NRC·CNRC Administrative Services and Property Management

SPECIFICATIONS

SOLICITATION #: 16-22133

BUILDING: LON
800 Collip Circle
London, ON

PROJECT: LON – Factory of the Future: Demolition Package

PROJECT #: LON-IMC0200

Date: January 2017

National Research Council Canada | Conseil national de recherches Canada

Canada

SPECIFICATION

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NRC·CNRC
From Discovery to Innovation...

Directions to the London Research Facilities

NRC Research Facilities
800 Collip Circle
London, Ontario, Canada N6G 4X8

Tel: 519-430-7079

By Road, from the LONDON International Airport (1750 CRUMLIN RD)

1. From the Airport Exit – take OXFORD ST (EAST)
2. Turn RIGHT on RICHMOND ST (NORTH)
3. Turn LEFT on WINDERMERE RD (WEST)
4. Turn RIGHT on COLLIP CIRCLE

By Road, from the Bus Station (101 YORK ST)

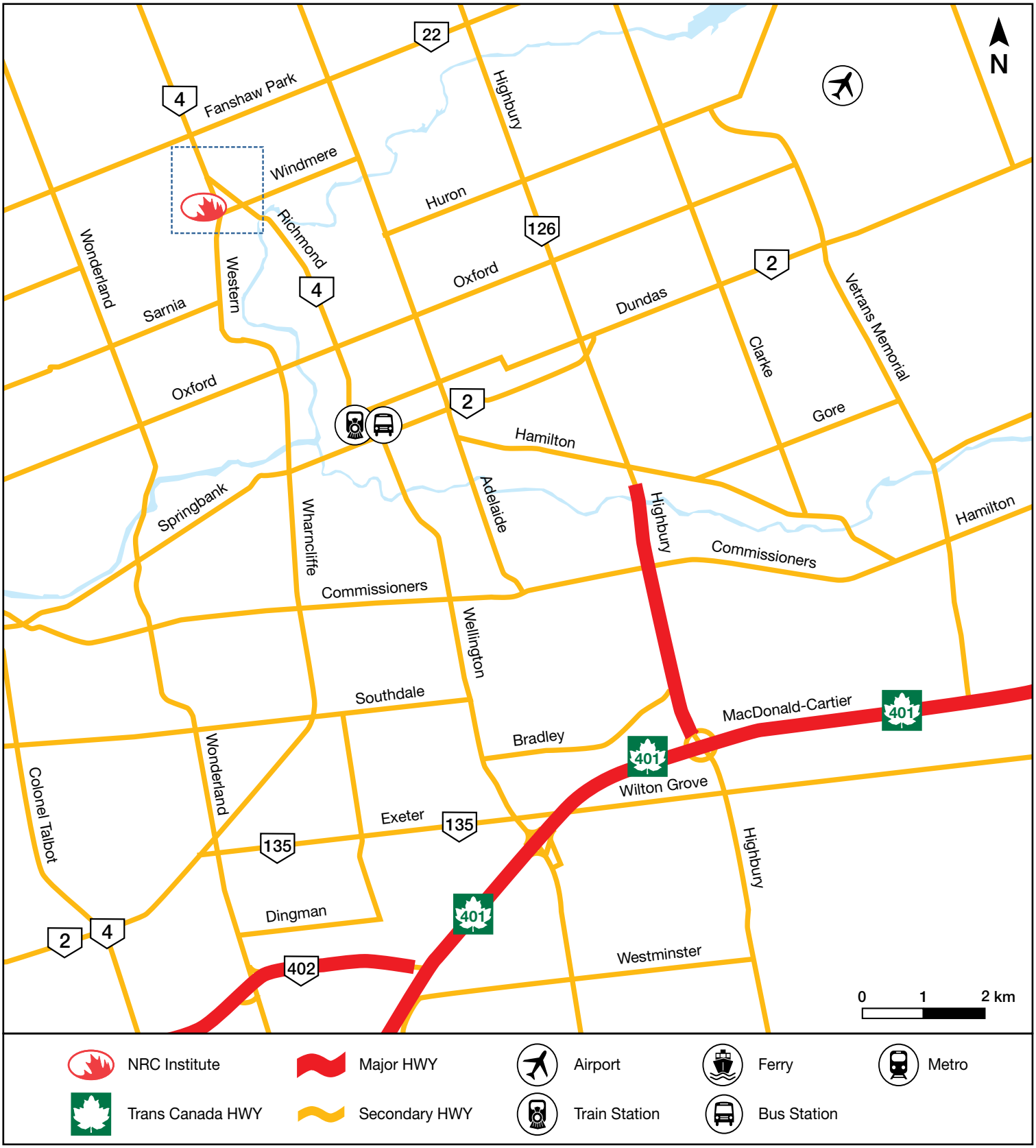
1. Drive EAST on YORK ST/ PROVINCIAL ROUTE 4/ PROVINCIAL ROUTE 2 toward RICHMOND ST for 0.19 km
2. Turn LEFT on RICHMOND ST, drive 4.50 km
3. Turn LEFT on WINDERMERE RD, drive 0.71 km
4. Turn RIGHT on COLLIP CIRCLE

Total Estimated Time: 8 minutes Total Distance: 5.40 km

By Road, from the Train Station (205 YORK ST)

1. Drive WEST on YORK ST/ PROVINCIAL ROUTE 4/ PROVINCIAL ROUTE 2 toward RICHMOND ST for 0.17 km
2. Turn RIGHT on RICHMOND ST, drive 4.50 km
3. Turn LEFT on WINDERMERE RD, drive 0.71 km
4. Turn RIGHT on COLLIP CIRCLE

Total Estimated Time: 8 minutes Total Distance: 5.38 km


N
22
4
Fanshaw Park
Windmere
Richmond
Wonderland
Western
Sarnia
Oxford
Huron
Highbury
126
Oxford
Dundas
2
Vetrans Memorial
Clarke
Gore
Hamilton
Springbank
Wharncliffe
Adelaide
Commissioners
Hamilton
Commissioners
Wellington
Southdale
MacDonald-Cartier
401
Bradley
401
Wilton Grove
Colonel Talbot
Wonderland
Exeter
135
135
Dingman
401
Highbury
2
4
402
Westminster
0 1 2 km
NRC Institute
Trans Canada HWY
Major HWY
Secondary HWY
Airport
Train Station
Ferry
Bus Station
Metro


N
Shavian
Hillside
4
Masonville
Carriage Hill
Hillside
Penrith
Ambleside
Western
Cantebury
4
Windmere
Ullswater
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Glenmore
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200
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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
Administrative Services & Property management Branch (ASPM)	Direction des services administratif et gestion de l'immobilier (SAGI)

Construction Tender Form

Project Identification **LON – IMC0200 Factory of the Future: Demolition Package**

Tender No.: **16-22133**

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.

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 from as described in Article 5 of the General Instructions to Tenderers, my/our tender is subject to disqualification.

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)

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

BUYANDSELL NOTICE

LON – Factory of the Future: Demolition Package

The National Research Council Canada, 800 Collip Circle, London, ON has a requirement for a project that includes:

Demolition of the existing "Virtual Reality Centre" and Reception area in the AST Building in London ON. Addition of two new access controlled doors in the hallways that lead to the new area.

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 January 16th and January 18th, 2017at **10:00**. Meet Bill Butts at LON Building , 800 Collip Circle, London, 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. **TENDER CLOSING DATE:**
Tender closing date is February 3, 2017 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:

.1 All personnel that will be involved with the project must be security screened to **RELIABILITY** status level as defined in the security policy of Canada.

6.0 WSIB (WORKPLACE SAFETY 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: **Bill Butts**
Telephone: **519 430-7063**

Contracting Authority for this project is: **Collin Long collin.long@nrc-cnrc.gc.ca**
Telephone**: 613 993-0431**

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
Marc Bedard, 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
LON Building
800 Collip Circle
London, ON
N6G 4X8

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 amout 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 in 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

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

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

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.

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:

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_____
Position

Seal

of

on the_____

day of_____

PROJECT MANUAL

Demolition Package No. 2 - Specifications

Issued for Bid

National Research Council

Factory of the Future
800 Collip Cir., London, ON N6G 4X8

Diamond Schmitt Architects
384 Adelaide Street West, Suite 300
Toronto, Ontario
M5V 1R7

Tel: 416-862-8800
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Project No. 1552

December 19, 2016

1.1 Document Responsibility

.1 Refer to Project Manual, Section 00 01 10 - Table of Contents, for indication of document responsibility (DR). Abbreviations for entity responsible for document preparation are as follows:

.1 A - Denotes documents prepared by Architect.

.2 E - Denotes documents prepared by Electrical Engineer.

.3 M - Denotes documents prepared by Mechanical Engineer.

.4 O - Denotes documents prepared by Owner.

.2 Professional seals if applied next to company names in the project directory (below) govern only those specification sections and schedules identified by the corresponding document responsibility (DR) abbreviation in Section 00 01 10.

.1 With regard to Section 00 31 00: The architect's seal governs only Section 00 31 00 proper, and not the documents listed therein.

1.2 Project Directory

.1 Owner:

National Research Council
800 Collip Circle
London, Ontario
N6G 4X8

Tel: 519-430-7009

Contact: Laurie Dunbar

.2 Architect (the Architect/Engineer):

Diamond Schmitt Architects
384 Adelaide Street West, Suite 100
Toronto, Ontario
M5V 1R7

Tel: 416-862-8800
Fax: 416-862-5508

.3 Mechanical Engineer:

Smith and Andersen Consulting Engineering
148 Fullarton Street, Suite 1400
London, Ontario
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Tel: 519-963-8888
Fax: 416-487-9104

.4 Electrical Engineer:

Smith and Andersen Consulting Engineering
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END OF SECTION

DR - indicates entity responsible for preparation of listed documents (see Section 00 01 05)

Document Identification		DR	Pgs	Issued
INTRODUCTORY INFORMATION				
00 01 05	Document Responsibility and Project Directory	A	2	December 19, 2016
00 01 10	Table of Contents	A	2	December 19, 2016
00 10 00	General Instructions	O	13	December 19, 2016
00 15 45	General and Fire Safety Requirements	O	6	December 19, 2016
DIVISION 01 - GENERAL REQUIREMENTS				
01 10 00	General Requirements	A	3	December 19, 2016
	CAD Data Disclaimer (Architectural)	A	1	December 19, 2016
	BIM Data Disclaimer (Architectural)	A	1	December 19, 2016
01 25 00	Product Substitution Procedures	A	2	December 19, 2016
01 26 00	Requests for Interpretation	A	2	December 19, 2016
	RFI Form	A	1	December 19, 2016
01 31 19	Project Meetings	A	4	December 19, 2016
01 32 16	Construction Progress Documentation	A	2	December 19, 2016
01 32 33	Photographic Documentation	A	1	December 19, 2016
01 33 00	Submittals	A	4	December 19, 2016
01 35 13	Special Procedures for Work in Occupied Buildings	A	6	December 19, 2016
01 45 00	Quality Control	A	5	December 19, 2016
01 50 00	Temporary Facilities and Controls	A	3	December 19, 2016
01 56 00	Temporary Barriers and Enclosures	A	3	December 19, 2016
01 60 00	Product Requirements	A	7	December 19, 2016
01 74 13	Progressive Cleaning	A	1	December 19, 2016
01 77 00	Contract Closeout Procedures and Submittals	A	7	December 19, 2016
01 78 36	Extended Warranties	A	1	December 19, 2016
DIVISION 02 - EXISTING CONDITIONS				
02 41 16	Demolition	A	3	December 19, 2016
DIVISION 05 - METALS				
05 50 00	Metal Fabrications	A	5	December 19, 2016
DIVISION 07 - THERMAL AND MOISTURE PROTECTION				
07 01 50	Roofing Repairs	A	6	December 19, 2016
DIVISION 08 - OPENINGS				
08 11 13	Steel Doors and Frames	A	10	December 19, 2016
08 71 00	Door Hardware	H	3	December 19, 2016
	Hardware Schedule	H	1	December 19, 2016
08 80 00	Glass and Glazing	A	6	December 19, 2016
DIVISION 09 - FINISHES				
09 91 00	Painting	A	7	December 19, 2016

DR - indicates entity responsible for preparation of listed documents (see Section 00 01 05)

Document Identification		DR	Pgs	Issued
DIVISION 21 - MECHANICAL				
21 05 00.00	General Instructions for Mechanical Sections	M	5	December 16, 2016
21 05 01.00	Abbreviations	M	4	December 16, 2016
21 05 02.00	Record Drawings	M	2	December 16, 2016
21 08 02.00	Cleaning and Protection	M	1	December 16, 2016
DIVISION 26 - ELECTRICAL				
26 01 00.00	Operating and Maintenance Instruction	E	3	December 16, 2016
26 05 01.00	General Instructions for Electrical Sections	E	5	December 16, 2016
26 05 03.00	Record Drawings	E	2	December 16, 2016
26 05 04.00	Submittals/Shop Drawings	E	1	December 16, 2016
26 05 21.00	Wires and Cables 1000V	E	4	December 16, 2016
26 05 31.00	Splitters, Junction, Pull Boxes and Cabinets	E	2	December 16, 2016
26 05 32 .00	Outlet Boxes, Conduit Boxes and Fittings	E	2	December 16, 2016
26 05 34.00	Conduits, Conduit Fasteners and Fittings	E	3	December 16, 2016
26 05 88.00	Cutting and Patching	E	1	December 16, 2016
DIVISION 28 - ELECTRONIC SAFETY AND SECURITY				
28 31 01.00	Fire Alarm	E	2	December 16, 2016

END OF SECTION

1. SCOPE OF WORK

.1 Work under this contract covers the Demolition of the existing virtual reality centre and reception area, along with the installation of two new security access doors in the Council's Building AST of the National Research Council.

2. DRAWINGS

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

1. Architectural Drawings;

IMC0200 - CS1- COVER SHEET
IMC0200 - A01 - SITE PLAN
IMC0200 - A02 - LEVEL 1 - REFERENCE PLAN
IMC0200 - A03 - ROOF - REFERENCE PLAN
IMC0200 - A04 - LEVEL 1 - DEMOLITION PLAN
IMC0200 - A05 - LEVEL 1 - DEMOLITION PLAN
IMC0200 - A06 - LEVEL 1 - DEMOLITION PLAN
IMC0200 - A07 - ROOF - DEMOLITION PLAN
IMC0200 - A08 - LEVEL 1 - DEMOLITION REFLECTED CEILING PLAN
IMC0200 - A09 - LEVEL 1 - DEMOLITION REFLECTED CEILING PLAN
IMC0200 - A10 - LEVEL 1 - DEMOLITION REFLECTED CEILING PLAN
IMC0200 - A11 - PARTIAL FLOOR PLAN, DETAILS, DOOR SCHEDULE

2. Mechanical Drawings;

0200 - M01 - MECHANICAL DRAWING LIST AND LEGENDS
0200 - M02 - MECHANICAL LEGENDS
0200 - M03 - RECEPTION AREA DEMOLITION
0200 - M04 - LEVEL 1 DEMOLITION PLUMBING
0200 - M05 - LEVEL 1 DEMOLITION HVAC
0200 - M06 - LEVEL 1 DEMOLITION FIRE PROTECTION
0200 - M07 - ROOF DEMOLITION HVAC

3. Electrical Drawings;

IMC0200 - E000 - ELECTRICAL COVER PAGE
IMC0200 - E100 - KEYPLAN
IMC0200 - E200 - LEVEL 1 DEMOLITION
IMC0200 - E201 - LEVEL 1 DEMOLITION AND NEW
IMC0200 - E202 - RECEPTION AREA REVISIONS
IMC0200 - E300 - LEVEL 1 POWER AND LIGHTING

3. COMPLETION

.1 Complete all work within eight (8) 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.

.3 This section shall govern the general instructions of site work and will take precedence over other sections in this document.

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 seven (7) 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 seven (7) 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. DESIGNATED SUBSTANCES

Comply with Provincial legislation if encountering specifically listed designated substances on the work site while performing the work described in these contract documents:

.1 It is the responsibility of the general contractor to ensure that each prospective subcontractor for this project has received a copy of the listed designated substances which may be present on site.

.2 In addition to the specific designated substances listed by the province, the following may also be present: [not applicable]

.3 The general contractor is advised to take the following precautions when dealing with the above substances:

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 ESCORTING REQUIREMENTS

.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.

Five (5) 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 two (2) 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 bi-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 as per specified in section 01 35 13.

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 ^{o}C (50 ^{o}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 all provincial OSH regulation . 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 Provincial OSH regulation
- .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 Proper 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 emergency phone numbers which will be provided at the project kick off meeting:

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 (C02) 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 ^{o}C (100 ^{o}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

PART 1 - GENERAL

1.1 Language of the Contract

.1 The use of the words “include” or “including”, or variations thereof, within the contract documents is not limiting.

1.2 The contract documents

.1 The contract documents have been arranged into various divisions, sections, drawings, and schedules for the purpose of presenting the work in a logical and organized form and to enable ease of reference and interpretation, and are not intended to be an arrangement of precise and independent subcontractors, or jurisdiction of responsibility for the various parts of the work. The Contractor shall be solely responsible for coordinating the execution of the work of this Contract in accordance with the requirements of the contract documents.

.2 As a result, the NRC Departmental Representative shall not be required to decide on questions arising with regard to agreements or contracts between the Contractor and subcontractors or suppliers, nor to the extent of the parts of the work assigned thereto.

.3 Further, no extra will be allowed as a result of the failure to coordinate and allocate the work such that the work is supplied and installed in accordance with the contract documents.

.4 This section coordinates, relates, and governs the work of other sections of the specifications.

1.3 Laws, Notices, Permits and Fees

.1 The building code - Ontario Regulation 332/12, including amendments, shall govern the work.

.2 Comply with codes, by-laws, and regulations of authorities having jurisdiction over the site. Codes and regulations form an integral part of the contract documents.

.3 NRC Departmental Representativepply and pay for the demolition permit. The Contractor shall pick up permit from the municipal department having jurisdiction at the site. Obtain and pay for all other permits, licenses, deposits and certificates of inspection as part of the work.

.4 Arrange for inspection, testing and acceptance of the work required by the authorities having jurisdiction. Be responsible for necessary preparations, provisions and pay costs.

.5 Obtain permits required to execute work on municipal rights of way. Obtain damage deposits for sidewalks, roads and services, unless otherwise indicated.

.6 It is the responsibility of the Contractor to schedule notifications and inspections required by authorities having jurisdiction such that notifications can be properly received and that inspections can be properly undertaken without causing a delay in the work. The Contractor, at no additional cost to the NRC Departmental Representative, shall be solely responsible for any delay in the work caused by failure to properly schedule required notifications and inspections.

.7 The Contractor shall provide to the chief building official or the registered code agency, where a registered code agency is appointed under the Ontario Building Code Act in respect of the construction to which the notice relates, the required notices set out in Division C – Part 1 Sentence 1.3.5.1(2) and Sentence 1.3.5.2 of the Ontario Building Code, O. Reg. 332/12 as amended. The Contractor shall be present at each site inspection by an inspector or registered code agency as applicable under Division C – Part 1 Sentence 1.3.5.2 of the building code.

.1 It is the responsibility of the Contractor to schedule notifications to the chief building official or the registered code agency such that the inspection pertaining to the notifications can be made within the time frame as required under Division C – Part 1 Sentence 1.3.5.3 of the Ontario Building Code, O. Reg. 332/12 as amended, without causing a delay in the work. The Contractor, at no additional cost to the NRC Departmental Representative, shall be solely responsible for any delay in the work caused by failure to properly schedule required notifications and inspections.

1.4 Examination of the site, Documents, Surfaces and Conditions

.1 Examine the site and investigate matters relating to the nature of the work, means of access and egress, obstacles, rights and interests of other parties which may be interfered with during the execution of the work, conditions and limitations including obstructions, existing structures or facilities, local conditions, actual levels, character and nature of the work, and other consideration which may affect performance of the work.

.2 Examine the extent of work to be performed and matters which are referred to in the contract documents prior to start of the work.

.3 Examine work to which work is to be applied, anchored or connected, and relevant as-built conditions.

.4 Each work operation following on a previous work operation of a differing subcontractor, as in the case of finishing and surfacing work, shall include a thorough examination of the condition of the previous work. Conditions found unacceptable, either for the commencement of the new work or its satisfactory completion, shall be reported in writing to the NRC Departmental Representative.

.5 Do not commence work until unsatisfactory conditions are corrected. Commencement of work implies acceptance of surfaces, tolerances, and conditions and existing conditions will not be accepted as a contributing factor to subsequent failure or acceptability of the work.

1.5 Publicity Releases and Photographs

.1 No press or publicity releases will be permitted without prior written approval of the NRC Departmental Representative.

.2 No photographs of the site or of any portion of the work will be permitted without written approval of the NRC Departmental Representative, except as provided by the contract documents.

1.6 Electronic Files

.1 The Contractor shall be provided with 1 set of electronic files in pdf format from the NRC Departmental Representative free of charge.

.1 Subcontractors and suppliers requiring electronic files shall make arrangements with the Contractor. The NRC Departmental Representative will not provide electronic files directly to subcontractors or suppliers.

.2 The NRC Departmental Representative will require a copyright waiver, and/or CAD data disclaimer, and/or BIM data disclaimer to be signed by the Contractor prior to delivery of such AutoCAD files.

.1 Copies of each of these disclaimers are appended to this section for reference.

.3 The NRC Departmental Representative or other consultants/subconsultants may charge a fee for providing the electronic files as indicated in the CAD data disclaimer or otherwise at the NRC Departmental Representative's or other consultant's/subconsultant's discretion.

.1 Payment, where required, shall be made directly to the other consultant/subconsultant, and not through the NRC Departmental Representative.

.4 The drawings have been produced based on a REVIT model. The NRC Departmental Representative may choose to provide the actual model or a readable (.dxf) of the model for the information of the Contractor. There shall be no commitment on the part of the NRC Departmental Representative to provide this model.

.5 Management of electronic files shall be done using the NRC Departmental Representative's document management system (Newforma).

PART 2 - PRODUCTS

Not applicable.

PART 3 - EXECUTION

Not applicable.

END OF SECTION

Diamond Schmitt Architects

384 Adelaide Street West, Suite 300
Toronto, Ontario, Canada M5V 1R7

Tel: 416 862 8800 Fax: 416 862 5508
info@dsai.ca

www.dsai.ca

CAD DATA DISCLAIMER

Project:	Project No: 0
	File No: 0
	Date:

1.0 This computer aided design (CAD) data is being provided at the request of and for the convenience of the recipient only. It may be incomplete, contain unintentional inaccuracies, or be partially obsolete. Diamond and Schmitt Architects Incorporated makes no warranties, either expressed or implied, of its merchantability and fitness for any particular purpose. The user is further warned that, while all digital CAD data appears to be extremely accurate, this apparent accuracy is an artifact of the techniques used to generate it and is in no way intended to imply actual accuracy. The user of this data takes full responsibility for the accuracy and correctness of all measurements, areas, inventories, etc. extracted from this data either manually or with the use of a computer.

2.0 The user is advised that any translation of CAD data from one computer system or environment to another can and often does result in the loss of important data. This loss can include, but may not be limited to: portions of text and dimensions; the existence, location or scale of symbols or other elements of graphics - the internal structure of data, including layers and data attributes; and the style or weight of lines. Diamond and Schmitt Architects Incorporated makes no representations as to the usability of this CAD data on any system.

3.0 Users of this computer data are advised to review all current versions, as well as subsequent versions, of project documentation for inconsistencies and revisions. It is the responsibility of the user to identify and make all required revisions or corrections to this data. Diamond and Schmitt Architects Incorporated will not routinely issue updates to CAD data.

4.0 By acceptance of this electronic media and the files it contains, the user agrees, to the fullest extent of the law, to indemnify and hold Diamond and Schmitt Architects Incorporated harmless from any damage, cost or liability, including but not limited to reasonable attorney's fees and cost of defense, arising from any changes made to these files by anyone other than Diamond and Schmitt Architects Incorporated or from reuse of files and data without the prior written consent of Diamond and Schmitt Architects Incorporated.

5.0 While reasonable care has been used to ensure that the transfer medium and the material are free of computer viruses, Diamond and Schmitt Architects Incorporated accepts no responsibility for any loss or damage that might result from the transmission of computer viruses in this process.

6.0 The copyright of this CAD data belongs to Diamond and Schmitt Architects Incorporated and it may not be altered or modified or copied or transferred to another company or individual, either in part or whole, without express written permission from Diamond and Schmitt Architects Incorporated. This material is being furnished for reference purposes only and has not been specially prepared for use by the recipient.

7.0 If shop drawings are issued by the Contractor which appears to have made unaltered use of the CAD files issued by Diamond and Schmitt Architects Incorporated, they will be returned without review. Under no circumstances can it be assumed that Diamond and Schmitt Architects Incorporated working drawings are sufficiently detailed to become documents for final manufacturing - in other words, shop drawings.

8.0 The terms of this disclaimer are effective immediately upon the User's receipt of digital information.

Accepted by:

Company:

Date:

Diamond Schmitt Architects

384 Adelaide Street West, Suite 300
Toronto, Ontario, Canada M5V 1R7

Tel: 416 862 8800 Fax: 416 862 5508
info@dsai.ca

www.dsai.ca

BIM DATA DISCLAIMER

Project:	Project No:	0
	File No:	0
	Date:	

1.0 This Building Information Model (BIM) data is being provided at the request of and for the convenience of the recipient only. It may be incomplete, contain unintentional inaccuracies, or be partially obsolete. Diamond and Schmitt Architects Incorporated (DSAI) makes no warranties, either expressed or implied, of its merchantability and fitness for any particular purpose. The user is further warned that, while all digital BIM data appears to be extremely accurate, this apparent accuracy is an artifact of the techniques used to generate it and is in no way intended to imply actual accuracy. The user of this data takes full responsibility for the accuracy and correctness of all measurements, areas, inventories, etc. extracted from this data either manually or with the use of a computer.

2.0 The user is advised that any translation of BIM data from one computer system or environment to another can and often does result in the loss of important data. This loss can include, but may not be limited to: portions of text and dimensions; the existence, location or scale of symbols or other elements of graphics - the internal structure of data, including layers and data attributes; and the style or weight of lines. DSAI makes no representations as to the usability of this BIM data on any system.

3.0 Users of this computer data are advised to review all current versions, as well as subsequent versions, of project documentation for inconsistencies and revisions. It is the responsibility of the user to identify and make all required revisions or corrections to this data. DSAI will not routinely issue updates to BIM data.

4.0 By acceptance of this electronic media and the files it contains, the user agrees, to the fullest extent of the law, to indemnify and hold DSAI harmless from any damage, cost or liability, including but not limited to reasonable attorney's fees and cost of defense, arising from any changes made to these files by anyone other than DSAI or from reuse of files and data without the prior written consent of DSAI.

5.0 While reasonable care has been used to ensure that the transfer medium and the material are free of computer viruses, DSAI accepts no responsibility for any loss or damage that might result from the transmission of computer viruses in this process.

6.0 The copyright of this BIM data belongs to DSAI and it may not be altered or modified or copied or transferred to another company or individual, either in part or whole, without express written permission from DSAI. This material is being distributed for reference purposes only and has not been specially prepared for use by the recipient.

7.0 Elements included in the BIM data like, but not limited to, families, components, shared parameters, view templates, family templates and project templates are property of DSAI and are protected by intellectual property laws including copyright laws. The recipient of the BIM data agrees to be bound by any such intellectual property and copyright laws and other than using it specifically for the above mentioned project, shall not sell, transfer, modify, use or otherwise incorporate these elements into its own office standards or it will be in violation of such laws.

8.0 If shop drawings are issued by the Contractor which appears to have made unaltered use of the BIM files issued by DSAI, they will be returned without review. Under no circumstances can it be assumed that DSAI working drawings are sufficiently detailed to become documents for final manufacturing - in other words, shop drawings.

9.0 The terms of this disclaimer are effective immediately upon the User's receipt of digital information.

Accepted by:

Company:

Date:

PART 1 - GENERAL

1.1 Approved Alternates and Approved Equals

.1 Named products alternates or equals, indicated by the phrases "or approved alternate by XYZ Manufacturing" or "or approved equal by XYZ Manufacturing", shall be interpreted to mean that named product alternate or equal, if selected for use in lieu of indicated or specified product, meets or exceeds performance, appearance, general arrangement, dimensions, availability, code and standards compliance, and colour of specified product. Be responsible for costs and modifications associated with the inclusion of named product alternate or equal at no additional cost to the NRC Departmental Representative.

.2 The process for proposing and approving alternates or equals shall be the same process as for proposing and approving substitutions (refer to paragraph 1.2 below).

.3 Confirm delivery of specified items prior to proposing alternates or equals.

1.2 Substitutions

.1 Submission of substitutions:

.1 Proposals for substitutions of products and materials must be submitted in accordance with procedures specified in this section.

.2 NRC Departmental Representative may review submissions, if directed by NRC Departmental Representative, but in any case with the understanding that the contract time will not be altered due to the time required by the NRC Departmental Representative to review the submission and by the Contractor to implement the substitution in the work.

.3 NRC Departmental Representative’s services to review substitutions will be performed on an additional services basis to their contract with the NRC Departmental Representative. Costs of these services will be discounted from any reductions in the contract price that might be forthcoming from the substitution. Therefore, to be acceptable, a substitution must present a reduction in the construction cost at least equal to the cost to the NRC Departmental Representative of the NRC Departmental Representative’s additional services to review the substitution. Contractor shall cover directly costs and administration associated with courier services, reproduction costs, and other direct costs associated with these substitution reviews.

.2 Submission requirements:

.1 Description of proposed substitution, including detailed comparative specification of proposed substitution with the specified product.

.2 Manufacturer’s product data sheets for proposed products.

.3 Respective costs of items originally specified and the proposed substitution.

.4 Confirmation of proposed substitution delivery, in writing by product manufacturer.

.5 Compliance with the building codes and requirements of authorities having jurisdiction.

.6 Affect concerning compatibility and interface with adjacent building materials and components.

.7 Compliance with the intent of the contract documents.

.8 Effect on contract time.

.9 Reasons for the request.

.10 Detailed availability of maintenance services and sources of replacement materials and parts, including associate costs and time frames.

.3 Substitutions submitted on shop drawings without following requirements of this section prior to submission of the affected shop drawings will cause the shop drawings to be rejected.

.4 Proposed substitutions shall include costs associated with modifications necessary to other adjacent and connecting portions of the work.

.5 NRC Departmental Representative's decision concerning acceptance or rejection of proposed substitutions is final.

.1 Should it appear to the NRC Departmental Representative that the value of services required to evaluate the substitution exceeds the potential reduction, the NRC Departmental Representative will advise the NRC Departmental Representative that the substitution does not merit consideration before proceeding with a full evaluation. If the substitution will produce a reduction commensurate with or exceeding the value of the NRC Departmental Representative's services to evaluate the substitution, the NRC Departmental Representative will request the NRC Departmental Representative's direction to proceed with evaluation.

PART 2 - PRODUCTS

Not applicable.

PART 3 - EXECUTION

Not applicable.

END OF SECTION

PART 1 - GENERAL

1.1 Request for Interpretation – RFI

.1 A request for interpretation (RFI) is a formal process used during the work to obtain an interpretation of the contract documents.

.1 An RFI shall not constitute notice of claim for a delay.

.2 Submittal procedures:

.1 RFI form:

.1 Submit RFI on "Request for Interpretation" form, appended to this section. The NRC Departmental Representative shall not respond to an RFI except as submitted on this form.

.2 Where RFI form does not provide sufficient space for complete information to be provided thereon, attach additional sheets as required.

.3 Submit with RFI form necessary supporting documentation.

.2 RFI log:

.1 Maintain log of RFIs sent to and responses received from the NRC Departmental Representative, complete with corresponding dates.

.2 Submit updated log of RFIs with each progress draw submittal.

.3 Submit RFIs sufficiently in advance of affected parts of the work so as not to cause delay in the performance of the work. Costs resulting from failure to do this will not be paid by the NRC Departmental Representative.

.4 RFIs shall be submitted only to the NRC Departmental Representative.

