Labrador-Grenfell Health

LABRADOR GRENFELL HEALTH - OLD HOSPITAL RE-ROOFING PROJECT

ST. ANTHONY, NL

Issued for Tender: July 25, 2019
Project # 140132528

Stantec Architecture Ltd.
141 Kelsey Drive
St. John's, NL A1B 0L2
Tel. (709) 576-1458
Fax (709) 576-2126
stantec.com

CONSULTANTS

Service	Consultant	Address
Prime Consultant/Architectural	Stantec Architecture Ltd.	141 Kelsey Dr. St. John's, NL, A1B 0L2

DRAWING LIST

Note: Review all drawings for any interdisciplinary work.

Stantec

Project Manual

Old Hospital Re-Roofing Project
St. Anthony, Newfoundland & Labrador

ISSUED FOR TENDER

Prepared for
Labrador-Grenfell Regional Health Authority

Tender No. LGH 19-005

July 25, 2019

Stantec Architecture Ltd
141 Kelsey Drive
St. John's, NL A1B 0L2
Project No. 140132528

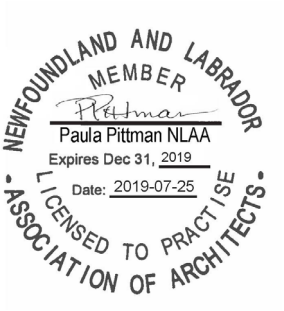
Stantec

PART 1 - GENERAL

1.1 PROFESSIONAL SEALS

.1 Architecture

.1 Paula Pittman, NLAA
Stantec Architecture
141 Kelsey Drive
St. John's, NL A1B 0L2
Tel: 709-576-1458
paula.pittman@stantec.com



END OF SECTION

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DIVISION 2 - EXISTING CONDITIONS

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INSTRUCTION TO BIDDERS

INSTRUCTION TO BIDDERS

1. TENDERS

(a) Envelopes containing the Tender are to be clearly marked:

Tender for
Labrador Grenfell Health
Old Hospital Re-Roofing Project
Tender No. LGH 19-005

Addressed to:
Labrador Grenfell Health
227 Hamilton River Road
Happy Valley Goose Bay, NL A0P 1C0
Attention: Ed Sharpe

The name and address of the Bidder and the closing time must be shown on the envelope.

(b) Tenders must be received at the above address on or before the exact closing time and date indicated in the advertisement. TENDERS RECEIVED AFTER THAT TIME WILL NOT BE CONSIDERED.

(c) The Form of Agreement is included in the Contract Documents at the time of tendering for the purpose of information to Bidders and shall not be completed at the Time of Tendering.

(d) Before submitting a Tender, tenderers shall carefully examine the Contract Documents and the site of the proposed work and fully inform themselves of the existing conditions and limitations. No subsequent allowance under the Contract Documents will be considered for any Bidder who had failed to become familiar with all aspects of the work.

(e) The Owner will not defray any expenses incurred by the tenderers in the preparation and submission of their tenders.

2. TENDER DOCUMENTS

(a) The Tender Documents consist of the Instructions to Bidders, Tender Form, Agreement, Drawings, Specifications, and any Amendments to the Contract Documents issued during the tender period.

(b) Every interpretation of or addition to the Contract Documents to be considered a valid part of the Contract Documents will be issued in the form of a written addendum.

(c) No addendums will be issued less than seven (7) days prior to the closing date of the Tender.

3. TENDER SURETY AND BONDING

(a) Bidding Security

Every tenderer shall submit with his Tender a bid bond issued by an approved Surety Company licensed to do business in the Province of Newfoundland and made out in favour of Labrador Grenfell Health.

The bid bond shall be at least ten percent (10%) of the tendered amount. No bidding security will be required for a tendered amount of less than $25,000 unless specifically called for elsewhere in the tender document. An approved certified cheque may be substituted in lieu of the bid bond. The bidding security will be returned upon receipt of the Performance and Labour and Materials Bonds.

The terms of the bid security will be invoked and the amount retained by the Owner if the Bidder fails to enter into an agreement when notified of the award of the work within the tender validity period; or fails to provide the Performance and Labour and Materials Bonds in the amount and within the period specified.

(b) Performance Bond

A Performance Bond will be required in the amount of fifty percent (50%) of the contract price. The Performance Security is to be received not later than two (2) weeks after the award of the contract by the letter of intent and prior to the formal execution of the agreement. No work is to be undertaken until the Performance Security has been received. Performance Security will not be required for a contract value of less than $25,000.

In lieu of the Performance Bond, the Minister may accept at his sole discretion an approved certified cheque for ten percent (10%) of the tendered amount. The cheque will be retained until satisfactory completion of the work including the guarantee period, after which this amount will be returned to the Contractor together with the accrued interest thereon at the current bank rate.

(c) Labour and Materials Payment Bond

A Labour and Materials Payment Bond will be required in the amount of fifty percent (50%) of the contract price. The Labour and Materials Payment Bond is to be received not later than two (2) weeks after the award of the contract by the letter of intent and prior to the execution of the formal agreement. No work is to be undertaken until the Labour and Materials security has been received. Labour and Materials security will not be required for a contract valued at less than $25,000.

In lieu of the Labour and Materials Bond, the Minister may accept at his sole discretion an approved certified cheque of ten percent (10%) of the tendered amount. The cheque will be retained until substantial completion of the work as defined by the Mechanics Lien Act and upon receipt of a completed and approved Statutory Declaration Form. This security, if in the form of a cheque, will be returned to the Contractor together with the accrued interest thereon at the current bank rate.

4. COMPLETION OF TENDER FORM

(a) The Tender Form is to be completed in its entirety and submitted in the envelopes provided and the name of the Tenderer entered in the "Name of Bidder" space on the tender envelope. The Tenderer should retain a copy of the tender for his records.

(b) Type or legibly print the information required on the Tender Form.

(c) Type or legibly print the Tenderer's full business name and address in the spaces provided on the Tender Form.

(d) Sign the Tender Form in the space provided as indicated:

In the case of a Sole Proprietorship, signature of Sole Proprietor will sign where indicated in the presence of a witness who will sign where indicated. Insert the words "Sole Proprietor" next to the signature.

In the case of a Partnership, signature of all partners will sign where indicated in the presence of a witness who will sign where indicated. Insert the word "Partner" next to signatures.

In the case of a Limited Company, signatures of authorized signing officers in the presence of a witness who will sign where indicated, and the corporate seal will be affixed. Indicate next to signature the corporate title of each signer.

(e) Spaces or Appendices will be provided with the Tender Form if required for a list of sub- contractors, use of bid depository, contractor's experience, list of equipment. All such spaces and appendices must be completed in their entirety legibly by typewriter or by printing in ink.

(f) If it becomes necessary to correct an error made on the Tender Form, such correction must be initialed and dated by the person or persons signing the Tender Form.

5. UNACCEPTABLE TENDERS

(a) Tenders not submitted on the Tender Form provided will not be considered.

(b) Telegraphic or telex tenders will not be accepted.

(c) Tenders received after the Tender Closing time will not be considered.

(d) Incomplete Tenders will be rejected.

(e) Tenders not accompanied by an approved security in the correct amount will be rejected.

(f) Tenders containing qualification or additional clauses to the Tender Form will be rejected.

(g) Incorrectly prepared tenders may be rejected.

6. AMENDMENTS TO TENDER

Properly documented amendments to the Tender will be permitted up to the Tender closing time. Amendments documented by telegram or telex will be acceptable.

7. WITHDRAWAL OF TENDERS

Bids may be withdrawn without penalty by written telegraphic or telex request if received prior to the time fixed for the opening.

8. SUBSTITUTION OF MATERIALS

(a) Tenders shall be based upon using the materials or products as specified without substitution. Where two or more brand names are specified the choice shall be left to the contractor. Where only one brand name is stated there shall be no substitution.

