or implied warranty or guarantee.
- 32.3 A direction referred to in GC32.2 shall be in writing, may include a stipulation in respect of the time within which a defect or fault is required to be rectified and made good by the Contractor, and shall be given to the Contractor in accordance with GC11.
- 32.4 The Contractor shall rectify and make good any defect or fault described in a direction given pursuant to GC32.2 within the time stipulated therein.

GC33 Non-Compliance by Contractor

- 33.1 If the Contractor fails to comply with any decision or direction given by the Departmental Representative pursuant to GC18, GC24, GC26, GC31 or GC32, the Departmental Representative may employ such methods as he deems advisable to do that which the Contractor failed to do.
- 33.2 The Contractor shall, on demand, pay Her Majesty an amount that is equal to the aggregate of all cost, expenses and damage incurred or sustained by Her Majesty by reason of the Contractor's failure to comply with any decision or direction referred to in GC33.1, including the cost of any methods employed by the Departmental Representative pursuant to GC33.1.

GC34 Protesting Departmental Representative's Decisions

- 34.1 The Contractor may, within ten days after the communication to him of any decision or direction referred to in GC30.3 or GC33.1, protest that decision or direction.
- 34.2 A protest referred to in GC34.1 shall be in writing, contain full reasons for the protest, be signed



by the Contractor and be given to Her Majesty by delivery to the Departmental Representative.

- 34.3 If the Contractor gives a protest pursuant to GC34.2, any compliance by the Contractor with the decision or direction that was protested shall not be construed as an admission by the Contractor of the correctness of that decision or direction, or prevent the Contractor from taking whatever action he considers appropriate in the circumstances.
- 34.4 The giving of a protest by the Contractor pursuant to GC34.2 shall not relieve him from complying with the decision or direction that is the subject of the protest.
- 34.5 Subject to GC34.6, the Contractor shall take any action referred to in GC34.3 within three months after the date that a Final Certificate of Completion is issued under GC44.1 and not afterwards.
- 34.6 The Contractor shall take any action referred to in GC34.3 resulting from a direction under GC32 within three months after the expiry of a warranty or guarantee period and not afterwards.
- 34.7 Subject to GC34.8, if Her Majesty determines that the Contractor's protest is justified, Her Majesty shall pay the Contractor the cost of the additional labour, plant and material necessarily incurred by the Contractor in carrying out the protested decision or direction.
- 34.8 Costs referred to in GC34.7 shall be calculated in accordance with GC48 to GC50.

GC35 Changes in Soil Conditions and Neglect or Delay by Her Majesty

- 35.1 Subject to GC35.2 no payment, other than a payment that is expressly stipulated in the contract, shall be made by Her Majesty to the Contractor for any extra expense or any loss or damage incurred or sustained by the Contractor.
- 35.2 If the Contractor incurs or sustains any extra expense or any loss or damage that is directly attributable to
- 35.2.1 a substantial difference between the information relating to soil conditions at the work site that is contained in the Plans and Specifications or other documents supplied to the Contractor for his use in preparing his tender or a reasonable assumption of fact based thereon made by the Contractor, and the actual soil conditions encountered by the Contractor at the work site during the performance of the contract, or
- 35.2.2 any neglect or delay that occurs after the date of the contract on the part of Her Majesty in providing any information or in doing any act that the contract either expressly requires Her Majesty to do or that would ordinarily be done by an owner in accordance with the usage of the trade,

he shall, within ten days of the date the actual soil conditions described in GC35.2.1 were encountered or the neglect or delay described in GC35.2.2 occurred, give the Departmental Representative written notice of his intention to claim for that extra expense or that loss or damage.

- 35.3 When the Contractor has given a notice referred to in GC35.2, he shall give the Departmental Representative a written claim for extra expense or loss or damage within 30 days of the date that



a Final Certificate of Completion referred to in GC44.1 is issued and not afterwards.

- 35.4 A written claim referred to in GC35.3 shall contain a sufficient description of the facts and circumstances of the occurrence that is the subject of the claim to enable the Departmental Representative to determine whether or not the claim is justified and the Contractor shall supply such further and other information for that purpose as the Departmental Representative requires from time to time.
- 35.5 If the Departmental Representative determines that a claim referred to in GC35.3 is justified, Her Majesty shall make an extra payment to the Contractor in an amount that is calculated in accordance with GC47 to GC50.
- 35.6 If, in the opinion of the Departmental Representative, an occurrence described in GC35.2.1 results in a savings of expenditure by the Contractor in performing the contract, the amount set out in the Articles of Agreement shall, subject to GC35.7, be reduced by an amount that is equal to the saving.
- 35.7 The amount of the saving referred to in GC35.6 shall be determined in accordance with GC47 to GC49.
- 35.8 If the Contractor fails to give a notice referred to in GC35.2 and a claim referred to in GC35.3 within the times stipulated, an extra payment shall not be made to him in respect of the occurrence.

GC36 Extension of Time

- 36.1 Subject to GC36.2, the Departmental Representative may, on the application of the Contractor made before the day fixed by the Articles of Agreement for completion of the work or before any other date previously fixed under this General Condition, extend the time for its completion by fixing a new date if, in the opinion of the Departmental Representative, causes beyond the control of the Contractor have delayed its completion.
- 36.2 An application referred to in GC36.1 shall be accompanied by the written consent of the bonding company whose bond forms part of the contract security.

GC37 Assessments and Damages for Late Completion

- 37.1 For the purposes of this General Condition
- 37.1.1 the work shall be deemed to be completed on the date that an Interim Certificate of Completion referred to in GC44.2 is issued, and
- 37.1.2 "period of delay" means the number of days commencing on the day fixed by the Articles of Agreement for completion of the work and ending on the day immediately preceding the day on which the work is completed but does not include any day within a period of extension granted pursuant to GC36.1, and any other day on which, in the opinion of the Departmental Representative, completion of the work was delayed for reasons beyond the control of the Contractor.