.5 RFIs shall be submitted only by Contractor. RFIs submitted by subcontractors or suppliers shall not be accepted.

.6 Number RFIs consecutively in one sequence in order submitted.

.7 Submit one distinct RFI per RFI form.

.8 NRC Departmental Representative shall review RFIs from the Contractor submitted in accordance with this section, with the following understandings:

.1 NRC Departmental Representative's response shall not be considered as a change order or change directive, nor does it authorize changes in the contract price or contract time or changes in the work.

.2 Only the NRC Departmental Representative shall respond to RFIs. Responses to RFIs received from entities other than the NRC Departmental Representative shall not be considered.

.9 Allow 7 working days for review of each RFI by the NRC Departmental Representative.

.1 NRC Departmental Representative's review of RFI commences on date of receipt by the NRC Departmental Representative of RFI submittal and extends to date RFI returned by NRC Departmental Representative.

.2 When the RFI submittal is received by NRC Departmental Representative before noon, review period commences that day; when RFI submittal is received by NRC Departmental Representative after noon, review period begins on the next working day.

.3 If, at any time, the Contractor submits a large enough number of RFIs such that the NRC Departmental Representative cannot process these RFIs within 7 working days, the NRC Departmental Representative, will confer with the Contractor within 1 working day of receipt of such RFIs, and the NRC Departmental Representative and the Contractor will jointly prepare an estimate of the time necessary for processing same as well as an order of priority between the RFIs submitted. The Contractor shall accommodate such necessary time at no increase in the contract time and at no additional cost to the NRC Departmental Representative.

.10 Contractor shall satisfy itself that an RFI is warranted by undertaking a thorough review of the contract documents to determine that the claim, dispute, or other matters in question relating to the performance of the work or the interpretation of the contract documents can not be resolved by direct reference to the contract documents. Contractor shall describe in detail this review on the RFI form as part of the RFI submission. RFI submittals that lack such detailed review description, or where the detail provided is, in the opinion of the NRC Departmental Representative, insufficient, shall not be reviewed by the NRC Departmental Representative and shall be rejected.

PART 2 - PRODUCTS

Not applicable.

PART 3 - EXECUTION

Not applicable.

END OF SECTION

Contractor's Request for Interpretation

NRC Departmental Representative's supplemental instructions

Date	# of Pages
To	From
Co.	Co.
Phone #	Phone #
Fax #	Fax #
Email	Email

project: _____ **RFI No.:** _____

NRC Departmental Representative: _____ **Date of Request:** _____

To: _____ **Contractor:** _____

(NRC Departmental Representative's Representative)

Project No.: _____ **Contractor's Representative:** _____

NRC Departmental Representative's Fax No.: _____ **Fax No.:** _____

Interpretation Requested: (Description of request for interpretation and references to relevant portions of contract documents)

Attachments: _____

Requested by: _____

NRC Departmental Representative's supplemental instruction:

Attachments: _____

Reply By: _____

The work shall be carried out in accordance with these supplemental instructions issued in accordance with the contract documents without change in contract price or contract time. Prior to proceeding with these instructions, indicate acceptance of these instructions as being consistent with the contract documents by returning a signed copy to the NRC Departmental Representative.

---

supplemental instruction Issued:

By: _____

NRC Departmental Representative **Date**

supplemental instruction Accepted:

By: _____

Contractor **Date**

Cc: ☐ ***Owner*** ☐ ***Consultant*** ☐ **Contractor** ☐ **Field** ☐ **Other:** _____

PART 1 - GENERAL

1.1 Administrative

.1 The NRC Departmental Representative shall schedule meetings as specified herein.

.1 Such scheduling shall be in consultation both with the NRC Departmental Representative and with the NRC Departmental Representative.

.2 The Contractor shall prepare agendas for meetings specified herein.

.1 Agendas shall include, as a minimum, the agenda items specified in the contract documents.

.3 The Contractor shall distribute written notice of each meeting specified herein, complete with meeting agenda, 4 working days in advance of meeting date to the NRC Departmental Representative and the NRC Departmental Representative and other affected parties.

.4 The Contractor shall chair and record the minutes of meetings specified herein.

.1 Contractor shall distribute copies of minutes to the Contractor, the NRC Departmental Representative, and all others in attendance within 3 working days after date of meeting.

.5 Representatives of parties attending meetings shall be authorized to act on behalf of the parties they represent.

.6 subcontractors and suppliers shall not attend meetings unless authorized by the NRC Departmental Representative and the NRC Departmental Representative.

.7 The Contractor shall prepare, and distribute to the NRC Departmental Representative and the NRC Departmental Representative 4 days in advance of next progress meeting date, the following:

.1 Monthly progress reports containing updated schedules.

1.2 Contract Start-Up / Pre-Demolition Meeting

.1 Within 5 days after award of Contract, request a meeting of parties in Contract to discuss and resolve administrative procedures and responsibilities prior to the commencement of the work.

.2 Attendees at Contract start-up meeting shall include the following:

.1 Contractor.

.2 Contractor’s site superintendent(s).

.3 NRC Departmental Representative.

.4 NRC Departmental Representative.

.5 Inspection and testing company.

.3 Agenda to include the following:

.1 Owner’s guidelines and policies.

.2 Appointment of official representative of participants in the project.

.3 Review of security clearances and procedures (refer to Section 01 35 13), and review of hours of work at the NRC facility.

.4 Status of permits, fees and requirement of authorities having jurisdiction. Action required.

.5 Establishing a schedule for progress meetings.

.6 Demolition schedule and progress scheduling.

.7 Requirements for notification for reviews. Allow a minimum of 48 hours' notice to NRC Departmental Representative for review of the work.

.8 Requirements for temporary facilities, signs, offices, storage sheds, utilities, fences.

.9 Security requirements at and for the site.

.10 Progress claims, administrative procedures, holdbacks.

.11 Insurances, transcripts of policies.

.12 Contractor's safety procedures.

.13 Workplace Safety and Insurance Board Certificate.

1.3 Pre-Installation Meetings

.1 During the course of the work prior to substantial performance, schedule pre-installation meetings as required by the contract documents or as directed by the NRC Departmental Representative.

.2 During the course of the work prior to substantial performance, schedule pre-installation meetings as required by the contract documents and coordinated with the NRC Departmental Representative.

.3 As far as possible, pre-installation meetings shall be scheduled to take place on the same day as regularly scheduled progress meetings.

.4 Attendees at pre-installation meetings shall include the following:

.1 Contractor.

.2 subcontractors affected by the work for which the pre-installation meeting is being conducted.

.3 NRC Departmental Representative.

.4 Manufacturer's representatives, as applicable.

.5 Inspection and testing company, as applicable.

.5 Agenda to include the following:

.1 Owner's guidelines and policies.

.2 Appointment of official representatives of participants in the project.

.3 Review of existing conditions and affected work, and testing thereof as required.

.4 Review of installation procedures and requirements.

.5 Review of environmental and site condition requirements.

.6 Schedule of the applicable portions of the work.

.7 Schedule of submission of samples, colour chips, and items for NRC Departmental Representative's consideration.

.8 Requirements for temporary facilities, site sign, offices, storage sheds, utilities, fences.

.9 Requirements for notification for reviews. Allow a minimum of 48 hours' notice to NRC Departmental Representative for review of the work.

.10 Requirements for inspections and tests, as applicable. Schedule and undertake inspections and tests.

.11 Delivery schedule of specified equipment.

.12 Special safety requirements and procedures.

1.4 Progress Meetings

.1 During the course of the work prior to substantial performance, schedule progress meetings as directed by the NRC Departmental Representative.

.2 Attendees at progress meetings shall include the following:

.1 Contractor.

.2 Contractor's site superintendent(s).

.3 NRC Departmental Representative.

.4 NRC Departmental Representative.

.3 Agenda to include the following:

.1 Owner's guidelines and policies.

.2 Review, approval of proceedings of previous meeting.

.3 Review of items arising from proceedings.

.4 Review of progress of the work since previous meeting and Contractor's monthly progress report.

.5 Field observations, problems, conflicts.

.6 Update demolition schedule.

.7 Problems that impede compliance with demolition schedule.

.8 Corrective measures and procedures to regain demolition schedule.

.9 Revisions to demolition schedule.

.10 Progress, schedule, during subsequent period of the work.

.11 Other business.

1.5 Special Meetings

.1 NRC Departmental Representative and/or NRC Departmental Representative reserve the right to require special meetings which may be held on short notice and at which attendance by Contractor and representatives of affected subcontractors and suppliers is mandatory. Contractor shall keep detailed and accurate meeting notes and distribute copies promptly to all in attendance and those affected by agreements made at such meetings.

PART 2 - PRODUCTS

Not applicable.

PART 3 - EXECUTION

Not applicable.

END OF SECTION

PART 1 - GENERAL

1.1 General

.1 Schedules required:

.1 Demolition schedule.

.2 Format:

.1 Prepare schedules in the form of a PERT or GANTT or Microsoft Project chart method.

.2 Include horizontal time scale identifying the first working day of each week.

.3 Format for listings: The chronological order of the start of each item or part of the work.

.4 Identification of listings: By systems description.

.5 Upon request by the NRC Departmental Representative, submit a digital copy of the demolition schedule to the NRC Departmental Representative. The digital copy shall be in a native file type that permits modification of the data. In case of discrepancy between a digital-copy of the demolition schedule and the corresponding hard-copy of the demolition schedule, the hard-copy of the demolition schedule bearing the latest date, and that has been formally submitted and reviewed in accordance with the requirements of Section 01320 shall govern.

.3 Demolition schedule:

.1 Include the complete sequence of demolition activities, including provision for climate and weather.

.2 Include the dates for the commencement and completion of each major element of the work parallel to the sections of the specifications.

.3 Show projected percentage of completion for each item as of the first working day of each week.

.4 Submit draft schedule for review, and incorporate responses to comments identified by NRC Departmental Representative and/or NRC Departmental Representative.

.5 Show dates for the commencement and completion of inspection and testing

.6 At each date of submission of schedule, indicate progress of each activity.

.1 Show changes occurring since previous submission of the demolition schedule:

.1 Major changes in scope.

.2 change orders and change directives.

.3 Activities modified since previous submission.

.4 Revised projections of progress and completion.

.5 Other identifiable changes.

.2 Include a narrative report to define:

.1 Problem areas, anticipated delays, and the impact on the schedule.

.2 Corrective action recommended and its impact on the schedule.

.7 Submit revised demolition schedule with each application for payment.

PART 2- PRODUCTS

Not applicable.

PART 3 - EXECUTION

Not applicable.

END OF SECTION

PART 1 - GENERAL

1.1 General

.1 Provide photographic documentation in digital format and in accordance with procedures and submission requirements specified in this section.

1.2 Digital Photographs

.1 Equipment: Provide photographs using minimum 10 megapixel digital camera.

.2 Submit the required photographs to the NRC Departmental Representative.

.3 Output: Supply date stamped maximum resolution colour photos to NRC Departmental Representative in JPEG format, on CD-ROM format.

.4 Number of photos required:

.1 Prior to construction: Provide necessary number of photographs, as required to document existing conditions and verify damage to adjacent streets and property which may or may not have occurred during construction: Minimum 50 photos.

.2 Each Progress draw: Provide 24 construction photographs each month to accompany each application for progress draw to document the stage of the work from points selected by the NRC Departmental Representative showing as much as possible of the work installed during the previous month.

.3 Provide minimum of 8 photographs on each meeting report and for each progress meeting.

.4 Completion: When the work is completed, arrange to take final photographs of the work from a minimum of 8 points of view.

PART 2 - PRODUCTS

Not applicable.

PART 3 - EXECUTION

Not applicable.

END OF SECTION

PART 1 - GENERAL

1.1 General Requirements

.1 Submit submittals as requested by the contract documents, as specified herein, and in accordance with the conditions of the Contract.

.2 In addition to submittals specifically requested by the contract documents, submit other submittals as may be reasonably requested by the NRC Departmental Representative, or as are required to coordinate the work and to provide the NRC Departmental Representative with choices available, within the scope of contract documents.

.3 Contractor's review of submittals:

.1 Review submittals for conformity to contract documents before submitting to NRC Departmental Representative. Submittals shall bear stamp of Contractor and signature of a responsible official in Contractor's organization indicating in writing that such submittals have been checked and coordinated by Contractor. Contractor's review shall be performed by qualified personnel who have detailed understanding of those elements being reviewed and of the conditions at the site proposed for installation.

.2 Check and sign each submittal and make notations considered necessary before submitting to NRC Departmental Representative for review. Where submittal is substantially and obviously in conflict with requirements of contract documents, reject submittal without submitting to NRC Departmental Representative and request resubmission. Note limited number of reviews of each submittal covered under NRC Departmental Representative's services as specified below.

.3 Contractor shall assume sole responsibility for any conflicts occurring in the work that result from lack of comparison and coordination of submittals required for the work.

.4 Submittals that have not been reviewed, checked, and coordinated by Contractor prior to submission to NRC Departmental Representative, will be rejected.

.5 Notify NRC Departmental Representative in writing of changes made on submittals from contract documents. NRC Departmental Representative's review of submittals shall not relieve Contractor of responsibility for changes made from contract documents not covered by written notification to NRC Departmental Representative.

.4 NRC Departmental Representative's review of submittals:

.1 Review of submittals by NRC Departmental Representative is for the sole purpose of ascertaining conformance with the general design concepts and the general intent of the contract documents. This review shall not mean that NRC Departmental Representative approves the detail design inherent in the submittals, responsibility for which shall remain with the Contractor. Such review shall not relieve the Contractor of responsibility for errors or omissions in the submittals, or responsibility for meeting requirements of contract documents.

.2 Contractor shall be responsible for dimensions to be confirmed and correlated at the site for information that pertains solely to fabrication processes or to techniques of construction and installation, and for coordination of the work.

.3 As part of their scope of work, NRC Departmental Representative shall review shop drawings no more than twice. Should three or more reviews be required due to reasons of Contractor omissions causing resubmission requests, then Contractor shall reimburse the NRC Departmental Representative for time expended in these extra reviews. Time shall be invoiced to the NRC Departmental Representative (to be deducted from monies due to the Contractor and paid to NRC Departmental Representative by NRC Departmental Representative) at rates recommended by NRC Departmental Representative's professional association and disbursements shall be invoiced at NRC Departmental Representative's cost. The Contractor shall cover directly costs and administration associated with courier services and the like for these extra shop drawing reviews.

.4 NRC Departmental Representative's review and markings on submittals do not authorize changes in the work or the contract time, and will be accommodated at no additional cost to the NRC Departmental Representative. If, in the opinion of the Contractor, the NRC Departmental Representative's markings on submittals constitute a change in the work or will effect a change in the contract time, then the Contractor shall so notify the NRC Departmental Representative in writing and request an interpretation following the procedures for requests for interpretation in accordance with Section 01 26 00. If the NRC Departmental Representative finds that the NRC Departmental Representative's markings on submittals do constitute a change in the work or will effect a change in the contract time, then a change order will be prepared therefore. The time taken to process such a request for interpretation shall not, in and of itself, constitute a change in the work nor increase the contract time.

.5 Submittals which are not required by the contract documents or not requested by the NRC Departmental Representative will not be reviewed by the NRC Departmental Representative and will be marked 'NOT REVIEWED' by the NRC Departmental Representative and returned to the Contractor.

.5 Make submittals with reasonable promptness and in an orderly sequence so as to cause no delay in the work. Be responsible for delays, make up time lost and pay added costs, at no additional cost to the NRC Departmental Representative, incurred because of not making submittals in due time to permit proper review by NRC Departmental Representative.

.6 Submittals that contain substitutions will be rejected. Substitutions are permitted only on substitution submittals as specified in Section 01 25 00.

.7 Do not proceed with work affected by a submittal, including ordering of products, until relevant submittal has been reviewed by NRC Departmental Representative.

.8 Prepare submittals using SI (metric) units.

.9 Contractor's responsibility for errors and omissions in submittals is not relieved by NRC Departmental Representative's review of submittals.

.10 Contractor's responsibility for deviations in submittal from requirements of contract documents is not relieved by NRC Departmental Representative's review of submittal, unless NRC Departmental Representative gives written acceptance of specific deviations.

.11 Keep copies of reviewed submittals at the site in an organized condition. Only submittals that have been reviewed by the NRC Departmental Representative and are marked with NRC Departmental Representative's review stamp, as applicable, are permitted at the site.

.12 The work shall conform to reviewed submittals subject to the requirements of this section. Remove and replace materials or assemblies not matching reviewed submittals at no increase in the contract time and at no additional cost to the NRC Departmental Representative.

1.2 Submission Procedures

.1 Coordinate each submittal with requirements of the work and contract documents. Individual submittals shall include related information.

.2 Distribute copies of submittals to parties whose work is affected by submittals except NRC Departmental Representative and NRC Departmental Representative before final submission for review by NRC Departmental Representative.

.3 Accompany submittals with transmittal letter, in duplicate, containing:

.1 Date.

.2 project title and number.

.3 Contractor’s name and address.

.4 Identification and quantity of each submittal.

.5 Other pertinent data.

.4 Each submittal shall be identified numerically by relevant specification section number with a numeric indicator for multiple submittals by that section followed by revisions number, for example 04 05 19-01-R0.

.5 Make any changes in submittal that NRC Departmental Representative may require, consistent with contract documents, and resubmit as directed by NRC Departmental Representative.

.6 Notify NRC Departmental Representative, in writing, when resubmitting, of any revisions other than those requested by NRC Departmental Representative.

.7 After NRC Departmental Representative’s review, distribute copies to affected parties.

1.3 product Data Sheets

.1 Submit product data sheets as follows:

.1 1 copy digitally in pdf format to NRC Departmental Representative using the NRC Departmental Representative’s document management system.

.1 Refer to Section 01 10 00 “Electronic Files” paragraph.

.2 Submit product data sheets as called-for by the contract documents or as the NRC Departmental Representative may reasonably request where shop drawings will not be prepared due to a standardized manufacture of a product. Manufacturers' catalogue cuts will be acceptable in such cases, providing that they are 213 mm x 275 mm (8-1/2" x 11") originals, and that they indicate choices including sizes, colours, model numbers, options and other pertinent data, including installation instructions. Submissions showing only general information are not acceptable.

.3 Where requirements of contract documents are more stringent than design proposed on product data sheets, the requirements of the contract documents take priority.

.4 Upon completion of review by NRC Departmental Representative, 1 marked set of product data sheets will be returned to Contractor in digital format for reproduction and distribution.

.5 Retain 1 complete set of prints of reviewed product data sheets for issuance to NRC Departmental Representative immediately prior to substantial performance, in an acceptable, bound manner and in accordance with Section 01770.

1.4 Shop Drawings

.1 Submit shop drawings as follows:

.1 1 copy digitally in pdf format to NRC Departmental Representative using the NRC Departmental Representative's document management system.

.1 Refer to Section 01 10 00 "Electronic Files" paragraph.

.2 Lettering on shop drawings shall be not less than 3mm (1/8") high.

.3 Where requirements of contract documents are more stringent than design proposed on shop drawings, the requirements of the contract documents take priority.

.4 NRC Departmental Representative markings and resulting action required:

.1 Shop drawings requiring no changes will be marked 'REVIEWED', and shall be submitted for as-built drawings purposes.

.2 Shop drawings requiring several changes will be marked 'REVIEWED as NOTED' and shall be revised and submitted for as-built drawings purposes.

.3 Shop drawings requiring substantial changes will be marked 'REVISE AND RE-SUBMIT' and shall be revised and resubmitted until NRC Departmental Representative stamps drawings with 'REVIEWED' or 'REVIEWED as NOTED'.

.5 Shop drawing size shall be multiple of 213 mm and 275 mm (8-1/2" and 11") excluding 38 mm (1-1/2") binding margin and not larger than 838 mm x 1117 mm (33" x 44"). Leave minimum 150 mm x100 mm (6" x 4") clear space for NRC Departmental Representative's comments.

.6 Upon completion of review by NRC Departmental Representative, 1 marked set of shop drawings will be returned to Contractor in digital format for reproduction and distribution.

.7 Submit copies of reviewed shop drawings to authorities having jurisdiction as required.

PART 2 - PRODUCTS

Not applicable.

PART 3 - EXECUTION

Not applicable.

END OF SECTION

PART 1 - GENERAL

1.1 General Procedures

.1 For the purposes of this section:

.1 The words “worker” or “workers” shall mean the Contractor, Contractor’s staff or employees, subcontractors, subcontractor’s staff or employees, suppliers, supplier’s staff or employees, or anyone engaged for the work, directly or indirectly, by the Contractor, unless otherwise indicated.

.2 The words “make good” or “making good” shall mean that, when a finish or material or surface has been altered, the material or finish or surface shall be repaired or replaced and refinished to match existing quality and appearance to acceptance of NRC Departmental Representative, and that work made good shall not be discernible from existing materials or finishes when judged by the NRC Departmental Representative from a viewing distance of 1830 mm (6'), and that such work is included in the contract price.

.2 Operational limitations:

.1 Security clearance will be required for workers. Workers must have been cleared to a minimum of “Reliability” status in accordance with Government of Canada Government Security Policy.

.2 The existing building will remain in full use and occupancy throughout the work, except for such parts of the building that have been vacated for the work.

.3 Contractor’s use of the site is limited to permit regular use of existing NRC Departmental Representative’s facilities to continue with the least amount of interference and disruptions possible.

.4 Assigned access to the site and access routes through occupied areas of the existing building are as indicated in the contract documents.

.5 Contractor set-up and storage areas shall be as indicated in the contract documents.

.3 Building/safety orientation:

.1 Workers will be required to attend a building/safety orientation prior to undertaking work in the existing building. Building/safety orientation to be conducted by the NRC Departmental Representative.

.4 Dust tight enclosure and partition doors and entrance doors to the site shall remain closed.

.5 Areas of the existing building adjacent to the site or areas affected by the work, including circulation and access routes, shall be maintained in a clean state equivalent to the level of cleanliness maintained in the existing building, and as follows:

.1 Clean and vacuum the site and areas surrounding the site daily or more frequently as required.

.2 Wet mop floor areas in vicinity of access doors to the site daily, or more frequently as required.

.3 Vacuum carpeted areas daily or more frequently as required.

.4 Wet clean carpets in accordance with manufacturer's recommendations once work in such areas is complete.

.5 Final cleaning shall be in accordance with Section 01 77 00.

.6 Waste protection and removal:

.1 Waste management and disposal shall be in accordance with Section 01 50 00 as supplemented herein.

.2 Transport waste in containers with tightly fitting lids or cover waste with a wet sheet.

.3 Remove waste as it is created. Debris shall be contained and covered if it can not be removed immediately.

.4 Do not transport waste through occupied areas of existing building.

.5 Remove waste at the end of each working day through construction access routes.

.7 Document condition of the existing building in areas immediately adjacent to the site by means of construction photographs in accordance with Section 01 32 33.

1.2 Security

.1 The Contractor shall be solely responsible for securing the site and the work, and for securing areas used for the storage of products or construction machinery and equipment. The NRC Departmental Representative shall have no responsibility in this regard.

.1 Provide and maintain security lighting.

.2 Provide and maintain temporary locks. Premises to be locked after working hours.

.2 Provide security for the site by methods compatible with the security system for the existing building.

.1 Contractor shall coordinate the work carefully with the NRC Departmental Representative in the presence of the NRC Departmental Representative in order to ensure no disruption to the existing building's security system.

.2 Where existing building's security system is breached due to Contractor's negligence, be responsible for any damage or theft of property, regardless if area where damage or theft occurred is under Contractor's control or not.

1.3 Use of Existing Facilities

.1 Restrict access, parking, material deliveries, execution of work, operations and procedures to designated locations and times and do not deviate from designated procedures without prior acceptance by the NRC Departmental Representative in the presence of the NRC Departmental Representative.

.2 Periodically review proposed construction operations with the NRC Departmental Representative in the presence of the NRC Departmental Representative and cooperate as required to ensure that NRC Departmental Representative's interests and requirements are not unduly compromised with regard to the normal operation and function of occupied areas on the existing building.

.3 Traffic through occupied areas of the existing building shall be kept to a minimum. Travel within occupied areas of the existing building shall be via the most direct route.

.4 Noise, dust and debris, and odours shall be minimized to ensure building occupants in adjacent areas are disturbed as little as possible. Corrective action to cease or limit disagreeable annoyances to building occupants shall be implemented immediately upon notification by the NRC Departmental Representative or the NRC Departmental Representative.

.5 Use of existing garbage chutes shall not be permitted.

.6 Use of existing containers and garbage bins shall not be permitted.

.7 Existing fire protection equipment:

.1 Existing fire protection equipment shall only be used in an emergency situation.

.2 Do not remove existing fire protection equipment.

.3 If any existing fire protection equipment is used or interfered with in any way, the NRC Departmental Representative's fire equipment inspector shall be retained to inspect, test, recharge, and otherwise repair such equipment at no additional cost to the NRC Departmental Representative.

.8 Sanitary facilities:

.1 The NRC Departmental Representative will designate existing washrooms for use of workers.

.1 Regularly maintain and clean these washroom facilities, in compliance with applicable regulations, codes and by-laws, for the duration of the work. At substantial performance, turn over to NRC Departmental Representative, clean washroom facilities, in same condition facilities were prior to commencement of the work. Arrange and pay for repairs, making good and replacement if necessary, as directed by NRC Departmental Representative.

.2 Provision of such access to existing washrooms does not relieve the Contractor of the responsibility to supply and install and maintain, in compliance with applicable regulations, codes and by-laws, sufficient sanitary temporary water closets and washbasins for use of workers as required by applicable regulations, codes and by-laws. Additional sanitary temporary water closets and washbasins for use of workers, as required, shall be provided at no additional cost to the NRC Departmental Representative.

1.4 Parking

.1 A parking area has been designated for the use of workers engaged for the project.

.1 Use of the parking area shall be by vehicles with parking permits only.

.2 Parking permits will be issued by the NRC Departmental Representative on a monthly basis at no cost.

.3 Submit a list of vehicles for which permits are required to the NRC Departmental Representative. The list shall include the make, model, year, and licence plate number for each vehicle. The list shall be updated at least once a month, or more frequently as required.

.4 There is no reserved parking. Parking is on a first-come-first-served basis however, occupants of and visitors to the existing building shall have priority over workers. It may be necessary for workers to park off-site.

.2 Throughout the work, ensure that there is no interference with the operation of the existing premises, and that the existing parking areas and road system remain free and clear of obstructions.

.3 Illegally parked vehicles will be ticketed and/or towed at vehicle owner's expense, and at no additional cost to the NRC Departmental Representative.

1.5 Protection of the Existing Building

.1 Protection requirements shall be in accordance with Section 01 50 00, as supplemented herein.

.2 Keep site safe and secure, denying access to unauthorized personnel.

.3 Protect existing work from damage. Make Good any damage caused. The onus is on the Contractor to substantiate that damage existed prior to commencement of the work.

.4 Do not overload the existing structure due to the work.

.5 Take special measures to protect existing work from damage when moving heavy loads or equipment. Protect areas used as passageways or through which materials are moved. Use resilient tired conveyances only when moving materials and equipment inside building. Provide coverings as required to protect existing work from damage.

.6 Separate exterior access, work and storage areas from NRC Departmental Representative occupied existing areas, with fencing and hoarding. Rearrange fencing/hoarding as work progresses to suit extent and configuration of the work. Provide non-combustible hoarding where indicated. Provide non-combustible hoarding also where required by authorities having jurisdiction.

.7 Provide guards, barricades and other temporary protection to prevent injury to persons.

.8 Protect existing building components and contents from damage by weather, when executing work affecting integrity of the building envelope. Provide temporary insulated and air tight weatherproof closures to protect openings made in existing building envelope. Make Good existing building components and contents damaged by weather resulting from inadequate temporary protection measures.

.9 Provide temporary fire resistant closures at existing areas openings exposed to construction areas for the work to maintain fire and life safety of existing building.

.10 Protection of existing occupied areas:

.1 Existing exterior walls with windows of plain glazing, when exposed to the work, shall be protected with 16 mm (5/8") gypsum board for interior surfaces and 9.5 mm (3/8") exterior grade plywood for exterior surfaces, mounted on suitable framing.

.2 Maintain such protection throughout the work.

.3 Other openings in the existing exterior walls, such as doors and louvres, shall be similarly protected or replaced with doors of solid core wood or hollow steel construction.

1.6 Emergency and Fire Protection

.1 Provide and maintain ready access to fire protection equipment.

.2 Provide temporary fire resistant closures at existing building openings exposed to construction areas.

.3 Contractor shall coordinate the work carefully with the NRC Departmental Representative in order to ensure no disruption to the existing fire detection and annunciation systems. Failure to provide such coordination shall result in the Contractor incurring the responsibilities and expenses associated with disruption to the existing fire detection and annunciation systems at no additional cost to the NRC Departmental Representative.

.1 Provide fire watch when existing fire detection and annunciation systems are not operational or on bypass.

.2 Whenever a changeover time occurs, which is an outage time of at least a portion of the fire alarm system, the municipal fire department shall be notified of the temporary shutdown and alternative measures shall be devised.

.4 Contractor shall coordinate the work carefully with the NRC Departmental Representative in the presence of the NRC Departmental Representative in order to prevent unapproved disruptions to the existing sprinkler system, standpipe system, or other fire protection systems.

.1 Where temporary shut-down is necessitated, such shut down shall be in accordance with the requirements of authorities having jurisdiction and the building code.

.5 Obtain 'Hot Work Permit' from NRC Departmental Representative prior to hot work operation, which may cause the building's fire alarm system to be activated or create an unwarranted fire risk condition. The prevention of fires and false fire alarms caused by hot work operations is the primary goal of this procedure. Gas hoses, backflow preventers, fire resistive tarpaulins, curtains and other cutting and welding equipment must be in good repair before the permit is issued.

.1 'Hot Work' is defined as work using open flames or sources of heat that could ignite materials in the work area.

.6 Fire separations:

.1 Maintain the integrity of fire separations, fire protection systems , and fire rated assemblies.

.2 Make Good fire separations, fire protection, and fire rated assemblies compromised as a result of the work.

.7 Temporary fire separations:

.1 Provide temporary fire separations between existing occupied floor areas and new areas under construction.

.2 Construct temporary fire separations out of steel studs and gypsum board to provide a construction equivalent to a minimum of 1 hour fire resistance rating, unless greater rating is indicated or required.

.3 Where access is required, the doorway shall be protected by a door of solid core wood or hollow steel construction.

.4 Finish hardware equivalent to a minimum of 1 hour fire resistance rating, unless otherwise indicated.

.8 Maintaining existing building exit facilities:

.1 Maintain exit facilities serving the existing building.

.2 Where an exit is blocked-off or deleted as a result of the work, an alternative exit shall be supplied and installed that is acceptable to the NRC Departmental Representative, the NRC Departmental Representative, and authorities having jurisdiction.

.3 Where it is necessary for access to be gained to an exit through the site, the access shall be clearly defined and protected so that it is separated from construction areas by a smoke tight fire separation equivalent to a minimum of 1 hour fire resistance rating, unless otherwise indicated.

.9 Fire department access:

.1 Do not obstruct access route designated for fire department equipment.

.2 If it is necessary that existing access routes be obstructed or deleted, alternative access routes acceptable to the fire department and in accordance with the requirements of the contract documents and authorities having jurisdiction shall be supplied and installed prior to commencement of work that will obstruct or delete existing access.

.10 Combustible materials:

.1 Stockpiling of combustible materials adjacent to or inside the existing building shall not be acceptable.

.11 Temporary protection of openings in fire separations:

.1 Openings in existing floor assemblies and vertical fire rated assemblies required by the work, shall be temporarily protected with materials as required to maintain continuity of the required fire resistance rating for existing fire rated assembly.

.12 Supplement requirements of this section with requirements of Section 00 15 45.

PART 2 - PRODUCTS

Not applicable.

PART 3 - EXECUTION

Not applicable.

END OF SECTION

PART 1 - GENERAL

1.1 Section Includes

.1 General administrative and procedural requirements for quality assurance and quality control as specified elsewhere in the contract documents.