(b) Where the Specifications include the "or approved equal" clause, substitutions may be proposed provided that:

1. the request for a substitution is made in writing at least fourteen (14) days prior to the bid date;

2. the request shall clearly define and describe the product for which the substitution is requested;

3. the substituted article is equivalent to the specified article with regards to design, function, appearance, durability, operation and quality.

Approval of the substitution by the Engineer/Architect shall be in the form of an addendum to the Specifications issued at least seven (7) days prior to the Tender closing date to all of those contractors listed as having received a copy of the Contract Documents.

9. ACCEPTANCE OF TENDER

(a) The Owner will not necessarily accept the lowest or any tender.

(b) Upon written acceptance of the tender within the tender validity period, the Tender Form becomes part of the Contract Documents and the successful tenderer becomes the Contractor. The Contractor will be required to execute a formal agreement with the Owner within thirty (30) days of the date of the letter of intent.

(c) The Contractor shall, within 14 days of receipt of the letter of intent, submit to the Owner a breakdown of the bid to the satisfaction of the Owner.

10. PROVINCIAL PREFERENCE POLICY

(a) Tender evaluation and award of contract for this project will be done in accordance with the procedures outlined in the latest Guidelines and Instructions for the Implementation of the Provincial Preference Policy and in accordance with the Public Tender Act, 1984, the Provincial

Preference Act, and associated Regulations.

(b) Firms which do not have Provincial Overhead Allowance (POA) percentages assigned are urged to contact the Government Purchasing Agency, Tendering & Contracts, Tel. 729-2017, for application information. In order to obtain the POA benefit contractors or sub-contractors must have POA percentages assigned not later than five clear days after tender closing date. Those who do not have POA percentages assigned in the prescribed time will receive no Provincial Overhead Allowance benefit in the tender evaluation.

(c) The Provincial Materials and Equipment List contained in the tender documents identifies (not necessarily all inclusively) items in the tender call which are Provincially manufactured, fabricated, processed or supplied.

SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

1 TENDER SURETY AND BONDİNG

(a) Bidding Security

Please delete sentence

"No bidding security will be required for a tendered amount of less than $25,000.00 unless specifically called for elsewhere in the tender documents"

and replace with:

"All tenders, regardless of monetary value require a Bid Security of at least ten percent (10%) of the total tendered amount, with a minimum security of five hundred dollars ($500.00)." Bid Securities shall be in the form of a Bid Bond or Certified Cheque in favour of Labrador Grenfell Health.

Add the following:

For tenders less than $25,000.00, the terms of the Bid Security will be invoked and the amount retained by the Owner, if the Bidder fails to provide the required insurances and commence work within 30 days of being notified of the award of the work within the tender validity period.

The Tender Security of the unsuccessful bidders numbers 2 & 3 will be returned to them upon award of the contract, Tender Securities of bidders higher than 3 will be returned after the tender opening. The Tender Security of the successful bidder will be retained until the first progress payment.

Bidders are reminded that the failure to submit a bid security in accordance with this requirement will result in rejection of bid submitted.

THE OWNER RESERVES THE RIGHT TO WAIVE THESE REQUIREMENTS IN PART OR IN WHOLE FOR ANY PROJECT, BY FURTHER SUPPLEMENTARY INSTRUCTIONS TO BIDDERS.

2 PROVINCIAL PREFERENCE POLICY

Delete Section 11 in its entirety.

3 TENDER SURETY AND BONDING

Bidders are advised that both the 50% Performance Bond referenced in 3(b) and the 50% Labour & Materials Payment Bond referenced in 3(c) will be based on the Contract Price which will either be the Sub-Total of Tender Prices or the Total Estimated Tender Items, **not including the Harmonized Sales Tax (HST).**

4 INSTRUCTIONS TO BIDDERS, ISSUANCE OF ADDENDUM

Reference is made to Section 2. (c) - Tender Documents regarding the time frame permitted for the issuance of addendum prior to the tender closing date. Change seven (7) days to read five (5) days.

Reference is also made to Section 8. - Substitution of Materials. Change seven (7) days to read five (5) days.

5 CONTRACTOR'S PERFORMANCE EVALUATION SYSTEM

Contractors are advised that effective July 1, 2000 a Contractor Performance Evaluation System will be introduced. Upon completion of each contract, the contractor's performance will be evaluated according to prescribed criteria.

In accordance with the Public Tender Act Regulations 1998, NFLD Reg. 103/98, Section 3(4), contractors may be required to maintain a certain performance rating to bid. Contractors whose performance on previous contracts falls below the required minimum may have their bids disqualified.

Complete details of the Performance Evaluation System are available upon request.

6 TENDER FORM, APPENDIX 'A' AND APPENDIX 'B'

Notwithstanding Article 7 of the Tender Form, Bidders are not required to complete or submit Appendix "A" or Appendix "B" at time of tender. Bidders may be required to complete these appendices after tender close, if requested by the Owner, and in such instance the appendices shall be submitted by Bidders within seventy-two (72) hours of request.

7 BID DEPOSITORY

Any use of the Bid Depository will be as per an appendix included as part of the Tender Form and identified in Section 9 – Use of Bid Depository, of the Instructions to Bidders. A blank following the word Appendix in Section 9 indicates no use of the Bid Depository and no Appendix included for such.

8 TENDERING AND CONTRACTS OFFICE CLOSURE

Contractors are advised that in the event the Tendering and Contracts office is required to close due to weather, facility issues, security issues, etc., any tenders that would have closed on that day will be deferred to close at the same time on the next work day that normal hours are resumed.

Other than as impacted above, tenders, amendments to tenders, etc., will be accepted at the Tendering and Contracts office on or before the deferred closing time and date. Tenders received after this deferred time and date will not be considered.

TENDER FOR
STIPULATED PRICE CONTRACT

Tender for. **Labrador Grenfell Health**
Old Hospital Re-Roofing Project
Tender No. LGH 19-005

To: **Labrador Grenfell Health**
227 Hamilton River Road
Happy Valley Goose Bay, NL A0P 1C0
Attention: Ed Sharpe

1. Having carefully examined the site of the proposed work and all conditions affecting such, as well as the Contract Documents including the Specifications, all Drawings listed in the Specifications, (if drawings are not listed in the specifications such a list appears as Appendix "B") all Addenda, and the Instructions to Bidders for this project,

WE, THE UNDERSIGNED, hereby offer to furnish all necessary Labour, materials, superintendence, plant, tools and equipment, and everything else required to perform expeditiously and complete in a satisfactory manner the work for the sum of

_____

_____

($) in lawful money of Canada which includes all prime costs, allowances and Government sales or excise taxes, including HST, in force at this date, except as otherwise provided in the tender documents.

2 The Work will be substantially performed by the end of Fall 2019.

3. WE ENCLOSE HEREWITH if required by the Instructions to Bidders

(a) A Bid Bond in an acceptable form and correct amount issued by a company licenced to carry on such a business in the Province of Newfoundland or

(b) A certified cheque in the correct amount.

In the event of this tender being accepted within the time stated in Section 4 below and our failure to enter into a contract in the form hereinafter mentioned for the amount of our tender the said security may at the option of the Owner be forfeited. The forfeiting of the security does not limit the right of action of the Owner against us for our failure or refusal to enter into a contract.

4. IF NOTIFIED IN WRITING BY THE OWNER OF THE ACCEPTANCE OF THIS TENDER WITHIN 60 DAYS OF THE TENDER CLOSING DATE SUBJECT TO SUCH OTHER PERIOD AS MAY BE SPECIFIED IN THE TENDERING DOCUMENTS, WE WILL:--

(a) execute the Standard Form of Construction Contract;

(b) if specified, furnish the security for the proper completion of the work, the said security, if in the form of bonds, to be issued on an acceptable form;

(c) complete substantially all the work included in the contract within the time and under conditions specified.

5. WE understand that Performance Bond, Labour and Materials Bond and Insurance as required by the Contract Documents must be provided and in force prior to the commencement of any work and satisfactory proof of such be provided to the Owner.