- 37.2 If the Contractor does not complete the work by the day fixed for its completion by the Articles of Agreement but completes it thereafter, the Contractor shall pay Her Majesty an amount equal to the aggregate of
- 37.2.1 all salaries, wages and travelling expenses incurred by Her Majesty in respect of persons overseeing the performance of the work during the period of delay;
 - 37.2.2 the cost incurred by Her Majesty as a result of the inability to use the completed work for the period of delay; and
 - 37.2.3 all other expenses and damages incurred or sustained by Her Majesty during the period of delay as a result of the work not being completed by the day fixed for its completion.
- 37.3 The Minister may waive the right of Her Majesty to the whole or any part of the amount payable by the Contractor pursuant to GC37.2 I, in the opinion of the Minister, it is in the public interest to do so.

GC38 Taking the Work Out of the Contractor's Hands

- 38.1 The Minister may, at his sole discretion, by giving a notice in writing to the Contractor in accordance with GC11, take all or any part of the work out of the Contractor's hands, and may employ such means as he sees fit to have the work completed if the Contractor
- 38.1.1 Has not, within six days of the Minister or the Departmental Representative giving notice to the Contractor in writing in accordance with GC11, remedied any delay in the commencement or any default in the diligent performance of the work to the satisfaction of the Departmental Representative;
 - 38.1.2 has defaulted in the completion of any part of the work within the time fixed for its completion by the contract;
 - 38.1.3 has become insolvent;
 - 38.1.4 has committed an act of bankruptcy;
 - 38.1.5 has abandoned the work;
 - 38.1.6 has made an assignment of the contract without the consent required by GC3.1; or
 - 38.1.7 has otherwise failed to observe or perform any of the provisions of the contract.
- 38.2 If the whole or any part of the work is taken out of the Contractor's hands pursuant to GC38.1,
- 38.2.1 the Contractor's right to any further payment that is due or accruing due under the contract is, subject only to GC38.4, extinguished, and
 - 38.2.2 the Contractor is liable to pay Her Majesty, upon demand, an amount that is equal to the amount of all loss and damage incurred or sustained by Her Majesty in respect of the



Contractor's failure to complete the work.

- 38.3 If the whole or any part of the work that is taken out of the Contractor's hands pursuant to GC38.1 is completed by Her Majesty, the Departmental Representative shall determine the amount, if any, of the holdback or a progress claim that had accrued and was due prior to the date on which the work was taken out of the Contractor's hands and that is not required for the purposes of having the work performed or of compensating Her Majesty for any other loss or damage incurred or sustained by reason of the Contractor's default.
- 38.4 Her Majesty may pay the Contractor the amount determined not to be required pursuant to GC38.3.

GC39 Effect of Taking the Work Out of the Contractor's Hands

- 39.1 The taking of the work or any part thereof out of the Contractor's hands pursuant to GC38 does not operate so as to relieve or discharge him from any obligation under the contract or imposed upon him by law except the obligation to complete the performance of that part of the work that was taken out of his hands.
- 39.2 If the work or any part thereof is taken out of the Contractor's hands pursuant to GC38, all plant and material and the interest of the Contractor is all real property, licenses, powers and privileges acquired, used or provided by the Contractor under the contract shall continue to be the property of Her Majesty without compensation to the Contractor.
- 39.3 When the Departmental Representative certifies that any plant, material, or any interest of the Contractor referred to in GC39.2 is no longer required for the purposes of the work, or that it is not in the interest of Her Majesty to retain that plant, material or interest, it shall revert to the Contractor.

G40 Suspension of Work by Minister

- 40.1 The Minister may, when in his opinion it is in the public interest to do so, require the Contractor to suspend performance of the work either for a specified or an unspecified period by giving a notice of suspension in writing to the Contractor in accordance with GC11.
- 40.2 When a notice referred to in GC40.1 is received by the Contractor in accordance with GC11, he shall suspend all operations in respect of the work except those that, in the opinion of the Departmental Representative, are necessary for the care and preservation of the work, plant and material.
- 40.3 The Contractor shall not, during a period of suspension, remove any part of the work, plant or material from its site without the consent of the Departmental Representative.
- 40.4 If a period of suspension is 30 days or less, the Contractor shall, upon the expiration of that period, resume the performance of the work and he is entitled to be paid the extra cost, calculated in accordance with GC48 to GC50, of any labour, plant and material necessarily incurred by him as a result of the suspension.



- 40.5 If, upon the expiration of a period of suspension of more than 30 days, the Minister and the Contractor agree that the performance of the work will be continued by the Contractor, the Contractor shall resume performance of the work subject to any terms and conditions agreed upon by the Minister and the Contractor.
- 40.6 If, upon the expiration of a period of suspension of more than 30 days, the Minister and the Contractor do not agree that performance of the work will be continued by the Contractor or upon the terms and conditions under which the Contractor will continue the work, the notice of suspension shall be deemed to be a notice of termination pursuant to GC41.

GC41 Termination of Contract

- 41.1 The Minister may terminate the contract at any time by giving a notice of termination in writing to the Contractor in accordance with GC11.
- 41.2 When a notice referred to in GC41.1 is received by the Contractor in accordance with GC11, he shall, subject to any conditions stipulated in the notice, forthwith cease all operations in performance of the contract.
- 41.3 If the contract is terminated pursuant to GC41.1, Her Majesty shall pay the Contractor, subject to GC41.4, an amount equal to
- 41.3.1 the cost to the contractor of all labour, plant and material supplied by him under the contract up to the date of termination in respect of a contract or part thereof for which a Unit Price Arrangement is stipulated in the contract, or
 - 41.3.2 the lesser of
 - 41.3.2.1 an amount, calculated in accordance with the Terms and Payment, that would have been payable to the Contractor had he completed the work, and
 - 41.3.2.2 an amount that is determined to be due to the Contractor pursuant to GC49 in respect of a contract or part thereof for which a Fixed Price Arrangement is stipulated in the contract
- less the aggregate of all amounts that were paid to the Contractor by Her Majesty and all amounts that are due to Her Majesty from the Contractor pursuant to the contract.
- 41.4 If Her Majesty and the Contractor are unable to agree about an amount referred to in GC41.3 that amount shall be determined by the method referred to in GC50.