1.2 Related Requirements

.1 Pre-installation meetings: in accordance with Section 01 31 19.

.2 Materials and workmanship quality assurance and reference standards: in accordance with Section 01 60 00.

.3 Balancing and testing of systems - under Divisions 21, 22, and 23, and Divisions 26, 27, and 28.

1.3 Inspection and Testing

.1 Inspection and testing services will be used to verify compliance with requirements of the contract documents. These services do not relieve the Contractor of responsibility for compliance with the contract documents.

.1 Specified tests, inspections, and related actions do not limit the Contractor's other quality assurance and control procedures that facilitate compliance with the contract documents requirements.

.2 Requirements for the Contractor to provide quality control services required by NRC Departmental Representative, NRC Departmental Representative, or authorities having jurisdiction are not limited by provisions of this section.

.2 The NRC Departmental Representative will appoint inspection and testing companies, representing, reporting and responsible to the NRC Departmental Representative. Payment will be by NRC Departmental Representative, unless otherwise specified.

.3 Additional testing services required because of changes in materials, proportions of mixes requested by Contractor or subcontractors as well as additional testing services for materials occasioned by lack of identification or by failure of such materials being replaced to meet requirements of the contract documents or testing of structure or elements including load testing, shall be carried out at no additional cost to the NRC Departmental Representative.

.4 Inspection and testing required by codes or ordinances, or by an authority having jurisdiction, and made by a legally constituted authority, shall be the responsibility of the Contractor and shall be paid for by the Contractor and not be paid by NRC Departmental Representative, unless otherwise specified in the contract documents.

.5 Inspection or testing performed exclusively for Contractor's convenience shall be sole responsibility of Contractor, and will not be paid by NRC Departmental Representative.

.6 Inspection and testing shall be performed by company qualified to perform the inspections or tests specified or required.

.7 Requirements of regulatory companies:

.1 Testing shall be conducted in accordance with requirements of the building code.

.2 Obtain certification where required by the building code and standards.

.8 Cooperation with inspection and testing companies:

.1 Provide inspection and testing companies with materials and installation information as required and /or requested.

.2 Provide access to the work for representatives of inspection and testing companies.

.3 Cooperate with inspection and testing companies and give adequate notification of any changes in source of supply, additional work shifts and other proposed changes.

.4 Permit access to the work for inspection and testing companies wherever the work is in progress, or wherever products, materials, or equipment are stored prior to shipping.

.5 Supply labour required to assist inspection and testing companies in sampling and making tests.

.6 Repair work damaged as a result of inspection and testing work.

.7 Inspection and testing company services do not relieve the Contractor of responsibility for normal shop and site inspection, and quality control of manufacturing and installation.

.9 Where evidence exists that defective workmanship may have occurred, or that the work may have been carried out incorporating defective materials, or tests demonstrate that installed conditions do not comply with the requirements of the contract documents, the NRC Departmental Representative reserves the right to have appropriate inspections, tests, and surveys performed, analytical calculation of structural strength made and the like in order to help determine the extent of defect and whether such work must be replaced. Inspections, tests, and surveys carried out under these circumstances will be made at the Contractor's expense, and will not be paid by NRC Departmental Representative, unless the results indicate that the work so tested, inspected or surveyed is not defective or that, in NRC Departmental Representative's opinion, the work so tested, inspected, or surveyed may be accepted, in which case tests, inspections or surveys will be paid by NRC Departmental Representative.

.10 Prepare schedule for inspection and testing company services in accordance with Section 01 33 00 and as follows:

.1 Establishing schedule:

.1 By advance discussion with the selected inspection or testing company, determine the appropriate time necessary to perform the required services and to issue related reports.

.2 Allow for required time within construction schedule.

.2 Adherence to schedule:

.1 Contractor shall advise inspection and testing companies in advance when inspection and testing of the work is required.

.1 Amount of advance notice shall be as required by the inspection and testing company, but shall be no less than 2 working days.

.2 When inspection and testing company is ready to perform inspection and testing according to predetermined schedule, but is prevented from inspection and testing or taking specimens due to incompleteness of the parts of the work scheduled for inspection and testing, extra costs for inspection and testing attributable to the delay may be back-charged to Contractor at no additional cost to the NRC Departmental Representative.

.3 Notify inspection and testing company at least 3 working days before work required to be inspected commences, and arrange for a meeting at the site, to be held 1 working day before the work starts with the following present:

.1 The Contractor, and the subcontractor responsible for the work to inspected and/or tested, the inspection and testing company representatives, the product manufacturer's representative when required, and the NRC Departmental Representative.

.4 Give 2 working days' prior notice to inspection and testing company of the commencement of each phase of the work requiring inspection, and provide inspection and testing company with materials and installation information.

.11 Reports and documents

.1 Inspection and testing company shall submit shop inspection and site inspection reports within 5 working days of each inspection.

.2 Distribute reports as follows:

.1 NRC Departmental Representative; 2 copies.

.2 NRC Departmental Representative; 1 copy.

.3 Contractor; 2 copies.

.4 Consulting engineers, as applicable; 1 copy each.

.3 Inspection and testing companies shall submit a written report for each inspection or test, including pertinent data such as conditions at the site, dates, test references, locations of tested materials, actual product identification, testing methodology, procedures, and descriptions, site instructions given, recommendations and/or any other information required by standard applicable to reporting of tests and inspections.

.1 Report shall clearly indicate failure of product or procedures to meet applicable standards, give recommendations for retesting or correction. Inspector shall contact Contractor and NRC Departmental Representative immediately when product or product assembly fails to meet requirements of the contract documents.

.4 Upon completion of portions of the work subject to independent inspection and testing, submit to the NRC Departmental Representative duplicate certificates of acceptance of the installation issued by the independent inspection and testing company.

.12 Inspection and test specimens

.1 Inspection and testing will, generally, consist of procedures listed in the following paragraphs, but additional tests may be performed as required to verify conformance to contract documents.

.2 Specimens and samples for testing, unless otherwise specified in the contract documents, will be taken by the inspection and testing company; sampling equipment and personnel will be provided by the inspection and testing company; and deliveries of specimens and samples to the testing company will be performed by the testing company unless otherwise specified.

.3 Inspection and testing company shall take samples necessary to verify quality as specified. Taking of samples shall not endanger the structure or life safety, and shall be taken so as to best represent the work as a whole.

.4 Samples shall be handled, packaged, stored and delivered in accordance with specified tests. Sample handling where required shall duplicate conditions at the site (such as site-cured concrete cylinders).

1.4 Mock-Ups

.1 Provide field or shop erected example of work complete with specified materials and workmanship.

.2 Erect mock-ups at locations as specified and as acceptable to NRC Departmental Representative. Do not proceed with work for which mock-ups are required prior to NRC Departmental Representative's review of mock-ups.

.3 Protect and maintain mock-ups until directed to be removed. Commence work demonstrated in mock-up only after review and acceptance of workmanship. If possible, mock-up may become part of finished work, at sole discretion, and with prior written acceptance of NRC Departmental Representative.

.4 Reviewed and accepted mock-ups will become standards of workmanship and material against which installed work will be compared.

.5 Remove and replace materials or assemblies not matching reviewed mock-ups.

.6 Resubmit mock-ups until written acceptance is obtained from NRC Departmental Representative.

.7 Provide line item in breakdown of construction costs identifying full costs for mock-ups.

1.5 Manufacturer's Field Review

.1 Where manufacturer's field review is specified, manufacturer's representative shall review the relevant parts of the work at the site, or wherever such affected work is in progress, to ensure that work is being executed in accordance with manufacturer's written recommendations and verify its product to be fit-for-purpose intended.

.2 Manufacturer's field review is to ensure that the products specified are being used in the work and are being applied on surfaces prepared in accordance with their recommendations and the requirements of the contract documents.

.3 Unless otherwise indicated, manufacturer's representative shall undertake a minimum of 1 field review, with additional reviews as deemed necessary by the manufacturer, to determine that the work of such sections is in accordance with the manufacturer's written recommendations.

.4 Manufacturer's representative shall submit a type-written report on manufacturer's letterhead within 2 working days after each field review. Report shall document manufacturer's representative's field observations and recommendations.

.5 Manufacturer's field review reports shall be prepared and distributed following the procedures specified for preparation and submittal of inspection and testing reports given above.

PART 2 - PRODUCTS

Not applicable.

PART 3 - EXECUTION

Not applicable.

END OF SECTION

PART 1 - GENERAL

1.1 General Instructions

.1 Temporary facilities and controls specified in this section shall be supplemented as applicable in accordance with Section 01 35 13.

.2 Arrange, obtain and pay cost for permits required for temporary facilities and controls.

.3 Provide and maintain temporary facilities and controls for the work and remove them from the work upon issuance of certificate of substantial performance.

.4 Arrange and pay for required temporary services, unless otherwise indicated by NRC Departmental Representative.

.5 Protect and maintain without interruption, existing water, heating, drainage, telephone and other services within the site to existing buildings not within the scope of the work of this Contract. Obtain written permission of the NRC Departmental Representative for services required to be temporarily shut off, at least 2 full working days in advance.

.6 Do not use permanent conveying, mechanical, or electrical systems, except standpipe for firefighting, during the course of the work unless specific written permission is provided by the NRC Departmental Representative. Use of permanent facilities or services for temporary construction service shall not prejudice warranties.

.7 Provide connection and disconnection of temporary services and facilities required in the work, including connection to existing services made available by the NRC Departmental Representative.

1.2 Temporary Electrical Services

.1 Provide and maintain an adequate temporary electrical service for performance of the work including, but not limited to, operation of electric pumps, motors, vibrators and other power tools, hoisting and related construction and general illumination during the work.

.1 Use existing electrical service into building. NRC Departmental Representative will pay electrical bills.

.2 Provide and maintain any components and equipment necessary to transform supply power to necessary temporary power voltage.

1.3 Temporary Water Supply

.1 Provide and maintain a temporary supply of water for use in the work.

.1 Use existing water supply. NRC Departmental Representative will pay water bills.

.2 Extend supply pipe or pipes from nearest available sources and maintain in good condition until permanent system is installed and ready for use.

1.4 Temporary Sanitary Facilities

.1 Temporary sanitary facilities shall be in accordance with Section 01 35 13.

1.5 Temporary Enclosures and Protection

.1 Provide temporary enclosures and protection of adequate construction to prevent dispersion of dust and dirt into other areas of existing building and to prevent dispersion of dust and dirt beyond the site.

.2 Provide temporary weather-tight enclosures and protection for exterior openings in building as soon as walls, floors and roofs are built so as to protect the work from weather and vandalism. Provide doors in enclosures as necessary to maintain fire exits.

.3 Temporary enclosure and protection shall be of finished appearance and painted to colour approved by NRC Departmental Representative.

.4 Provide dust seal and sound resistant enclosures to protect existing building and operations as indicated. Include temporary doors, fastenings and keys.

.5 Insulate and airseal exterior enclosures to prevent condensation and drafts.

.6 Supplement these requirements in accordance with Section 01 35 13.

1.6 Plant, Machinery and Scaffolding

.1 Provide formwork, scaffolding, equipment, tools, machinery and incidental appurtenances necessary for the proper execution of the work.

.2 Erect plant, machinery and scaffolding to permit access to building and the work.

.3 Use scaffolds in such manner as to interfere as little as possible with other trades' operations.

.4 Support scaffolds from finished surfaces only after taking precautions to prevent damage. No supports, clips, brackets, or similar devices shall be welded, bolted, or otherwise affixed to any finished member or surface without prior permission.

1.7 Waste Management

.1 Do not bury rubbish and waste materials at the site.

.2 Do not dispose of waste into waterways or storm or sanitary sewers.

.3 Do not burn waste materials at the site.

.4 Comply with waste disposal requirements of authorities having jurisdiction.

.5 Remove waste material from the site daily. If waste is collected in bins, bins to be removed from site once full.

.6 Arrange and pay for removal of debris and waste from the site.

.7 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris. Pay fees.

1.8 Control of Dust, Debris and Noise

.1 Cover or wet down dry materials and rubbish to prevent blowing dust and debris.

.2 Control dust and dirt produced during the work to prevent dispersion beyond the immediate work areas.

.3 Prevent materials from contaminating air beyond application area, by providing temporary enclosures and ventilation/filtration.

.4 Limit noise levels in accordance with requirements of authorities having jurisdiction and the NRC Departmental Representative.

.5 Prevent abrasive-blasting, pressure-washing spray, and other extraneous materials from contaminating air beyond application area.

.6 Supplement these requirements in accordance with Section 01 35 13.

1.9 Design and Safety Requirements for Temporary Facilities

.1 Be responsible for design, erection, operation, maintenance and removal of temporary structural and other temporary facilities. Engage and pay for registered professional engineering personnel skilled in the appropriate disciplines to perform these functions where required by law or by the contract documents; and in cases where such temporary facilities and their method of construction are of such a nature that professional engineering skill is required to produce safe and satisfactory results.

.2 Engage and pay for professional engineer(s) registered in site to design and supervise construction and maintenance of hoardings, covered ways, protective canopies and project sign(s). Designs provided by NRC Departmental Representative or NRC Departmental Representative for such work cover general appearance only.

PART 2 - PRODUCTS

Not applicable.

PART 3 - EXECUTION

Not applicable.

END OF SECTION

PART 1 - GENERAL

1.1 INSTALLATION AND REMOVAL

.1 Provide temporary controls in order to execute Work expeditiously.

.2 Remove from site all such work after use.

1.2 HOARDING

.1 Erect temporary site enclosures using 38 x 89 mm construction grade lumber framing at 600 mm centres and 1200 x 2400 x 13 mm exterior grade fir plywood to CSA O121.

.2 Apply plywood panels vertically flush and butt jointed unless otherwise indicated.

.3 Erect and maintain pedestrian walkways including roof and side covers, complete with signs and electrical lighting as required by law.

.4 Paint public side of site enclosure in selected colours with one coat primer to CAN/CGSB 1.189 and one coat exterior paint to CGSB 1.59. Maintain public side of enclosure in clean condition.

.5 Provide barriers around trees and plants designated to remain. Protect from damage by equipment and construction procedures.

1.3 GUARD RAILS AND BARRICADES

.1 Provide secure, rigid guard rails and barricades around deep excavations, open shafts, open stair wells, open edges of floors and roofs.

1.4 WEATHER ENCLOSURES

.1 Provide weather tight closures to unfinished door and window openings, tops of shafts and other openings in floors and roofs.

.2 Close off floor areas where walls are not finished; seal off other openings; enclose building interior work for temporary heat.

.3 Design enclosures to withstand wind pressure and snow loading.

1.5 DUST TIGHT SCREENS

.1 Provide dust tight screens or insulated partitions to localize dust generating activities, and for protection of workers, finished areas of Work and public.

.2 Maintain and relocate protection until such work is complete.

1.6 ACCESS TO SITE

.1 Provide and maintain access roads, sidewalk crossings, ramps and construction runways as may be required for access to Work.

1.7 PUBLIC TRAFFIC FLOW

.1 Provide and maintain competent signal flag operators, traffic signals, barricades and flares, lights, or lanterns as required to perform Work and protect public.

1.8 FIRE ROUTES

.1 Maintain access to property including overhead clearances for use by emergency response vehicles.

1.9 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

.1 Protect surrounding private and public property from damage during performance of Work.

.2 Be responsible for damage incurred.

1.10 PROTECTION OF BUILDING FINISHES

.1 Provide protection for finished and partially finished building finishes and equipment during performance of Work.

.2 Provide necessary screens, covers, and hoardings.

.3 Confirm with NRC Departmental Representative locations and installation schedule 3 days prior to installation.

.4 Be responsible for damage incurred due to lack of or improper protection.

PART 2- PRODUCTS

2.1 NOT USED

.1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED

.1 Not Used.

END OF SECTION

PART 1 - GENERAL

1.1 Availability of Products

.1 In the event of delays in supply of products, and should it subsequently appear that the work may be delayed for such reason, NRC Departmental Representative reserves the right to substitute more readily available products of similar character, at no additional cost to the NRC Departmental Representative.

1.2 Product Handling

.1 Handle and store products in a manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturers' and supplier's recommendations and so as to ensure preservation of their quality and fitness for the work, and protect from vandalism and theft.

.2 Store packaged or bundled products in original and undamaged condition with manufacturer's seals and labels intact, facing to outside. Do not remove from packaging or bundling until required in the work.

.3 Store materials susceptible to environmental damage in a weathertight enclosure raised clear of ground so that they are protected from weather, dampness and deterioration. Do not use such materials which have been damaged by exposure to moisture.

.4 Keep sand, when used as ingredients for grout, mortar or similar mixed materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.

.5 Store sheet materials, lumber and other products susceptible to deterioration on flat, solid supports and keep clear of ground or slab. Slope to shed moisture.

.6 Handle materials to preclude damaging existing surfaces and work of others.

.7 Remove damaged products and replace with new undamaged products.

.8 Transportation:

.1 Pay cost of transportation of products required in performance of work.

.2 Transportation cost of products supplied by NRC Departmental Representative will be paid for by NRC Departmental Representative. Unload, handle and store such products at the site.

.3 Reject products damaged during transport.

.4 Transportation of products must be undertaken to suit construction schedule. Contractor is responsible for determining mode of transport to ensure delivery, obtaining shop drawings, placement of orders, and on-time premium costs, air freight, and the like.

PART 2 - PRODUCTS

2.1 Product Requirements and Quality

.1 Compatibility of options: If given option of selecting between two or more products, select product compatible with products previously selected, even if previously selected products were also options.Products used for temporary facilities may have been previously used, providing they are sound in structural qualities.

.2 Products and product installation shall be in compliance with building code, regulations and requirements of authorities having jurisdiction.

.3 Specified options: The work is based on materials, products and systems specified by manufacturer's catalogued trade names, references to standards, by prescriptive specifications and by performance specifications.

.1 Where only one manufacturer's trade name is specified for a product, the product is single sourced and shall be supplied by the specified manufacturer.

.2 Where more than one manufacturer's trade name is specified for a product, supply one product from list of products specified.

.3 When a product is specified by reference to a standard, select one product from manufacturer that meets or exceeds the requirements of the standard and manufacturer’s written application directions.

.4 When a product or system is specified by prescriptive or performance specifications, supply and install one product or system which meets or exceeds the requirements of the prescriptive or performance specifications and manufacturer’s written application directions.

.5 The onus is on the Contractor to prove compliance with governing published standards, prescriptive specifications and with performance specifications.

.6 Visual selection specification:

.1 Where specifications include the phrase "as selected by NRC Departmental Representative from manufacturer's full range" or similar phrase, select a product that complies with requirements. NRC Departmental Representative will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

.7 Visual matching specification:

.1 Where specifications require "match NRC Departmental Representative’s sample", provide a product that complies with requirements and matches NRC Departmental Representative’s sample. NRC Departmental Representative’s decision will be final on whether a proposed product matches.

.4 products, materials, equipment and articles (referred to as products throughout the contract documents) incorporated in the work shall be new, not damaged or defective, and of the quality standards specified, for the purpose intended. If requested, furnish evidence as to type, source and quality of products Provided.

.5 Where contract documents list Basis of Design or acceptable manufacturers, or list of products, select as applicable, one product meeting performance of specifications and manufacturer’s written application directions.

.6 Where contract documents list acceptable products or acceptable manufacturers, select as applicable, one product meeting performance of specifications and manufacturer’s written application directions.

.7 Where contract documents require design of a product or system, and minimum material requirements are specified, the design of such product or system shall employ materials specified within applicable section. Where secondary materials or components are not specified, augment with materials meeting applicable code limitations, and incorporating compatibility criteria with adjacent work.

.8 Defective products, whenever identified prior to completion of the work, will be rejected, regardless of previous reviews. Review of the work by the NRC Departmental Representative or inspection and testing companies does not relieve the Contractor of the responsibility for executing the work in accordance with the requirements of the contract documents, but is a precaution against oversight or error.

.9 Should dispute arise as to quality or fitness of products, the decision rests strictly with NRC Departmental Representative based upon the requirements of the contract documents.

.10 Unless otherwise indicated in the contract documents, maintain uniformity of product and manufacturer for any like item, material, equipment or assembly for the duration of the work.

.11 Products exposed in the finished work shall be uniform in colour, texture, range, and quality, and be from one production run or batch, unless otherwise indicated.

.12 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical, electrical, machinery or like rooms.

.13 NRC Departmental Representative retains right to select from choices available within specified products for colours, patterns, finishes or other options normally made available. Submit full range of product options in accordance with 01 33 00 for such selection.

.14 Quality control:

.1 Implement a system of quality control to ensure compliance with contract documents.

.2 Notify NRC Departmental Representative of defects in the work or departures from intent of contract documents that may occur during construction. NRC Departmental Representative will recommend appropriate corrective action in accordance with requirements of the Contract.

.15 Exposed to weather: products and materials in environments not protected by the building's HVAC and/or climate control systems shall be considered exposed to weather.

2.2 Inserts, Anchors, and Fasteners

.1 Use only factory made, threaded or toggle type inserts as required for supports and anchors, properly sized for load to be carried.

.2 Where inserts cannot be placed, use factory made expansion shields for light weights only.

.3 Supply and locate inserts, holes, anchor bolts and sleeves during placement or fabrication of structural elements.

.4 Fasteners stressed in withdrawal are not acceptable, except where otherwise indicated.

.5 Metal fastenings shall be uniform to metals materials and components being anchored or of a metal which will not set up a galvanic action causing damage to the fastening or metal component under moist conditions.

.6 Fastenings for prefinished materials shall be of concealed type unless otherwise indicated, and when exposed finish is required, of matching prefinishing materials.

.7 Metal fastenings and accessories shall be same texture, colour and finish as material on which they occur, as selected by NRC Departmental Representative.

.8 Power actuated fasteners:

.1 Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with capability to sustain, without failure, a load equal to 10 times design load, as determined by testing per ASTM E1190-11 conducted by a qualified independent testing agency.

.2 Do not use power actuated fasteners which are stressed in withdrawal in finished work.

.3 Do not use power actuated fasteners within 100 mm (4") of the edge of concrete or masonry, unless otherwise accepted in writing by NRC Departmental Representative.

.4 Do not use power actuated fasteners in post-tensioned concrete.

PART 3 - EXECUTION

3.1 Manufacturer's Instructions

.1 Unless otherwise indicated in the contract documents, install or erect products in accordance with manufacturer's printed instructions. Do not rely on labels or enclosures supplied with products. Obtain printed instructions directly from manufacturers.

.2 Notify NRC Departmental Representative in writing, of conflicts between the contract documents and manufacturer's instructions.

.3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes NRC Departmental Representative to require removal and re-installation at no additional cost to the NRC Departmental Representative.

.4 Manufacturers' representatives shall have access to the work at all times. Contractor shall render assistance and facilities for such access in order that the manufacturers' representatives may properly perform their function.

3.2 Overloading

.1 Protect the building from loads which may cause permanent deformation.

.2 Protect the work from loads which may cause permanent deformation.

3.3 Galvanic/Dissimilar Metal Corrosion

.1 Insulate dissimilar metals from each other by suitable plastic strips, washers or sleeves to prevent galvanic corrosion where conductive liquid or electrolyte (rainwater or condensation) exists.

3.4 Penetrations

.1 Holes or voids created in assemblies or partitions for penetrating mechanical, electrical, or sprinkler service items, shall be of sufficient size to accommodate the penetrating item as well as additional required fill materials, such as sealants, firestopping and smoke sealants, insulation, and the like, without exceeding the maximum opening allowable by the manufacturer of the additional required fill material.

3.5 Product Installation Requirements

.1 General:

.1 Execute the work using workers experienced and skilled in the respective duties for which they are employed.

.2 Do not employ an unfit person or anyone unskilled in their required duties.

.3 Upon request by the NRC Departmental Representative, submit proof, in the form of CCDC 11 - Contractor's Qualification Statement, of qualifications of subcontractors to verify subcontractor's qualifications and experience meet or exceed the requirements of the contract documents.

.1 If, upon review of the Contractor's Qualification Statement, it is found that the subcontractor does not meet the qualification requirements specified in the contract documents pertaining to the parts of the work for which the subcontractor has been retained, the Contractor shall replace the unqualified subcontractor with a qualified subcontractor, satisfactory to the Contractor and the NRC Departmental Representative, at no additional cost to the NRC Departmental Representative and at no increase in the contract time.

.4 Remove products or materials that have been broken, chipped, cracked, discoloured, abraded, or damaged during construction period and supply and install undamaged products or materials meeting the requirements of the contract documents.

.2 Coordination:

.1 Ensure cooperation of workers in layout of the work. Maintain efficient and continuous supervision.

.2 Be responsible for coordination and placement of openings, sleeves and accessories.

.3 Backer plates:

.1 Provide backer plates to support and provide anchorage base to carry loads from surface or recessed applied materials.

.4 Concealment:

.1 In finished areas, conceal pipes, ducts and wiring in floors, walls and ceilings, except where indicated otherwise.

.2 Before installation, inform NRC Departmental Representative of any contradictory situation. Install as directed by NRC Departmental Representative.

.5 Cutting and remedial work:

.1 Perform cutting and remedial work required to make parts of the work come together. Coordinate the work to ensure this requirement is maintained. Obtain permission from NRC Departmental Representative before commencing any cutting.

.6 Location of fixtures:

.1 Consider location of fixtures, access panels, outlets and mechanical and electrical items indicated as approximate only. Locate fixtures, and the like approximately; Architectural drawings will relate these items to known dimensions, such as ceiling tile grid or wall locations and the like.

.2 Obtain NRC Departmental Representative's acceptance for precise locations of fixtures, access panels, outlets, mechanical, and electrical items.

.3 NRC Departmental Representative reserves the right to relocate electrical outlets and mechanical fixtures at a later date, but prior to installation, without cost, provided that the relocation per outlet does not exceed 3050 mm (10') from the original location.

.4 Inform NRC Departmental Representative of conflicting installations. Install only as directed by NRC Departmental Representative.

.7 Protection of work in progress:

.1 Take reasonable and necessary measures, including those required by authorities having jurisdiction, to supply and install protection.

.2 Adequately protect parts of the work completed or in progress. Parts of the work damaged or defaced due to failure in providing such protection is to be removed and replaced, or repaired, as directed by the NRC Departmental Representative, at no additional cost to the NRC Departmental Representative.

.3 Prevent overloading of any part of the building. Do not cut, drill or sleeve any load bearing structural member without written permission of NRC Departmental Representative, unless specifically indicated. Refer also to Section 01 73 29.

.4 Adequately protect finished flooring from damage. Take special measures when moving heavy loads or equipment on them.

.5 Keep floors free of oils, grease or other materials likely to discolour them or affect bond of applied surfaces.

.6 Protect work of other subcontractors from damage while doing subsequent work. Damaged work shall be made good by appropriate subcontractors but at expense of those causing damage.

.7 Protect existing buildings, curbs, roads and lanes. If, during the work, any buildings, curbs, roads or lanes are damaged, bear costs for repairs.

.8 Existing utilities:

.1 When breaking into or connecting to existing services or utilities, execute the work at times approved by NRC Departmental Representative, with a minimum of disturbance to NRC Departmental Representative’s ongoing operations, the work, and traffic.

.2 Protect, relocate or maintain existing active services. When inactive services are encountered, cap off in a manner approved by authority having jurisdiction and stake or otherwise record location of capped service.

.9 Protection of mechanical and electrical Products or materials:

.1 Wrap in protective plastic and seal mechanical and electrical items of mechanical and electrical equipment prior to and during shipment, storage at the site and after installation.

.2 Remove protective coverings only to the extent required for installation of the items. Re-install protection immediately following installation.

.3 Remove protective coverings in stages, as work areas are completed, or when directed by NRC Departmental Representative.

.10 Operational requirements:

.1 Operable products shall be supplied and installed fully operational and ready for intended use.

.2 Adjust operating hardware and accessories for a tight fit at contact points and weather stripping for smooth operation and weathertight closure. Lubricate hardware and moving parts for smooth squeak-free function, in accordance with manufacturer's instructions.

.11 Alterations:

.1 Restore new or existing work which is altered by new work and make good. Materials and installation quality shall be match existing materials and workmanship. Exposed materials shall match and blend in with the appearance of the existing undamaged surfaces in all respects, including, colours, textures, layout, jointing, and material types so as to not vary in appearance when compared to adjacent materials from a distance of 1830 mm (6').

END OF SECTION

PART 1 - GENERAL

1.1 Environmental Controls

.1 Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.

.2 Store volatile wastes in covered metal containers, and remove from site daily.

.3 Prevent accumulation of wastes which create hazardous conditions.

.4 Provide adequate ventilation during use of volatile or noxious substances.

1.2 Cleaning During Demolition

.1 Clean-up the site daily. Maintain clean and clear egress routes at all times.

.2 Maintain site, grounds and public properties free from accumulations of waste materials and rubbish.

.3 Provide containers at the site for collection of waste materials and rubbish. Remove waste materials and rubbish from the site when containers become full.

1.3 Final Cleaning

.1 Perform final cleaning in accordance with requirements of Section 01 77 00.

PART 2 - PRODUCTS

Not applicable.

PART 3 - EXECUTION

Not applicable.

END OF SECTION

PART 1 - GENERAL

1.1 General Instructions

.1 The procedures for completing Contract and acceptance by the NRC Departmental Representative shall be in accordance with the methods described in OAA/OGCA Document 100 (December 12, 2007) and any additional requirements described below.

1.2 Final Cleaning

.1 Environmental controls:

.1 Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.

.2 Store volatile wastes in covered metal containers, and remove from site daily.

.3 Prevent accumulation of wastes which create hazardous conditions.

.4 Provide adequate ventilation during use of volatile or noxious substances.

.2 Materials:

.1 Use only cleaning materials recommended by manufacturer of surface to be cleaned and as recommended by cleaning material manufacturer.

.3 Final cleaning:

.1 Immediately prior to NRC Departmental Representative's review to determine if substantial performance has been achieved, remove surplus products and construction machinery and equipment not required for the performance of the remaining work.

.2 Remove waste products and debris other than that caused by the NRC Departmental Representative, and leave the work clean and suitable for occupancy by NRC Departmental Representative.

.3 When the Contract is completed, remove surplus products, tools, construction machinery and equipment.

1.3 Closeout Submittals

.1 Collect reviewed submittals, and assemble required closeout submittals executed by subcontractors, suppliers, and manufacturers. Prior to submitting closeout submittals to the NRC Departmental Representative, undertake the following:

.1 Review maintenance manual contents (operating, maintenance instructions, as-built drawings, materials) for completeness.

.2 Review supply and completeness of spare parts required by contract documents and manufacturers.

.3 Review in relation to contract price, change orders, change directives, holdbacks and other adjustments to the contract price.

.4 Review inspection and testing reports to verify conformance to intent of contract documents and that changes, repairs or replacements have been completed.

.5 Execute transition of performance bond and labour and materials payment bond to warranty period requirements.

.6 Submit a final statement of accounting giving total adjusted contract price, previous payments, and monies remaining at time of application for completion of the Contract. NRC Departmental Representative will issue a final change order reflecting approved adjustments to contract price not previously made.

.2 No later than 10 working days prior to submitting request for NRC Departmental Representative's review to determine if substantial performance has been achieved, submit to the NRC Departmental Representative the closeout submittals specified in this section, including, but not limited to, reviewed shop drawings, product data sheets, samples, operating instructions, as-built records, fully executed warranties and guarantees, reports recording demonstration and instruction provided to NRC Departmental Representative for operation and maintenance of building systems, software required for operation and maintenance of building systems, maintenance materials, and keys.

.3 For equipment put into use with NRC Departmental Representative's permission during the work, submit required closeout submittals within 10 working days after start-up.

.4 For items of the work delayed materially beyond date of *Substantial Performance of the* work, provide updated closeout submittals within 10 working days after acceptance, listing date of acceptance as start of warranty period.

.5 Neither the NRC Departmental Representative's review to determine if substantial performance has been achieved, nor acceptance of the work, will take place until receipt, by the NRC Departmental Representative, of acceptable copies of the closeout submittals required herein and by the contract documents.