6. WE confirm that the sums herein tendered include all sales taxes, royalties, custom duties, foreign exchange charges, transportation, travelling costs, all overhead and profit, all co-ordination fees, insurance premiums, and all other charges.

7. WE understand and agree to list the names of sub-contractors and suppliers whose bids have been used in the preparation of this tender price in Appendix "A". The list will be subject to the approval of the Owner. "By own forces" will be considered valid and satisfactory only if the tenderer is recognized by the Newfoundland and Labrador Construction Association or by the Road Builders Association as being a "bona fide" contractor or supplier of that particular trade or item.

WE agree to authorize the Owner to release the names of subcontractors used in our tender where such information is requested from the Owner.

WE reserve to us the right to substitute other sub-contractors for any trades in the event of any sub-contractor becoming bankrupt after the date hereof. Any such substitution shall be subject to the approval of the Owner and contingent upon satisfactory evidence of bankruptcy.

8 WE understand and agree that the Owner may order changes to the work in the form of additions or deletions in accordance with the General Conditions, Supplementary General Conditions and the intent of the Contract Documents.

9. WE hereby acknowledge receipt of the following addenda:

Addendum No.

Addendum No.

10. In order for a Tender to be valid, it must be signed by duly authorized officials as indicated in the Instructions to Bidders.

SIGNATURE OF TENDERER

Firm Name: _____

Address: _____

Postal Code: _____ E-Mail _____

Ph # _____ Fax # _____

_____
Signing Officer

_____
Signing Officer

Corporate Seal

_____
Witnessed by

APPENDIX "A"

Herewith is the list of Sub-contractors referred to in Section 7 of the tender submitted by

_____

_____

to

_____

_____

dated _____ and which is an integral part of the above noted tender.

IF NOT USED, BAR AND INITIAL THE SPACE BELOW.

Division/Work	Names and Addresses of Sub-Contractors and Suppliers included in our Tender Price

APPENDIX "B"

Hereunder is the list of description of drawings referred to in Section I of the tender submitted by

_____

_____

to

_____

_____

dated _____ and which is an integral part of the above noted tender.

IF NOT USED, BAR AND INITIAL THE SPACE BELOW

APPENDIX "C"
TENDER PRICE TABLE

Sections		*Description*			*Amount ($)*
C1		**Base Tender**			
C2		**Separate Prices**			
	1	*(no separate prices applicable to this tender)*			
	2				
		Subtotal Separate Prices			
C3		**Unit Prices**	*Quantity*	*Unit Price ($)*	
	1	*(no unit prices applicable to this tender)*			
	2				
	3				
	4				
	5				
		Subtotal Unit Prices			
C4		**Cash Allowances**			
	1	*(no cash allowances applicable to this tender)*			
	2				
		Subtotal Cash Allowances			
C5		**SubTotal Tender Prices** (Sum of Sections C1-C4)			
C6		**Harmonized Sales Tax (HST)** (Multiply Section C5 by 13%)			
C7		**TOTAL TENDER AMOUNT** (Add Sections C5 + C6 and transfer this amount to Section 1 on page 1 of the Tender Form)			

Notes:

1. For the purposes of the Public Tender Act and the evaluation of tenders received, the bid shall be the Total Tender Amount.
2. Work associated with the Separate Prices may be deleted at the sole discretion of the Owner at the time of contract award and a deduction(s) will be made to the Total Tender Amount equal to the amount(s) in C2 of the Tender Price Table.
3. Costs associated with the Unit Price work will vary depending upon the quantities authorized by the Engineer/Architect during the course of construction and the final contract amount will be adjusted accordingly, upwards or downwards, based upon the quoted unit rate.

AGREEMENT BETWEEN OWNER AND CONTRACTOR
for use when a stipulated price forms the
basis of payment and to be used only
with the General Conditions of the Contract

THIS AGREEMENT made on the _____ day of _____ in the year two thousand and _____.

BY AND BETWEEN

_____

_____

hereinafter called the "Owner"

AND

_____

_____

hereinafter called the "Contractor"

WITNESSETH: that the Owner and Contractor undertake and agree as follows:

ARTICLE A-1 THE WORK

The Contractor shall:

(a) perform all the Work required by the Contract Documents for _____ _____**.** (See Tender Form for Description) which have been signed in triplicate by both the parties,

(b) do and fulfil everything indicated by this Agreement, and

(c) commence the Work by the _____ day of _____, 20___ and substantially perform the Work of this Contract as certified by the Engineer/Architect by the _____ day of _____ 20__.

(d) The "Engineer/Architect" is the person designated as such from time to time by the Owner.

ARTICLE A-2 CONTRACT DOCUMENTS

The following is an exact list of the Contract Documents referred to in Article A-1: (SEE TABLE OF CONTENTS FOR LIST OF DOCUMENTS AND DRAWINGS). **See Attached**

ARTICLE A-3 CONTRACT PRICE

THE CONTRACT PRICE IS $ _____

_____

_____ **(HST INCLUDED)** Canadian funds which price shall be subject to adjustments as may be required in accordance with the General Conditions of the Contract.

ARTICLE A-4 PAYMENT

(a) Subject to applicable legislation and, where such legislation does not exist or apply, in accordance with such prescribed regulations or industry practice respecting holdback percentages and in accordance with the provisions of the General Conditions of the Contract, the Owner shall:

(1) make monthly payments to the Contractor on account of the Contract Price. The amounts of such payments shall be as certified by the Engineer/Architect; and
(2) upon Substantial Performance of the work as certified by the Engineer/Architect pay to the contractor any unpaid balance of holdback monies then due; and
(3) upon Total Performance of the Work as certified by the Engineer/Architect pay to the contractor any unpaid balance of the Contract Price then due.

(b) If the Owner fails to make payments to the Contractor as they become due under the terms of this Contract or in any award by a court, interest at the rate and in the manner specified in GC21-Certificates and Payments, shall become due and payable until payment. Such interest shall be calculated and added to any unpaid amounts monthly.

ARTICLE A-5 ADDRESSES FOR NOTICES

All communications in writing between the parties or between them and the Engineer/Architect shall be deemed to have been received by the addressee if delivered to the individual or to a member of the firm or to an officer of the Corporation for whom they are intended or if sent by post or by facsimile addressed as follows:

The Owner at: _____

_____

_____

The Contractor at: _____

_____

_____

The Engineer/Architect at: _____

_____

_____

ARTICLE A-6 SUCCESSION

The General Conditions of the Contract hereto annexed, and all other aforesaid Contract Documents, are all to be read into and form part of this Agreement and the whole shall constitute the Contract between the parties and subject to law and the provisions of the Contract Documents shall ensure to the benefit of and be binding upon the parties hereto, their respective heirs, legal representatives, successors and assigns.

IN WITNESS WHEREOF the parties hereto have executed this Agreement under their respective corporate seals and by the hands of their proper officers hereunto duly authorized.

SIGNED, SEALED AND DELIVERED
in the presence of:

OWNER:	**CONTRACTOR**
_____	_____
signed	**signed**
_____	_____
name and title	**name and title**
_____	_____
date	**signed / witnessed**
	_____
	name and title
	_____
	date

N.B. Where any legal jurisdiction, local practice or client requirement calls for proof of authority to execute this document, proof of such authority in the form of a certified copy of a resolution naming the person or persons in question as authorized to sign the Agreement for and on behalf of the Corporation or Partnership, should be attached.

GENERAL CONDITIONS

OF

STIPULATED PRICE CONTRACT

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GENERAL CONDITIONS OF CONTRACT

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GENERAL CONDITIONS OF CONTRACT

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GENERAL CONDITIONS OF CONTRACT

GC1 DEFINITIONS

1.1 Contract Documents

The Contract Documents consist of the Instruction to Bidders, executed Agreement, General Conditions of Contract, Supplementary General Conditions of Contract, Specifications, Drawings and such other documents as are listed in Article A-2 of the Agreement, including all amendments thereto incorporated before their execution and subsequent amendments thereto made pursuant to the provisions of the contract or agreed upon between the parties. The Successful Bidder's tender, and any addenda to the Specification issued during the bidding period shall also form part of the Contract Documents.