GC42 Claims Against and Obligations of the Contractor or Subcontractor

- 42.1 Her Majesty may, in order to discharge lawful obligations of and satisfy claims against the Contractor or a subcontractor arising out of the performance of the contract, pay any amount that is due and payable to the Contractor pursuant to the contract directly to the obligees of and the claimants against the Contractor or the subcontractor but such amount if any, as is paid by Her Majesty, shall not exceed that amount which the Contractor would have been obliged to pay to



such claimant had the provisions of the Provincial or Territorial lien legislation, or, in the Province of Quebec, the law relating to privileges, been applicable to the work. Any such claimant need not comply with the provisions of such legislation setting out the steps by way of notice, registration or otherwise as might have been necessary to preserve or perfect any claim for lien or privilege which claimant might have had;

- 42.2 Her Majesty will not make any payment as described in GC42.1 unless and until that claimant shall have delivered to Her Majesty:
- 42.2.1 a binding and enforceable Judgment or Order of a court of competent jurisdiction setting forth such amount as would have been payable by the Contractor to the claimant pursuant to the provisions of the applicable Provincial or Territorial lien legislation, or, in the Province of Quebec, the law relating to privileges, had such legislation been applicable to the work; or
 - 42.2.2 a final and enforceable award of an arbitrator setting forth such amount as would have been payable by the Contractor to the claimant pursuant to the provisions of the applicable Provincial or Territorial lien legislation, or, in the Province of Quebec, the law relating to privileges, had such legislation been applicable to the work; or
 - 42.2.3 the consent of the Contractor authorizing a payment.
- For the purposes of determining the entitlement of a claimant pursuant to GC42.2.1 and GC42.2.2, the notice required by GC42.8 shall be deemed to replace the registration or provision of notice after the performance of work as required by any applicable legislation and no claim shall be deemed to have expired, become void or unenforceable by reason of the claimant not commencing any action within the time prescribed by any applicable legislation.
- 42.3 The Contractor shall, by the execution of his contract, be deemed to have consented to submit to binding arbitration at the request of any claimant those questions that need be answered to establish the entitlement of the claimant to payment pursuant to the provisions of GC42.1 and such arbitration shall have as parties to it any subcontractor to whom the claimant supplied material, performed work or rented equipment should such subcontractor wish to be adjoined and the Crown shall not be a party to such arbitration and, subject to any agreement between the Contractor and the claimant to the contrary, the arbitration shall be conducted in accordance with the Provincial or Territorial legislation governing arbitration applicable in the Province or Territory in which the work is located.
- 42.4 A payment made pursuant to GC42.1 is, to the extent of the payment, a discharge of Her Majesty's liability to the Contractor under the contract and may be deducted from any amount payable to the Contractor under the contract.
- 42.5 To the extent that the circumstances of the work being performed for Her Majesty permit, the Contractor shall comply with all laws in force in the Province or Territory where the work is being performed relating to payment period, mandatory holdbacks, and creation and enforcement of mechanics' liens, builders' liens or similar legislation or in the Province of Quebec, the law relating to privileges.
- 42.6 The Contractor shall discharge all his lawful obligations and shall satisfy all lawful claims against him arising out of the performance of the work at least as often as the contract requires Her



Majesty to pay the Contractor.

- 42.7 The Contractor shall, whenever requested to do so by the Departmental Representative, make a statutory declaration deposing to the existence and condition of any obligations and claims referred to in GC42.6.
- 42.8 GC42.1 shall only apply to claims and obligations
- 42.8.1 the notification of which has been received by the Departmental Representative in writing before payment is made to the Contractor pursuant to TP4.10 and within 120 days of the date on which the claimant
- 42.8.1.1 should have been paid in full under the claimant's contract with the Contractor or subcontractor where the claim is for money that was lawfully required to be held back from the claimant; or
- 42.8.1.2 performed the last of the services, work or labour, or furnished the last of the material pursuant to the claimant's contract with the Contractor or subcontractor where the claim is not for money referred to in GC42.8.1.1, and
- 42.8.2 the proceedings to determine the right to payment of which, pursuant to GC42.2. shall have commenced within one year from the date that the notice referred to in GC42.8.1 was received by the Departmental Representative, and
- the notification required by GC42.8.1 shall set forth the amount claimed to be owing and the person who by contract is primarily liable.
- 42.9 Her Majesty may, upon receipt of a notice of claim under GC42.8.1, withhold from any amount that is due and payable to the Contractor pursuant to the contract the full amount of the claim or any portion thereof.
- 42.10 The Departmental Representative shall notify the Contractor in writing of receipt of any claim referred to in GC42.8.1 and of the intention of Her Majesty to withhold funds pursuant to GC42.9 and the Contractor may, at any time thereafter and until payment is made to the claimant, be entitled to post, with Her Majesty, security in a form acceptable to Her Majesty in an amount equal to the value of the claim, the notice of which is received by the Departmental Representative and upon receipt of such security Her Majesty shall release to the Contractor any funds which would be otherwise payable to the Contractor, that were withheld pursuant to the provisions of GC42.9 in respect of the claim of any claimant for whom the security stands.

GC43 Security Deposit – Forfeiture or Return

- 43.1 If
- 43.1.1 the work is taken out of the Contractor's hands pursuant to GC38,
- 43.1.2 the contract is terminated pursuant to GC41, or
- 43.1.3 the Contractor is in breach of or in default under the contract,



Her Majesty may convert the security deposit, if any, to Her own use.

- 43.2 If Her Majesty converts the contract security pursuant to GC43.1, the amount realized shall be deemed to be an amount due from Her Majesty to the Contractor under the contract.
- 43.3 Any balance of an amount referred to in GC43.2 that remains after payment of all losses, damage and claims of Her Majesty and others shall be paid by Her Majesty to the Contractor if, in the opinion of the Departmental Representative, it is not required for the purposes of the contract.

GC44 Departmental Representative's Certificates

44.1 On the date that

44.1.1 the work has been completed, and

44.1.2 the Contractor has complied with the contract and all orders and directions made pursuant thereto,

both to the satisfaction of the Departmental Representative, the Departmental Representative shall issue a Final Certificate of Completion to the Contractor.

44.2 If the Departmental Representative is satisfied that the work is substantially complete he shall, at any time before he issues a certificate referred to in GC44.1, issue an Interim Certificate of Completion to the Contractor, and

44.2.1 for the purposes of GC44.2 the work will be considered to be substantially complete,

44.2.1.1 when the work under the contract or a substantial part thereof is, in the opinion of the Departmental Representative, ready for use by Her Majesty or is being used for the purpose intended; and

44.2.1.2 when the work remaining to be done under the contract is, in the opinion of the Departmental Representative, capable of completion or correction at accost of not more than

44.2.1.2.1 -3% of the first \$500,000, and

44.2.1.2.2 -2% of the next \$500,000, and

44.2.1.2.3 -1% of the balance

of the value of the contract at the time this cost is calculated.