.6 As-built documents:

.1 NRC Departmental Representative will provide 1 set of contract documents to the Contractor for as-built documentation purposes.

.2 Accurately record as-built conditions and deviations from contract documents as the work progresses.

.3 Mark changes in red ink.

.4 Record, without being limited to, the following:

.1 Field changes of dimensions/details.

.2 Changes by change orders, change directives, and supplemental instructions.

.3 Locations of interior mechanical and electrical equipment and distribution.

.4 Specification as-builts: Record as-built products, including manufacturer, manufacturer's model or system number.

.5 As-built documentation:

.1 Submit 4 copies of as-built documents.

.2 Submit DVD or CD containing digital scanned copy ("PDF" files) of as-built documents.

.7 Operation and maintenance manuals:

.1 Submit 4 copies of operation and maintenance manuals, consisting of the following general components:

.1 Operation and maintenance book.

.2 Shop drawing book.

.3 Warranty book.

.4 project data book.

.2 Operation and maintenance books shall contain operating and maintenance data and information specified below for supplied products, in English, and shall be made up as follows:

.1 Charts, diagrams and reports identified in Divisions 21, 22, and 23 and Divisions 26, 27, and 28 of the specifications.

.2 Description, operation and maintenance instructions for equipment and parts list. Indicate nameplate information such as make, size, capacity, serial number.

.3 Bind each general component of the operation and maintenance books in separate vinyl hard covered, 3 ring loose leaf binders.

.4 Enclose title sheet, labelled as applicable, with project name, date and list of contents.

.5 Organize contents into applicable sections of work to parallel project specifications break-down. Mark each section by labelled tabs protected with celluloid covers fastened to hard paper dividing sheets.

.6 Neatly type lists and notes. Use clear drawings, diagrams of manufacturers' literature.

.3 Shop drawing book:

.1 Submit one copy of each final accepted shop drawing issued for the work on which have been recorded changes made during fabrication and installation caused by unforeseen conditions.

.2 Engineered shop drawings shall include copies of the certificate of insurance, the engineer’s field review reports, and the engineer’s letters of general that were provided as part of the engineered submittal in accordance with Section 01 33 00 appended to the pertinent engineered shop drawing in the shop drawing manual.

.4 Warranty book:

.1 Submit copies of bonds, guarantees, warranties and extended warranties together in one report binder, complete with an indexed summary list of warranties and expiration dates. Warranties to be in accordance with Section 01 78 36.

.5 project data book: shall include the following information supplemented by additional required data specified elsewhere in the contract documents:

.1 Maintenance instructions for finished surfaces and materials.

.2 Copy of hardware and paint schedules.

.3 Names, addresses and phone numbers of subcontractors and suppliers, as applicable.

.4 Additional material used in the work listed under various sections showing name of manufacturer and source of supply.

.5 Report recording demonstration and instruction provided to NRC Departmental Representative for operation and maintenance of building systems as described below in this section.

.6 Key construction photos.

.7 Permits and forms:

.1 Workplace Safety & Insurance Board certificate of clearance.

.2 Certificates of approval of the work by local building department (if available).

.3 Electrical authority certificate of inspection.

.4 Elevator authority certificate of approval.

.8 Posted operating instructions

.1 Prepare operating instructions in English for posting near equipment and systems. Posted instructions to be glass covered, framed and mounted.

.2 Posted instructions to consist of simplified, consolidated equipment, control and power diagrams graphically representing the entire system, including concise instructions on how to start and stop systems, what settings and conditions are to be observed by the operators, and what control adjustments are to be made or maintained by the operator.

.3 Posted instructions shall include control diagrams with added specific operating instructions, controls, interlocks, and the like.

.4 Posted instructions shall include:

.1 HVAC controls for each system;

.2 One line schematic diagrams of water supply;

.3 One line isometric diagrams of sanitary drainage;

.4 One line diagrams of steam distribution, hot and cold water systems, including risers, valves, control devices, etc.

.9 Maintenance materials:

.1 Provide overage, extra stock, and maintenance materials. For required materials, see individual sections of specifications. Deliver to a location and at a time specified by the NRC Departmental Representative, and as follows:

.1 Use unbroken cartons, or if not supplied in cartons, material shall be strongly packaged.

.2 Clearly mark cartons or packaging as to contents, project name, and supplier.

.3 If applicable give colour and finish, room number or area where material is used.

.2 Replace incorrect or damaged maintenance materials delivered to NRC Departmental Representative, including damage through shipment.

.3 Provide a typed inventory list of maintenance materials prior to substantial performance application. List all items, complete with quantities, and storage locations.

.4 Establish a master list identifying maintenance materials and maintain a log of when materials are turned over to NRC Departmental Representative and signing authority for acceptance of materials on behalf of NRC Departmental Representative.

1.4 System Demonstration and Project Commissioning

.1 Perform system demonstration and commissioning work no later than 10 working days prior to submitting request for NRC Departmental Representative's review to determine if substantial performance has been achieved.

.2 Submit required certificates of approval or acceptance from authorities having jurisdiction.

.3 Meet with other consultants to coordinate demonstration, instruction, commissioning and completion.

.4 Review condition of equipment such as lighting, elevators and heating system, which has been used in the course of the work to ensure turning over at completion in "as new condition" with warranties dated and certified from time specified.

.5 When partial occupancy of uncompleted project is required by NRC Departmental Representative, coordinate NRC Departmental Representative's uses, requirements, access, and the like, with Contractor's requirements to complete the work.

.6 Demonstration and instruction:

.1 Demonstrate operation of each system to NRC Departmental Representative and NRC Departmental Representative.

.2 Instruct NRC Departmental Representative's personnel in operation, adjustment and maintenance of equipment and systems, using operation and maintenance data provided as the basis for instructions. Arrange and coordinate instruction of NRC Departmental Representative's staff in care, maintenance and operation of building systems and finishes

.3 Contractor, manufacturer's representatives, and responsible personnel from subcontractors whose work is being demonstrated shall be present at these demonstrations.

.4 Instruct NRC Departmental Representative's representative on use of software required for operation and maintenance of building systems and provide a toll-free telephone number or website address for further assistance to the NRC Departmental Representative.

.5 Prepare and insert additional data in the operation and maintenance data manuals when the need for additional data becomes apparent during demonstration or instruction.

.6 Demonstration and instruction report: Submit a written report of such demonstration, instruction, and commissioning to the NRC Departmental Representative as part of the contract closeout submittals described earlier in this section. Report shall include time and date of each demonstration, instruction, and commissioning activity, complete with a list of persons present.

.7 Correct deficiencies and defects identified during demonstration, instruction, or commissioning.

.8 Attend 'end-of-work' testing and break-in or start-up demonstration.

1.5 substantial performance

.1 Deficiency review:

.1 No later than 10 working days after the receipt of the Contractor's request described above, but contingent upon the prior receipt, by the NRC Departmental Representative, of the closeout submittals in the manner and form specified in this section, the NRC Departmental Representative and the Contractor will review the work to identify any defects or deficiencies. If necessary, the Contractor shall tabulate a list of deficiencies to be corrected prior to substantial performance being certified by the NRC Departmental Representative. During review, the NRC Departmental Representative and the Contractor will decide which deficiencies or defects must be rectified before substantial performance can be certified, and which defects are to be treated as warranty items.

.2 Provide a schedule of planned deficiency review having regard to the foregoing.

.2 Certification of substantial performance:

.1 When the NRC Departmental Representative considers that the deficiencies and defects have been completed and that it appears that the requirements of the contract documents have been substantially performed, the NRC Departmental Representative shall issue a certificate of substantial performance to the Contractor, stating the date of substantial performance.

.2 The certificate of substantial performance shall be prepared and issued in accordance with the Construction Lien Act.

.3 Final Inspection for completion of the Contract:

.1 Deficiencies and defects shall be made good before the Contractor submits a written request for final review of the work and before the Contract is considered complete.

.2 When Contractor is satisfied that the work is complete, and after the Contractor has reviewed the work to verify its completion in accordance with the requirements of the contract documents, the Contractor shall submit a written request for a final review by the NRC Departmental Representative, who in turn will notify the NRC Departmental Representative.

.3 If there are any deficiencies identified as a result of this review, they shall be listed by the NRC Departmental Representative and submitted to the Contractor. This list shall be recognized as the final deficiency list for purposes of acceptance of the work under the Contract.

.4 Such deficiencies shall be corrected by a date mutually agreed upon between NRC Departmental Representative and the Contractor, unless a specific date is required by Contract, and a further review by the NRC Departmental Representative shall be called for by the Contractor following his own review to take place within 7 days from date of request.

.5 Contractor shall thereafter submit invoice for final payment.

.6 Money shall be withheld for deficiency work and will be released only when all deficiencies have been completed. No partial payment to be recognized until all work is completed.

PART 2 - PRODUCTS

Not applicable.

PART 3 - EXECUTION

Not applicable.

END OF SECTION

PART 1 - GENERAL

1.1 Extended Warranties

.1 Warranties shall be in accordance with the general conditions and as follows:

.1 Where specifically identified in the contract documents, extended warranties shall be furnished by individual manufacturer for particular product/system/assembly or by subcontractor for a particular product/system/assembly/section of the specifications.

.2 Extended warranties shall include for proper performance of the portion of the work as defined by the scope of the applicable specification section to the extent that the design and contract documents permit such performance.

.3 Extended warranties shall be provided by subcontractor unless warranty is specified to be provided by product manufacturer.

.4 The NRC Departmental Representative shall promptly give the warrantor notice in writing of observed defects and deficiencies which occur during the warranty period.

.5 Extended warranties shall commence at date of substantial performance.

.6 Extended warranties specified shall be in addition to, and run concurrent with, other warranties required by the contract documents. Manufacturer's disclaimers and limitations on product warranty do not relieve Contractor of obligations under requirements of the contract documents.

.7 Submit extended warranty on warrantor’s standard form specifically endorsed by the warrantor to the NRC Departmental Representative and shall include the following information:

.1 Name and address of project.

.2 Warranty commencement date (date of substantial performance).

.3 Warranty period.

.4 Specific warranty terms as required in applicable portion of contract documents.

.5 Name and title of authorized signing officer and seal of warrantor.

PART 2 - PRODUCTS

Not applicable.

PART 3 - EXECUTION

Not applicable.

END OF SECTION

PART 1 - GENERAL

1.1 Summary

.1 Section includes:

.1 Demolition and removal of selected non-structural portions of building.

.2 Removal of surplus materials from the site.

.3 Related mechanical and electrical work and demolition requirements are covered under Divisions 21, 22, and 23 and Divisions 26, 27, and 28 respectively.

.4 Protection of existing roof during demolition.

.2 For the purposes of this section:

.1 The words “make good” or “making good” shall mean that, when a finish or material or surface has been altered, the material or finish or surface shall be repaired or replaced and refinished to match existing quality and appearance to acceptance of NRC Departmental Representative, and that work made good shall not be discernible from existing materials or finishes when judged by the NRC Departmental Representative from a viewing distance of 1830 mm (6'), and that such work is included in the contract price.

1.2 Administrative Requirements

.1 Pre-demolition meeting:

.1 Schedule a pre-demolition meeting following the procedures specified for pre-installation meetings in accordance with Section 01 31 19.

.2 Review existing conditions at the site thoroughly to establish full extent of items to be removed, slabs, toppings, secondary floor finishes, and structures and items to remain. Commencement of demolition work will be considered to be acceptance of existing conditions at the site and removal of such items.

.3 Examine adjacent properties to determine extent of protection required.

1.3 Submittals

.1 Submit required submittals in accordance with Section 01 33 00.

.2 If a demolition permit is required by the municipal building department having jurisdiction at the site, it is a requirement of this Contract that the Contractor obtain the demolition permit such that the engineer for the Contractor responsible for the preparation of the demolition report becomes the Engineer of Record for the demolition work. It is understood that this may require preparation and submission of certain reports, possibly including drawings, as part of the municipal permit process prior to, during, and upon completion of the demolition work. Copies of the permit with the name of the Engineer of Record shall be submitted and received by the NRC Departmental Representative prior to the commencement of demolition.

.1 If an application has been made, by or on behalf of the NRC Departmental Representative, to the building department having jurisdiction at the site, it is a requirement of this Contract that the Contractor obtain an amendment to this application/permit such that the engineer for the Contractor responsible for the preparation of the demolition report becomes the Engineer of Record for the demolition work. It is understood that this may require preparation and submission of certain reports, possibly including drawings, as part of the municipal permit process prior to, during, and upon completion of the demolition work. Copies of the permit with the name of the Engineer of Record shall be submitted and received by the NRC Departmental Representative prior to the commencement of demolition.

.3 Special procedures submittals:

.1 Existing conditions documentation:

.1 Document existing conditions of adjoining construction and site improvements, including pre-existing damage to finish surfaces that might be misconstrued as damage caused by demolition operations.

.2 Comply with Section 01 32 33.

.3 Submit existing conditions documentation before demolition work begins.

1.4 Quality Assurance

.1 Qualifications:

.1 Installers / applicators / erectors: the work of this section shall be executed by a subcontractor having a minimum of 5 years specialized demolition experience and able to deploy adequate equipment and skilled personnel to complete work expediently in an efficient and orderly manner.

PART 2 - PRODUCTS

Not applicable.

PART 3 - EXECUTION

3.1 Examination

.1 Verify that utilities have been disconnected and capped.

.2 Observe existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

.3 When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to NRC Departmental Representative.

.4 Survey of existing conditions: Record existing conditions by use of photographs in accordance with Section 01 32 33.

3.2 Utility Services and Mechanical / Electrical Systems

.1 Refer to Divisions 21, 22, and 23 and Divisions 26, 27, and 28 respectively.

3.3 Selective Demolition, General

.1 General: Demolish and remove existing construction only to the extent required by new construction, and as otherwise indicated. Use methods required to complete the work within limitations of governing regulations and as follows:

.1 Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.

.2 Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.

.3 Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.

.4 Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.

.5 Maintain adequate ventilation when using cutting torches.

.6 Remove decayed, infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.

.7 Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.

.8 Dispose of demolished items and materials promptly.

.2 Dispose of demolished materials from project site except where noted otherwise and in accordance with authorities having jurisdiction. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

.3 Do not sell demolished material at the site.

.4 Clean existing surfaces to receive new applied finishes to assure proper adherence.

.5 Fill holes, whether new or existing, and make good.

END OF SECTION

PART 1 - GENERAL

1.1 Summary

.1 Section includes:

.1 Work of this section includes metal fabrications and related metals including, but not limited to, the following:

.1 Door support frames. Interior items shall be primed; finish painting coats shall be provided in accordance with Section 09 91 00.

1.2 Submittals

.1 Submit required submittals in accordance with Section 01 33 00.

.2 Submit list of fabrications to be supplied and installed as part of the work of this section.

.3 Product data sheets:

.1 Submit manufacturer's product data sheets for products proposed for use in the work of this section.

.4 Shop drawings:

.1 Submit engineered shop drawings.

.2 Include plans, sections and large scale details, and shall indicate components and methods of assembly, materials and their characteristics, fastenings, metal finishes, welds, and their structural characteristics relative to their purpose, and other fabrication information required.

.3 Indicate proposed site connections and methods.

1.3 Quality Assurance

.1 Qualifications:

.1 Installers / applicators / erectors: work of this section shall be executed only by a subcontractor who has adequate plant, equipment, and skilled tradespersons to perform work expeditiously, and is known to have been responsible for satisfactory installations similar to that required in the work during a period of at least the immediate past 5 years.

.2 Aspects of the work of this section are required to be prepared by a professional engineer. Refer to Section 01 33 00 for specific details and requirements in this regard.

.2 Requirements of regulatory agencies: the work of this section that functions to resist forces imposed by dead and live loads shall conform to requirements of jurisdictional authorities.

1.4 Delivery, Storage, and Handling

.1 Label, tag or otherwise mark metal fabrications supplied for installation by other sections to indicate its function, location in building and shop drawing designation.

.2 Protect work from damage during delivery, storage and handling.

.3 Deliver work to location at the site designated by Contractor and to meet requirements of construction schedule.

PART 2 - PRODUCTS

2.1 Performance/Design Requirements

.1 Design, fabricate, and install work of this section in accordance with the building code and requirements of all other governing authorities.

.2 Welding:

.1 Weld structural components in steel to conform to requirements of CSA W59-13, and by a fabricator fully certified by the Canadian Welding Bureau to conditions of CSA W47.1-09(R2014) and CSA W55.3-08 (R2013) as applicable.

.3 Design assemblies and connections to withstand own dead load, live loads, super-imposed dead loads, and fabrication forces, without permanent distortions or deformation, to maximum allowable deflection of L/360, within the following construction tolerances:

.1 Maximum variation from plumb in vertical lines:

.1 3.2 mm (1/8") in 3 m (10’-0”)

.2 Maximum variation from level:

.1 3.2 mm (1/8") in 9 m (30’-0”).

.3 Maximum variation from straight:

.1 3.2 mm (1/8") in 3 m (10’-0”) under a 3 m (10’-0”) straight edge.

.4 Maximum variation from angle indicated:

.1 10 seconds.

.5 Tolerances shall be non-cumulative.

2.2 Materials

.1 General:

.1 Unless detailed or specified otherwise, standard products will be acceptable if construction details and installation meet intent of the contract documents.

.2 Include materials, products, accessories, and supplementary parts necessary to complete assembly and installation of work of this section.

.3 Incorporate only metals that are free from defects that are visible, or that impair strength or durability. Install only new metals of best quality, and free from rust or waves and buckles, and that are clean, straight, and with sharply defined profiles.

.4 The engineer responsible for the production of the shop drawings is responsible for structural design, member sizes, arrangement, connections and anchoring of work of this section. Coordinate and maintain materials, dimensions, layout and appearance to meet intent of the contract documents.

.2 Metals:

.1 Steel, structural shapes, plate, bars: hot-rolled, CSA G40.21-04, Grade 300W.

.2 Steel, hollow structural sections: hot-formed, seamless, CSA G40.21-04, Grade 350W, Class H.

2.3 Accessories

.1 Fasteners:

.1 Fasteners: Exposed fasteners to match the material surface on which they occur.

.2 Bolts and anchor bolts: to ASTM A307-14.

.3 High strength bolts: to ASTM A325-14.

.4 Other types of fasteners as appropriate to meet design requirements.

.2 Welding materials:

.1 Steel: to CSA W59-13.

.3 Dielectric separator: Best grade, quick drying non-staining alkali resistant bituminous paint to CAN/CGSB 1.108-M89, or membrane type to acceptance of NRC Departmental Representative.

2.4 Finishes

.1 Shop primer; steel: CISC/CPMA 2-75 or SSPC-Paint 20, Paint Specification No. 20: Zinc-Rich Primers (Type I "Inorganic" and Type II "Organic").

.2 Organic zinc-rich coating; for touching up welds and damaged metallic coatings:

.1 Organic Zinc-Rich coating containing 95% metallic zinc, by weight in the dried film; recognized under the Component Program of Underwriter's Laboratories, Inc. as an equivalent to hot-dip galvanizing; conforming to Federal Specification DOD-P-21035A for repair of hot-dip galvanizing.

.2 Acceptable product: ZRC Cold Galvanizing Compound.

2.5 Fabrication

.1 General:

.1 Fabricate metal fabrications with machinery and tools specifically designed for the intended manufacturing processes and by skilled tradesmen.

.2 Fit and assemble metal fabrications in shop. When this is not possible, make a trial shop assembly.

.3 Incorporate anchors at 610 mm (24") on centre or as otherwise required for secure attachment for metal fabrications located in cast-in-place concrete and concrete masonry units.

.4 Incorporate means for fastenings of other work secured to work of this section.

.5 Do welding work in accordance with CSA W59-13, as applicable, unless specified otherwise.

.2 Construction:

.1 Fabricate with materials, component sizes, metal gauges, reinforcing, anchors, and fasteners of adequate strength to withstand intended use, and within allowable design factors imposed by jurisdictional authorities. Fabricate items from steel unless otherwise noted.

.2 Ensure that metal fabrications will remain free of warping, buckling, opening of joints and seams, distortion, and permanent deformation.

.3 Assembly:

.1 Accurately cut, machine and fit joints, corners, copes and mitres so that junctions between components fit together tightly and in true planes.

.2 Provide smooth welds with splatter removed where exposed to view.

.3 Allow for differential movements within assemblies and at junctions of assemblies with surrounding work.

.4 Field welding of hot dipped galvanized members permitted only when other fastening methods are not possible. Locations of field welds to be clearly identified on reviewed shop drawings.

.5 Incorporate holes and connections for work installed under other sections.

.6 Cleanly and smoothly finish exposed edges of materials including holes.

.7 Cap open ends of sections exposed to view, such as pipes, channels, angles, and other similar work.

.4 Shop prime painting:

.1 Clean loose mill scale, rust, dirt, weld flux and spatter from the work after fabrication.

.2 Prepare and prime paint in accordance with manufacturer's installation instructions. Prepare steel by methods specified in CISC/CPMA 2-75 or SSPC-SP3-82 (R2004).

PART 3 - EXECUTION

3.1 Examination

.1 Take measurements at the site to ensure that metal fabrications are fabricated to fit surrounding construction, around obstructions and projections in place, or as indicated, and to suit service locations.

3.2 Installation

.1 Install metal fabrications plumb, true, square, straight, level, and accurately and tightly fitted together and to surrounding work.

.2 Include in work of this section anchor bolts, high tensile bolts, washers and nuts, expansion bolts, toggles, straps, sleeves, brackets, clips, and other items necessary for secure installation as required by loading and jurisdictional authorities. Weld to CSA-S16-09.

.3 Attach metal fabrications to interior concrete and masonry with corrosion resistant expansion bolts to support load with a safety factor of 3.

.4 Insulate between dissimilar metals or between metal, and masonry or concrete with bituminous paint to prevent electrolytic action.

.5 Hand items over for casting into concrete or building into masonry to appropriate trades together with setting templates.

3.3 Field Quality Control

.1 Conduct quality control in accordance with Section 01 45 00.

3.4 Adjusting and Cleaning

.1 After erection, touch up primed surfaces that are burned, scratched or otherwise damaged with prime paint to match shop paint.

.2 Clean and repair areas of bare metal with zinc rich paint. Welded area of members to be masked to minimize overpainting of adjacent undamaged surfaces. Prepare substrate to remove oil and grease to SSPC-SP1-82(R2004), rust scale to SSPC-SP3-82 (R2004), mill scale to SSPC-SP6.

.3 Remove damaged, dented, defaced, defectively finished, or tool marked components and replace with new.

3.5 Protection

.1 Protect finished surfaces from damage from time of installation until final finishes are applied or to final cleanup.

END OF SECTION

PART 1 - GENERAL

1.1 Summary

.1 Section includes:

.1 Roofing repairs to the following roofing systems:

.1 Modified bituminous membrane roofing.

1.2 Administrative Requirements

.1 Coordination

.1 Coordinate with Divisions 21, 22, and 23 to ensure that roof drains are suitable for roofing system design.

.2 Coordinate with installers of roof mounted items, equipment, and mechanical and electrical work at roof so that installation will not subvert the integrity of the roofing system.

.3 Coordinate with installation of air barrier at walls to ensure complete continuity of air barrier system for building.

.2 Conduct a pre-installation meeting in accordance with Section 01 31 19.

.1 Independent inspection and testing company shall attend the pre-installation meeting.

.2 *Contractor* to contact warrantor of existing roof system who shall also attend the pre-installation meeting.

.3 The manufacturer shall meet with the necessary parties at the jobsite to review and discuss project conditions as it relates to the integrity of the roofing assembly.

.4 *Contractor* shall meet with warrantor of existing roof system to review and discuss conditions required for executing new roofing work and roofing repairs and patching such that the existing roof warranty is protected and maintained..

.5 Meet with NRC Departmental Representative, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, deck Installer, and installers whose work interfaces with or affects roofing including installers of roof accessories and roof-mounted equipment.

.6 Review methods and procedures related to roofing installation, including manufacturer's written instructions.

.7 Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.

.8 Examine substrates and existing conditions for compliance with requirements, including flatness and fastening.

.9 Review structural loading limitations of roof deck during and after roofing.

.10 Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.

.11 Review governing regulations and requirements for insurance and certificates if applicable.

.12 Review temporary protection requirements for roofing system during and after installation.

.13 Review roof observation and repair procedures after roofing installation.

.14 Forecasted weather conditions.

1.3 Submittals

.1 Submit required submittals in accordance with Section 01 33 00.

.2 Product data sheets:

.1 Submit manufacturer's product data sheets for products proposed for use in the work of this section.

.3 Shop drawings:

.1 Submit shop drawings of layout of sloped insulation panels with panel identification markings indicated.

.4 Certificates:

.1 Submit written confirmation from manufacturer of roof assembly materials confirming compliance with CAN/ULC S107-10.

1.4 Closeout Submittals

.1 Submit closeout submittals in accordance with Section 01 77 00.

.2 Operation and maintenance data:

.1 Submit manufacturer's maintenance instructions for incorporation into the operation and maintenance manuals.

1.5 Quality Assurance

.1 Qualifications:

.1 Installers / applicators / erectors: Work of this section, executed by competent installers with minimum 5 years experience in application of products, systems and assemblies specified and with approval and training of product manufacturers.

.1 Work of this section shall be installed by a subcontractor that is a member in good standing of the Canadian Roofing Contractors Association (CRCA) and Ontario Industrial Roofing Contractors Association (OIRCA), who has been a member for at least 5 years.

.2 subcontractor must be approved by the membrane manufacturer. Submit subcontractor's certification letter prepared by the membrane manufacturer.

.3 Execute work of this section only under full time supervision of qualified subcontractor's site supervisor.

.2 Manufacturers: Company specializing in manufacturing the products specified in this section, with minimum 10 years experience.

1.6 Delivery, Storage, and Handling

.1 Package materials and identify on attached labels the manufacturer, brand, contents, weight as applicable, and product and specification numbers.

.2 Protect edges of roll goods from damage during handling, and store rolls on end to prevent flattening.

.3 Handle materials carefully to preclude damage. Follow manufacturer's written recommendations.

.4 Keep materials and equipment free from debris, ice, snow and contaminants. Store adhesives and sealants between 16 °C and 27 °C.

.5 Provide protection to building surfaces during hoisting, or application of materials. Protect adjacent surfaces in an acceptable manner from damage, marking and soiling during installation of the work of this section.

.6 Do not store cants, insulation or roofing membrane on roof. Store them under cover while roofing work is not in progress.

1.7 Field Conditions

.1 Apply roofing only when ambient air and/or surface temperatures of the substrates and at the site are as recommended by roofing manufacturer, and CRCA guidelines.

.2 Protect the work and the NRC Departmental Representative's property from damage.

.3 Confine equipment, material storage, and operations of workers to limits indicated by laws, ordinances, and permits.

.4 Progressively remove debris created by the execution of the work and dispose of same at appropriate disposal sites.

.5 Do not apply roofing system during inclement weather.

.6 Do not apply roofing system to dirty, dusty, wet, damp or frozen deck surface.

.7 Secure the work of this section in a safe and watertight fashion before the onset of inclement weather and at the end of each day's work.

.8 Store insulation under opaque, breathable and waterproof tarpaulins or sheds, and ventilated to prevent entrapment of moisture. Prevent compression of panels at any point and breakage of edges and corners.

1.8 Extended Warranty

.1 Warrant work of this section in accordance with Section 01 78 36 for a period of 2 years.

PART 2- PRODUCTS

2.1 Performance/Design Requirements

.1 Wind uplift:

.1 Roofing system assemblies shall have been successfully tested by a qualified testing agency to resist project roofing uplift pressures in accordance with the building code.

.2 Roofing system shall meet roofing system manufacturer’s 177 kph (110 mph) wind speed warranty requirements or equivalent FM Class 90 Windstorm Classification.

.2 Roof covering classification: Roof assembly shall have a Class C classification as determined in conformance with CAN/ULC S107-10 “Standard Methods of Fire Tests of Roof Coverings”.

.3 Roofing system: Prevent water from entering building and roofing assembly through roofing membrane.

2.2 Materials

.1 General:

.1 Roofing system materials shall be sourced from one manufacturer unless otherwise specified.

.2 Roofing repair materials:

.1 New materials, to match grade and quality of existing roofing systems. *Products* and materials specified below notwithstanding, *Contractor* to verify and match installed materials.

.2 Existing roof materials include:

.1 Georgia Pacific ‘DensDeck Prime’, 1/2” thick.

.2 Soprema ‘Sopravap’r’ vapour barrier.

.3 Soprema ‘Sopra ISO Insulation’, 3” thick.

.4 Soprema ‘Duotack’.

.5 Soprema ‘Soprasmart Board 180’.

.6 Soprema ‘Flam HD GR’.

.7 Soprema ‘Flam Stick’.

.8 Soprema ‘Elastocol Stick Zero’.

.9 Soprema ‘Sopramastic Alu’.

.10 Soprema ‘Sopramastic’.

.11 Soprema ‘Sopraguard Tape’.

.12 Soprema ‘Sopralap’.

.13 Soprema ‘Soprawalk’.

.14 Soprema ‘Soprasaf’t’.

.15 Soprema ‘Elastocol 500’.

.16 Soprema ‘Alsan Flashing’.

.3 Penetration sealer and form system: Compatible with roofing systems. Primer as recommended by sealer manufacturer.

.1 Acceptable products:

.1 Chem Link Inc. ‘ChemCurb System’.

.4 Flashings: prefinished; to match existing flashings.

.5 Fasteners and adhesives:

.1 Roofing nails: galvanized steel to CSA B111-1974, Table 12, and length sufficient to penetrate wood substrate 25 mm (1") minimum.

.2 Metal discs: flat caps of 25 mm (1") minimum diameter, 0.6 mm (0.023") sheet metal, formed to prevent dishing. No discs are required with roofing nails having 25 mm (1") diameter solid cap heads.

.3 Adhesives and primers as recommended by roofing system manufacturer.

.4 Fastening bars: Z275 galvanized or AZ150 galvalume steel, or extruded aluminum, 14 gauge, slot holes 25 mm (1") on centre.

PART 3 - EXECUTION

3.1 Examination

.1 Before proceeding with roofing application, ensure that:

.1 Roof deck is constructed smoothly; in true planes; and level, or sloped to drains, whichever is design intent.

.2 Roof deck is clean and sufficiently dry for application under specified warranty.

.3 Adjacent construction and installation of work of other sections to be incorporated with roof is completed.

.4 Roofing surfaces are free of cracks that are wider than bridging ability of roofing materials.

3.2 Preparation

.1 Remove existing roofing and flashing assemblies.

.2 Sweep roof deck at affected areas completely free of dust, dirt and debris. Remove foreign materials.

.3 Ensure that stored porous materials absorb no moisture. Remove wet materials from site.

.4 Protect surrounding work, and adjacent building and other property from damage during roofing operations, and weather damage. Prevent solvents from entering building intake vents.

.5 This section shall make payment for repair of damage caused by its work.

.6 Install temporary blocking and otherwise protect drains during roofing operations, and remove at completion of roofing work.

3.3 Installation

.1 General:

.1 Apply roofing in accordance with the contract documents, requirements of jurisdictional authorities, and of material manufacturer's printed directions which shall establish minimum requirements not otherwise specified.

.2 Make adjustments to specified roofing procedures caused by weather and site conditions only when approved.

.3 Ensure that each part of the roofing system is completely bonded to the other unless otherwise specified.

.4 Lay roofing free from wrinkles, air pockets, fishmouths, tears, and prominent lap joints. Embed them in a uniformly spread layer of adhesive, as applicable.

.5 Complete entire roofing system up to line of termination of each day's work.

3.4 Field Quality Control

.1 Conduct quality control in accordance with Section 01 45 00.

.2 Manufacturer’s field review to be in accordance with Section 01 45 00.

END OF SECTION

PART 1 - GENERAL

1.1 Summary

.1 Section includes:

.1 Hollow metal doors and panels (steel doors).

.2 Metal frames (steel frames, transom frames).

1.2 Administrative Requirements

.1 Conduct a pre-installation meeting in accordance with Section 01 31 19.