1.2 Owner, Engineer/Architect, Contractor

The Owner, Engineer/Architect and Contractor are the persons, firms or corporation identified as such in the Agreement and referred to throughout the Contract Documents as if singular in number and masculine in gender. The Term Owner, Engineer/Architect and Contractor means the Owner, Engineer/Architect or Contractor or their authorized representatives as designated by each party in writing.

1.3 Subcontractor

A Subcontractor is a person, firm or corporation having a direct contract with the Contractor to perform a part or parts of the Work included in the Contract, or to supply products worked to a special design according to the Contract Documents, but does not include one who merely supplies products not so worked.

1.4 The Project

The Project is the total construction of which the work performed under the Contract
Documents may be the whole or a part.

1.5 Products

The term Products means all material, machinery, equipment and fixtures forming the completed work as required by the Contract Documents but does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work and normally referred to as construction machinery and equipment.

1.6 The Work

Work includes the whole of the works, materials, matters and things required to be done, furnished and performed by the Contractor under the Contract.

1.7 Materials and Equipment

The term Materials and Equipment means all materials, machinery, equipment and fixtures forming the completed work as required by the Contract Documents but does not include machinery and equipment used for preparation, fabrication, conveying and erection of the work and normally referred to as construction machinery and equipment.

1.8 Other Contractor

The term Other Contractor means any person, firm or corporation employed by or having a separate contract directly or indirectly with the Owner for work other than that required by the Contract Documents.

1.9 Time

a) The Contract Time is the time stated in Article A-1(c) of the Agreement for Substantial Performance of the Work.

b) The date of Substantial Performance of the Work is the date certified by the Engineer/Architect.

c) The term day, as used in the Contract Documents, shall mean the calendar day.

d) The term working day means any day observed by the construction industry in the area of the place of building.

1.10 Substantial Performance

A Contract shall be deemed to be substantially performed

a) when the work or a substantial part thereof is ready for use or is being used for the purpose intended; and

b) when the work to be done under the contract is capable of completion or correction at a cost of not more than:

(i) three per centum of the first two hundred and fifty thousand dollars ($250,000) of the contract price,

(ii) two per centum of the next two hundred and fifty thousand dollars ($250,000) of the contract price, and

(iii) one per centum of the balance of the contract price.

1.11 Total Performance

Total Performance shall mean when the entire work has been performed to the requirements of the Contract Documents and is so certified by the Engineer/Architect.

GC 2 DOCUMENTS

2.1 The Contract Documents shall be signed in duplicate by the Owner and the Contractor.

2.2 Words which have well known technical or trade meanings are used in the Contract Documents in accordance with such recognized meanings.

2.3 In the event of conflicts between Contract Documents the following shall apply:

a) Documents of later date shall govern.
b) Figured dimensions shown on the Drawings shall govern even though they may differ from scaled dimensions.
c) Drawings of larger scale shall govern over those of smaller scale of the same date.
d) Specifications shall govern over Drawings.
e) The General Conditions of Contract shall govern over Specifications.
f) Supplementary General Conditions shall govern over the General Conditions of the Contract.
g) The Agreement shall govern over all documents.

GC 3 ADDITIONAL INSTRUCTIONS AND SCHEDULE OF WORK

3.1 During the progress of the Work the Engineer/Architect shall furnish to the Contractor such additional instructions as may be necessary to supplement the Contract Documents. All such instructions shall be consistent with the intent of the Contract Documents.

3.2 Additional instructions may include minor changes to the Work which affect neither Contract Price nor the Contract Time.

3.3 Additional instructions may be in the form of drawings, samples, models or written instructions.

3.4 Additional instructions will be issued by the Engineer/Architect with reasonable promptness and in accordance with any schedule agreed upon.

3.5 The Contractor shall, within thirty (30) days of the signing of this contract provide the Owner with a schedule of work.

GC 4 DOCUMENTS PROVIDED

4.1 The Contractor will be provided, without charge, a reasonable number of Contract Documents or parts thereof as are reasonably necessary for the performance of the Work.

GC 5 DOCUMENTS ON THE SITE

5.1 The Contractor shall keep one copy of all current Contract Documents and shop drawings on the site, in good order and available to the Engineer/Architect and/or his representatives. This requirement shall not be deemed to include the executed Contract Documents.

GC6 OWNERSHIP OF DOCUMENTS AND MODELS

6.1 All Contract documents and copies thereof, and all models are and shall remain the property of the Owner and are not to be used on other work.

6.2 Such documents are not to be copied or revised in any manner without the written authorization of the Owner.

6.3 Models furnished by the Contractor or the Owner are the property of the Owner.

GC 7 ENGINEER/ARCHITECT'S DECISIONS

7.1 The Engineer/Architect, in the first instance, shall decide on questions arising under Contract Documents and interpret the requirements therein. Such decisions shall be given in writing.

7.2 The Contractor shall notify the Engineer/Architect in writing within five (5) days of receipt of a decision of the Engineer/Architect referred to in 7.1 should he hold that a decision by the Engineer/Architect is in error and/or at variance with the contract Documents. Unless the Contractor fulfills this requirement subsequent claims by him for extra compensation, arising out of the decision, will not be accepted.

7.3 If the question of error and/or variance is not resolved immediately, and the Engineer/Architect decides that the disputed work shall be carried out, the Contractor shall act according to the Engineer/Architect's written decision.

Any question of change in Contract Price and/or extension of Contract Time due to such error and/ or variance shall be decided as provided in GC 16 - Settlement of Disputes.

GC 8 DELAY

8.1 If it can be clearly shown that the Contractor is delayed in the performance of the work by any act or fault of the Owner or other Contractor, then the Contract Time shall be extended for such reasonable time as the Engineer/Architect may decide in consultation with the Contractor. The Contractor shall be reimbursed for any costs incurred by him as a result of such a delay occasioned by the act or fault, provided that it can be clearly shown that the Contractor's forces cannot work efficiently elsewhere on the project and that the incurred cost is limited to that which could not reasonably have been avoided.

8.2 If the Contractor is delayed in the performance of the Work by a Stop Work Order issued by any court or other public authority, and providing that such order was not issued as the result of any act or fault of the Contractor or of any one employed by him directly or indirectly, then the Contract Time shall be extended for such reasonable time as the Engineer/Architect may decide, in consultation with the Contractor, and the Contractor shall be reimbursed for any on-site costs incurred by him as the result of such delay.

8.3 If the Contractor is delayed in the performance of the Work by civil disorders, labour disputes, strikes, lock-outs (including lock-outs decreed or recommended for its members by a recognized Contractor's Association, of which the Contractor is a member) fire, unusual delay by common carriers or unavoidable casualties or, without limit to any of the foregoing, by any cause of any kind whatsoever beyond the Contractor's control, then the Contract Time shall be extended for such reasonable time as may be decided by the Engineer/Architect in consultation with the Owner and the Contractor, but in no case shall the extension of time be less than the time lost as the result of the event causing the delay, unless such shorter extension of time be agreed to by the Contractor.

8.4 No extension shall be made for delay unless written notice of claim is given to the Engineer/Architect within fourteen (14) days of its commencement, providing that in the case of a continuing cause of delay only one notice shall be necessary.

GC 9 OWNER'S RIGHT TO DO WORK

9.1 If the Contractor should neglect to prosecute the Work properly or fail to perform any provisions of the Contract, the Owner may notify the Contractor in writing that he is in default of his contractual obligations and instruct him to correct the default within five (5) working days of receiving the notice.