44.3 For the sole purpose of GC44.2.1.2, where the work or a substantial part thereof is ready for use or is being used for the purposes intended and the remainder of the work or a part thereof cannot be completed by the time specified in A2.1, or as amended pursuant to GC36, for reasons beyond the control of the Contractor or where the Departmental Representative and the Contractor agree not to complete a part of the work within the specified time, the cost of that part of the work



which was either beyond the control of the Contractor to complete or the Departmental Representative and the Contractor have agreed not to complete by the time specified shall be deducted from the value of the contract referred to GC44.2.1.2 and the said cost shall not form part of the cost of the work remaining to be done in determining substantial completion.

44.4 An Interim Certificate of Completion referred to in GC44.2 shall describe the parts of the work not completed to the satisfaction of the Departmental Representative and all things that must be done by the Contractor

44.4.1 before a Final Certificate of Completion referred to in GC44.1 will be issued, and

44.4.2 before the 12-month period referred to in GC32.1.2 shall commence for the said parts and all the said things.

44.5 The Departmental Representative may, in addition to the parts of the work described in an Interim Certificate of Completion referred to in GC44.2, require the Contractor to rectify any other parts of the work not completed to his satisfaction and to do any other things that are necessary for the satisfactory completion of the work.

44.6 If the contract or a part thereof is subject to a Unit Price Arrangement, the Departmental Representative shall measure and record the quantities of labour, plant and material, performed, used and supplied by the Contractor in performing the work and shall, at the request of the Contractor, inform him of those measurements.

44.7 The Contractor shall assist and co-operate with the Departmental Representative in the performance of his duties referred to in GC44.6 and shall be entitled to inspect any record made by the Departmental Representative pursuant to GC44.6.

44.8 After the Departmental Representative has issued a Final Certificate of Completion referred to in GC44.1, he shall, if GC44.6 applies, issue a Final Certificate of Measurement.

44.9 A Final Certificate of Measurement referred to in GC44.8 shall

44.9.1 contain the aggregate of all measurements of quantities referred to in GC44.6, and

44.9.2 be binding upon and conclusive between Her Majesty and the Contractor as to the quantities referred to therein.

GC45 Return of Security Deposit

45.1 After an Interim Certificate of Completion referred to in GC44.2 has been issued, Her Majesty shall, if the Contractor is not in breach of or in default under the contract, return to the Contractor all or any part of the security deposit that, in the opinion of the Departmental Representative, is not required for the purposes of the contract.

45.2 After a Final Certificate of Completion referred to in GC44.1 has been issued, Her Majesty shall return to the Contractor the remainder of any security deposit unless the contract stipulates otherwise.



- 45.3 If the security deposit was paid into the Consolidated Revenue Fund of Canada, Her Majesty shall pay interest thereon to the Contractor at a rate established from time to time pursuant to section 21(2) of the Financial Administration Act.

GC46 Clarification of Terms in GC47 to GC50

- 46.1 For the purposes of GC47 to GC50,
- 46.1.1 "Unit Price Table" means the table set out in the Articles of Agreement, and
- 46.1.2 "plant" does not include tools customarily provided by a tradesman in practicing his trade.

GC47 Additions or Amendments to Unit Price Table

- 47.1 Where a Unit Price Arrangement applies to the contract or a part thereof the Departmental Representative and the Contractor may, by an agreement in writing,
- 47.1.1 add classes of labour or material, and units of measurement, prices per unit and estimated quantities to the Unit Price Table if any labour, plant or material that is to be included in the Final Certificate of Measurement referred to in GC44.8 is not included in any class of labour, plant or material set out in the Unit Price Table; or
- 47.1.2 subject to GC47.2 and GC47.3, amend a price set out in the Unit Price Table for any class of labour, plant or material included therein if the Final Certificate of Measurement referred to in GC44.8 shows or is expected to show that the total quantity of that class of labour, plant or material actually performed, used or supplied by the Contractor in performing the work is
- 47.1.2.1 less than 85% of that estimated total quantity, or
- 47.1.2.2 in excess of 115% of that estimated total quantity.
- 47.2 In no event shall the total cost of an item set out in the Unit Price Table that has been amended pursuant to GC47.1.2.1 exceed the amount that would have been payable to the Contractor had the estimated total quantity actually been performed, used or supplied.
- 47.3 An amendment that is made necessary by GC47.1.2.2 shall apply only to the quantities that are in excess of 115%.
- 47.4 If the Departmental Representative and the Contractor do not agree as contemplated in GC47.1, the Departmental Representative shall determine the class and the unit of measurement of the labour, plant or material and, subject to GC47.2 and GC47.3, the price per unit therefore shall be determined in accordance with GC50.

GC48 Determination of Cost – Unit Price Table



- 48.1 Whenever, for the purposes of the contract, it is necessary to determine the cost of labour, plant or material, it shall be determined by multiplying the quantity of that labour, plant or material expressed in the unit set out in column 3 of the Unit Price Table by the price of that unit set out in column 5 of the Unit Price Table.

GC49 Determination of Cost – Negotiation

- 49.1 If the method described in GC48 cannot be used because the labour, plant or material is of a kind or class that is not set out in the Unit Price Table, the cost of that labour, plant or material for the purposes of the contract shall be the amount agreed upon from time to time by the Contractor and the Departmental Representative.
- 49.2 For the purposes of GC49.1, the Contractor shall submit to the Departmental Representative any necessary cost information requested by the Departmental Representative in respect of the labour, plant and material referred to in GC49.1

GC50 Determination of Cost – Failing Negotiation

- 50.1 If the methods described in GC47, GC48 or GC49 fail for any reason to achieve a determination of the cost of labour, plant and material for the purposes referred to therein, that cost shall be equal to the aggregate of
- 50.1.1 all reasonable and proper amounts actually expended or legally payable by the Contractor in respect of the labour, plant and material that falls within one of the classes of expenditure described in GC50.2 that are directly attributable to the performance of the contract,
 - 50.1.2 an allowance for profit and all other expenditures or costs, including overhead, general administration cost, financing and interest charges, and every other cost, charge and expenses, but not including those referred to in GC50.1.1 or GC50.1.3 or a class referred to in GC50.2, in an amount that is equal to 10% of the sum of the expenses referred to in GC50.1.1, and
 - 50.1.3 interest on the cost determined under GC50.1.1 and GC50.1.2, which interest shall be calculated in accordance with TP9,

provide that the total cost of an item set out in the Unit Price Table that is subject to the provisions of GC47.1.2.1 does not exceed the amount that would have been payable to the Contractor had the estimated total quantity of the said item actually be performed, used or supplied.