.2 Coordination:

.1 Cooperate fully with finish hardware distributor's representative during preparation of shop drawings and execution of shop fabrication.

1.3 Submittals

.1 Submit required submittals in accordance with Section 01 33 00.

.2 Product data sheets:

.1 Submit manufacturer’s product data sheets for products proposed for use in the work of this section.

.3 Shop drawings:

.1 Include details of each door and frame type, finish hardware types and locations, frame profiles, door and frame elevations, mitre details, glazing preparation details and anchor details and locations.

.2 Include schedule identifying each unit, with door marks and numbers relating to numbering on drawings and in door schedule.

.3 Electrified hardware requirements and preparations shall be clearly indicated on shop drawings.

1.4 Quality Assurance

.1 Qualifications:

.1 Manufacturers:

.1 Provide doors and frames manufactured by a firm specializing in the design and production of hollow metal steel doors and frames.

.2 Manufacturer shall be a member in good standing of the Canadian Steel Door Manufacturers Association (CSDMA).

1.5 Delivery, Storage, and Handling

.1 Inspect materials thoroughly upon receipt and report immediately discrepancies, deficiencies and damages, in writing, to supplier.

.2 Note damages incurred during shipment on carriers' bill of lading and report immediately, in writing, to supplier.

.3 Store materials properly on planks, out of water and covered to protect from damage from adverse weather conditions. Remove wet packaging immediately.

.4 Remove wrappings or coverings from doors upon receipt at the site, and store in a vertical position, spaced with blocking to permit air circulation between them.

PART 2 - PRODUCTS

2.1 Manufacturer

.1 The following manufacturers are approved for work of metal doors and frames:

.1 All Steel Doors 2000 Ltd.

.2 Apex Industries Inc.

.3 Artek Door (1985) Ltd.

.4 Daybar Industries Ltd.

.5 Fleming-Baron Door Products.

.6 Gensteel Doors.

.7 LMT Group Inc.

.8 M.J. Daley Manufacturing Co. Ltd.

.9 Shanahan's Manufacturing Ltd.

.10 Trillium Steel Doors Limited.

.11 Vision Hollow Metal Limited.

.12 Substitutions: in accordance with Section 01 25 00.

2.2 Materials

.1 Steel:

.1 Fabricated from tensioned levelled steel to ASTM A924/A924M-14, galvanized to ASTM A653/A653M-11, Commercial Steel CS, Type B.

.2 Steel shall be free of scale, pitting, coil breaks, surface blemishes, buckles, waves, and other defects.

.3 Equivalent minimum base steel thicknesses for gauges shall be in accordance with Appendix 1 of CSDMA “Recommended Specifications for Commercial Steel Door and Frame Products”.

.4 Finish: Galvanneal coating designation ZF120 (A40).

.2 Door core materials:

.1 Steel stiffeners: Continuous vertical formed steel sections, 0.813 mm (0.032”) minimum thickness, spaced not more than 150 mm (6") apart, welded at 150 mm (6") on center maximum to each face sheet. Fill voids with 24 kg/m^3 (1.5 pcf) density minimum fibreglass type material complying with ASTM C665-12or CAN/ULC S702-09.

.3 Adhesives:

.1 Heat resistant, single component, polyurethane reactive (water) hot melt, thermoset adhesive.

.2 Lock seam doors: fire resistant, resin reinforced polychloroprene, high viscosity sealant-adhesive.

.4 Primer: rust inhibitive for touch-up.

.5 Finishing hardware: in accordance with.

.1 In accordance with Section 08 71 00 and as follows:

.1 The work of this section includes installation of card reader, tie-in to existing security system, complete with door contacts, associated wiring and power supplies, all to match hardware currently in use in existing building.

.2 Card reader hardware to be supplied and installed by Chubb Security as part of the *Work* and included in the *Contract Price*.

.6 Miscellaneous:

.1 Door silencers: single stud rubber or neoprene type.

.2 Glazing stops: formed channel of minimum 1 mm (0.039”) (20 gauge) steel, 15.9 mm (5/8") high.

2.3 Fabrication - General

.1 Fabricate steel doors, frames, transoms, sidelights and borrowed lights as applicable, to the design and dimensions indicated. Take field measurements where coordination with adjoining work is necessary.

.2 Fabricate steel doors and frames to be rigid, neat in appearance and free from defects, warp, wave or buckle with all corners square unless otherwise indicated.

.3 Operating clearances:

.1 Provide clearance at floor with allowance made for indicated finish flooring materials.

.2 Clearances for Non-Fire-Rated Doors: Not more than 3 mm (1/8") at jambs and heads, except not more than 6 mm (1/4") between pairs of doors. Not more than 19 mm (3/4") at bottom.

.4 Drill and tap or reinforce for mortised or surface mounted hardware in accordance with accepted hardware schedule, ANSI A115, NFPA 80-2010, or manufacturers recommendations.

.5 Countersink exposed fasteners unless otherwise shown. Use flat or oval head screws.

.6 Reinforce components to resist stresses imposed by hardware in use.

.7 Allow for anticipated expansion and contraction of frames and supports.

.8 Fit elements at intersections and joints accurately together, in true planes, and plumb and level.

.9 Perform welding to CSA W59-13.

.10 Mortise, reinforce, drill and tap to receive hardware and security devices using templates provided by respective supplier.

.11 Touch up finish damaged during fabrication.

.12 Prepare doors or frames to receive seals where seals are indicated.

2.4 Fabrication – Steel Doors and Panels

.1 Fabricate steel doors and panels to a thickness of 45 mm (1-3/4"), unless indicated otherwise.

.2 Heavy duty doors and panels; steel stiffened:

.1 Face sheets fabricated from:

.1 1.60 mm (0.063") 16 gauge steel.

.2 Steel stiffened core.

.3 Longitudinal edges continuously welded the full height of the door, filled and ground smooth with no visible seams.

.3 Fabricate of composite metal face construction with each face formed from flush sheet steel without visible seams, free of scale, pitting, coil brakes, buckles and waves.

.4 Formed edges shall be true and straight with minimum radius for the thickness of steel used.

.5 Lock and hinge edges shall be bevelled 3 mm in 50 mm (1/8" in 2") unless hardware or door swing dictates otherwise.

.6 Top and bottom of doors shall be provided with inverted, recessed, 1.60 mm (0.063") 16 gauge steel end channels, welded to each face sheet at 50 mm (2") on centre maximum.

.7 Prior to shipment, mark each door with an identification number as shown on the approved submittal drawings.

.8 Blank, reinforce, drill and tap doors for mortised, templated hardware. Locate hardware to manufacturer's standard unless indicated otherwise.

.9 Holes 12.7 mm (1/2") and larger shall be factory prepared.

.10 Glazing:

.1 For glazing materials up to and including 8 mm (5/16") thick, doors shall be provided with 1.00 mm (0.039") 20 gauge steel glazing trim and snap-in glazing stops.

.2 Glazing trim and stops shall be accurately fitted (within 0.39 mm (0.015”) tolerance), butted at corners, with removable glazing stops located on the 'push' side of the door.

.11 Fabricate closing stiles of paired doors as indicated or scheduled.

2.5 Fabrication – Steel Frames

.1 General: Applicable to frames, transom panel frames, sidelights, and window assemblies.

.2 Interior and non-thermally broken frames; welded:

.1 Fabricated from:

.1 1.60 mm (0.063") 16 gauge steel.

.2 Supplied set-up and welded (SUW).

.3 Factory assembled frame product shall be square, free of defects, warps or buckles.

.4 Set-up and welded corner joints (SUW):

.1 Profile welded–punch mitred, continuously welded on inside of the profile faces, rabbets, returns and soffit intersections, with exposed faces filled and ground to a smooth, uniform seamless surface, as defined in the CSDMA - “Recommended Specifications for Commercial Steel Door and Frame Products”.

.5 Set-up and welded joints at mullions, sills and center rails:

.1 Coped accurately, butted and tightly fitted.

.2 At intersecting flush profile faces, securely weld, fill and grind to flush, smooth, uniform, seamless surface.

.3 At intersecting recessed profile faces, securely weld to concealed reinforcements, with exposed hairline face seams.

.4 At other intersecting profile elements make exposed face seams to hairline tolerance.

.6 Glazing stops shall be formed 1.00 mm (0.039") 20 gauge steel, 16 mm (0.625") height channel, accurately fitted, butted at corners and fastened to frame sections with #6 x 32 mm (1¼") oval head Tek (self-drilling) type screws at 305 mm (12") on centre maximum.

.7 On factory assembled frame product, provide 2 temporary steel shipping bars welded to the base of the jambs or mullions to maintain alignment during shipping and handling. Remove shipping bars prior to anchoring of frames to floor.

.8 Each door opening shall be prepared for single stud door silencers. Silencers shall be shipped loose for installation by installer, after finish painting.

.1 Pair of interior doors: 2 at header.

.9 Prior to shipment, mark each frame with an identification number as shown on the approved submittal drawings.

.10 Provide mullions and transom bars of closed construction type. For fixed condition, attach members to frame with butt-welded joints. For removable condition, attach members with removable mullion anchors.

.11 Conceal fastenings unless otherwise indicated.

.12 Fasten removable stops by counter-sunk Phillips head screws at approximately 225 mm (9") on centre symmetrically spaced on stop length.

.13 Anchor frames to floor by 1.60 mm (0.063") 16 gauge thick angle clips, welded to frame and supply and install with 2 holes for floor anchorage.

.14 Grind welded corners to a flat plane, fill with metallic paste filler and sand to uniform smooth finish.

.15 Protect strike and hinge reinforcements using guard boxes welded to frames at masonry construction.

.16 Reinforce head of frames wider than 1220 mm (48").

.17 Brace frame units to prevent distortion in shipment and protect finish.

2.6 Hardware Reinforcements and Preparations

.1 Door and frame product shall be blanked, reinforced, drilled and tapped at the factory for fully templated mortise hardware only, in accordance with the approved hardware schedule and templates provided by the hardware supplier.

.2 Door and frame products shall be factory blanked and reinforced only for mortised hardware that is not fully templated.

.3 Where surface mounted hardware, anchor hinges, thrust pivots, pivot reinforced hinges, or non-templated hardware are required frame product shall be reinforced only, with drilling and tapping done by field installation.

.4 Templated holes 12.7 mm (1/2") diameter and larger shall be factory prepared, except mounting and through bolt holes, which shall be by installation on site. Templated holes less than 12.7 mm (1/2") diameter shall be factory prepared only when required for the function of the device (for knobs, levers, cylinders, thumb or turn pieces) or when these holes over-lap function holes.

.5 Hinge reinforcements shall be 3.51 mm (0.138") 10 gauge steel minimum, high frequency type shall be provided.

.6 Frames shall be prepared for 114 mm (4.5”) continuous hinges minimum unless otherwise indicated.

.7 Doors and frames shall be prepared for 114 mm (4.5”) heavy weight 4.6 mm (0.180”) hinges minimum.

.8 Lock, strike and flush bolt reinforcements shall be 1.60 mm (0.063") 16 gauge steel minimum, with extruded tapped holes that provide equivalent number of threads as 2.74 mm (0.108") 12 gauge.

.9 Reinforcements for surface mounted hardware, concealed closers and holders and flush bolts shall be 1.30 mm (0.051") 18 gauge steel minimum.

.10 Reinforcements are not required for surface applied hardware supplied with thru-bolts and spacers or sex-bolts.

.11 Provide hardware mortises on perimeter frame members to be grouted in masonry or concrete partitions with 0.84 mm (0.033") 22 gauge steel grout guards.

.12 Electrified hardware:

.1 Where electrically or electronically operated hardware is specified on the schedules or details or the final approved schedule and templates provided by the hardware supplier, hardware enclosures and/or junction boxes, where indicated on the templates, shall be provided and inter-connected with CSA approved 12.7 mm (1/2") diameter conduit and connectors.

.2 Refer to electrical documents for general electrical rough-in details. At door locations indicated in electrical documents as requiring rough-in only of electrical (ie. where no electrically or electronically operated hardware is specified in the hardware schedule), provide enclosures, boxes, and conduit to permit future installation of devices without removal of grout, demounting of frames, or installation of exposed conduits.

.3 Frames:

.1 Frames with electrified devices shall include electrical connection boxes sized to accommodate devices specified in Section 08 71 00. At time of frame manufacture, electrical connection boxes shall be supplied by Divisions 26, 27, and 28 for installation into frame by work of this section.

.2 Frame electrical connection boxes shall be positioned flush to edge of frame face return. Clearance shall be maintained to allow wall material to be consistently applied for length of frame member. Frame connection boxes shall be welded in place and positioned to allow necessary clearance for electrical trade to install conduit and connection components, with conduit layout in a manner that takes conduit up to ceiling in an uninterrupted configuration and to accommodate wire installation.

.4 Doors:

.1 Doors with electrified devices shall be manufactured to include wire raceway in door panel to accommodate electrified devices, such as electric hinge, power transfer units, electrified locks, electrified door closures and electrified exit devices. Construction of raceways shall provide a continuous conduit or channel between entry and exit points to accommodate wire installation after door manufacture.

.2 Doors with electrified locks may require extended space to accommodate plug-type connection components or wire collection space. Coordinate with work of Section 08 71 00 and obtain hardware templates for electrified hardware clearly indicated on reviewed shop drawings and prior to door manufacture.

2.7 Frame Anchorage

.1 Frame products shall be provided with anchorage appropriate to floor, wall and frame construction.

.2 Each wall anchor shall be located immediately above or below each hinge reinforcement on the hinge jamb and directly opposite on the strike jamb.

.3 Jambs of frames in previously placed concrete, masonry or structural steel shall be punched and dimpled to accept machine bolt anchors, 6.4 mm (1/4") diameter, located not more than 150 mm (6") from the top and bottom of each jamb. Anchor preparations and guides shall also be located immediately above or below the intermediate hinge reinforcing and directly opposite on the strike jamb. Each preparation shall be provided with 1.60 mm (0.063") 16 gauge anchor bolt guides.

.4 Anchor bolts and expansion shell anchors for the above preparations shall be provided by the installation company.

2.8 Sizes and Tolerances

.1 Widths of door openings shall be measured from inside of frame jamb rabbet with a tolerance of ± 1.6 mm (+0.063").

.2 Heights of door openings shall be measured from the finished floor (exclusive of floor coverings) to the head rabbet of the frame with a tolerance of ± 1.2 mm (± 0.047").

.3 Unless finishing hardware dictates otherwise, doors shall be sized so as to fit the above openings and allow a 3 mm (1/8") clearance at jambs and head. A clearance of 19 mm (3/4") between the bottom of the door and the finished floor (exclusive of floor coverings) shall be provided. Tolerances on door sizes shall be ± 1.2 mm (± 0.047").

.4 Manufacturing tolerances on formed frame profiles shall be ± 0.8 mm (± 0.031") for faces, door stop heights and jamb depths. Tolerances for throat openings and door rabbets shall be ± 1.6 mm (± 0.063") and ± 0.4 mm (± 0.016") respectively. Hardware cut-out dimensions shall be as per template dimensions, ±0.4 mm (+0.015").

2.9 Hardware Locations

.1 Hardware preparations in frame product shall be as noted below and locations on doors shall be adjusted for clearances specified in paragraph of this section.

.2 Top of upper hinge preparation for 114.3 mm (4.5") hinges shall be located 180 mm (7.5") down from head, transom mullion or panel as appropriate. The top of the bottom hinge preparation for 114.3 mm (4.5") hinges shall be located 310 mm (12.625") from finished floor as defined in paragraph 2.8 of this section. Intermediate hinge preparations shall be spaced equally between top and bottom cutouts.

.3 Strike preparations for unit, integral, cylindrical and mortise locks and roller latches shall be centered 1033 mm (40-5/16") from finished floor. Strikes for deadlocks shall be centered at 1220 mm (48") from finished floor. Strikes for panic or fire exit hardware shall be located as per device manufacturer's templates.

.4 Push and/or pulls on doors shall be centered 1070 mm (42") from finished floor.

.5 Preparations not noted above shall be as per hardware manufacturer's templates.

.6 Hardware preparation tolerances shall comply with the ANSI A115 standards.

PART 3 - EXECUTION

3.1 Examination

.1 Provide necessary grounds, bracing and strapping for fitting and adequate for securing of the work.

.2 Cooperate with work of other sections to ensure fastenings set by others are provided and located, their work is installed to their specifications and that those responsible for back priming are notified in sufficient time for them to schedule work.

3.2 Installation – Steel Doors and Frames

.1 Set frame product plumb, square, aligned, without twist at correct elevation in accordance with NAAMM-HMMA 840-07.

.2 Frame product installation tolerances:

.1 Plumbness tolerance, measured through a line from the intersecting corner of vertical members and the head to the floor, shall be ±1.6 mm (±1/16").

.2 Squareness tolerance, measured through a line 90° from one jamb at the upper corner of the product, to the opposite jamb, shall be ±1.6 mm (±1/16").

.3 Alignment tolerance, measured on jambs, through a horizontal line parallel to the plane of the wall, shall be ±1.6 mm (±1/16").

.4 Twist tolerance, measured at face corners of jambs, on parallel lines perpendicular to the plane of the wall, shall be ±1.6 mm (±1/16").

.3 Brace frame product rigidly in position while building-in. Remove temporary steel shipping jamb spreaders. Install temporary wood spreaders at mid-point of frame rabbet height to maintain frame widths. Remove wood spreaders after product has been built-in.

.4 Provide vertical support at center of head for openings exceeding 1250 mm (48") in width.

.5 Secure anchorages and connections to adjacent construction.

.6 Execute installation and assembly using skilled forces under supervision of a competent joinery foreperson.

.7 Install doors in accordance with NAAMM-HMMA 840-07, maintaining clearances outlined in paragraph 2.8 of this section.

.8 Install finishing hardware in accordance with ANSI A115.1G-1994, manufacturers' templates and instructions, and Section 08 71 00.

.9 Adjust operable parts for correct clearances and function.

.10 Steel surfaces shall be kept free of grout, tar or other bonding materials or sealers.

.11 Remove grout or other bonding material from products immediately following installation.

.12 Provide appropriate anchorage for floor and wall construction. Each wall anchor shall be located immediately above or below each hinge reinforcement on the hinge jamb and directly opposite the strike jamb. On each jamb, install 2 anchors for openings up to and including 1525 mm (60") high and install 1 anchor for each additional height of 760 mm (30") of height or fraction thereof, except as indicated below. Frames placed in previously placed concrete, masonry or structural steel shall be supplied and installed with anchors located not more than 150 mm (6") from top and bottom of each jamb, and intermediate anchors at 660 mm (26") on centre maximum.

.13 Secure frames set in previously constructed concrete or masonry openings by countersunk expansion bolts at same centres as for adjustable Tee wall anchors. Reinforce frame at fastening location to prevent indentation of frame by fastening device.

.14 Fill and grind smooth “punch and dimpled” frame installations.

.15 Prior to site touch-up, exposed surfaces of galvanneal steel to be finished shall be cleaned to remove foreign matter. Refer to paint manufacturers recommendations for additional information and requirements of Section 09 91 00.

.16 Touch-up exposed field welds shall be finished to present a smooth uniform surface and with a rust inhibitive primer.

.17 Touch-up exposed surfaces that have been scratched or otherwise marred during shipment, installation, and handling shall be with a rust inhibitive primer.

.18 Finish paint in accordance with Section 09 91 00.

.19 Install door silencers.

.20 Adequately fasten units and secure in place with concealed fixings wherever possible. Include grounds and furring where required.

.21 Coordinate installation of doors and frames with installation of hardware specified in Section 08 71 00.

.22 Make allowance for deflection to ensure structural loads are not transmitted to frames.

.23 Adjust operable parts for correct clearances and function.

3.3 Installation - Finishing Hardware

.1 Install finishing hardware in accordance with Section 08 71 00.

3.4 Adjusting and Cleaning

.1 Adjust doors to swing freely, smoothly and easily, to remain stationary at any point, to close evenly and tightly against stops without binding, and to latch positively when doors are closed with moderate force.

.2 Adjust hardware so that latches and locks operate smoothly and without binding, and closers act positively with the least possible resistance in use. Lubricate hardware if required by supplier's instructions.

.3 Ensure that doors equipped with closers operate to close doors firmly against anticipated wind and building air pressure, and to enable doors to be readily opened as suitable for function, location and traffic.

.4 Clean hardware after installation in accordance with supplier's instructions.

END OF SECTION

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

.1 Comply with requirements of Division 1.

1.2 RELATED WORK

.1	Installation of hardware for steel doors:	Section 08 11 13
.2	Installation of hardware for wood doors:	Section 08 14 16
.3	Installation of hardware for all-glass doors and screens	Section 08 43 26
.4	Installation of hardware for aluminum doors:	Section 08 44.13
.5	Hardware for aluminum windows:	Section 08 51 13
.6	Washroom accessories:	Section 10 28 13

1.3 QUALITY ASSURANCE

.1 Meet requirements of Ontario Building Code and other applicable regulations.

.2 Hardware supplier shall employ an accredited Architectural Hardware Consultant (AHC) as certified by The Door and Hardware Institute.

.3 Upon completion of installation, hardware supplier shall inspect work and shall certify in writing that all items and their installation are in accordance with requirements of Contract Documents and are functioning properly.

1.4 SUBMITTALS

.1 Upon Consultant's request submit samples of door hardware.

.2 Prepare and submit two copies of a detailed hardware and keying schedule.

.3 Furnish other Sections with templates required for hardware preparation and installation. Issue templates when requested so as not to cause any delays but not before hardware list has received final review by Consultant.

1.5 PRODUCT DELIVERY, HANDLING & STORAGE

.1 Deliver each hardware item packaged separately in individual containers with necessary screws, keys, instructions and installation templates.

.2 Mark each container with item number corresponding to number shown on hardware schedule with respective door number.

.3 Store hardware in dry, lockable area.

PART 2 - PRODUCTS

2.1 DOOR HARDWARE

.1 Supply only of door hardware as detailed in the hardware schedule.

.2 The following products have been selected during the design process to set a minimum standard. Only specified products are listed. Any alternates not listed must be approved by the consultant prior to tender closing.

.1 Edge mount/edge guard continuous pin and barrel type stainless steel hinges. Heavy duty 14 ga. Type 304 stainless steel, hinges certified to ANSI 156.26, BMHA certifies, tested and approved to UL 10C (3 hr.) Hinges shall be barrel type hinge with self-lubricating nylon bearings with stainless steel pin. Hinge length 25mm less door height.

Specified Manufacturer: Stanley 651

.2 Manual Flush Bolts-Metal Doors: Manual flush bolt for metal doors to be cUL listed for 3-hour fire doors with ½" diameter bolt tip with ¾" throw. Standard bottom rod length shall be 12" and top rod will be 24". Supply dustproof strikes with all flush bolts.

.3 Locks and latch sets: Locks and latch sets are to be heavy-duty Grade 1 mortise lever sets with independent through-bolt mounting. Locks shall be ULC labeled for all fire rated doors with 3/4" latch-bolt throw for pairs of fire rate doors. Auxiliary dead bolts are to have 1" projection and hardened steel pin inserts. All locks will be supplied complete with temporary removable construction cores.

Specified Manufacturer: BEST 45H7 DEL 15H

.4 Door closers: Door closers will all have full adjustment features including back check, general speed, and latch speed control. All interior door closers will have reduced opening force spring power to meet the barrier free codes of 22N (5 lbs.) Surface mounted door closers are to be located on the room side of the door whenever possible or as directed by the architect. Provide all mounting plates for door closers required to mount on special door and frame conditions. Where listed, door closers are to have full body covers to match the project finishes.

Specified Manufacturer: Stanley D-4550 Series

.5 Door Trim / Plates: Supply door trim as listed in the hardware schedule. All kick plates, push plates, and bumper plates must have all sides beveled and the corners rounded to ensure there are no sharp edges. Supply plates with 3M tape mounting or if screws are listed, with counter sunk screw holes. The plates will be .050 thick unless listed otherwise. Size to suit door width. Kickplate will be door width less 1.5" (35 mm) for single door and less 1" (25 mm) for pairs of doors.

.6 Wall stops are only to be used on proper wall conditions such as block or masonry. Supply floor stops with sufficient height to suite the floor condition or undercut of doors. Overhead stops and holders will be surface mounted unless there is a conflict with door closers or other hardware. Provide door stays with friction action in locations that do not have door closers. Install all overhead stops and holders for 90 DEG stop unless otherwise specified.

.7 Ensure the electrical hardware supplied meets all local building codes. Supply electrical hardware with compatible power supplies. Where required provide integral monitor switches for system re-sets, request to exit or other monitoring. When electrical hardware requires power to the door, supply power transfers hinges that support the electrical in-rush as well as the proper current. Supply riser diagrams and point to point wiring instructions for any and all electrical hardware supplied.

KEYING

.1 Supplier will include the permanent interchangeable cores. Cores shall be master-keyed to a new BEST Pat. key system as directed by Owner. Include control keys, 3 change keys for each lock and 5 Master or Grand Master keys. Permanent cores, control keys, change keys and master key will be shipped separately as directed by the Owner.

Specified Manufacturer: BEST

PART 3 - EXECUTION

3.1 INSTALLATION

.1 Meet requirements of ANSI / DHI A115.1G-94, A Installation Guide for Doors and Hardware.

.2 Confirm locations and mounting heights of door hardware with Consultant.

.3 Install finish hardware in accordance with hardware suppliers' directions. Ensure that hardware is installed correctly. Issue instructions if required to Sections concerned.

.4 Use only fastener provided with the hardware and as directed by manufacturer; do not use self drilling self tapping screws (Tek screws) unless so directed by hardware manufacturer.

.5 Unless otherwise directed by the Consultant, install door hardware at the following heights above finish floor:

Locksets and Latchsets	1025 mm to centre of strike
Deadlocks	1200 mm to centre of strike
Panic Bolts	1025 mm to underside of push bar
Push Plates	1025 mm to centre of plant
Guard Bars	1065 mm to centre of bar
Door Pulls	1065 mm to centre of pull

END

New Controlled Access Doors

1 Double Door 173-1 at CORRIDOR 173
1 Double Door 159-1 at CORRIDOR 159

Each door = 1 @ 1070 X 1 @ 1675 X 2750 X 45 HMD X HMF
Each assembly to have:

1 ea	Continuous Hinge	651 x Dr Ht	630	STA
1 ea	Continuous Hinge	651 x Dr Ht x EPT Prep	630	STA
1 ea	Power Transfer	EPT-12C	32D	STA
2 ea	Flush Bolt	F65 (bottom @ 12" – top @ 24")	26D	STD
1 ea	Dust-Proof Strike	F68	26D	STD
1 ea	Electric Lock	45H7DEL 15H (Fail Safe) x RQE	630	BES
1 ea	Door Closer	4040XP Reg	689	LCN
1 ea	Kick Plate	200 x 1045	32D	STD
2 ea	Wall Stop	S124	32D	STD
1 ea	Power Supply	By Chubb Security		
1 ea	Card Reader	By Chubb Security		

Method of Operation

Outside (Key-Side) Operation:

- Authorized credentials (CR) allows ingress
- Key access as over-ride

Inside Operation (A):

- Free egress allows exiting at all times
- Request to exit (RX) to signal the security system as approved use

Failed Condition:

- Outside – fail safe – free egress in both directions
- Inside – fail safe – free egress in both directions

How it Works

Outside (Key-Side) Operation:

- Power ON locks lever trim – card reader will turn power OFF to allow ingress
- Key access as over-ride

Inside Operation (A):

- Free egress allows exiting at all times
- Request to exit (RQE) to signal the security system when inside lever is used

Failed Condition:

- Outside – fail safe – lever is active when power is OFF (Connect power supply to fire alarm to signal release)
- Inside – fail safe – free egress at all times

PART 1 - GENERAL

1.1 Summary

.1 Section includes:

.1 Glass and glazing.

1.2 Administrative Requirements

.1 Conduct a pre-installation meeting in accordance with Section 01 31 19.

1.3 Submittals

.1 Submit required submittals in accordance with Section 01 33 00.

.2 Product data sheets:

.1 Submit manufacturer's product data sheets for products proposed for use in the work of this section.

.3 Shop drawings:

.1 Show details of each type of glazing system in conjunction with the framing system indicating type of glass, sizes, shapes, glazing material and quantity. Show details indicating glazing material, glazing thickness, bite on the glass and glass edge clearance.

.2 Indicate analysis of glass including maximum deflection and allowable stresses from imposed dead/live loads and thermal loads.

.4 Samples:

.1 Submit 305 mm (12") square samples of each type of glass indicated except for clear monolithic glass products, and 305 mm (12") long samples of each color required, except black, for each type of sealant or gasket exposed to view.

.5 Test and evaluation reports:

.1 Obtain compatibility and adhesion test reports from sealant manufacturer indicating that glazing materials were tested for compatibility and adhesion with glazing sealant as well as other glazing materials including insulating units.

.6 Manufacturer reports:

.1 Submit glass fabricator's product information and structural calculations indicating compliance with glazing standards established by the Glass Association of North America (GANA). Submittal to include thermal stress and structural load analysis of the proposed glass types, configuration and sizes.

.7 Submit sample glazing warranty.

1.4 Closeout Submittals

.1 Submit closeout submittals in accordance with Section 01 77 00.

.2 Operation and maintenance data:

.1 Submit maintenance and cleaning instructions for glass and glazing for incorporation into the operating and maintenance manuals.

1.5 Quality Assurance

.1 Qualifications:

.1 Manufacturers: Fabrication processes, including low emissivity and reflective coatings, insulating, laminated, silk-screening and tempering shall be manufactured by a single manufacturer with a minimum of ten (10) years of fabrication experience and meet ANSI / ASQC 9002 1994.

.2 Installers / applicators / erectors: Provide the work of this section executed by specialist subcontractor who shall be thoroughly trained and experienced in skills required, be completely familiar with referenced standards and requirements of the work of this section, and personally direct installation performed under this section.

.1 Foreperson experience: Minimum 10 years experience as glazing mechanic.

.2 Glazing mechanic experience: Minimum 3 years experience as glazers.

.3 Aspects of the work of this section are required to be prepared by a professional engineer. Refer to Section 01 33 00 for specific details and requirements in this regard.

1.6 Delivery, Storage, and Handling

.1 Protect glass from edge damage, dust, and contaminants during handling and storage. For insulating units exposed to substantial altitude changes, comply with insulating glass manufacturers written recommendations for venting and sealing to avoid hermetic seal ruptures.

.2 Storage and protection: Protect glazing materials according to manufacturer’s written instructions and as needed to prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun or other causes.

1.7 Field Conditions

.1 Ambient Conditions: Do not proceed with glazing when ambient and substrate temperature conditions are outside limits permitted by the glazing material manufacturers and when glazing channel substrates are wet from rain, frost, condensation or other causes.

.2 Do not install liquid glazing sealants when ambient and substrate temperature conditions are outside limits permitted by glazing sealant manufacturer or below 4.4°C.

1.8 Extended Warranty

.1 The glazing systems shall perform properly to the extent that the design and contract documents permit such performance for the duration of the warranty period.

.2 Special product warranty for tempered glass products:

.1 Provide a written 5 year warranty from date of manufacture for fully tempered glass. Warrant that tempered glass will not break spontaneously as a result of Nickel Sulfide (NiS) inclusions at a rate exceeding 0.8% (8/1000) for a period of five years from the date of manufacture. Warranty shall be manufacturer's standard form in which tempered-glass manufacturer agrees to replace tempered-glass units.

PART 2 – PRODUCTS

2.1 Performance/Design Requirements

.1 General:

.1 Publications: Comply with recommendations in the publications below, except where more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this section.

.1 GANA Glazing Manual.

.2 GANA Engineering Standards Manual.

.3 GANA Laminated Glazing Reference Manual.

.4 GANA Sealant Manual.

.2 Glass strength:

.1 Provide glass products in the thickness and strengths required to meet or exceed the following criteria based on project loads and in-service conditions.

.1 Analysis shall comply with CAN/CGSB 12.20-M89.

.2 Minimum thickness of annealed or heat-treated glass products to be selected so the worst case probability of failure does not exceed the following:

.1 8 breaks per 1000 for glass installed vertically less than 15 degrees from the vertical plane.