9.2 If the correction of the default cannot be completed within the five (5) working days specified, the Contractor shall be considered to be in compliance with the Owner's instructions if he:

a) commences the correction of the default within the specified time, and

b) provides the Owner with an acceptable schedule for such correction, and

c) completes the correction in accordance with such schedule.

9.3 If the Contractor fails to comply with the provisions 9.1 and 9.2 the Owner may, without prejudice to any other right or remedy he may have, correct such default and may deduct the cost thereof from the payment then or thereafter due the Contractor.

GC 10 OWNER'S RIGHT TO STOP WORK OR TERMINATE CONTRACT

10.1 If the Contractor should be adjudged bankrupt, or makes a general assignment for the benefit of creditors or if a receiver is appointed on account of his insolvency, the Owner may, without prejudice to any other right or remedy he may have, by giving the Contractor written notice, terminate the Contract.

10.2 The Owner may notify the Contractor in writing that he is in default of his contractual obligations, if the Contractor.

a) fails to proceed regularly and diligently with the Work; or

b) without reasonable cause wholly suspends the carrying out of the Work before the completion thereof, or

c) refuses or fails to supply sufficient properly skilled workmen or proper workmanship, products or construction machinery and equipment for the scheduled performance of the Work within five (5) working days of receiving written notice from the Engineer/Architect, except in those cases provided in GC 8 - Delay; or

d) fails to make payments due to his Subcontractors, his suppliers or his workmen; or

e) persistently disregards laws or ordinances, or the Engineer/Architect's instructions; or

f) otherwise violates the provisions of the Contract to a substantial degree.

Such written notice by the Owner shall instruct the Contractor to correct the default within five (5) working days from the receipt of the written notice.

10.3 If the correction of the default cannot be completed within the five (5) working days specified, the Contractor shall be considered to be in compliance with the Owner's instructions if he:

a) commences the correction of the default within the specified time,

b) provides the Owner with an acceptance schedule for such correction, and

c) completes the correction in accordance with such schedule.

10.4 If the Contractor fails to correct the default within the time specified or subsequently agreed upon, the Owner may, without prejudice to any other right or remedy he may have, stop the Work or terminate the Contract.

10.5 If the Owner terminates the Contract under the conditions set out above, he is entitled to:

a) take possession of the premises and products and utilize the temporary buildings, plants, tools, construction machinery and equipment, goods, materials, intended for, delivered to and placed on or adjacent to the work and may complete the Work by whatever method he may deem expedient but without undue delay or expense;

b) withhold any further payments to the Contractor until the Work is finished.

c) upon total performance of the Work, charge the Contractor the amount by which the full cost of finishing the Work including compensation to the Engineer/Architect for his additional services and a reasonable allowance to cover the cost of any corrections required by GC 31 - Warranty, exceeds the unpaid balance of the Contract Price; or if such cost of finishing the Work is less than the unpaid balance of the Contract Price, pay the Contractor the difference.

d) on expiry of the warranty period, charge the Contractor the amount by which the cost of corrections under GC 31 - Warranty exceeds the

allowance provided for such corrections, or if the cost of such corrections is less than the allowance, pay the Contractor the difference.

GC 11 CONTRACTOR'S RIGHT TO STOP WORK OR TERMINATE CONTRACT

11.1 If the Owner should be adjudged bankrupt, or makes a general assignment for the benefit of creditors, or if a receiver is appointed on account of his insolvency, the Contractor may, without prejudices to any other right or remedy he may have, by giving the Owner written notice, terminate the Contract.

11.2 If the Work should be stopped or otherwise delayed for a period of thirty days or more under an order of any court, or other public authority, and providing that such order was not issued as the result of any act or fault of the Contractor or of any one directly or indirectly employed by him, the Contractor may, without prejudice to any other right or remedy he may have, by giving the Owner fifteen (15) days written notice, terminate the Contract.

11.3 The Contractor may notify the Owner in writing that the Owner is in default of his contractual obligations if:

a) The Engineer/Architect fails to issue a certificate in accordance with GC 21 --Certificates and Payments;

b) The Owner fails to pay to the Contractor when due any amount certified by the Engineer/Architect and verified by the audit of the Owner.

Such written notice shall advise the Owner that if such default is not corrected within fifteen (15) days from the receipt of the written notice the Contractor may, without prejudice to any other right or remedy he may have, stop the work and/ or terminate the contract.

11.4 If the Contractor terminates the Contract under the conditions set out above, he shall be entitled to be paid for all Work performed and for any loss sustained upon products and plant supplied with reasonable overhead, profit and damages.

GC 12 OTHER CONTRACTORS

12.1 The Owner reserves the right to let separate contracts in connection with the project of which the Work is part.

12.2 The Owner shall co-ordinate the work and insurance coverages of Other Contractors as it affects the Work of this Contract.

12.3 The Contractor shall coordinate his work with that of Other Contractors and connect as specified or shown in the Contract Documents. Any change in the costs incurred by the Contractor in the planning and performance of such work which was not shown or included in the Contract documents as of the date of signing the Contract, shall be evaluated as provided under GC 19 - Valuation and Certification of Changes in the Work.

12.4 The Contractor shall report to the Engineer/Architect any apparent deficiencies in other Contractor's work which would affect the Work of this Contract immediately when they come to his attention and shall confirm such report in writing. Failure by the Contractor to so report shall invalidate any claims against the Owner by reason of the deficiencies of Other Contractor's work except as to those of which he was not reasonably aware.

GC 13 ASSIGNMENT

13.1 The Contractor shall not assign the Contract or any part thereof or any benefit or interest therein or thereunder with/out the written consent of the Owner.

GC 14 SUBCONTRACTORS

14.1 The Contractor agrees to preserve and protect the rights of the Owner under the Contract with respect to any work to be performed under subcontract. The Contractor shall:

a) require his Subcontractors to perform their work in accordance with and subject to the terms and conditions of the Contract Documents, and

b) be fully responsible to the Owner for acts and omissions of his Subcontractors and of persons directly or indirectly employed by them as for acts and omissions of persons directly employed by him.

The Contractor therefore agrees that he will incorporate all the terms and conditions of the Contract Documents into all Subcontract Agreements he enters into with his Subcontractors.

14.2 The Contractor shall employ those Subcontractors proposed by him in writing and accepted by the Owner prior to the signing of the Contract for such portions of the work as may be designated in the bidding requirements.

14.3 The Owner may, for reasonable cause, object to the use of a proposed Subcontractor and require the Contractor to employ one of the other Subcontractor Bidders.

14.4 In the event that the Owner requires a change from any proposed Subcontractor the Contract Price shall be adjusted by the difference in cost occasioned by such required change.

14.5 The Contractor shall not be required to employ as a Subcontractor any person or firm to whom he may reasonably object.

14.6 The Engineer /Architect may, upon reasonable request and at his discretion, provide to a Subcontractor information as to the percentage of the Subcontractor's work which has been certified for payment.

14.7 Nothing contained in the Contract Documents shall create any contractual relationship between any Subcontractor and the Owner.

GC 15 EMERGENCIES

15.1 The Engineer/Architect has authority in an emergency to stop the progress of the Work whenever in his opinion such stoppage maybe necessary to ensure the safety of life, or the Work, or neighbouring property. This includes authority to make changes in the Work, and to order, assess and award the cost of such work, extra to the Contract or otherwise, as may in his opinion be necessary. The Engineer/Architect shall, within two (2) working days, confirm in writing any such instructions. In such a case if work has been performed under direct order of the Engineer/Architect, the Contractor shall keep his right to claim the value of such work.

15.2 Should the Work be stopped by civil pickets, or other disorder, neither the Owner nor the Contractor shall have claim for change in the price of the Contract.

GC 16 SETTLEMENT OF DISPUTES AND CLAIMS

16.1 In the case of any dispute or claim arising between the Owner and the Contractor as to their respective rights and obligations under the Contract, either party hereto may give the other written notification of such dispute or claim. The notification of dispute or claim shall be made within fourteen (14) days of the dispute or cause of action arising. If the dispute or claim cannot be resolved to the satisfaction of both parties, either party may refer the matter to such judicial tribunal as the circumstances require.