- 50.2 For purposes of GC50.1.1 the classes of expenditure that may be taken into account in determining the cost of labour, plant and material are,
- 50.2.1 payments to subcontractors;
 - 50.2.2 wages, salaries and travelling expenses of employees of the Contractor while they are actually and properly engaged on the work, other than wages, salaries, bonuses, living



and travelling expenses of personnel of the Contractor generally employed at the head office or at a general office of the Contractor unless they are engaged at the work site with the approval of the Departmental Representative,

- 50.2.3 assessments payable under any statutory authority relating to workmen's compensation, unemployment insurance, pension plan or holidays with pay;
- 50.2.4 rent that is paid for plant or an amount equivalent of the said rent if the plant is owned by the Contractor that is necessary for and used in the performance of the work, if the rent of the equivalent amount is reasonable and use of that plant has been approved by the Departmental Representative;
- 50.2.5 payments for maintaining and operating plant necessary for and used in the performance of the work, and payments for effecting such repairs thereto as, in the opinion of the Departmental Representative, are necessary to the proper performance of the contract other than payments for any repairs to the plant arising out of defects existing before its allocation to the work;
- 50.2.6 payments for material that is necessary for and incorporated in the work, or that is necessary for and consumed in the performance of the contract;
- 50.2.7 payments for preparation, delivery, handling, erection, installation, inspection protection and removal of the plant and material necessary for and used in the performance of the contract; and
- 50.2.8 any other payments made by the Contractor with the approval of the Departmental Representative that are necessary for the performance of the contract.

GC51 Records to be kept by Contractor

51.1 The Contractor shall

- 51.1.1 maintain full records of his estimated and actual cost of the work together with all tender calls, quotations, contracts, correspondence, invoices, receipts and vouchers relating thereto.
- 51.1.2 make all records and material referred to in GC5.1.1 available to audit and inspection by the Minister and the Deputy Receiver General for Canada or by persons acting on behalf of either of both of them, when requested;
- 51.1.3 allow any of the person referred to in GC51.1.2 to make copies of and to take extracts from any of the records and material referred to in GC51.1.1; and
- 51.1.4 furnish any person referred to in GC51.1.2 with any information he may require from time to time in connection with such records and material.

- 51.2 The records maintained by the Contractor pursuant to GC51.1.1 shall be kept intact by the Contractor until the expiration of two years after the date that a Final Certificate of Completion referred to in GC44.1 was issued or until the expiration of such other period of time as the



Minister may direct.

- 51.3 The Contractor shall cause all subcontractors and all other persons directly or indirectly controlled by or affiliated with the Contractor and all persons directly or indirectly having control of the Contractor to comply with GC51.1 and GC51.2 as if they were the Contractor.

GC52 Conflict of Interest

- 52.1 It is a term of this contract that no former public office holder who is not in compliance with the Conflict of Interest and Post-Employment Code for Public Office Holders shall derive a direct benefit from this contract.

GC53 Contractor Status

- 53.1 The Contractor shall be engaged under the contract as an independent contractor.
- 53.2 The Contractor and any employee of the said Contractor is not engaged by the contract as an employee, servant or agent of Her Majesty.
- 53.3 For the purposes of GC53.1 and GC53.2 the Contractor shall be solely responsible for any and all payments and deductions required to be made by law including those required for Canada or Quebec Pension Plans, Unemployment Insurance, Worker's Compensation or Income Tax.



GENERAL CONDITONS

- IC 1 Proof of Insurance**
- IC 2 Risk Management**
- IC 3 Payment of Deductible**
- IC 4 Insurance Coverage**

GENERAL INSUANCE COVERAGES

- GCI 1 Insured**
- GIC 2 Period of Insurance**
- GIC 3 Proof of Insurance**
- GIC 4 Notification**

COMMERCIAL GENERAL LIABILITY

- CGL 1 Scope of Policy**
- CGL 2 Coverages/Provisions**
- CGL 3 Additional Exposures**
- CGL 4 Insurance Proceeds**
- CGL 5 Deductible**

BUILDER'S RISK – INSTALLATION FLOATER – ALL RISKS

- BR 1 Scope of Policy**
- BR 2 Property Insured**
- BR 3 Insurance Proceeds**
- BR 4 Amount of Insurance**
- BR 5 Deductible**
- BR 6 Subrogation**
- BR 7 Exclusion Qualifications**

INSURER'S CERTIFICATE OF INSURANCE



General Conditions

IC 1 Proof of Insurance (02/12/03)

Within thirty (30) days after acceptance of the Contractor's tender, the Contractor shall, unless otherwise directed in writing by the Contracting Officer, deposit with the Contracting Officer an Insurer's Certificate of Insurance in the form displayed in this document and, if requested by the Contracting Officer, the originals or certified true copies of all contracts of insurance maintained by the Contractor pursuant to the Insurance Coverage Requirements shown hereunder.

IC 2 Risk Management (01/10/94)

The provisions of the Insurance Coverage Requirements contained hereunder are not intended to cover all of the Contractor's obligations under GC8 of the General Conditions "C" of the contract. Any additional risk management measures or additional insurance coverages the Contractor may deem necessary to fulfill its obligations under GC8 shall be at its own discretion and expense.

IC 3 Payment of Deductible (01/10/94)

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

IC 4 Insurance Coverage (02/12/03)

The Contractor has represented that it has in place and effect the appropriate and usual liability insurance coverage as required by these Insurance Conditions and the Contractor has warranted that it shall obtain, in a timely manner and prior to commencement of the Work, the appropriate and usual property insurance coverage as required by these Insurance Conditions and, further, that it shall maintain all required insurance policies in place and effect as required by these Insurance Conditions.