.2 Glass thicknesses and glass types specified, indicated, or scheduled in the contract documents are minimums required. Glass designer/engineer to modify as required to satisfy design and building code requirements, and requirements of authorities having jurisdiction, and any such modifications shall be clearly indicated on shop drawings.

.3 Glazing systems shall be capable of withstanding normal thermal movements without failure, including loss due to defective manufacture, fabrication and installation; deterioration of glazing materials; and other defects in construction.

.4 Provide glass products of uniform appearance, reflectivity, hue, shade, visible light transmittance, and colour when viewed from distance of 3 m (10 ft) to 30 m (100 ft) perpendicular to the glass or from 45 degree angle to the glass.

2.2 Glass Materials

.1 General:

.1 Single source responsibility: Provide materials from a single manufacturer or fabricator for each kind and condition of glass indicated and composed of primary glass obtained from a single source and manufacturing plant for each type and class required.

.2 Heat treated (tempered or heat strengthened) float glass (GL-1):

.1 CAN/CGSB 12.1-M90.

.2 Minimum thickness: 6 mm (1/4").

.3 Fabrication process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed unless otherwise indicated.

.4 For uncoated glass, comply with requirements for Condition A in accordance with ASTM C1048-12e1.

.5 Heat strengthened glass shall have surface compression of 24-52 MPa (3,500-7,500 psi).

2.3 Glazing Materials

.1 Glazing materials; general: Select glazing sealants, tapes, gaskets and additional glazing materials of proven compatibility with other materials they will contact, including glass products, seals of insulating glass units and glazing channel substrates, under conditions of installation and service, as demonstrated by testing and field experience.

.2 Glazing gaskets: Moulded or extruded gaskets of profile and hardness required to maintain watertight seal, made from one of the following:

.1 Preformed, EPDM to ASTM C864-05(2015).

.2 Preformed, EPDM, silicone compatible, to ASTM C864-05(2015).

.3 Preformed silicone to ASTM C1115-06(2011).

.3 Setting blocks: Moulded or extruded material with Shore, Type A Durometer hardness of 85, plus or minus 5, made from one of the following:

.1 Preformed, EPDM to ASTM C864-05(2015).

.2 Preformed, EPDM, silicone compatible, to ASTM C864-05(2015).

.3 Preformed silicone to ASTM C1115-06(2011).

.4 Edge blocks: Moulded or extruded material of hardness needed to limit glass lateral movement (side walking) made from one of the following:

.1 Preformed, EPDM to ASTM C864-05(2015).

.2 Preformed, EPDM, silicone compatible, to ASTM C864-05(2015).

.3 Preformed silicone to ASTM C1115-06(2011).

.5 Cleaners, primers and sealers: Type recommended by sealant or gasket manufacturer.

.6 Polyurethane foam glazing tape:

.1 High density, closed-cell, flexible, non-extruding tape, adhesive backed one side only; with nominal pressure in glazing channel.

.2 Acceptable manufacturer: Norton Company.

.3 Acceptable products: As recommended by manufacturer suitable for conditions of application and use.

.1 Dow Corning ‘795’.

.2 Momentive ‘Silglaze-II 2800’.

.3 Tremco ‘Spectrem 2’.

2.4 Fabrication

.1 Grind, chamfer, and polish exposed glass edges, unless otherwise indicated.

PART 3 - EXECUTION

3.1 Examination

.1 Examine framing, glazing channels, and stops, with glazing installer present, for compliance with the following:

.1 Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.

.2 Inspect butt and mitre joints in framing. Seal joints found to be open with a compatible sealant prior to glazing.

.3 Glazing pockets and surfaces are free of dust, construction debris, and contaminants.

.4 Presence and functioning of weep systems.

.5 Minimum required face and edge clearances as per IGMA and GANA standards.

.6 Effective sealing between joints of glass-framing members.

.2 Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 Preparation

.1 Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.

.2 Examine glazing units to locate exterior and interior surfaces. Label or mark units as needed so that exterior and interior surfaces are readily identifiable. Do not use materials that will leave visible marks in the completed work.

.3 Clean contact surfaces with solvent and apply primers to surfaces to receive tapes and sealants in accordance with the manufacturer's instructions. Ensure surfaces are free of moisture and frost.

3.3 Glazing - General

.1 Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.

.2 Adjust glazing channel dimensions as required by conditions during installation to provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances.

.3 Protect glass edges from damage during handling and installation. Remove damaged glass from project site and legally dispose of off project site. Damaged glass is glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance.

.4 Clean glazing rebate surfaces of traces of dirt, dust, or other contaminants.

.5 Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction testing.

.6 Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.

.7 Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.

.8 Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel.

.9 Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.

.10 Set glass lites with proper orientation so that coatings face exterior or interior as specified.

.11 Glaze hollow metal doors and frames specified under work of Section 08 11 13 using tape glazing installation.

3.4 Tape Glazing

.1 Position tapes on fixed stops so that, when compressed by glass, their exposed edges are flush with or protrude slightly above sightline of stops.

.2 Install tapes continuously, but not necessarily in one continuous length. Do not stretch tapes to make them fit opening.

.3 Cover vertical framing joints by applying tapes to heads and sills first and then to jambs. Cover horizontal framing joints by applying tapes to jambs and then to heads and sills.

.4 Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.

.5 Do not remove release paper from tape until right before each glazing unit is installed.

.6 Centre glass lites in openings on setting blocks and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centres of openings.

3.5 Field Quality Control

.1 Conduct quality control in accordance with Section 01 45 00.

3.6 Finishing

.1 Immediately remove sealant and compound droppings from finished surfaces. Remove labels after work is completed.

.2 Final cleaning of glass in accordance with Section 01 77 00.

END OF SECTION

PART 1 - GENERAL

1.1 Summary

.1 Section includes:

.1 Painting of interior paintable surfaces.

.2 Paintable and non-paintable surfaces:

.1 Paint and finish paintable surfaces included in the work, except where excluded by the contract documents.

.2 The following surfaces are considered non-paintable, except as otherwise indicated or scheduled:

.1 Material and equipment furnished prime and finish painted.

.2 Internal surfaces of steel tanks and stacks.

.3 Sprayed fire-resistive materials.

.4 Stainless steel, weathering steel, copper, bronze, chromium plate, nickel, anodized or lacquered or mill finished aluminum, Monel metal.

.5 Insulation, glass, plastic, brick, stone.

.6 Metallic and mastic insulation finishes.

.7 Abrasive material finishes on floors, stair treads, stair nosing and landings.

.8 Insulated electric cables.

.9 Machined parts of machinery and equipment.

.10 Concealed surfaces.

.11 Manufactured finish materials.

1.2 Administrative Requirements

.1 Conduct a pre-installation meeting in accordance with Section 01 31 19.

1.3 Submittals

.1 Submit required submittals in accordance with Section 01 33 00.

.2 product data sheets:

.1 Submit manufacturer’s product data sheets and list of products proposed for use in the work of this section as identified in ‘Approved Product List’ section of the MPI Painting Manual. Correlate products to Schedule furnished by NRC Departmental Representative.

.3 Samples:

.1 Samples for initial paint colour and finish selection:

.1 Submit manufacturer's colour charts showing full range of colours available, including light and deep dark tones, for each type of finish material indicated for colour selection by NRC Departmental Representative.

.2 NRC Departmental Representative shall have complete freedom in choice of colours in compiling colour schedule and will not necessarily select colours from standard colour charts of manufacturer of products specified.

.3 Submit 3 drawdowns of each selected colour for review by NRC Departmental Representative and resubmit to NRC Departmental Representative as required to obtain approval. Drawdown to be of specified colour, sheen, and paint formula for applicable surface.

.2 Samples for verification:

.1 Submit 3 samples on 200 mm x 305 mm (8"x 12") material of same type as that on which coating is to be applied, for NRC Departmental Representative's approval, at least 30 days before materials are required.

.2 Identify each sample as to project, finish, formula, colour name, number, gloss name and number, date and name of Contractor and painting subcontractor.

.3 Resubmit as required until colours and gloss value are approved.

1.4 Closeout Submittals

.1 Submit closeout submittals in accordance with Section 01 77 00.

.2 Operation and maintenance data:

.1 Submit manufacturer’s operation and maintenance instructions for inclusion in the operation and maintenance manuals.

1.5 Quality Assurance

.1 Qualifications

.1 Manufacturers:

.1 Paint manufacturers and products used shall be as listed under the Approved Product List section of the MPI Painting Manual.

.2 Installers / applicators / erectors:

.1 Applicators shall have minimum of 5 years proven satisfactory painting experience of projects of similar size and class subject to NRC Departmental Representative’s approval.

.2 Only qualified journeymen who have a “Tradesman Qualification Certificate of Proficiency” shall be engaged in painting work. Apprentices shall work under the direct supervision of a qualified journeyman in accordance with trade regulations.

1.6 Delivery, Storage, and Handling

.1 Deliver painting materials in sealed, original labelled containers bearing manufacturer’s name, brand name, type of paint or coating and colour designation, standard compliance, materials content as well as mixing and/or reducing and application requirements.

.2 Store paint products and materials in original labelled containers in secure (lockable), dry, heated and well ventilated single designated area meeting minimum requirements of both paint manufacturer and authorities having jurisdiction, and at a minimum ambient temperature of 7°C.

.3 Protect floor and wall surfaces of storage area. Protect floors with sheets or clean plywood or metal pans where mixing is being carried out.

1.7 Field Conditions

.1 Ambient conditions:

.1 Comply with environmental requirements of MPI Manual.

.2 Perform no painting work when ambient air and substrate temperatures are below 10°C for both interior and exterior work, unless suitable weatherproof covering and sufficient heating and ventilation facilities are in place in accordance with MPI Manual.

.3 Perform no painting work when relative humidity is above 85% or when dew point is less than 3°C (5°F) variance between air/surface temperature.

PART 2- PRODUCTS

2.1 Performance/Design Requirements

.1 Except where more stringent requirements are specified, the following reference standard shall govern the work of this section:

.1 Master Painters Institute (MPI) Architectural Painting Specification Manual (MPI Manual), including Identifiers, Evaluation, Systems, Preparation and Approved Product List, latest edition, and referenced herein as the MPI Manual, as issued by the local MPI Accredited Quality Assurance Association having jurisdiction.

.2 Materials, preparation and workmanship shall conform to requirements of latest edition of Architectural Painting Specification Manual by the Master Painters Institute (MPI) (hereafter referred to as the MPI Painting Manual) as issued by the local MPI Accredited Quality Assurance Association having jurisdiction.

2.2 Materials

.1 products listed in MPI Manual shall be used in the work, unless specified otherwise.

.2 Paint and materials (primers, paints, coatings, varnishes, stains, lacquers, fillers, thinners, solvents, and the like) shall be in accordance with the MPI Manual “Approved Product” listing and shall be from a single manufacturer for each system used.

.3 Paint materials shall have good flowing and brushing properties and shall dry or cure free of blemishes or sags.

.4 Where required, paints and coatings shall meet flame spread and smoke developed ratings designated by building code requirements and/or authorities having jurisdiction.

.5 Paints and coatings materials used within the weatherproofing system shall not exceed the VOC content limits of the following criteria.

.1 Interior paints and coatings: to following Green Seal GS-11 VOC limits:

.1 Flat coating type: 50 gm/L.

.2 Non-flat coating type: 150 gm/L.

.2 Anti-corrosive and anti-rust paints applied to interior ferrous metal substrates: Green Seal Standard GC-03, Anti-Corrosive Paints, maximum 250 gm/L.

2.3 Equipment

.1 Painting and coating equipment in accordance with written requirements of MPI Manual.

2.4 Mixing and Tinting

.1 Unless otherwise specified, paints shall be ready-mixed. Re-mix prior to application to ensure colour and gloss uniformity.

.2 Paste, powder or catalysed paint mixes shall be mixed in accordance with manufacturer's written instructions.

.3 Perform colour tinting operations prior to delivery of paint to site.

.4 Where thinner is used, addition shall not exceed paint manufacturer's recommendations.

2.5 Colours and Gloss Levels

.1 Paint colours and gloss levels shall be as selected by the NRC Departmental Representative. Locations as indicated or scheduled.

.2 Paint gloss shall be defined as the sheen rating of applied paint, in accordance with the following MPI values:

Gloss Level	Description	Units @ 60 degrees	Units @ 85 degrees
G1	Matte or Flat finish	0 to 5	10 maximum
G2	Velvet finish	0 to 10	10 to 35
G3	Eggshell finish	10 to 25	10 to 35
G4	Satin finish	20 to 35	35 minimum
G5	Semi-Gloss finish	35 to 70	
G6	Gloss finish	70 to 85	
G7	High-Gloss finish	> 85	

PART 3 - EXECUTION

3.1 Examination

.1 Prior to commencement of work of this section, thoroughly examine surfaces scheduled to be painted.

.2 Check moisture content and alkalinity of surfaces to be painted in accordance with paragraph above titled Field Conditions.

.3 Inspect surfaces to be coated for gouges, marks, nibs, and other defects and properly prepare patching, filling, smoothing or other surface preparation necessary to ensure satisfactory finish.

.4 Report in writing any condition adversely affecting work of this section.

.5 Proceed with work only when surfaces and conditions are satisfactory. Remove dust, grease, rust, scale and extraneous matter, tool and machine marks and insects from surfaces which could be detrimental to a satisfactory and acceptable finish.

3.2 Preparation

.1 Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.

.2 Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

.1 After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.

.3 Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, mildew, grease, and incompatible paints, encapsulants, and other deleterious materials.

.4 Paint surfaces when moisture content or alkalinity of surfaces to be painted comply with paragraph 3.5 Field Quality Control / Standard of Acceptance.

.5 Shop-primed steel substrates: Clean field welds, bolted connections, and areas where shop paint is abraded. Paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.

3.3 Installation

.1 Do not paint unless substrates are acceptable and/or until Field Conditions (heating, ventilation, lighting and completion of work of other sections) are acceptable for applications of products.

.2 Apply primer and paint in accordance with MPI Manual Premium Grade finish requirements.

.3 Apply paint and coatings within an appropriate time frame after cleaning when Field Conditions encourage flash-rusting, rusting, contamination or manufacturer’s paint specifications require earlier applications.

.4 Painting coats specified are intended to cover surfaces satisfactorily when applied at proper consistency and in accordance with manufacturer’s recommendations.

.5 Tint each coat of paint progressively lighter to enable confirmation of number of coats.

.6 Unless otherwise approved by NRC Departmental Representative, apply a minimum of 4 coats of paint where deep or bright colours are used to achieve satisfactory results.

.7 Sand and dust between each coat to provide an anchor for next coat and to remove defects visible from a distance up to 1000 mm (39").

.8 Do not apply finishes on surfaces that are not sufficiently dry. Unless manufacturer’s directions state otherwise, each coat shall be sufficiently dry and hard before a following coat is applied.

.9 Prime coat of stain or varnish finishes may be reduced in accordance with manufacturer’s directions.

.10 Paint finish shall continue through behind wall-mounted items (i.e. chalk and tack boards).

.11 Exposed means visible in complete work including interiors of cupboards and closets, tops of doors, trim, and the like, whether in sight line or not, including behind surface mounted fixtures and heating units.

.12 NRC Departmental Representative shall have right to make changes in colour tone of finishes prior to final coat to obtain desired results without additional cost to NRC Departmental Representative.

.13 Access doors, prime coated butts and other prime painted hardware, registers, radiators and covers, exposed piping and electrical panels shall be painted to match adjacent surfaces in terms of colour, texture and sheen, unless otherwise indicated.

3.4 Field Quality Control

.1 Conduct quality control in accordance with Section 01 45 00.

.1 Field tests and inspections:

.1 Paint and Coating Quality Assurance Inspections:

.1 Field quality control shall be in accordance with Section 01 45 00.

.2 Moisture and alkalinity testing:

.1 Check moisture content of surfaces to be painted using properly calibrated electronic moisture meter approved by paint manufacturer, and NRC Departmental Representative, or other approved method. Maximum moisture contents shall be in accordance with manufacturer's recommendations and as follows:

.1 Concrete and concrete masonry (clay and concrete brick/block): Maximum 12%.

.2 Gypsum board and plaster: Maximum 12%.

.3 Wood: Maximum 15%.

.2 Conduct moisture tests on concrete floors using cover patch test method.

.3 Test concrete, masonry and plaster surfaces for alkalinity.

.3 Painted interior surfaces shall be considered to lack uniformity and soundness if any of the following defects are apparent to the NRC Departmental Representative:

.1 Brush / roller marks, streaks, laps, runs, sags, drips, heavy stippling, hiding or shadowing by inefficient application methods, skipped or missed areas, and foreign materials in paint coatings.

.2 Evidence of poor coverage at rivet heads, plate edges, lap joints, crevices, pockets, corners and re-entrant angles.

.3 Damage due to touching before paint is sufficiently dry or any other contributory cause.

.4 Damage due to application on moist surfaces or caused by inadequate protection from weather.

.5 Damage and/or contamination of paint due to blown contaminants (dust, spray paint, etc.).

.4 Painted surfaces shall be considered unacceptable if any of the following are evident under natural lighting source for exterior surfaces and final lighting source (including daylight) for interior surfaces to the NRC Departmental Representative:

.1 Visible defects are evident on vertical and horizontal surfaces when viewed at normal viewing angles from a distance of not less than 1000 mm (39").

.2 Visible defects are evident on ceiling, soffit and other overhead surfaces when viewed at normal viewing angles.

.3 When final coat on any surface exhibits a lack of uniformity of colour, sheen, texture, and hiding across full surface area.

.5 Painted surfaces rejected by the NRC Departmental Representative shall be made good at the expense of the subcontractor. Small affected areas may be touched up; large affected areas or areas without sufficient dry film thickness of paint shall be repainted. Runs, sags of damaged paint shall be removed by scraper or by sanding prior to application of paint.

.6 Painting subcontractor shall obtain from Contractor written confirmation of specific surface preparation procedures and primers used for fabricated steel items from the fabricator/supplier to ascertain appropriate and manufacturer compatible finish coat materials to be used before painting any such work.

3.5 Adjusting and Cleaning

.1 Promptly as work proceeds and on completion of work, remove paint where spilled, splashed or spattered during the progress of the work. Keep the premises free from unnecessary accumulation of tools, equipment, surplus materials and debris; at the conclusion of the work leave the premises clean.

3.6 Interior Paint Systems

.1 System references listed are based on MPI Manual and are Premium Grade, Low VOC (Green Seal GS-11), High Performance Architectural, unless otherwise indicated:

.1 Primed ferrous metal; touch-up and finish coats required under this section:

.1 Ferrous metal fabrications: Prepared and primed in accordance with Section 05 50 00.

.2 INT 5.1R High performance architectural latex; semi-gloss.

.2 Galvanized metal: (doors, frames, railings, misc. steel, pipes, overhead decking, ducts, etc.)

.1 INT 5.3M High performance architectural latex; semi-gloss.

END OF SECTION

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MECHANICAL SPECIFICATION

PROJECT NAME:

NATIONAL RESEARCH COUNCIL
FACTORY OF THE FUTURE
800 COLLIP CIRCLE, LONDON, ON.
PACKAGE2- ROOM 149

OUR PROJECT NUMBER:

16293.001.M.001

DATE:

DECEMBER 16TH , 2016

ISSUED / REVISION:

TENDER

SECTION	NUMBER	NAME	PAGES
	21 05 00.00	General Instructions for Mechanical Sections	5
	21 05 01.00	Abbreviations	4
	21 05 02.00	Record Drawings	2
	21 08 02.00	Cleaning and Protection	1

END OF SECTION

1. General

1.1. WORK INCLUDED

1.1.1. Conform to the requirements of Division 1, which applies to and forms part of all sections of the work.

1.1.2. The Specification is divided into Sections which are not intended to identify contractual limits between Subcontractors nor between the Contractor and his Subcontractors. The requirements of any one Section apply to all Sections. Refer to other Divisions and Sections to ensure a complete and operational system.

1.1.3. Provide mechanical components and accessories which may not be specifically shown on the Drawings or stipulated in the Specifications, but are required to ensure complete and operational systems.

1.2. INTENT

1.2.1. Mention in the Specifications or indication on the Drawings of equipment, materials, operation and methods, requires provision of the quality noted, the quantity required, and the systems complete in every respect.

1.2.2. The Specifications are an integral part of the accompanying Drawings. Any item or subject omitted from one or the other, but which is either mentioned or reasonably implied, shall be considered as properly and sufficiently specified.

1.2.3. Be completely responsible for the acceptable condition and operation of all systems, equipment and components forming part of the installation or directly associated with it. Promptly replace defective material, equipment and part of equipment and repair related damages.

1.3. SECTIONS AFFECTED

1.3.1. These instructions apply to and form a part of all Mechanical Sections.

1.4. REGULATIONS

1.4.1. Work shall be performed in accordance with codes, rules, regulations, by-laws and requirements of the authorities having jurisdiction.

1.4.2. The plumbing and drainage systems shall comply with regulations respecting plumbing made under the Ontario Water resources Act except as modified by rules, regulations and by-laws of authorities having jurisdiction.

1.4.3. Natural gas systems shall be in accordance with the Gas Protection Act and Installation Code of Natural Gas Burning Appliances and Equipment Code CAN-CSA-B149.

1.4.4. These specifications are supplementary to the requirements above.

1.4.5. Drawings and specifications should not conflict with the above regulations but where there are apparent discrepancies the Contractor shall notify the Engineer’s Representative.

1.5. PERMITS, FEES INSPECTION

1.5.1. Obtain all permits, make submissions, pay all fees and arrange for all inspections required for the work of this Division.

1.6. EXAMINATION OF SITE

1.6.1. Before submitting Bids, each trade shall examine the site to determine the conditions which may affect the proposed work. No claims for extra payment will be considered because of failure to fulfil this condition.

1.7. DRAWINGS, CHANGES AND INSTALLATION

1.7.1. The Drawings shall be considered to show the general character and scope of the work and not the exact details of the installation. The installation shall be complete with all accessories required for a complete and operational installation.

1.7.2. The location, arrangement and connection of equipment and material as shown on the Drawings represents a close approximation to the intent and requirements of the work. The right is reserved by the Engineer's Representative. to make reasonable changes required to accommodate conditions arising during the progress of the work, at no extra cost to the NRC Departmental Representative.

1.7.3. In order to show more clearly the arrangement of the work, plans and sections do not show every valve, thermometer, pressure gauge or other system accessory. Refer to the Mechanical Standard Details in the drawing package and to the Specifications to determine the requirements.

1.7.4. Certain Details indicated on the Drawings are general in nature and specific labelled detail references to each and every occurrence of use are not indicated, however, such details shall be applicable to every occurrence.

1.7.5. All piping and ductwork in finished areas shall be concealed in ceiling spaces and shafts or chased into walls. No exposed piping or ductwork shall be installed in such areas unless specifically reviewed and accepted by the Engineer's Representative. No piping shall be concealed in outside walls.

1.7.6. Vent pipes, exhaust hoods or other mechanical equipment mounted on the roof, or housing for such equipment shall not be closer to the edge of the roof than a distance equal to the height of the pipe, hood or equipment, unless specifically reviewed and accepted by the Engineer's Representative.

1.7.7. The location and size of existing services shown on the Drawings are based on the best available information. The actual location of existing services shall be verified in the field before work is commenced. Particular attention shall be paid to buried services.

1.7.8. Changes and modifications necessary to ensure co-ordination and to avoid interference and conflicts with other Trades, or to accommodate existing conditions, shall be made at no extra cost to the NRC Departmental Representative.

1.7.9. Leave areas clear of piping and ducts where space is indicated as reserved for future equipment and equipment for other Trades.

1.7.10. Adequate space and provisions shall be left for removal of coils and servicing of equipment, with minimum inconvenience to the operation of systems.

1.7.11. Where equipment is shown to be 'roughed-in only' obtain accurate information from the Engineer's Representative before proceeding with the work.

1.7.12. Before fabricating ductwork or piping for installation, make certain that such items can be installed as shown on the Drawings without interfering with the structure or the work of other Trades. Any problems that cannot be solved in agreement with the other Trades affected, shall be submitted for decision. If ductwork or piping is prefabricated prior to the investigation and reaching of a solution to possible interference problems, necessary changes in such prefabricated items shall be made at no extra cost to the NRC Departmental Representative.

1.7.13. Location of diffusers, grilles registers, thermostats, sprinklers and all other equipment shown on plans is diagrammatic. Layout of each device in finished areas is critical in terms of symmetry and location. Refer to Architectural Drawings and to site instructions in all regards. Any work not installed in the correct location (at the sole discretion of the Engineer's Representative) shall be remedied by this Contractor at his expense. This Contractor is responsible for mark-out of his work, fully co-ordinated with all other trades, in sufficient time for review by Engineer's Representative prior to rough-in. All mechanical and sprinkler services shall be located precisely.

1.7.14. Prepare dimensioned layouts of each room prior to rough-in for review by Architectural Consultant. Do not proceed with any work until the Engineer's Representative has reviewed the layout.

1.8. INSTALLATION, INTERFERENCE AND SETTING DRAWINGS

1.8.1. Work shall not proceed in areas involved until after final review of such Drawings has been obtained.

1.9. MATERIALS

1.9.1. Make and quality of materials used in the construction of this work shall be subject to the approval of the Engineer's Representative.

1.9.2. Materials and equipment supplied by this Division shall be new and free from defects and shall be as specified by the manufacturer's name and catalogue reference.

1.9.3. Where a certain manufacturer's equipment has been specified by name or model number, the Contractor shall be responsible for ensuring that the performance and quality of any proposed alternative meets the specified equipment and that the same access or maintenance space is available for the alternative manufacturer's equipment and that piping, duct and electrical connections can be made at no extra cost to the Contract.

1.10. CO-OPERATION WITH CONSULTANTS

1.10.1. To assist in the successful execution of the project, the Contractor shall receive a job report that summarizes the expectations of the Consultant and the Contractor. This document covers topics such as progress billings breakdowns, shop drawing requirements, change order pricing breakdowns, the commissioning process, installation drawings, the specifications, as-builts and O+M manuals, along with a number of other items. This job report is intended to reiterate and elaborate on key items of the Contract Documents and is not intended to impose new requirements.

1.10.2. At the appropriate time during construction the Contractor shall submit the applicable documentation listed in the Mechanical/Electrical Unfinished Building Occupancy Checklist. The list shall be issued by the Consultant during the course of the project; however, a sample checklist can be provided at any time upon request. The checklist shall be completed by the Contractor when the information required for occupancy is submitted. The Consultant shall review the information and checklist and shall identify when the information is complete. The Consultant's general review letter (required for building occupancy) shall only be issued when all the information requested in the checklist is submitted by the Contractor and deemed to be complete by the Consultant.

1.11. CO-OPERATION WITH OTHER DIVISIONS

1.11.1. Pipes transporting hot fluids shall be installed at least 150 mm (6 in.) away from pipes carrying cold fluids, unless approval from the Engineer's Representative is obtained to install services closer than 150 mm (6 in.).

1.11.2. Each Section shall confine itself to installing all materials in the spaces shown without encroaching upon space for materials installed under other Sections or Divisions. Where the space allocated to another Section or Division is encroached upon, the materials shall be relocated to their proper space allocation in such a manner to complete the work using space allocated to the various Sections and Divisions. Relocation of materials and work involved shall be paid for by the Section responsible for the encroachment at no extra cost to the NRC Departmental Representative.

1.11.3. Supply all items to be built in ample time for rapid progress of the work. Schedule and proceed with work as required to satisfy the construction schedule.

1.11.4. The Contractor shall confirm the available voltage for all single phase and three phase motors or other similar electrically driven equipment with the Electrical Division prior to ordering the equipment. Any discrepancy between the requirements identified within the Contract Documents and those of the Electrical Division shall be reported to the Engineer's Representative and the equipment shall be adjusted to suit the appropriate power requirements. Failure to perform this coordination prior to ordering of the motors or equipment shall result in correction at no additional cost to the NRC Departmental Representative.

1.12. TEMPORARY USE OF EQUIPMENT

1.12.1. Where the mechanical systems are operated during construction, the Mechanical Contractor shall maintain the system and equipment in proper operating condition.

1.12.2.

1.13. EXISTING SERVICES AND EQUIPMENT

1.13.1. All changes and connections to existing services shall be made only in a manner and at a time approved by the Engineer's Representative so as to avoid any interruption of such services during normal working hours. If necessary, changes and connections to existing services shall be made outside of normal working hours, at no extra cost to the Contract.

1.13.2. Whenever existing services or equipment are to be removed, all piping and ductwork for such services or equipment shall be removed back to the main, nearest pipe or duct and any open ends securely capped or plugged in an approved manner unless otherwise shown. If necessary to facilitate installation of new work, any existing services and equipment shall be removed and then replaced by this Division.

1.13.3. Where connections are made to existing services, existing insulation shall be made good under this Division.

1.14. STATEMENT OF PRICES

1.14.1. For the purpose of progress applications the Contractor shall submit a statement of his estimated prices for the various portions of the work, including labour, materials and equipment shown separately. The total price of all portions of the work shall equal the total price of the work covered under the Mechanical Division.

1.14.2. The Contractor shall submit the breakdown of work for this Contract to the Engineer's Representative for review and approval. The breakdown shall be in sufficient detail to enable the Engineer's Representative to evaluate the progress of work and shall identify all major equipment, components and sub trades.

1.15. METRIC CONVERSIONS

1.15.1. Particular care shall be taken with imperial versus S.I. metric conversions. This applies to all services including, but not limited to, equipment, pipes, ductwork and site services in both new and existing installations.

1.15.2. Conform to the Canadian Metric Practice Guide CSA-CAN3-2234-1-89.

1.16. DEMOLITION

1.16.1. The Demolition Drawings show the general scope of the demolition and not exact details or total extent. For exact details and total extent each service must be carefully checked on site. Before removing services follow the service through to ensure other areas of the building are not affected. Open shafts, walls and ceilings as required to examine the services.

1.16.2. If there are no isolating valves readily available to isolate sections of pipe that requires removal, add valves as required. The cost of these valves will be paid for from the Cash Allowance Section. Co-ordinate with the Engineer's Representative to shut-down the system. Install caps on all services. Add cap to all valves at the termination point of existing services.

1.16.3. Where valves are removed, remove valve tags, revise existing charts and hand tags over to NRC Departmental Representative.

1.17. SCHEDULE, ACCESS, PROTECTION AND CLEAN-UP

1.17.1. The construction schedule places restrictions on the duration of construction within areas and the duration of shut-down of equipment. Refer to the General Conditions for all requirements.

1.18. ASHRAE 90.1

1.18.1. All mechanical equipment shall comply with the minimum efficiency standards set out in ASHRAE 90.1 and the Model National Energy Code of Canada for Buildings. Submit all necessary information to substantiate conformance.