16.2 Legal proceedings shall not take place until after the performance or the substantial performance of the disputed work except:

a) when the dispute concerns a certificate for payment.

b) where either party can show that the matter in dispute requires immediate consideration while evidence is available.

c) in the case of legal proceedings, where the action may become prescribed by reason of delay.

GC 17 INDEMNIFICATION

17.1 Except as provided in 17.2, the Contractor shall be liable for, and shall indemnify and hold harmless the Owner and the Engineer/Architect, their agents and employees from and against all claims, demands, losses, costs, damages, actions, suits or proceedings, whatsoever arising under any statute or Common Law:

a) in respect of personal injury to or the death of any person whomsoever arising out of or in the course of or caused by the carrying out of the Work; and

b) in respect of any injury or damage whatsoever to any property, real or personal or any chattel real, insofar as such injury or damage arises out of or in the course of or by reason of the carrying out of the Work.

17.2 The Contractor shall not be liable under 17.1 if the injury, death, loss or damage is due to any act or neglect of the Owner or Engineer/Architect, their agents or employees.

GC 18 CHANGES IN THE WORK

18.1 The Owner may make changes by altering, adding to, or deducting from the Work, with the Contract Price and the Contract Time being adjusted accordingly.

18.2 Except as provided in GC 15 - Emergencies, no change shall be made without a written order from the Engineer/Architect and no claim for an addition or deduction to the Contract Price or change in the Contract Time shall be valid unless so ordered and at the same time valued or agreed to be valued as provided in GC 19 - Valuation and Certification of Changes in the Work.

GC 19 VALUATION AND CERTIFICATION OF CHANGES IN THE WORK

19.1 The value of any change shall be determined in one or more of the following methods:

a) by estimate and acceptance in a lump sum

b) by unit prices subsequently agreed upon

c) by cost and a fixed or percentage fee.

In the case of changes in the Work valued as outlined in 19.l(a), the Contractor shall submit an itemized estimate for all materials and labour to complete the extra work. In the case of changes in the Work valued as outlined in 19.1(c), the Contractor shall submit detailed invoices, vouchers and time sheets for all materials and labour to complete the extra work.

Subject to the provisions of 19.2, when work is performed by the Contractor's own forces his markup for overhead shall be ten (10) percent and his profit ten (10) percent of the agreed or actual cost of the change. When work is performed by one of his Subcontractors the Subcontractor's markup for overhead shall be ten (10) percent of the agreed or actual cost of the change plus five (5) percent for profit. The Contractor's markup for overhead and profit shall be ten (10) percent of the Subcontractor's total price.

19.2 Notwithstanding the provisions of 19.1, in case of changes in the Work, the amount charged for equipment rentals shall be that provided in the Contract and no additional amount shall be paid as markup for overhead or profit for the Contractor or Subcontractor.

19.3 When a change in the Work is proposed or required the Contractor shall present to the Engineer/Architect for approval his claim for any change in the Contract Price and/or change in the Contract Time. The Engineer/Architect shall satisfy himself as to the correctness of such claim and, when approved shall issue a written order to the Contractor to proceed with the change. The value of work performed in the change shall be included for payment with the regular certificate for payment.

19.4 In the case of changes in the Work to be paid for under methods (b) and (c) of 19. 1, the form of presentation of costs and methods of measurement shall he agreed to by the Engineer/Architect and Contractor before proceeding with the change. The Contractor shall keep accurate records, as agreed upon, of quantities or costs and present an account of the cost of the change in the Work, together with vouchers where applicable.

19.5 If the method of valuation, measurement and the change in Contract Price and/or change in Contract Time cannot be promptly agreed upon, and the change is required to be proceeded with then the Engineer/Architect shall determine the method of valuation, measurement and the change in Contract Price and/or Contract Time subject to final determination in the manner set out in GC 16 - Settlement of disputes. In this case the Engineer/Architect shall issue a written authorization for the change setting out the method of valuation and if by lump sum his valuation of the change in Contract Price and/or Contract Time.

19.6 In the case of a dispute in the valuation of a change authorized in the Work pending final determination of such value, the Engineer/Architect shall certify the value of work performed and include the amount with the regular certificates for payment.

19.7 It is intended in all matters referred to above that both the Engineer/Architect and Contractor shall act promptly.

19.8 Credits will be based on the net cost of material and labour or the net difference in unit price quantities.

GC 20 APPLICATION FOR PAYMENT

20.1 Applications for payment on account as provided for in Article A-4 may be made monthly as the Work progresses.

20.2 Application for payment shall be made monthly on a date to be agreed between the Owner and the Contractor and the amount claimed shall be for the value, proportionate to the amount of the Contract, of work performed and products delivered to the site at that date.

20.3 The Contractor shall submit to the Engineer/Architect, before the first application for payment, a schedule of values of the various parts of the Work, aggregating the total amount of the Contract Price and divided so as to facilitate evaluation of applications for payment.

20.4 This schedule shall be made out in such form, and supported by such evidence as to its correctness, as the Engineer/Architect may reasonably direct, and when approved by the Engineer/Architect shall be used as the basis for application for payment.

20.5 When making application for payment, the Contractor shall submit a statement based upon this schedule. Claims for products delivered to the site but not yet incorporated into the Work shall be supported by such evidence as the Engineer/Architect may reasonably require to establish the value and delivery of the products.

20.6 Applications for release of holdback monies following the Substantial Performance of the Work and the application for final payment shall be made at the time and in the manner set forth in GC 21 Certificates and Payments.

GC 21 CERTIFICATES AND PAYMENTS

21.1 The Engineer/Architect shall, within ten (10) days of receipt of an application for payment from the Contractor submitted in accordance with GC 20 - Application for Payment, issue a certificate for payment in the amount applied for or such other amount as he shall determine to be properly due. If the Engineer/Architect amends the application he shall promptly notify the Contractor in writing, giving his reasons for the amendment.

21.2 The Owner shall within twenty-one (21) days of the issuance of a certificate for payment by the Engineer/Architect, make payment to the Contractor on account, in accordance with the provisions of the Agreement.

21.3 If payment is not made within sixty (60) days of issuance of a certificate for payment by the Engineer/Architect the Owner will be liable for interest on the amount owing at the rate of 9% per annum from the sixty-first (61st) day to the date of payment.

21.4 Notwithstanding any other provisions of this Contract:

a) If on account of climatic or other conditions reasonably beyond the control of the Contractor there are items of work that cannot be performed, the payment in full for that which has been performed as certified by the Engineer/Architect shall not be withheld or delayed by the Owner on account thereof, but the Owner may withhold from the Contract Price until the remaining work is finished an amount sufficient to cover the cost to the Owner of performing such remaining work and to adequately protect the Owner from claims.

b) Where legislation permits and where, upon application by the Contractor, the Engineer/Architect has certified that a Subcontract has been totally performed to his satisfaction prior to the Substantial Performance of this Contract, the Owner shall pay the Contractor the holdback retained for such Subcontractor on the day following the expiration of the Statutory Limitations Period stipulated in the Mechanics' Lien Act applicable to the place of building.

The holdbacks will be released on the following conditions:

i) a copy of the contract between the Subcontractor and the Contractor, or some other suitable Document satisfactory to the Owner, must be presented to the Owner,

ii) the Subcontract is completed without deficiencies;

iii) the warranty for the Subcontract will not start until Substantial Performance of the General Contract;

iv) the Contractor provides an approved statutory declaration that all monies have been paid to the Subcontractors;

v) the Owner will, at that time, release the total amount specified on the Sub-contractor's Contract.

21.5 Notwithstanding the provisions of 21.4 (b) and notwithstanding the wording of such certificate the Contractor shall ensure that such work is protected pending the Total Performance of the Contract and be responsible for the correction of any defects in it regardless of whether or not they were apparent when such certificates were issued.