INSURANCE COVERAGE REQUIREMENTS

PART I GENERAL INSURANCE COVERAGES (GIC)

GCI 1 Insured (02/12/03)

Each insurance policy shall insure the Contractor, and shall include, as an Additional Named Insured, Her Majesty the Queen in right of Canada, represented by the National Research Council Canada.

GIC 2 Period of Insurance (02/12/03)

Unless otherwise directed in writing by the Contracting Officer or otherwise stipulated elsewhere in these Insurance Conditions, the policies required hereunder shall be in force and be maintained from the date of the contract award until the day of issue of the Departmental Representative's Final Certificate of Completion.

GIC 3 Proof of Insurance (01/10/94)

Within twenty five (25) days after acceptance of the Contractor's tender, the Insurer shall, unless otherwise directed by the Contractor, deposit with the Contractor an Insurer's Certificate of Insurance in the form displayed in the document and, if requested, the originals or certified true copies of all contracts of insurance maintained by the Contractor pursuant to the requirements of these Insurance Coverages.

GIC 4 Notification (01/10/94)

Each Insurance policy shall contain a provision that (30) days prior written notice shall be given by the Insurer to Her Majesty in the event of any material change in or cancellation of coverage. Any such notice received by the Contractor shall be transmitted forthwith to Her Majesty.

PART II COMMERCIAL GENERAL LIABILITY

CGL 1 Scope of Policy (01/10/94)

The policy shall be written on a form similar to that known and referred to in the insurance industry as IBC 2100 – Commercial General Liability policy (Occurrence form) and shall provide for limit of liability of not less than \$2,000,000 inclusive for Bodily Injury and Property Damage for any one occurrence or series of occurrences arising out of one cause. Legal or defence cost incurred in respect of a claim or claims shall not operate to decrease the limit of liability.

CGL 2 Coverages/Provisions (01/10/94)



The policy shall include but not necessarily be limited to the following coverages/provisions.

- 2.1 Liability arising out of or resulting from the ownership, existence, maintenance or use of premises by the Contractor and operations necessary or incidental to the performance of this contract.
- 2.2 "Broad Form" Property Damage including the loss of use of property.
- 2.3 Removal or weakening of support of any building or land whether such support be natural or otherwise.
- 2.4 Elevator liability (including escalators, hoists and similar devices).
- 2.5 Contractor's Protective Liability
- 2.6 Contractual and Assumed Liabilities un this contact.
- 2.7 Completed Operations Liability – The insurance, including all aspects of this Part II of these Insurance Conditions shall continue for a period of at least one (1) year beyond the date of the Departmental Representative's Final Certificate of Completion for the Completed Operations.
- 2.8 Cross Liability – The Clause shall be written as follows:

Cross Liability – The insurance as is afforded by this policy shall apply in respect to any claim or action brought against any one Insured by any other Insured. The coverage shall apply in the same manner and to the same extent as though a separate policy had been issued to each Insured. The inclusion herein of more than one Insured shall not increase the limit of the Insurer's liability.

- 2.9 Severability of Interests – The Clause shall be written as follows:

Severability of Interests – This policy, subject to the limits of liability stated herein, shall apply separately to each Insured in the same manner and to the same extent as if a separate policy had been issued to each. The inclusion herein of more than one insured shall not increase the limit of the Insurer's liability.

CGL 3 Additional Exposures (02/12/03)

The policy shall either include or be endorsed to include the following exposures of hazards if the Work is subject thereto:

- 3.1 Blasting
- 3.2 Pile driving and calsson work
- 3.3 Underpinning
- 3.4 Risks associated with the activities of the Contractor on an active airport



- 3.5 Radioactive contamination resulting from the use of commercial isotopes
- 3.6 Damage to the portion of an existing building beyond that directly associated with an addition, renovation or installation contract.
- 3.7 Marine risks associated with the contraction of piers, wharves and docks.

**CGL 4 Insurance Proceeds
(01/10/94)**

Insurance Proceeds from this policy are usually payable directly to a Claimant/Third Party.

**CGL 5 Deductible
(02/12/03)**

This policy shall be issued with a deductible amount of not more than \$10,000 per occurrence applying to Property Damage claims only.

**PART III
BUILDER'S RISK – INSTALLATION FLOATER – ALL RISKS**

**BR 1 Scope of Policy
(01/10/94)**

The policy shall be written on an "All Risks" basis granting coverages similar to those provided by the forms known and referred to in the insurance industry as "Builder's Risk Comprehensive Form" or "Installation Floater – All Risks".

**BR 2 Property Insured
(01/10/94)**

The property insured shall include:

- 2.1 The Work and all property, equipment and materials intended to become part of the finished Work at the site of the project while awaiting, during and after installation, erection or construction including testing.
- 2.2 Expenses incurred in the removal from the construction site of debris of the property insured, including demolition of damaged property, de-icing and dewatering, occasioned by loss, destruction or damage to such property and in respect of which insurance is provided by this policy.

**BR 3 Insurance Proceeds
(01/10/94)**

- 3.1 Insurance proceeds from this policy are payable in accordance with GC28 of the General Conditions "C" of the contract.
- 3.2 This policy shall provide that the proceeds thereof are payable to Her Majesty or as the Minister may direct.



- 3.3 The Contractor shall do such things and execute such documents as are necessary to effect payment of the proceeds.

BR 4 Amount of Insurance
(01/10/94)

The amount of insurance shall not be less than the sum of the contract value plus the declared value (if any) set forth in the contract documents of all material and equipment supplied by Her Majesty at the site of the project to be incorporated into and form part of the finished Work.

BR 5 Deductible
(02/12/03)

The Policy shall be issued with a deductible amount of not more than \$10,000.

BR 6 Subrogation
(01/10/94)

The following Clause shall be included in the policy:

"All rights of subrogation or transfer of rights are hereby waived against any corporation, firm, individual or other interest, with respect to which, insurance is provided by this policy".