1.19. HOISTING FACILITIES

1.19.1. This Division shall provide its own hoisting facilities.

2. Products

2.1. NOT USED

3. Execution

3.1. NOT USED

END OF SECTION

1. General

1.1. ABBREVATIONS

1.1.1. Generally, the following abbreviations are used in this Division:

A.A.B.C.	-	Associated Air Balance Council
AAP	-	Alarm Annunciator Panel
A.B.M.A.	-	American Boiler Manufacturers Association
ACO	-	Acid Resistant Cleanout
AD	-	Acid Resistant Drawings
AFD	-	Acid Resistant Floor Drain
AFF	-	Above Finished Floor
A.G.A.	-	American Gas Association
A.M.C.A.	-	Air Moving and Conditioning Association
A.N.S.I.	-	American National Standards Institute
A.R.I.	-	Air-Conditioning and Refrigeration Institute
A.S.H.R.A.E.	-	American Society of Heating, Refrigerating and Air Conditioning Engineers
A.S.M.E.	-	American Society of Mechanical Engineers
A.S.T.M.	-	American Society for Testing and Materials
AV	-	Acid Resistant Vent
A.W.G.	-	American Wire Gauge
AWS	-	American Welding Society
A.W.W.A.	-	American Water Works Association
B.H.P.	-	Boiler Horsepower or Brake Horsepower
Btu/hr	-	British Thermal Units per Hour
B.W.G.	-	British Wire Gauge
CAD	-	Computer Aided Drafting
CAFV	-	Controllable Air Flow Venturis
CAP	-	College of American Pathologists
CCA	-	Chromated Copper Arsenate
C.E.M.A.	-	Canadian Electrical Manufacturer's Association
CEMS	-	Central Energy Management System
CCF	-	Central Computer Facility
cfm	-	Cubic Feet per Minute
C.G.A.	-	Canadian Gas Association
C.G.S.B.	-	Canadian General Standards Board
C.I.	-	Cast Iron
CPU	-	Central Processing Unit
C.R.N.	-	Canadian Registration Number
CSA	-	Canadian Standards Association
cu.ft.	-	Cubic Feet
cu.m.	-	Cubic Meter
db	-	Dry Bulb
dB	-	Decibel
dBA	-	A-weighted Decibel
DDC	-	Direct Digital Control
deg. C	-	Degrees Celsius
deg. F.	-	Degree Fahrenheit
dia.	-	Diameter

DPDT	-	Double Pull Double Throw
DPTX	-	Differential Pressure Transmitters
EAP	-	Excess Exhaust Alarm Panel
E.D.R.	-	Equivalent Direct Radiation
EF	-	Exhaust Fan
E.E.M.A.C.	-	Electrical and Electronic Manufacturers Association of Canada
EEPROM	-	Electricall y Erasable Programmable Read-Only Memory
EMT	-	Electrical Metallic Tubing
EP	-	Electric Pneumatic
EPDM	-	Ethylene Propylene Diene-Rubber
EPROM	-	Electrically Programmable Read Only Memory
ERW	-	Electric Resistance Welded
FACP	-	Fire Alarm Control Panel
FDA	-	Food and Drug Administration
F.E.	-	Flexible Elastomeric
FHC	-	Fume Hood Controller or Firehose Cabinet
F.L.A.	-	Full Load Amps
fpm	-	Feet per Minute
fps	-	Feet per Second
F.M.	-	Factory Mutual
ft.	-	Foot or Feet
ga	-	Gauge
gal	-	Gallons
GFD	-	Gallons per Square Feet per Day
G.P.D	-	Gallons per Day
G.P.H.	-	Gallons per Hour
GSS	-	Galvanized Sheet Steel
h-cu.ft.	-	Hour-cubic foot
HCFC	-	HydroChloroFlourocarbons
HEPA	-	High Efficiency Particulate Air
H.O.A.	-	Hand/Off/Auto
HOT	-	Hand Held Operator Terminal
H.S.S.	-	Hollow Steel Sections
HTK	-	Hood Termination Kit
hp	-	High Pressure or Motor Horsepower
hz	-	Hertz
I.A.O.	-	Insurance Advisory Organization of Canada
I.C.U.	-	Intensive Care Unit
(I.)G.P.H.	-	(Imperial) Gallons per Hour
(I.)G.P.M.	-	(Imperial) Gallons per Minute
in.	-	Inch or Inches
kg	-	Kilogram
kg/cu.m.	-	Kilogram per cubic meter
kPa	-	Kilopascals
KVA	-	Kilovolt-amps
kW	-	Kilowatts
lbs/cu.ft.	-	Pounds per cubic foot
lbs/hr.	-	Pounds per Hour
L	-	Litre
L/s	-	Litres per Second
LFC	-	Laminar Flow Cabinets
LEDS	-	Light Emitting Diode

LCP	-	Laboratory Control Panel
lin.ft.	-	Linear foot
lin.m.	-	Linear meter
ma	-	Milliamps
MAC	-	Make-up Air Controller
mADC	-	Milliamps Direct Circuit
M.B.H.	-	1000 British Thermal Units per Hour
M.C.C.	-	Motor Control Centre
mm	-	Millimetre
m	-	Metre
m/s	-	Metres per Second
mL	-	Millilitre
MCP	-	Motor Control Panel
M.O.V.	-	Motor Over Voltage
mPa	-	Millipascals
MSC	-	Master Summing Controller
MSG	-	Manufacturers' Standard Gauge
N.B.S.	-	National Bureau of Standards
N.C.	-	Noise Criterion as Defined by Graph in A.S.H.R.A.E.
NCCLS	-	National Committee for Clinical Laboratory Standard
N.E.M.A.	-	National Electrical Manufacturer's Association
N.F.P.A.	-	National Fire Protection Association
NIM	-	Network Interface Module
NIST	-	National Institute of Standards and Technology
NIOSH	-	National Institute of Occupancy Safety and Health
NPS	-	American National Standard Straight Pipe Thread
N.P.S.H.	-	Net Positive Suction Head
NPT	-	American National Standard Taper Pipe Thread
No.	-	Number
OAT	-	Outside Air Temperature
O.B.C.	-	Ontario Building Code
OC	-	On Centre
OCP	-	Operator Control Panel
OPSS	-	Ontario Provincial Standard Specification
O.S. & Y.	-	Outside Screw and Yoke
O.W.R.A.	-	Ontario Water Resources Ace
oz.	-	Ounce or Ounces
PCU	-	Personal Computer Unit
PE	-	Pneumatic Electric
PIT	-	Portable Interface Terminal
ph	-	Hydrogen Ion Concentration
ppm	-	Part per Million
psf	-	Pounds per Square Foot
psi	-	Pounds per Square Inch
psia	-	Pounds per Square Inch Absolute
psig	-	Pounds per Square Inch Gauge
PWM	-	Pulse Width Modulation
PVC	-	Polyvinyl Chloride
qt.	-	Quart
RAH	-	Return Air Humidity
Rh	-	Relative Humidity
rpm	-	Revolutions per Minute

RPU	-	Remote Processing Unit
RPU-TU	-	Remote Processing Unit for Terminal Units
SCR	-	Silicone Controlled Rectifier
SMACNA	-	Sheet Metal and Air Conditioning Contractors National Association
sp. in. wg.	-	Static Pressure, Inches Water Gauge
S.P.D.T.	-	Single Pull Double Throw
SPS	-	Sash Position Sensor
s.s	-	Stainless Steel
SF	-	Supply Fan
SPS	-	Sash Position Sensor
SPWM	-	Sine-Coded Pulse Width Modulated
S.S.P.C.	-	Steel Structures Painting Council (The Society of Protective Coatings)
sq.m.	-	Square Meter
STC	-	Supply/Exhaust Tracking Controller
SWS	-	Sidewall Velocity Sensors
T.D.S.	-	Totally Dissolved Solids
TEFC	-	Totally Enclosed Fan Cooled
TIG	-	Tungsten Inert Gas
TKV-TWA	-	Threshold Limit Value – Time Weighted Average
UACU	-	Unitary Air Conditioning Units
U.L.	-	Underwriter's Laboratories
U.L.C.	-	Underwriter's Laboratories of Canada
um	-	Ohm
USP	-	United States Pharmacopoeial
U.S. gal.	-	United States Gallons
USGPH	-	United States Gallons per Hour
USGPM	-	United States Gallons per Minute
VAC	-	Volts Alternating Current
VACFH	-	Closed Loop Variable Frequency Drive
VDC	-	Volts Direct Current
VFD	-	Variable Frequency Drive
VSC	-	Variable Speed Controllers
VSD	-	Variable Speed Drives
W	-	Watt
W/cu.m.	-	Watts per Cubic Meter
W/ft.	-	Watts per Foot
W/m	-	Watts per Meter
W/sq.in.	-	Watts per Square Inch
W/sq.m.	-	Watts per Square Meter
WC	-	Water Closet
wb	-	Wet Bulb
wg	-	Water Gauge
WHMIS	-	Workplace Hazardous Material Information System
WSP	-	Working Steam Pressure
WOG	-	Water, Oil, Gas

END OF SECTION

1. General

1.1. WORK INCLUDED

1.1.1. Conform to Section 21 05 00.00 – GENERAL INSTRUCTIONS FOR MECHANICAL SECTIONS.

1.2. RELATED WORK SPECIFIED ELSEWHERE

1.2.1. Refer to Record Drawings in Section 01 70 00.00 (01 72 29.00) – CLOSEOUT SUBMITTALS.

1.3. PRINTS

1.3.1. The NRC Departmental Representative will provide the Mechanical Contractor with two sets of white prints to mark the project progress, changes and deviations.

2. Products

2.1. NOT USED

3. Execution

3.1. DOCUMENTATION REQUIREMENTS

3.1.1. As the project progresses mark all changes and deviations from that shown on the drawings to the white prints.

3.1.2. Keep drawings up-to-date during construction and in addition to field measurements include change orders, site instructions and all other changes. Drawings shall be available for review at all times.

3.1.3. On completion of the work, forward to the Engineer's Representative the two sets of drawings indicating all such changes and deviations for review by the Engineer's Representative.

3.1.4. After the drawings have been reviewed, transfer all as-built mark-ups from prints to a DVD or USB Storage Device using a version of AutoCAD software up to the latest published version. The Contractor shall request the acceptable version(s) of AutoCAD that may be used. Submit prints/plots of drawings with the submission of the USB Storage Device or DVD for review by the Engineer's Representative

3.1.5. Final as-built prints/plots shall not contain markings or corrections by hand (i.e. marker, pen, pencil, etc.). Drawings containing mark-ups shall be revised on computer and printed/plotted.

3.1.6. The project will remain incomplete and a holdback will be retained until satisfactory as-built drawings and disks are provided.

3.1.7. The Mechanical Contractor may request from the Engineer's Representative the most current mechanical drawings on AutoCAD, IBM PC CD ROM format (at a nominal charge of $500.00).

3.1.8. The AutoCAD documents shall meet all the NRC Departmental Representative's and Engineer's Representative's requirements.

3.2. CADD REQUIREMENTS

3.2.1. A complete list of layer names and brief description of each layer's use shall accompany all files.

3.2.2. Fonts for text shall be AutoCAD standard. Custom fonts, shape files, etc., are not to be used.

3.2.3. Final as-built drawings shall be returned on CD ROM.

3.2.4. Each CD ROM shall be clearly labelled with Engineer's Representative and NRC Departmental Representative, Contract number, file names and Drawing number. If a complete listing exceeds the label size provide a "readme.txt" file in ASCII format with each CD ROM. A printed copy of the readme file shall accompany each CD ROM.

3.2.5. All drawings shall be in the same units as issued on Bid Documents.

3.2.6. Provide a complete list of symbol (block) names with a description of each symbol.

3.2.7. Special effort shall be made to ensure that drafting is accurate: i.e. appropriate lines are indeed horizontal and vertical; lines that should intersect do but not over-intersect and ensure that entities are placed on correct layers.

END OF SECTION

General

1.1. WORK INCLUDED

1.1.1. Conform to Section 21 05 00.00 – GENERAL INSTRUCTIONS FOR MECHANICAL SECTIONS.

2. Products

2.1. NOT USED

3. Execution

3.1. INSTALLATION

3.1.1. Clean thoroughly all fixtures and equipment from grease, dirt, plaster or any other foreign material. Chrome-plated fittings, piping and trim shall be polished upon completion.

3.1.2. Any dirt, rubbish, or grease on walls, floors or fixtures accumulated from the work of the Mechanical Division shall be removed promptly from the premises by this Division.

3.1.3. Fixtures and equipment shall be properly protected from damage during the construction period and shall be cleaned and polished in accordance with manufacturer's directions. Motors and equipment bearings shall be protected with plastic sheets, tied or taped in place. Aluminum fin heating or cooling elements shall be protected with cardboard covers.

3.1.4. Any unpainted steel surfaces, installed for longer than one year prior to the completion date, shall be prime coated under this Division.

3.1.5. During construction protect all services and equipment from dirt and debris, by using temporary caps over the open ends of pipes ductwork and equipment connections.

3.1.6. All equipment installed or stored on site shall be maintained in accordance with manufacturers recommended instructions (i.e. rotate shafts on fans, pumps, etc).

3.1.7. Refinish and restore to the original condition and appearance all mechanical equipment which has sustained damage to the manufacturer's prime and finish coats of enamel or paint. Materials and workmanship shall be equal to the manufacturers original.

3.1.8. All cleaning and protective measures shall be in accordance with the SMACNA – IAQ Guidelines for Occupied Buildings under Construction and the IAQ Management Plan developed by the general contractor to conform to LEED requirements.

END OF SECTION

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ELECTRICAL SPECIFICATION

PROJECT NAME:
NATIONAL RESEARCH COUNCIL
FACTORY OF THE FUTURE
800 COLLIP CIRCLE, LONDON, ON.
PACKAGE 2

OUR PROJECT NUMBER:
16293.001.E.003

DATE:
DECEMBER 16TH, 2016

ISSUED / REVISION:
FOR TENDER

SECTION	NUMBER	NAME	PAGES
	26 01 00.00	Operating and Maintenance Instruction	3
	26 05 01.00	General Instructions for Electrical Sections	5
	26 05 03.00	Record Drawings	2
	26 05 04.00	Submittals/Shop Drawings	1
	26 05 21.00	Wires and Cables 1000V	4
	26 05 31.00	Splitters, Junction, Pull boxes and Cabinets	2
	26 05 32.00	Outlet Boxes, Conduit Boxes and Fittings	2
	26 05 34.00	Conduits, Conduit Fasteners and Fittings	3
	26 05 88.00	Cutting and Patching	1
	28 31 01.00	Fire Alarm	2

END OF SECTION 26 00 00.00

1. General

1.1. WORK INCLUDED

1.1.1. Conform to Section 26 01 00.00 – GENERAL INSTRUCTIONS FOR ELECTRICAL SECTIONS.

1.1.2. Comply with all requirements of Section 26 05 03.00 – RECORD DRAWINGS.

1.1.3. Comply with all requirements of Section 26 05 04.00 – SHOP DRAWINGS.

2. Products

2.1. NOT USED

3. Execution

3.1. REQUIREMENTS FOR MANUALS

3.1.1. A minimum of three copies of complete and approved operating and maintenance instructions for all electrical equipment and systems shall be supplied before substantial completion. Provide additional copies if required under the General Requirements. In addition to the three copies of manuals, the contractor to provide a manual in a searchable PDF format on CD. As-Built Drawings to be included on the CD.

3.1.2. The contractor to identify the cost of Record Drawings and the Operation and Maintenance Manuals as a separate line item on their progress draw. The values to be broken out can be found in Section 16030 – Record Drawings. The project will remain incomplete and no money will be released until the final versions, both hard and electronic, of the drawings and manuals are received and reviewed without comments.

3.1.3. Binders shall be three-ring, hard-cover, loose-leaf type and identified on the binding edges as “Maintenance Instructions and Data Book”, for “(Project Name)”.

3.1.4. Terminology used in all the sections shall be consistent.

3.1.5. Volume One shall contain the master index of all systems, the name of the Contractor, Electrical Subcontractors and the date of substantial performance for the Contract.

3.1.6. Volume One shall contain a section with all necessary warranty information.

3.1.7. Each binder shall have a complete index for all volumes.

3.1.8. Each binder shall be no more than half filled.

3.1.9. There shall be a separate section for all materials used on the project which fall under the WHMIS legislation. There shall be a hazard data sheet for each of the materials.

3.1.10. There shall be a separate section for all Insurance Certificates, Test Certificates, Verification Forms and Test Forms.

3.1.11. All relevant information relating to a system or product shall be contained within one binder.

3.1.12. The manual sections shall follow the specification sections.

3.1.13. Any diagrams, installation drawings, single line diagrams charts, etc. shall be mechanically reduced while maintaining full legibility to standard page size. If this cannot be achieved they shall be carefully folded and contained within a clear plastic wallet within the manual.

3.2. DATA FOR MANUALS

3.2.1. Equipment data shall contain:

.1 Operating instructions.

.2 Operating conditions such as temperature and pressure.

.3 Location of equipment.

.4 Maintenance instructions and schedules for one year routine.

.5 Recommended list of spare parts.

.6 Maintenance schedule.

.7 A trouble shooting table showing where to look for problems under various conditions of malfunction.

.8 All wiring diagrams.

.9 Equipment operating curves.

.10 Equipment nameplate data and serial numbers.

3.2.2. System data shall contain:

.1 A listing of all systems.

.2 All panel, mcc and fire alarm schedules and locations.

.3 Equipment name tags.

.4 Cleaning, maintaining and preserving instructions for all material, products and surfaces. Include warnings of harmful cleaning, maintaining and preserving practices.

3.2.3. Sub-Contractor manuals are required for:

.1 Switchboards and power distribution systems.

.2 Lighting systems.

.3 Emergency power systems.

.4 Fire alarm systems.

3.2.4. As-Built documentation shall contain:

.1 Reviewed As-Built Shop Drawings.

.2 As-Built Construction Drawings.

.3 Originals of test forms.

.4 Originals of test certificates.

3.3. OPERATING INSTRUCTIONS

3.3.1. Instruct the NRC Departmental Representative in all aspects of the operation and maintenance of systems and equipment.

3.3.2. Arrange for and pay for the services of engineers and other manufacturers representatives required for instruction on the systems and the equipment as requested by the Engineer’s Representative and/or the NRC Departmental Representative.

3.3.3. At the time of final review, provide a sheet for each system and piece of equipment showing the date instructions were given. Each sheet shall show the duration of instruction, name of

persons receiving instruction, other persons present (manufacturer's representative, Engineer's Representative, etc.), system or equipment involved and signature of the NRC Departmental Representative stating that they understood the system installation, operating and maintenance requirements. This information shall be inserted in the manuals after all instructions have been completed.

3.3.4. Review information with the NRC Departmental Representative to ensure that all information required has been provided.

3.3.5. END OF SECTION 26 01 00.00

1. 16292 General

1.1. WORK INCLUDED

1.1.1. Conform to the requirements of Division 1, which applies to and forms part of all sections of the work.

1.2. DESCRIPTION OF SECTION

1.2.1. The specification is divided into sections of work and a section may consist of the work of more than one subcontractor. The responsibility as to which electrical subcontractor provides labour, materials, equipment and services required to complete the work rests solely with the Electrical Contractor.

1.3. SECTIONS AFFECTED

1.3.1. These instructions apply to and form a part of all electrical sections.

1.4. SCOPE

1.4.1. Provide all labour, materials, equipment and services to complete the work of the electrical division as further specified and as shown on the drawings.

1.4.2. Should any discrepancy appear between any parts of the specifications and/or the drawings to cause doubt as to the true meaning and intent of the drawings and specifications, a ruling shall be obtained from the Engineer's Representative before submitting the tender. If this is not done the following will be assumed:

.1 Where a discrepancy occurs between the specification and the drawings, the drawings take precedence.

.2 Where a discrepancy occurs in the drawings the more expensive/onerous alternative will be deemed as included in the contract.

.3 Where a discrepancy occurs in the specifications the more expensive/onerous alternative will be deemed as included in the contract.

1.5. REGULATIONS

1.5.1. All work shall be performed in accordance with the latest codes, rules, regulations, by-laws and requirements of all authorities having jurisdiction except where the requirements of the drawings and specifications exceed the codes, rules, regulations, by-laws and requirements of the authorities having jurisdiction.

1.5.2. These specifications are supplementary to the requirements above.

1.5.3. Drawings and specifications should not conflict with the above regulations but where there are apparent discrepancies the contractor shall notify the Engineer's Representative.

1.6. PERMITS, FEES, AND REVIEWS

1.6.1. Make submissions to obtain all permits. Include for and pay for all fees and arrange for all reviews required for the work of this division.

1.7. COORDINATION WITH MECHANICAL DIVISIONS.

1.7.1. Unless indicated otherwise on the Electrical Drawings, Electrical Contractor will be responsible for making safe and the removal of the electrical components associated with mechanical equipment being removed including but not limited to the following:

.1 Starters.

.2 Line and load side wiring for starters.

.3 Disconnects to all mechanical equipment being removed.

.4 All power wiring (120V & above) to all mechanical equipment.

1.7.2. Mechanical Divisions will be responsible for the removal of the following:

.1 Pumps with motors.

1.7.3. Determine exact location of starters, motors and line voltage controls based on the drawings to coordinate with the locations of all equipment.

1.8. SAFETY

1.8.1. Protect exposed live equipment during construction for personnel safety.

1.8.2. Shield and mark all live parts "LIVE 600 VOLTS", or with appropriate voltage in English.

1.8.3. Keep doors to rooms containing electrical distribution locked except when under direct supervision of an electrician.

1.9. CLEANING AND WASTE REMOVAL

1.9.1. Clean all electrical equipment that has been exposed to construction dust and dirt.

1.9.2. Contractor to clean all electrical equipment, inside and out, prior to turn over to NRC Departmental Representative. Equipment is subject to review by Engineer's Representative and/or NRC Departmental Representative.

Contractor is responsible to remove their own waste from the site. All re-usable materials shall be recycled.

1.10. EXAMINATION AND PROTECTION OF SITE

1.10.1. Before submitting Bid, each trade shall examine the site to determine the conditions which may affect the proposed work. No claims for extra payment will be considered because of failure to fulfil this condition.

1.10.2. Contractor to document any existing conditions over and above what is shown on drawings and submit documentation survey including pictures.

1.10.3. When requested by the NRC Departmental Representative and/or Engineer's Representative, the Contractor is to provide digital pictures of the site, including but not limited to progress of work, via e-mail to the NRC Departmental Representative and/or Engineer's Representative.

1.11. DRAWINGS

1.11.1. The drawings are intended to show the general character and scope of the work and not the exact details of the demolition. The demolition shall be complete.

1.11.2. The location, arrangement and connection of equipment and materials shown on the drawings represent a close approximation to the intent and requirements of the contract.

1.11.3. The location and size of existing services shown on the drawings are based on the best available information. The actual location of existing services shall be verified in the field before work is commenced. Particular attention shall be paid to buried services.

1.11.4. This Contractor is responsible to mark-out his work, fully co-ordinated with all other trades.

1.11.5. The Contractor will reimburse the Engineer's Representative for their time spent on answering any written questions or requests for information where the answer is clearly identified on the drawings or in the specifications.

1.12. CO-OPERATION WITH OTHER DIVISIONS

1.12.1. Electrical conduits shall be protected from damage that may be caused by work of other divisions i.e. removal of ductwork.

1.12.2. Co-operate with other trades and install necessary signage, provide locates to prevent damage.

1.13. INTERRUPTION OF SERVICES

1.13.1. Any interruption of the electrical services to any part of the building shall come at a time agreeable to the NRC Departmental Representative. Make all necessary arrangements with those concerned and include for any overtime required to ensure that the interruption is held to a minimum. Schedule all work with the NRC Departmental Representative and allow for after-hours work and no additional cost to the NRC Departmental Representative.

1.13.2. The Contractor is responsible for any damages caused to existing systems when removing connections.

1.13.3. Shutdowns of existing buildings systems are not allowed and/or deemed necessary. However circuits penetrating the area of demolition work shall be de-energised in coordination with other trades as required for safety of operations.

1.14. STATEMENT OF PRICES

1.14.1. To form a basis for progress payments the successful bidder shall submit a sample progress draw for the various portions of the work. The format of the sample progress draw shall be as shown in the example progress draw below. The sample progress draw shall include a breakdown which illustrates all categories shown on the example progress draw which are relevant to the project. The categories shall be broken down to clearly illustrate the value of the material being supplied as the first subcategory and the value of the labour being supplied as the second subcategory, as shown on the example progress draw. The electrical Engineer's Representative reserves the right to request that additional categories be added to the progress draw if the Engineer's Representative feels that doing so will aid in assessing the contractor's progress on site, thereby expediting contractor payment. Progress draws not including the categories shown on the example progress draw where relevant to the project and / or not providing separate labour value and separate material value subcategories will be rejected.

1.14.2. The total price of all portions of the work shall equal the total price of the work covered under the electrical division. Cost for as-built drawings and manuals to be carried as a separate line item.

1.14.3. Contractor to list and track all fixed per unit cost luminaires as part of Light Fixtures - Materials on the progress draw.

1.14.4. Contractor to list and track each of the approved changes on separate lines on the progress draw.

1.14.5. Costs of temporary facilities and utilities shall be amortized over the duration of the Work. Claims for 'mobilization', 'bidding costs', or similar lump sums at or before start of work are not acceptable.

EXAMPLE PROGRESS DRAW

Electrical Contractor Name

Billing Application Electrical Division
Project Name
Application Number – xx **Date – xxxx to xxxx**

Description	Contract Value	%	Billed To Date	%	Prev. Billed	%	This Billing	Balance to Complete
Permits / Mobilization	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx,xxx.xx
Demolition & Removals	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx,xxx.xx
Feeder Conduit	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx,xxx.xx
Feeder Wire	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx,xxx.xx
Lighting Fixtures	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx,xxx.xx
Lighting Controls	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx,xxx.xx
Power & Lighting Wiring	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx,xxx.xx
Fire Alarm Devices	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx,xxx.xx
Fire Alarm Conduit and Cable	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx,xxx.xx
Distribution Equipment	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx,xxx.xx
Generator / Inverter	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx,xxx.xx
Wiring Devices	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx,xxx.xx
Commissioning / Training	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx,xxx.xx
Demobilization / Clean-up	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx,xxx.xx
Manuals / As-Built Drawings	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx,xxx.xx
Subtotal	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx,xxx.xx
Additions to Contract								
CO # / PC # / CCN #	xx,xxx.xx	xxx	xx,xxx.xx	xxx	xx,xxx.xx	xxx	xx,xxx.xx	xx,xxx.xx
Cash Allowance #	xx,xxx.xx	xxx	xx,xxx.xx	xxx	xx,xxx.xx	xxx	xx,xxx.xx	xx,xxx.xx
Subtotal	xx,xxx.xx	xxx	xx,xxx.xx	xxx	xx,xxx.xx	xxx	xx,xxx.xx	xx,xxx.xx
Total Contract	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx	xxx,xxx.xx	xxx,xxx.xx
Less Holdback			xxx,xxx.xx		xxx,xxx.xx		xxx,xxx.xx	
Total			xxx,xxx.xx		xxx,xxx.xx		xxx,xxx.xx	

1.15. VALUATION OF CHANGES

1.15.1. Refer to contract documents and section 01.

1.16. DEMOLITION

1.16.1. In general the base building equipment i.e. breaker panels, receptacles, luminaires lighting switches and equipment that may be considered useful for future space tenant shall remain. Only equipment installed by former tenant for specific laboratory equipment should be removed.

1.16.2. The demolition drawings show the general scope of the demolition and not exact details or total extent. For exact details and total extent each service must be carefully checked on site. Before removing services follow the service through to ensure other areas of the building are not affected.

1.16.3. Whenever existing services or equipment are to be removed, all electrical connections for such services shall be removed and securely terminated in an approved manner. If necessary to facilitate demolition of new work, any existing services and equipment shall be removed and then replaced by this division.

1.16.4. Whenever it becomes necessary to relocate any electrical services equipment to make possible demolition of the work under this contract, such relocation shall be done by this division without additional cost to the NRC Departmental Representative.

1.16.5. Make safe and disconnect all power and systems, as and when, and to the extent required to facilitate the demolition.

1.16.6. Ensure that all electrical, life safety services, and services for existing equipment, in areas outside the areas of this work, that are required to remain in service, shall do so.

1.16.7. Relocate any electrical feeders or equipment that are required to remain in service, that are secured to existing walls, floors or ceilings to be demolished or that are buried and required to be excavated for new work.

1.16.8. Disconnect and remove existing, devices, outlets, etc. which are not to be reused. Such items shall be packaged and turned over to the NRC Departmental Representative at a place designated by the NRC Departmental Representative. Cut back and cap unused raceway and outlets and remove unused wiring back to panelboard in an approved manner.

1.16.9. Ensure that all existing equipment which is to be reused and/or relocated is thoroughly reviewed and refurbished to ensure correct operation when put back into service and to meet the requirements of the local authorities having jurisdiction. All existing electrical equipment which is no longer required shall be removed and disposed of off-site.

1.16.10. Carry out the work with a minimum of noise, dust and disturbance.

1.16.11. Provide tools and clean up equipment. Obtain the NRC Departmental Representative's permission for the use of electrical, plumbing or drainage outlets.

1.16.12. Where a device is shown to be relocated on the drawings, contractor to remove and re-install device and back box and re-feed the device with new conduit and wire from the nearest existing accessible junction box.

1.16.13. Electrical Contractor is responsible for the patching of the wall where a device and/or box has been added, removed or relocated.

1.16.14. All existing equipment removed and not reused shall be handed over to the NRC Departmental Representatives and/or discarded at their discretion.

2. Products

2.1. NOT USED

3. Execution

3.1. NOT USED

END OF SECTION

1. General

1.1. WORK INCLUDED

1.1.1. Refer to Section 26 05 01.00 – GENERAL INSTRUCTIONS FOR ELECTRICAL SECTIONS.

2. Products

2.1. RECORD DRAWINGS

2.1.1. The Electrical Contractor shall request in writing from the Engineer's Representative all electrical AutoCAD drawings. Contractor to complete attached form and pay the Engineer's Representative directly the costs identified within the form prior to receiving the drawings. After the final as-built drawings have been reviewed, provide multiple copies of the drawings on CD or DVD. One copy is to be returned to the Engineer's Representative for their records and a minimum of one copy with each set of maintenance manuals. Provide additional copies if required under the General Conditions. The Contractor is to use latest release of AutoCAD software.

2.1.2. The contractor to identify the cost of Record Drawings and the Operation and Maintenance Manuals as a separate line item on their progress draw. The following values are to be broken out:

$1,000	Minimum Electrical Contracts
$2,000	For Electrical Contracts up to $100,000
$5,000	For Electrical Contracts up to $250,000

The project will remain incomplete and no money will be released until the final versions, both hard and electronic, of the drawings and manuals are approved.

2.1.3. Final as-built prints/plots shall not contain markings or corrections by hand (i.e. marker, pen, pencil, etc.). References to the Architect/Interior Designer and Engineer must be deleted from the drawings.

2.1.4. Final as-built drawings to include all revisions made to the drawings during construction, including all approved change. The as-built drawings are to also include the routing of all feeders except for branch circuits, all junction boxes to be shown, drawing legend to be updated to include all symbols and lines used for as-builts, quantity of wires in each conduit, and circuit numbers of wires in each conduit. Include slab layout drawings in as-built drawing package.

2.1.5. CADD files are for the Contractor to update to produce as-built drawings for Engineer's Representative review.

3. Execution

3.1. NOT USED

END OF SECTION 26 05 03.00

PROJECT NAME: Xxx

ATTENTION: Xxx

PROJECT NO.: Xxx DATE: YYYY-MM-DD ISSUED BY: Xxx

Conditions for Limited Use of CAD Drawings

Authorization for limited use of the Computer-Aided Drafting (CAD) drawing files listed below is hereby granted, subject to the following conditions. Signing of this form constitutes acceptance and agreement with the conditions and limitations.

Copyright is reserved. The drawing and design contained in the CAD drawing file is at all times the exclusive property of the Architect/Engineer and shall not be used without the Architect/Engineer's written consent.

The CAD drawing file may not be used wholly or in part for any purpose other than the intended use as stated on this form. Copying or distribution of this CAD drawing file in whole or in part to parties other than those signing below is not allowed.

The CAD file represents drawings which were prepared primarily for the purpose of obtaining tender prices. The drawings may or may not incorporate subsequent revisions, change orders, or addenda which have modified the drawings. CAD files obtained from different disciplines may not be fully updated and coordinated with other disciplines and must be verified from the tender documents. The Architect/Engineer assumes no liability for errors or omissions in the CAD drawing files. Authorized user assumes all risk and expense associated with the use of the drawing files in the production of his work.

References to the Architect and Engineer must be deleted from the drawings.

Please indicate a P.O. Number for charges associated with administrative costs to provide requested AutoCAD drawings.

Our charges are as follows:	$50.00 each for the first 5 drawings			
	$20.00 for each additional drawing from 6 to 19			
	$500.00 for 20 drawings or more			
List of requested drawings:				
Total No. of Drawings:		Total Charge:		+ GST or HST, as applicable

_____
Intended use (Shop drawings, As-built drawings, Installation and Interference drawings, etc.)

_____
CD ROM disc (please provide delivery address)

_____
E-mail (please provide e-mail address)

A cheque in the above amount shall be payable to **Smith + Andersen**.