21.6 The Engineer/Architect shall, within ten (10) days of receipt of an application from the Contractor for a Certificate of Substantial Performance, make an inspection and assessment of the work to verify the validity of the application. The Engineer/Architect shall within seven (7) days of his inspection notify the Contractor of his approval or disapproval of the application. When the Engineer/Architect finds the Work to be Substantially Performed he shall issue such a certificate. The date of this certificate shall be the date of Substantial Performance of the Contract. Immediately following the issuance of the Certificate of Substantial Performance, the Engineer/Architect, in consultation with the Contractor shall establish a reasonable date for the Total Performance of the Contract.

21.7 Following the issuance of the Certificate of Substantial Performance and upon receipt from the Contractor of all documentation called for in the Contract Documents the Engineer/Architect shall issue a certificate for payment of holdback monies. The release of holdback monies authorized by this certificate shall become due and payable on the day following the expiration of the Statutory Limitation Period stipulated in the Mechanics' Lien Act applicable to the place of building, providing that no lien or privilege claims against the Work exist and the Contractor has submitted to the Owner a sworn statement that all accounts for labour, subcontracts, products, construction machinery and equipment and any other indebtedness which may have been incurred by the Contractor in the Substantial Performance of the Work and for which the Owner might in any way be held responsible have been paid in full except holdback monies properly retained.

21.8 The Engineer/Architect shall, within ten (10) days of receipt of an application from the Contractor for payment upon Total Performance of the Contract, make an inspection and assessment of the Work to verify the validity of the application. The Engineer/Architect shall within seven (7) days of his inspection notify the Contractor of his approval or disapproval of the application. When the

Engineer/Architect finds the Work to be totally performed to his satisfaction he shall issue a Certificate of Total Performance and certify for payment the remaining monies due to the Contractor under the Contract less any holdback monies which are required to be retained. The date of this certificate shall be the date of Total Performance of the Contract. The Owner shall, within thirty (30) days of issuance of such certificate, make payment to the Contractor in accordance with the provisions of Article A-4 of the Agreement.

21.9 The release of any remaining holdback monies shall become due and payable on the day following the expiration of the Statutory Limitation Period stipulated in the Mechanics' Lien Act applicable to the place of building or where such legislation does not exist or apply in accordance with such other legislation, regulations governing privileges, industry practice or such other provisions which may he agreed to between the parties, provided that no claims against the Work exist and the Contractor has submitted to the Owner a sworn statement that all accounts for labour, Subcontracts, products, construction machinery and equipment and any other indebtedness which may have been incurred by the Contractor in the Total Performance of the Work and for which the Owner might in any way be held responsible, have been paid in full except holdback monies properly retained.

21.10 No certificate for payment, or any payment made thereunder, nor any partial or entire use of occupancy of the Work by the Owner shall constitute an acceptance of any work or products not in accordance with the Contract Documents.

21.11 The issuance of the Certificate of Total Performance shall constitute a waiver of all claims by the Owner against the Contractor except those previously made in writing and still unsettled, if any, and those arising from the provisions of GC 31 - Warranty, or those arising from negligence on the part of the Contractor.

The acceptance of the Certificate of Total Performance or of the payment due thereunder shall constitute a waiver of all claims by the Contractor against the Owner except those made in writing prior to his application for payment upon Total Performance of the Contract and still unsettled, if any.

21.12 The holdback to be used by the Engineer/Architect when issuing certificate of payment will be ten (10) percent of the value of the Work completed at the date of the Contractor's claim.

21.13 Notwithstanding the provisions of 21.3 or any other provision of this Contract, the Owner may:

a) in the event of a claim by the Owner against the Contractor for damages arising out of the performance or non-performance of the Contract, withhold payment of any amount equal to the alleged damages until the

liability for damages is established and no amount of interest will be paid on amounts held under this clause;

b) set-off amounts owing by the Contractor to the Owner,

c) following the issuance of the Certificate of Substantial Performance, withholdpayment of an amount equal to twice the cost, as estimated by the Engineer/Architect, of remedying deficiencies until the issuance of a Certificate of Total Performance and no amount of interest will be paid on amounts held under this clause.

GC 22 TAXES AND DUTIES

22.1 Unless otherwise stated in Supplementary General Conditions the Contractor shall pay all government sales taxes, customs duties and excise taxes with respect to the Contract.

22.2 Any increase or decrease in costs to the Contractor due to changes in such taxes and duties after the date of the Agreement and up to the agreed date of completion shall increase or decrease the Contract Price accordingly. If the Owner so desires the Contractor is to co-operate with the Engineer/Architect and Owner and permit access to books and records in order to establish the amount of such taxes involved.

22.3 The Contractor shall maintain full records of his estimates of and actual cost to him of the Work together with all proper tender calls, quotations, contracts, correspondence, invoices, receipts and vouchers relating thereto, shall make them available to audit and inspection by the Owner, the Auditor General for Newfoundland or by persons acting on their behalf, shall allow them to make copies thereof and to take extracts therefrom, and shall furnish them with any information which they may require from time to time in connection with such records.

GC 23 LAWS, NOTICES, PERMITS AND FEES

23.1 The laws of the place of building shall govern the Work.

23.2 The Contractor shall obtain all permits, licenses and certificates and pay all fees required for the performance of the Work which are in force at the date of tender submission (but this shall not include the obtaining of permanent easements or rights of servitude).

23.3 The Contractor shall give all required notices and comply with all laws, ordinances, rules, regulations, codes and order of all authorities having

jurisdiction relating to the Work, to the preservation of the public health and construction safety which are or become in force during the performance of the Work.

23.4 The Contractor shall not be responsible for verifying that the Contract Documents are in compliance with the applicable laws, ordinances, rules, regulations and codes relating to the Work. If the Contract Documents are at variance therewith, or changes which require modification to the Contract Documents are made to any of the laws, ordinances, rules, regulations and codes by the authorities having jurisdiction subsequent to the date of tender submission, any resulting change in the cost shall constitute a corresponding change in the Contract Price. The Contractor shall notify the Engineer/Architect in writing requesting direction immediately any such variance or change is observed by him.

23.5 If the Contractor fails to notify the Engineer/Architect in writing and obtain his direction as required in GC 23.4 and performs any work knowing it to be contrary to any laws, ordinances, rules, regulations, codes and orders of any authority having jurisdiction, he shall be responsible for and shall correct any violations thereof and shall bear all costs, expense and damages, attributable to his failure to comply with the Provisions of such laws, ordinances, rules, regulations, codes and orders.

GC 24 PATENT FEES

24.1 The Contractor shall pay all royalties and patent licence fees required for the performance of the Contract and such royalties or fees shall be deemed to have been included in the contract price. He shall hold the Owner harmless from and against all claims, demands, losses, costs, damages, actions, suits or proceedings arising out of the Contractor's performance of the Contract which are attributable to an infringement or an alleged infringement of any patent or invention by the Contractor or anyone for whose acts he may be liable.

24.2 The Owner shall hold the Contractor harmless against all claims, demands, losses, costs, damages, actions, suits, or proceedings arising out of the Contractor's performance of the Contract which are attributable to an infringement or an alleged infringement of any patent or invention in executing anything for the purpose of the Contract, the model, plan or design of which was supplied to the Contractor by the Owner.

GC 25 WORKPLACE HEALTH, SAFETY AND COMPENSATION COMMISSION

25.1 Prior to commencing the Work and prior to receiving payment on Substantial and Total Performance of the Work, the Contractor shall provide evidence of

compliance with all requirements of the Province of the place of building with respect to workmen's compensation including payments due thereunder.

25.2 At anytime during the term of Contract, when requested by the Engineer/Architect, the Contractor shall provide such evidence of compliance by himself and any or all of his Subcontractors.