BR 7 Exclusion Qualifications
(01/10/94)

The policy may be subject to the standard exclusions but the following qualifications shall apply:

- 7.1 Faulty materials, workmanship or design may be excluded only to the extent of the cost of making good thereof and shall not apply to loss or damage resulting therefrom.
- 7.2 Loss or damage caused by contamination by radioactive material may be excluded except for loss or damage resulting from commercial isotopes used for industrial measurements, inspection, quality control radiographic or photographic use.
- 7.3 Use and occupancy of the project or any part of section thereof shall be permitted where such use and occupancy is for the purpose for which the project is intended upon completion.



INSURER'S CERTIFICATE OF INSURANCE

(TO BE COMPLETED BY INSURER (NOT BOKER) AND DELIVERD TO NATIONAL RESEARCH COUNCIL CANADA WITH 30 DAYS FOLLOWING ACCEPTANCE OF TENDER)

CONTRACT

DESCRIPTION OF WORK	CONTRACT NUMBER	AWARD DATE
LOCATION		

INSURER

NAME
ADDRESS

BROKER

NAME
ADDRESS

INSURED

NAME OF CONTRACTOR
ADDRESS

ADDITIONAL INSURED

HER MAJESTY THE QUEEN IN RIGHT OF CANADA AS REPRESENTED BY THE NATIONAL RESEARCH COUNCIL CANADA

THIS DOCUENT CERTIFIES THAT THE FOLLOWING POLICES OF INSURANCE ARE AT PRESENT IN FORCE COVERING ALL OPERATIONS OF THE INSURE IN CONNECTION WITH THE CONTRACT MADE BETWEEN THE NAMED INSURED AND THE NATIONAL RESEARCH COUNCIL CANADA AND IN ACCORDANCE WITH THE INSURANCE CONDITIONS "E"

POLICY					
TYPE	NUMBER	INCEPTION DATE	EXPIRY DATE	LIMITS OF LIABILITY	DEDUCTIBLE
COMMERCIAL GENERAL LIABILITY					
BUILDERS RISK "AL RISKS"					
INSTALLATION FLOATER "ALL RISKS"					

THE INSURER AGREES TO NOTIFY THE NATIONAL RESEARCH COUNCIL CANADA IN WRITING 30 DAYS PRIOR TO ANY MATERIAL CHANGE IN OR CANCELLATION OF ANY POLICY OR COVERAGE SPECIFICALLY RELATED TO THE CONTRACT

NAME OF INSURER'S OFFICER OR AUTHORIZED EMPLOYEE	SIGNATURE	DATE:
		TELEPHONE NUMBER:

ISSUANCE OF THIS CERTIFIATE SHALL NOT LIMIT OR RESTRICT THE RIGHT OF THE NATIONAL RESEARCH COUNCIL CANADA TO REQUEST AT ANY TIME DUPLICATE COPIES OF SAID INSURANCE POLICIES



CS1 Obligation to provide Contract Security

- 1.1 The Contractor shall, at the Contractor's own expense, provide one or more of the forms of contract security prescribed in CS2.
- 1.2 The Contractor shall deliver to the Departmental Representative the contract security referred to in CS1.1 within 14 days after the date that the Contractor receives notice that the Contractor's tender or offer was accepted by Her Majesty.

CS2 Prescribed Types and Amounts of Contract Security

- 2.1 The Contractor shall deliver to the Departmental Representative pursuant to CS1
 - 2.1.1 a performance bond and a labour and material payment bond each in an amount that is equal to not less than 50% of the contract amount referred to in the Articles of Agreement, or
 - 2.1.2 a labour and material payment bond in an amount that is equal to not less than 50% of the contract amount referred to in the Articles of Agreement, and a security deposit in an amount that is equal to
 - 2.1.2.1 not less than 10% of the contract amount referred to in the Articles of Agreement where that amount does not exceed \$250,000, or
 - 2.1.2.2 \$25,000 plus 5% of the part of the contract amount referred to in the Articles of Agreement that exceeds \$250,000, or
 - 2.1.3 a security deposit in an amount prescribed by CS2.12 plus an additional amount that is equal to 10% of the contract amount referred to in the Articles of Agreement.
- 2.2 A performance bond and a labour and material payment bond referred to in CS2.1 shall be in a form and be issued by a bonding or surety company that is approved by Her Majesty.
- 2.3 The amount of a security deposit referred to in CS2.1.2 shall not exceed \$250,000 regardless of the contract amount referred to in the Articles of Agreement.
- 2.4 A security deposit referred to in CS2.1.2 and CS2.1.3 shall be in the form of
 - 2.4.1 a bill of exchange made payable to the Receiver General of Canada and certified by an approved financial institution or drawn by an approved financial institution on itself, or
 - 2.4.2 bonds of or unconditionally guaranteed as to principal and interest by the Government of Canada.
- 2.5 For the purposes of CS2.4
 - 2.5.1 a bill of exchange is an unconditional order in writing signed by the Contractor and addressed to an approved financial institution, requiring the said institution to pay, on demand, at a fixed or determinable future time a sum certain of money to, or to the order



of, the Receiver General for Canada, and

- 2.5.2 If a bill of exchange is certified by a financial institution other than a chartered bank then it must be accompanied by a letter or stamped certification confirming that the financial institution is in at least one of the categories referred to in CS2.5.3
- 2.5.3 an approved financial institution is
 - 2.5.3.1 any corporation or institution that is a member of the Canadian Payments Association,
 - 2.5.3.2 a corporation that accepts deposits that are insured by the Canada Deposit Insurance Corporation or the Régie de l'assurance-dépôts du Québec to the maximum permitted by law,
 - 2.5.3.3 a credit union as defined in paragraph 137(6)(b) of the *Income Tax Act*,
 - 2.5.3.4 a corporation that accepts deposits from the public, if repayment of the deposit is guaranteed by Her Majesty in right of a province, or
 - 2.5.3.5 The Canada Post Corporation.
- 2.5.4 the bonds referred to in CS2.4.2 shall be
 - 2.5.4.1 made payable to bearer, or
 - 2.5.4.2 accompanied by a duly executed instrument of transfer of the bonds to the Receiver General for Canada in the form prescribed by the Domestic Bonds of Canada Regulations, or
 - 2.5.4.3 registered, as to principal or as to principal and interest in the name of the Receiver General for Canada pursuant to the Domestic Bonds of Canada Regulations, and
 - 2.5.4.4 provided on the basis of their market value current at the date of the contract.