Please sign and fax back this form to Smith + Andersen (416-487-9104) acknowledging the above charges and Conditions for Limited Use of CAD Drawings.

Accepted by:

_____	_____
Signature	**Name (print or type)**
_____	_____
Company Name	**P.O. #**
_____	_____
Company Address	**Phone #**

c.c. Accounting - D. Khan; (Project Principal) – Smith + Andersen

1. General

1.1. WORK INCLUDED

1.1.1. Conform to Section 26 05 01.00 – GENERAL INSTRUCTIONS FOR ELECTRICAL SECTIONS.

2. Products

2.1. SHOP DRAWINGS

2.1.1. Submittals/Shop Drawings shall indicate clearly the materials and/or equipment actually being supplied, all details of construction, accurate dimensions, capacity, operating characteristics and performance. Each Shop Drawing shall give the identifying number of the specific assembly for which it was prepared (e.g. MCC-1).

2.1.2. Each Shop Drawing for non-catalogue items shall be prepared specifically for this project. Shop Drawings and brochures for catalogue items shall be marked clearly to show the items being supplied.

2.1.3. Each Shop Drawing or catalogue sheet shall be stamped and signed by the Contractor to indicate that he has checked the drawing for conformance with all requirements of the drawings and specifications, that he has co-ordinated this equipment with other equipment to which it is attached and/or connected and that he has verified all dimensions to ensure the proper installation of equipment within the available space and without interference with the work of other trades. Ensure that electrical co-ordination is complete before submitting drawings for review.

2.1.4. Contractor to submit all submittals/shop drawings electronically in PDF format. Submittal to come complete with a transmittal bound to the PDF file with the transmittal identifying the total number of pages in the submittal including the transmittal page. For any submittal with pages larger than 11x17, the Contractor is to submit a minimum of 3 hard copies unless additional copies are identified in the contract documents.

2.1.5. Installation of any equipment shall not start until after final review of Shop Drawings by the Engineer's Representative has been obtained.

2.1.6. One original Shop Drawing will be returned either hard copy or electronically. All copies required for the trades, suppliers or other Engineer's Representatives will be copied or printed by the Contractor.

3. Execution

3.1. NOT USED

END OF SECTION 26 05 04.00

1. General

1.1. WORK INCLUDED

1.1.1. Conform to Section 26 05 01.00 – GENERAL INSTRUCTIONS FOR ELECTRICAL SECTIONS.

1.2. REFERENCES

1.2.1. CSA C22.2 No.0.3, Test Methods for Electrical Wires and Cables, latest edition.

1.2.2. CSA C22.2 No. 38, Thermoset-Insulated Wires and Cables, latest edition.

1.2.3. CSA-C22.2 No. 51, Armoured Cables, latest edition.

1.2.4. CSA C22.2 No. 75, Thermoplastic-Insulated Wires and Cables, latest edition.

1.2.5. CSA-C22.2 No. 123, Metal Sheathed Cables, latest edition.

1.2.6. CSA-C22.2 No. 124, Mineral-Insulated Cable, latest edition.

1.2.7. CSA-C22.2 No. 131, Type TECK 90 Cable, latest edition.

1.2.8. CSA-C22.2 No. 174, Cables and Cable Glands for Use in Hazardous Locations, latest edition.

1.2.9. CAN/ULC S139, Standard Method of Fire Test for Evaluation of Integrity of Electrical Power, Data, and Optical Fibre Cables, latest edition.

1.2.10. ASTM B800 - Standard Specification for 8000 Series Aluminum Alloy Wire for Electrical Purposes-Annealed and Intermediate Tempers

1.3. PRODUCT DATA

1.3.1. Submit product data in accordance with Section 26 05 01.00 – GENERAL INSTRUCTIONS FOR ELECTRICAL SECTIONS.

2. Products

2.1. BUILDING WIRES

2.1.1. Stranded copper.

2.1.2. Neutral wire: continuous throughout its length without breaks.

2.1.3. Separate insulated green grounding conductors in all electrical conduits.

2.1.4. All wire and cable insulation shall meet the C.S.A. Standards for the types and services hereinafter specified. Colours as per section 4-036 of Electrical Code.

2.1.5. Where otherwise specified, use wire and cable types as follows:

2.1.6. Type R90 XLPE cross-link polyethylene stranded for applications using wires sized No. 8 and larger.

2.1.7. Type T90 stranded for applications using wires sized No. 10 and smaller.

2.1.8. For fire alarm wiring refer to Section 283100.

2.1.9. Approved heat resistant wire for wiring through and at lighting and heating fixtures. Where insulation types are shown on the drawings other types shall not be used unless the specification is more restrictive.

2.1.10. Use BX cable only under the following conditions:

2.1.11. Wiring from a junction box to a recessed lighting fixture in suspended ceilings. Cable length not to exceed 1.5 m (5'), or

2.1.12. Wiring or switches or 15 amp receptacles in partitions having removable wall panels, or

2.1.13. When specifically called for on drawings.

2.1.14. Use stranded wire no smaller than No. 12 AWG for lighting and power and no smaller than No. 16 AWG for control wiring.

2.1.15. Conductors shall be soft copper properly refined and tinned having a minimum conductivity of 98%.

2.2. TECK CABLE

2.2.1. Cables to CSA-C22.2 No.131.

2.2.2. Conductors:

.1 Grounding conductor copper.

.2 Circuit conductors: copper, size as indicated unless aluminium or NUAL is identified on the drawings. Aluminium or NUAL conductor to be provided as per item 2.1.4.

2.2.3. Insulation:

.1 Chemically cross-linked thermosetting polyethylene type RW90, rated 1000 V.

2.2.4. Inner jacket: polyvinyl chloride material.

2.2.5. Armour: interlocking aluminum.

2.2.6. Overall covering: thermoplastic polyvinyl chloride material rated at a minimum of FT-4. Provide FT-6 jacket when TECK cables are run in return air plenum.

2.3. VARIABLE FREQUENCY DRIVE CABLES

2.3.1. Variable frequency drives are also known as variable speed drives.

2.3.2. Cables to CSA-C22.2 No. 123 and CSA-C22.2 No. 174.

2.3.3. Conductors:

.1 Three (3) bare grounding conductor coppers sized to Table #16 of the Electrical Code.

.2 Circuit conductors: copper, size as indicated.

2.3.4. Insulation:

.1 Chemically cross-linked thermosetting polyethylene type RW90, rated 1000 V.

2.3.5. Inner jacket: polyvinyl chloride material.

2.3.6. Armour: interlocking aluminum.

2.3.7. Overall covering: thermoplastic polyvinyl chloride (PVC) material rated at a minimum of FT-4.

2.4. ARMOURED CABLES

2.4.1. Cables to: CSA-C22.2 No. 51.

2.4.2. Circuit conductors: copper, size as indicated unless aluminium or NUAL is identified on the drawings. Aluminium or NUAL conductor to be provided as per item 2.1.4.

2.4.3. Type: AC90 (BX).

2.4.4. Armour: interlocking type fabricated from aluminium strip.

2.4.5. Type: ACWU90 - PVC flame retardant jacket over armour meeting requirements of Vertical Tray Fire Test of CSA-C22.2 No.0.3 with maximum flame travel of 1.2 m (3 ft. 11 in.).

3. Execution

3.1. GENERAL

3.1.1. Provide a minimum of one grounding wire for each three ungrounded conductors on all cable runs. Size grounding to Table 16 of the Canadian Electrical Code. Provide separate ground conductors for ground fault circuit interrupter circuits. All ground conductors to be copper and insulated with a green coloured insulation.

3.1.2. All equipment, junction boxes, pull boxes, liquid tight flex, etc. to be grounded through ground wires.

3.1.3. All cable terminations to be compression type fittings for wire sizes greater than #8AWG. All compression type fittings to be two-hole long barrel type. Where mechanical screw type lugs are allowed by the Engineer's Representative, they will be suitable for quantity of parallel runs of wire that are to be terminated under.

3.1.4. Armoured Cable Type AC90 (BX) may only be used for individual drops from slab mounted junction box to surface or recessed mounted light fixtures or where noted on the drawings where wiring is required to be installed within an existing wall. The maximum allowable distance of armoured cable is 3m. Contractor to receive written approval from the Engineer's Representative to run armoured cable further than 3m. Wiring in conduit is to be brought to a junction box to allow for the transition to armoured cable. Armoured cable is not to be installed directly into electrical panels.

3.1.5. Branch circuit wiring to be upsized as follows to address voltage drop when:

.1 The entire length of the circuit wiring exceeds 25m – branch wiring to be a minimum of No. 10 AWG.

.2 The entire length of the circuit wiring exceeds 40m – branch wiring to be a minimum of No. 8 AWG.

.3 The entire length of the circuit wiring exceeds 60m – branch wiring to be a minimum of No. 6 AWG.

3.1.6. Wire Splicing

.1 Splice up to and including No. 6 AWG with nylon insulated expandable spring type connectors.

.2 Splice larger conductors using compression type connectors wrapped in PVC insulation rated at the respective voltage.

3.2. INSTALLATION OF BUILDING WIRES

3.2.1. Install all building wiring in conduit unless otherwise noted. Conduit to be sized to the electrical code unless noted on the drawings or in the specifications.

3.2.2. All conductors are to be colour coded. Provide colour tape at all terminations to identify all conductors in each run.

3.3. INSTALLATION OF TECK90 CABLE, ARMOURED CABLE

3.3.1. Group cables wherever possible on channels.

3.3.2. Terminate cables in accordance with manufacturer's instructions.

3.3.3. Fastenings:

.1 One hole steel straps to secure surface cables 50 mm (2 in.) and smaller. Two hole steel straps for cables larger than 50 mm (2 in.).

.2 Channel type supports for two or more cables.

.3 Galvanized threaded rods: 6 mm (1/4 in.) dia. minimum to support suspended channels.

3.3.4. Connectors:

.1 Watertight, approved for respective cables.

END OF SECTION 26 05 21.00

1. General

1.1. WORK INCLUDED

1.1.1. Section 26 05 01.00 – GENERAL INSTRUCTIONS FOR ELECTRICAL SECTIONS.

1.2. REFERENCE

1.2.1. CSA 2.2.1 - Canadian Electrical Code - Part 1.

1.3. SHOP DRAWINGS AND PRODUCT DATA

1.3.1. Submit Shop Drawings and product data for cabinets in accordance with Section 16010 – GENERAL INSTRUCTIONS FOR ELECTRICAL SECTIONS.

2. Products

2.1. SPLITTERS

2.1.1. Sheet metal enclosure, welded corners and formed hinged cover suitable for locking in closed position. Provide CSA Type 1 enclosures in non-sprinklered environments and CSA Type 4/12 in sprinklered environments.

2.1.2. Main and branch lugs to match required size and number of incoming and outgoing conductors as indicated.

2.1.3. At least three spare terminals on each set of lugs in splitters less than 400 A.

2.2. JUNCTION AND PULL BOXES

2.2.1. Welded steel construction with screw-on flat covers for surface mounting.

2.2.2. Covers with 25 mm (1 in.) minimum extension all around, for flush-mounted pull and junction boxes.

2.3. CABINETS

2.3.1. Type E: sheet steel, hinged door and return flange overlapping sides, handle, lock and catch, for surface mounting.

2.3.2. Type T: sheet steel cabinet, with hinged door, latch, lock, 2 keys, containing 19 mm (3/4 in.) plywood backboard for surface or flush mounting. The plywood backboard is to have a fire-resistant coating on the front.

3. Execution

3.1. SPLITTER INSTALLATION

3.1.1. Install splitters and mount plumb, true and square to the building lines.

3.1.2. Extend splitters full length of equipment arrangement except where indicated otherwise.

3.2. JUNCTION, PULL BOXES AND CABINETS INSTALLATION

3.2.1. Install pull boxes in inconspicuous but accessible locations.

3.2.2. Mount cabinets with top not higher than 2 m (8 ft.) above finished floor.

3.2.3. Install terminal block as indicated in Type T cabinets.

3.2.4. Only main junction and pull boxes are indicated. Install pull boxes as follows:

.1 A conduit run exceeds 30 m (98 ft. 5 in.) and;

.2 360 degree of combined bends between pull boxes for power conduits or 180 degree of combined bends between pull boxes for communication and low voltage conduits.

3.3. IDENTIFICATION

3.3.1. Provide equipment identification in accordance with Section 26 05 01.00 – GENERAL INSTRUCTIONS FOR ELECTRICAL SECTIONS.

3.3.2. Install identification labels indicating system name voltage and phase.

END OF SECTION 26 05 31.00

1. General

1.1. WORK INCLUDED

1.1.1. Conform to Section 26 05 01.00 – GENERAL INSTRUCTIONS FOR ELECTRICAL SECTIONS.

1.2. REFERENCES

1.2.1. CSA C22.1-Canadian Electrical Code, Part 1.

1.2.2. Ontario Building Code, latest edition.

1.2.3. National Building Code, latest edition.

1.2.4. CAN/ULC-S115, Fire Tests of Firestop Systems, latest edition.

2. Products

2.1. OUTLET AND CONDUIT BOXES GENERAL

2.1.1. Size boxes in accordance with CSA C22.1.

2.1.2. Square or larger outlet boxes as required for special devices.

2.1.3. Gang boxes where wiring devices are grouped.

2.1.4. Blank cover plates for boxes without wiring devices.

2.1.5. 347V outlet boxes for 347 V switching devices.

2.1.6. Combination boxes with barriers where outlets for more than one system are grouped.

2.2. SHEET STEEL OUTLET BOXES

2.2.1. Electro-galvanized steel single and multi gang flush device boxes for flush installation, minimum size 75 mm x 50 mm x 38 mm (3 in. x 2 in. x 1-1/2 in.) or as indicated. 100 mm (4 in.) square outlet boxes when more than one conduit enters one side with extension and plaster rings as required.

2.2.2. Provide electro-galvanized steel utility boxes for surface mounted boxes connected to surface-mounted EMT conduit, minimum size 100 mm x 54 mm x 48 mm (4 in. x 2-1/8 in. x 1-7/8 in.).

2.2.3. Square or octagonal outlet boxes for lighting fixture outlets.

2.2.4. Square outlet boxes with extension and plaster rings for flush mounting devices in finished plaster or tile walls.

2.3. MASONRY BOXES

2.3.1. Electro-galvanized steel masonry single and multi gang boxes for devices flush mounted in exposed block walls.

2.4. CONCRETE BOXES

2.4.1. Electro-glavanized sheet steel concrete type boxes for flush mount in concrete with matching extension and plaster rings as required.

2.5. OUTLET BOXES FOR NON-METALLIC SHEATHED CABLE

2.5.1. Electro-galvanized, sectional, screw ganging steel boxes, minimum size 75 mm x 50 mm x 63.5 mm (3 in. x 2 in. x 2½ in.) with two double clamps to take non-metallic sheathed cables.

2.6. FITTINGS - GENERAL

2.6.1. Bushing and connectors with nylon insulated throats.

2.6.2. Knock-out fillers to prevent entry of debris.

2.6.3. Conduit outlet bodies for conduit up to 31.75 mm (1-1/4 in.) and pull boxes for larger conduits.

2.6.4. Double locknuts and insulated bushings on sheet metal boxes.

2.7. SERVICE FITTINGS

2.7.1. 'High tension' receptacle fitting made of 2 piece die-cast aluminum with brushed aluminum housing finish for duplex receptacles. Bottom plate with two knockouts for centered or offset installation.

2.7.2. Pedestal type 'low tension' fitting made of 2 piece die cast aluminum with brushed aluminum housing finish to accommodate amphenol jack connectors.

3. Execution

3.1. INSTALLATION

3.1.1. Support boxes independently of connecting conduits.

3.1.2. Fill boxes with paper, sponges or foam or similar approved material to prevent entry of debris during construction. Remove upon completion of work.

3.1.3. For flush installations mount outlets flush with finished wall using plaster rings to permit wall finish to come within 6 mm (1/4 in.) of opening.

3.1.4. Provide correct size of openings in boxes for conduit, mineral insulated and armoured cable connections. Reducing washers are not allowed.

3.1.5. Non-combustible electrical outlet boxes that penetrate a fire separation or a membrane forming part of an assembly required to have a fire-resistance rating, do not require fire stops provided,

.1 they do not exceed:

.1 100 cm^2 (15.5 in^2) each in area, AND

.2 an aggregate area of 650 cm^2 (100.75 in^2) in any 9.3 m^2 (100 ft^2) of surface area, AND

.2 the annular space between the membrane and the box does not exceed 3 mm.

3.1.6. Where the conditions of clause 3.1.5 are not met, provide fire stops for the outlet boxes.

3.1.7. Conform to the requirements of 3.1.9.3 of the building code: unless provided with a fire stop in accordance with CAN/ULC-S115, “Fire Tests of Firestop Systems”, electrical outlet boxes on opposite sides of a vertical fire separation required to have a fire-resistance rating shall be separated by a horizontal distance of not less than 600 mm (24 in.), or be installed in adjacent stud cavities.

END OF SECTION 26 05 32.00

1. General

1.1. WORK INCLUDED

1.1.1. Section 26 05 01.00 – GENERAL INSTRUCTIONS FOR ELECTRICAL SECTIONS.

1.1.2. Section 26 05 31.00 - Splitters, Junction, Pull Boxes and Cabinets

1.1.3. Section 26 05 32.00 - Outlet Boxes, Conduit Boxes and Fittings

1.2. REFERENCES

1.2.1. Canadian Standards Association (CSA)

.1 CAN/CSA C22.2 No.18- Outlet Boxes, Conduit Boxes, and Fittings.

.2 CSA C22.2 No.45- Rigid Metal Conduit.

.3 CSA C22.2 No.56- Flexible Metal Conduit and Liquid-Tight Flexible Metal Conduit.

.4 CSA C22.2 No.83- Electrical Metallic Tubing.

.5 CSA C22.2 No.211.2- Rigid PVC (Unplasticized) Conduit.

.6 CAN/CSA C22.2 No.227.3- Flexible Nonmetallic Tubing.

.7 CSA C22.2 No.227.1 - Electrical Non-Metallic Tubing

2. Products

2.1. CONDUITS

2.1.1. Rigid metal conduit: to CSA C22.2 No.45, galvanized steel or aluminum threaded.

2.1.2. Epoxy coated conduit: to CSA C22.2 No.45, with zinc coating and corrosion resistant epoxy finish inside and outside.

2.1.3. Electrical metallic tubing (EMT): to CSA C22.2 No.83, with couplings.

2.1.4. Rigid PVC conduit: to CSA C22.2 No.211.2.

2.1.5. Flexible metal conduit: to CSA C22.2 No.56, steel or liquid-tight flexible metal.

2.1.6. Electrical non-metallic tubing (ENT): to CSA C 22.2 No. 227, with couplings.

2.2. CONDUIT FASTENINGS

2.2.1. One hole steel straps to secure surface conduits NPS 2 and smaller. Two hole steel straps for conduits larger than NPS 2.

2.2.2. Beam clamps to secure conduits to exposed steel work.

2.2.3. Channel type supports for two or more conduits at 1 m oc.

2.2.4. Hot dipped galvanized threaded rods, 10 mm (3/8 in.) dia. minimum, to support suspended channels.

2.3. CONDUIT FITTINGS

2.3.1. Fittings: manufactured for use with conduit specified. Coating: same as conduit.

2.3.2. Factory "ells" where 90 bends are required for 1” and larger conduits when a hydraulic bender is not used.

2.3.3. Connectors, couplings and straps for EMT conduit are to be set-screw steel type or cast. In a sprinklered environment, provide watertight fittings and “O” rings on all vertical conduit runs or when conduit is terminated at any piece of electrical equipment.

2.3.4. Provide plastic bushings for all connectors, rigid nipples and rigid conduit 1-1/4” or larger.

2.4. EXPANSION FITTINGS FOR RIGID CONDUIT

2.4.1. Watertight expansion fittings with integral bonding jumper suitable for linear expansion and 19 mm (3/4 in.) deflection in all directions.

2.5. FISH CORD

2.5.1. Fish cord to be made of polypropylene.

3. Execution

3.1. INSTALLATION

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

3.1.2. Conceal conduits except in mechanical and electrical service rooms or in unfinished areas. Conduits to have their own support system and are to be supported independently of the ceiling grid or ceiling support system.

3.1.3. Use electrical metallic tubing (EMT) conduit except where specified otherwise.

3.1.4. Use rigid galvanized steel threaded conduit where conduit is subject to mechanical injury.

3.1.5. Use rigid PVC conduit underground or in corrosive areas and where indicated.

3.1.6. Use flexible metal conduit for connection to motors or vibrating equipment in dry areas, connection to recessed incandescent fixtures without a prewired outlet box, connection to surface or recessed fluorescent fixtures and work in movable metal partitions.

3.1.7. Use liquid tight flexible metal conduit for connection to motors or vibrating equipment in damp, wet or corrosive locations. Use only liquid tight fittings when using liquid tight flexible metal conduit. Liquid tight flexible metal conduit to have a jacket with an FT6 rating when used in plenums otherwise provide a minimum FT4 rating.

3.1.8. Install EMT conduit from a raised floor branch circuit panel to junction box in sub-floor. Run flexible metal conduit from junction box to outlet boxes for equipment connections in sub-floor.

3.1.9. Install fish cord in empty conduits.

3.1.10. Run two 27mm (1”) spare conduits up to ceiling space and two 27mm (1”) spare conduits down to sub-floor space from each flush panel. Terminate these conduits in 152 x 152 x 102 mm (6 in. x 6 in. x 4 in.) junction boxes or in case of an exposed concrete slab, terminate each conduit in flush concrete or surface type box.

3.1.11. All cutting and patching of masonry/concrete floors, walls, and roof for electrical services shall be by this Division. Obtain approval from the Landlord and/or structural consultant before cutting any structural walls or floors. Cutting and drilling shall only be at times allowed by the Landlord. Check and verify the location of existing mechanical and electrical services in walls and below the floor slab in all areas requiring core drilling and cutting. Protect all tenant areas where core drilling occurs. Carefully chip top and bottom of slab to expose rebars to minimize

cutting of rebars when core drilling. Provide x-ray study before drilling or cutting where required by the Landlord and/or structural consultant.

3.1.12. Provide sleeves for all new conduits passing through floor and roof slabs, beams, concrete walls and slab to slab partitions, etc.

3.1.13. Where cables and conduits pass through partitions and through floors that are not fire rated, provide an air-tight seal around the cables and conduits.

3.1.14. Where cables and conduits pass through floors and fire rated walls, pack space between conduit (or cable) and sleeve with an approved fire stop as specified in Section 26 05 01.00 – GENERAL INSTRUCTIONS FOR ELECTRICAL SECTIONS.

3.2. SURFACE CONDUITS

3.2.1. Run parallel or perpendicular to building lines.

3.2.2. Group conduits wherever possible on suspended or surface mounted channels.

3.2.3. Do not pass conduits through structural members, except as indicated.

3.2.4. Conduits must not be used to support other conduits.

3.3. CONCEALED CONDUITS

3.3.1. Run parallel or perpendicular to building lines.

3.3.2. Do not install horizontal runs in masonry walls.

3.3.3. Do not install conduits in terrazzo or concrete toppings.

END OF SECTION 26 05 34.00

1. General

1.1. WORK INCLUDED

1.1.1. Conform to Section 26 05 01.00 – GENERAL INSTRUCTIONS FOR ELECTRICAL SECTIONS.

1.1.2. Include for all cutting and patching for all Electrical services.

2. Products

2.1. NOT USED

3. Execution

3.1. INSTALLATION

3.1.1. Cut all openings no larger than is required for the services. Core drill for individual services.

3.1.2. Obtain approval from the structural consultant before cutting or core drilling any openings or holes.

3.1.3. Patch all openings after services have been installed to match the surrounding finishes.

3.1.4. In existing areas all cutting, core drilling for individual services, is part of this division work.

3.1.5. The cost of cutting, patching and finishing is included in this division contract.

END OF SECTION 26 05 88.00

1. General

1.1. WORK INCLUDED

1.1.1. Conform to Section 26 05 01.00 – GENERAL INSTRUCTIONS FOR ELECTRICAL SECTIONS.

1.2. REFERENCES

1.2.1. CAN/ULC-S524, Installation of Fire Alarm Systems – latest edition.

1.2.2. CAN/ULC-S536, Inspection and Testing of Fire Alarm Systems – latest edition.

1.2.3. CAN/ULC-S537, Verification of Fire Alarm Systems – latest edition.

1.2.4. OBC - Ontario Building Code – latest edition.

1.2.5. CAN/ULC-S1001 - Integrated Systems Testing of Fire Protection and Life Safety Systems – latest edition.

1.3. SYSTEM DESCRIPTION

1.3.1. The fire alarm system and devices shall be installed according to CAN-CSA latest edition and the requirements of the local authorities having jurisdiction.

1.3.2. All wiring shall be installed in conduit and to conform to the requirement of the Ontario Electrical Safety Code, 25th edition or local code having jurisdiction. Provide a ground wire in all conduits.

1.3.3. Confirm the exact location of all system components with the architectural consultant prior to roughing-in.

1.3.4. Contract base building fire alarm contractor to install all devices and make final connections to fire alarm panel.

1.3.5. Ensure that the nomenclature of annunciator's identification nameplates, are verified with the NRC Departmental Representative and authorities prior to ordering.

1.3.6. All work on the fire alarm system to be performed by a certified fire alarm technician.

1.3.7. When the fire alarm system is complete, obtain the services of base building fire alarm manufacturer to make a complete inspection and verifications of all installed fire alarm equipment and devices.

1.3.8. Perform any changes necessary as a result of the above verification and inspection in accordance with the manufacturer's directions.

1.3.9. On completion of the verification, inspection and testing obtain the verification certificate and inspection reports from the manufacturer and forward to the NRC Departmental Representative.

1.3.10. Fire alarm signaling devices to be installed and tested in compliance with Ontario Building Code (latest edition) section 3.2.4.20. (audibility).

.1 For speakers, set at 0.5 watt tap and modify up if required to achieve audibility. Tap setting shall not be set at or increased to cause the sound pressure level to be more than 100 dBA when measured 3m from the device.

.2 For horns with adjustable volume settings, set at mid volume and modify up if required to achieve audibility. Volume setting shall not be set at or increased to cause the sound pressure level to be more than 100 dBA when measured 3m from the device.

Audibility testing shall be performed with all walls, windows, ceilings, ceiling tiles, etc. installed in the space/area. If audibility is determined to be insufficient at time of occupancy, the Contractor shall be responsible for all costs associated with increasing the tap settings of the signalling device to achieve Code minimum audibility. Include for all costs in tender.

1.3.11. Ensure that all costs for the above testing, verification, inspection are included in the tender price.

1.3.12. Where the integrity of the existing life safety input and output devices are affected due to relocations, ceiling demolitions and/or re-installations onto new suspended ceiling, electrical contractor shall be responsible to maintain the system operation at all times. All suspension accessories required for the installation (e.g., mounting channels and frames, etc.) and verification of the system shall be included in the tender prices.

END OF SECTION 28 31 01.00

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 be 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 Nothwithstanding 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 that 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 or 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 "superintendant" 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 ths 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 o 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 proved 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 GC303.3 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, ar 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 wiring 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 that

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 n 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
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BUILDER'S RISK – INSTALLATION FLOATER – ALL RISKS

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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 Contactor.

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 INSUANCE 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 a t 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.

Government of Canada / Gouvernement du Canada

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

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

PART A - CONTRACT INFORMATION / PARTIE A - INFORMATION CONTRACTUELLE

1. Originating Government Department or Organization / Ministère ou organisme gouvernemental d'origine	2. Branch or Directorate / Direction générale ou Direction
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

Demolition of the existing Virtual Reality Centre to prepare for the Factories of the Future Construction project. The demolition includes the Solution Centre, the main reception area, rooms 160 and 166 and the addition of two security doors to limit construction access to other areas of the building.

5. a) Will the supplier require access to Controlled Goods? Le fournisseur aura-t-il accès à des marchandises contrôlées?	☑ No Non	☐ Yes Oui
5. b) Will the supplier require access to unclassified military technical data subject to the provisions of the Technical Data Control Regulations? Le fournisseur aura-t-il accès à des données techniques militaires non classifiées qui sont assujetties aux dispositions du Règlement sur le contrôle des données techniques?	☑ No Non	☐ Yes Oui

8. Indicate the type of access required / Indiquer le type d'accès requis

6. a) Will the supplier and its employees require access to PROTECTED and/or CLASSIFIED information or assets? Le fournisseur ainsi que les employés auront-ils accès à des renseignements ou à des biens PROTÉGÉS et/ou CLASSIFIÉS? (Specify the level of access using the chart in Question 7. c) (Préciser le niveau d'accès en utilisant le tableau qui se trouve à la question 7. c)	☑ No Non	☐ Yes Oui
6. b) Will the supplier and its employees (e.g. cleaners, maintenance personnel) require access to restricted access areas? No access to PROTECTED and/or CLASSIFIED information or assets is permitted. Le fournisseur et ses employés (p. ex. nettoyeurs, personnel d'entretien) auront-ils accès à des zones d'accès restreintes? L'accès à des renseignements ou à des biens PROTÉGÉS et/ou CLASSIFIÉS n'est pas autorisé.	☐ No Non	☑ Yes Oui
6. c) Is this a commercial courier or delivery requirement with no overnight storage? S'agit-il d'un contrat de messagerie ou de livraison commerciale sans entreposage de nuit?	☑ No Non	☐ Yes Oui

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

Canada ☑	NATO / OTAN ☐	Foreign / Étranger ☐

7. b) Release restrictions / Restrictions relatives à la diffusion

No release restrictions / Aucune restriction relative à la diffusion ☑	All NATO countries / Tous les pays de l'OTAN ☐	No release restrictions / Aucune restriction relative à la diffusion ☐
Not releasable / À ne pas diffuser ☐		
Restricted to: / Limité à : ☐	Restricted to: / Limité à : ☐	Restricted to / Limité à ☐
Specify country(ies): / Préciser le(s) pays :	Specify country(ies): / Préciser le(s) pays :	Specify country(ies) / Préciser le(s) pays :

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

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

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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? — No / Non ☑ Yes / Oui ☐
Le fournisseur aura-t-il accès à des renseignements ou à des biens COMSEC désignés PROTÉGÉS et/ou CLASSIFIÉS?
If Yes, indicate the level of sensitivity:
Dans l'affirmative, indiquer le niveau de sensibilité :

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

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

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

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

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

Special comments:
Commentaires spéciaux :

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

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

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

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

INFORMATION / ASSETS / RENSEIGNEMENTS / BIENS

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

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

PRODUCTION

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

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

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

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

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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 A	PROTECTED / PROTÉGÉ B	PROTECTED / PROTÉGÉ C	CONFIDENTIAL / CONFIDENTIEL	SECRET	TOP SECRET / TRÈS SECRET
Information / Assets / Renseignements / Biens																
Production																
IT Media / Support TI																
IT Link / Lien électronique																

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

☑ No / Non ☐ Yes / Oui

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

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

☑ No / Non ☐ Yes / Oui

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

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PART D - AUTHORIZATION / PARTIE D - AUTORISATION

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

Name (print) - Nom (en lettres moulées)	Title - Titre	Signature
Alexander Thorsten Nitsche	Project Manager	

Telephone No. - N° de téléphone	Facsimile No. - N° de télécopieur	E-mail address - Adresse courriel	Date
519 430 7114		alexander.nitsche@canada.ca	November 23. 2016

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

Name (print) - Nom (en lettres moulées)	Title - Titre	Signature
Richard Bramucci	Analyst, Security ori. Contracting	

Telephone No. - N° de téléphone	Facsimile No. - N° de télécopieur	E-mail address - Adresse courriel	Date
613-991-1093	990-0946		NOV 25 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)	Title - Titre	Signature
Collin Long	Procurement officer	

Telephone No. - N° de téléphone	Facsimile No. - N° de télécopieur	E-mail address - Adresse courriel	Date
613-993-0431		collin.long@nrc-cnrc.gc.ca	21/12/2016

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