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

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

PART A - CONTRACT INFORMATION / PARTIE A - INFORMATION CONTRACTUELLE

1. Originating Government Department or Organization / Ministère ou organisme gouvernemental d'origine	National Research Council	2. Branch or Directorate / Direction générale ou Direction	ASPM/SAGI
3. a) Subcontract Number / Numéro du contrat de sous-traitance	3. b) Name and Address of Subcontractor / Nom et adresse du sous-traitant		

4. Brief Description of Work / Brève description du travail
M36, Modernization of the Passenger Elevator , Installation No. 21149

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

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

Canada <input checked="" type="checkbox"/>	NATO / OTAN <input type="checkbox"/>	Foreign / Étranger <input type="checkbox"/>
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7. b) Release restrictions / Restrictions relatives à la diffusion

No release restrictions Aucune restriction relative à la diffusion	<input checked="" type="checkbox"/>	All NATO countries Tous les pays de l'OTAN	<input type="checkbox"/>	No release restrictions Aucune restriction relative à la diffusion	<input type="checkbox"/>
Not releasable À ne pas diffuser	<input type="checkbox"/>				
Restricted to: / Limité à: Specify country(ies): / Préciser le(s) pays:	<input type="checkbox"/>	Restricted to: / Limité à: Specify country(ies): / Préciser le(s) pays:	<input type="checkbox"/>	Restricted to: / Limité à: Specify country(ies): / Préciser le(s) pays:	<input type="checkbox"/>

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

PROTECTED A PROTÉGÉ A	<input type="checkbox"/>	NATO UNCLASSIFIED NATO NON CLASSIFIÉ	<input type="checkbox"/>	PROTECTED A PROTÉGÉ A	<input type="checkbox"/>
PROTECTED B PROTÉGÉ B	<input type="checkbox"/>	NATO RESTRICTED NATO DIFFUSION RESTREINTE	<input type="checkbox"/>	PROTECTED B PROTÉGÉ B	<input type="checkbox"/>
PROTECTED C PROTÉGÉ C	<input type="checkbox"/>	NATO CONFIDENTIAL NATO CONFIDENTIEL	<input type="checkbox"/>	PROTECTED C PROTÉGÉ C	<input type="checkbox"/>
CONFIDENTIAL CONFIDENTIEL	<input type="checkbox"/>	NATO SECRET NATO SECRET	<input type="checkbox"/>	CONFIDENTIAL CONFIDENTIEL	<input type="checkbox"/>
SECRET SECRET	<input type="checkbox"/>	COSMIC TOP SECRET COSMIC TRÈS SECRET	<input type="checkbox"/>	SECRET SECRET	<input type="checkbox"/>
TOP SECRET TRÈS SECRET	<input type="checkbox"/>			TOP SECRET TRÈS SECRET	<input type="checkbox"/>
TOP SECRET (SIGINT) TRÈS SECRET (SIGINT)	<input type="checkbox"/>			TOP SECRET (SIGINT) TRÈS SECRET (SIGINT)	<input type="checkbox"/>



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PART A (continued) / PARTIE A (suite)

8. Will the supplier require access to PROTECTED and/or CLASSIFIED COMSEC information or assets?
 Le fournisseur aura-t-il accès à des renseignements ou à des biens COMSEC désignés PROTÉGÉS et/ou CLASSIFIÉS? No / Non Yes / Oui

If Yes, indicate the level of sensitivity:
 Dans l'affirmative, indiquer le niveau de sensibilité :

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

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

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

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

<input checked="" type="checkbox"/> RELIABILITY STATUS COTE DE FIABILITÉ	<input type="checkbox"/> CONFIDENTIAL CONFIDENTIEL	<input type="checkbox"/> SECRET SECRET	<input type="checkbox"/> TOP SECRET TRÈS SECRET
<input type="checkbox"/> TOP SECRET - SIGINT TRÈS SECRET - SIGINT	<input type="checkbox"/> NATO CONFIDENTIAL NATO CONFIDENTIEL	<input type="checkbox"/> NATO SECRET NATO SECRET	<input type="checkbox"/> COSMIC TOP SECRET COSMIC TRÈS SECRET
<input type="checkbox"/> SITE ACCESS ACCÈS AUX EMPLACEMENTS			

Special comments:
 Commentaires spéciaux : _____

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

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

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

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

INFORMATION / ASSETS / RENSEIGNEMENTS / BIENS

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

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

PRODUCTION

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

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

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

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



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

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

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

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

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

SUMMARY CHART / TABLEAU RÉCAPITULATIF

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

12. a) Is the description of the work contained within this SRCL PROTECTED and/or CLASSIFIED? / La description du travail visé par la présente LVERS est-elle de nature PROTÉGÉE et/ou CLASSIFIÉE? No / Non Yes / Oui

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

12. b) Will the documentation attached to this SRCL be PROTECTED and/or CLASSIFIED? / La documentation associée à la présente LVERS sera-t-elle PROTÉGÉE et/ou CLASSIFIÉE? No / Non Yes / Oui

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



Government of Canada

Gouvernement du Canada

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

PART D - AUTHORIZATION / PARTIE D - AUTORISATION

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

Name (print) - Nom (en lettres moulées) Doug Sanftenberg	Title - Titre Contract Administrator	Signature
Telephone No. - N° de téléphone 613-993-9628	Facsimile No. - N° de télécopieur	E-mail address - Adresse courriel Doug.Sanftenberg@nrc-cnrc.gc.ca
		Date May, 2016

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

Name (print) - Nom (en lettres moulées) Charlotte Carrier	Title - Titre Controlled Goods and Contracts Security Coordinator	Signature
Telephone No. - N° de téléphone (613) 993-8956	Facsimile No. - N° de télécopieur (613) 990-0946	E-mail address - Adresse courriel Charlotte.Carrier@nrc-cnrc.gc.ca
		Date 17 May 2016

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

No / Non Yes / Oui

16. Procurement Officer / Agent d'approvisionnement

Name (print) - Nom (en lettres moulées) Alain Lecas	Title - Titre Senior Contracting Officer	Signature
Telephone No. - N° de téléphone (613) 993-1990	Facsimile No. - N° de télécopieur	E-mail address - Adresse courriel alain.lecas@nrc-cnrc.gc.ca
		Date 30-5-2016

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

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

Security Classification / Classification de sécurité
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