GC 26 LIABILITY INSURANCE

26.1 Comprehensive General Liability Insurance

a) Without restricting the generality of GC 17 - Indemnification, the Contractor shall provide and maintain, either by way of a separate policy or by an endorsement to his existing policy, Comprehensive General Liability insurance acceptable to the Owner and subject to limits set out in detail in the Supplementary General Conditions inclusive per occurrence for bodily injury, death, and damage to property including loss of use thereof.

b) The insurance shall be in the joint names of the Contractor and the Owner, shall also cover as Unnamed Insureds all Subcontractors and anyone employed directly or indirectly by the Contractor or his Subcontractors to perform a part or parts of the Work but excluding suppliers whose only function is to supply and or transport products to the project site.

c) The insurance shall also include as Unnamed Insureds the architectural and engineering consultants of the Owner and Engineer/Architect.

d) The insurance shall preclude subrogation claims by the Insurer against anyone insured thereunder.

e) The Comprehensive General Liability Insurance will not be limited to, but shall include coverage for:
   1) premises and operations liability
   2) products or completed operations liability
   3) blanket contractual liability
   4) cross liability
   5) elevator and hoist liability
   6) contingent employer's liability
   7) personal injury liability arising out of false arrest, detention or imprisonment or malicious prosecution, libel, slander or defamation of character, invasion of privacy, wrongful eviction or wrongful entry.

8) shoring, blasting, excavating, underpinning, demolition, pile driving and caisson work, work below ground surface, tunnelling and grading as applicable.
9) liability with respect to non-owned licenced vehicles.

26.2 Automobile Liability Insurance

The Contractor shall provide and maintain liability insurance in respect of owned licenced vehicles subject to limits set out in detail in the Supplementary General Conditions inclusive.

26.3 Aircraft and or Watercraft Liability Insurance

The Contractor shall provide and maintain liability insurance with respect to owned and non-owned aircraft and watercraft, as may be applicable, subject to limits set out in detail in the Supplementary General Conditions inclusive. Such insurance shall be in the joint names of the Contractor, the Owner, the Engineer/Architect and those parties defined in 26.1(b) (c) where they have an interest in the use and operation of such aircraft or watercraft. The insurance shall preclude subrogation claims by the Insurer against anyone insured thereunder.

26.4 All liability insurance shall be maintained continuously until twelve (12) months after the date the Engineer/Architect issues a certificate of Substantial Performance.

26.5 The Contractor shall provide the Owner with evidence of all liability insurance prior to the commencement of the work and shall promptly provide the Owner with a certified true copy of each insurance policy.

26.6 All liability insurance policies shall contain an endorsement to provide all Named Insureds with prior notice of changes and cancellations. Such endorsements shall be in the following form:

"It is understood and agreed that the coverage provided by this policy will not be changed or amended in any way nor cancelled until thirty (30) days after written notice of such change or cancellation shall have been given to all Named Insureds".

GC 27 PROPERTY INSURANCE

27.1 The Contractor shall provide and maintain property insurance, acceptable to the Owner, insuring the full value of the Work in the amount of the Contract Price and the full value as stated of products for incorporation into the Work. The insurance shall be in the joint names of the Contractor, the Owner, the Subcontractors and all others having an insurable interest in the Work. The

policies shall include all Subcontractors as Unnamed Insureds or, if they specifically request, as Named Insureds. The Policies shall preclude subrogation claims by the Insurer against anyone insured thereunder.

27.2 Such coverage shall be provided for by EITHER an ALL Risks Builder's Risk Policy OR by a combination of a standard Builders' Risk Fire Policy including Extended Coverage and Malicious Damage Endorsements and a Builders' Risk Difference in Conditions Policy providing equivalent coverage, of Piers, Wharves & Docks Government Structures Policy.

27.3 The policies shall insure against all risks of direct loss or damage subject to the exclusion specified in the Supplementary General Conditions. Such coverage shall apply to:

a) all products, labour and supplies of any nature whatsoever, the property of the Insureds or of others for which the Insureds may have assumed responsibility, to be used in or pertaining to the site preparations, demolition of existing structures, erections and/ or fabrication and/ or reconstruction and/ or repair of the insured project, while on the site or in transit, subject to the exclusion of the property specified.

b) the installation, testing and any Subsequent use of machinery and equipment including boilers, pressure vessels or vessels under vacuum.

c) damage to the Work caused by an accident to and/or the explosion of any boiler(s) or pressure vessel(s) forming part of the Work.

Such coverage shall exclude construction machinery, equipment, temporary structural and other temporary facilities, tools, and supplies used in the construction of the Work and which are not expendable under the Contract.

27.4 The Contractor shall provide the Owner with evidence of all insurance prior to commencement of the Work and shall promptly provide the Owner with a certified true copy of each insurance policy.

Policies provided shall contain an endorsement to provide all Named Insureds with prior notice of changes and cancellations. Such endorsements shall be in the following form: "It is understood and agreed that the coverage provided by this policy will not be changed or amended in any way or cancelled until thirty 30 days after written notice of such change or cancellation shall have been given to all Named Insureds".

27.5 All such insurance shall be maintained continuously until ten (10) days after the date the Engineer/Architect issues a certificate to Total Performance. All such insurance shall provide for the Owner to take occupancy of the Work or any part

thereof during the terms of this insurance. Any increase in the cost of this insurance arising out of such occupancy shall be at the Owner's expense.

27.6 The policies shall provide that, in the event of a loss, payment for damage to the Work, shall be made to the Owner and the Contractor as their respective interests may appear. The Contractor shall act on behalf of the Owner and himself for the purpose of adjusting the amount of such loss with the Insurers. On the determination of the extent of the loss, the Contractor shall immediately proceed to restore the Work and shall be entitled to receive from the Owner (in addition to any sum due under the Contract) the amount at which the Owner's interest in the restoration work has been appraised, such amount to be paid as the work of the restoration proceeds and in accordance with the Engineer/Architect's certificates for payment. Damage shall not affect the rights and obligations of either party under the Contract except that the Contractor shall be entitled to such reasonable extension of time for Substantial and Total Performance of the Work as the Engineer/Architect may decide.

27.7 The Contractor and/ or his Subcontractors as may be applicable shall be responsible for any deductible amounts under the policies and for providing such additional insurance as may be required to protect the insureds against loss on items excluded from the policies.

GC 28 PROTECTION OF WORK AND PROPERTY

28.1 The Contractor shall protect the property adjacent to the Project site from damage as the result of his operations under the Contract.

28.2 The Contractor shall protect the Work and the Owner's property from damage and shall be responsible for any damage which may arise as the result of his operations under the Contract except damage which occurs as the result of:

a) errors in the Contract Documents, and/or

b) acts or omissions by the Owner, his agents, employees or Other Contractors.

28.3 Should any damage occur to the Work and/or Owner's property for which the Contractor is responsible he shall make good such damage at his own expense or pay all costs incurred by others in making good such damage.

28.4 Should any damage occur to the Work and/or Owner's property for which the Contractor is not responsible as provided in GC 17 he shall make good such damage to the Work, and, if the Owner so directs to the Owner's property, and the Contract Price and Contract Time shall be adjusted in accordance with GC 18 - Changes in the Work.

28.5 The Contractor shall be completely responsible for the safety of the work as it applies to protection of the public and property and the construction of the work.

The Codes that must be followed and enforced for safety are:

a) The National Building Code, Construction Safety Measures (Latest Edition);

b) The Workplace Health, Safety and Compensation Commission Accident Prevention Regulations (Latest Edition);

c) Canadian Code for Construction Safety (Latest Edition) as issued by the Associate Committee of the National Building Code.

28.6 Any person not following the stipulated safety regulations shall be dismissed.

GC 29 DAMAGES AND MUTUAL RESPONSIBILITY

29.1 If either party to this Contract should suffer damage in any manner because of any wrongful act or neglect of the other party or anyone employed by him then he shall be reimbursed by the other party for such damages. The party reimbursing the other party shall be subrogated to the rights of the other party in respect of such wrongful act or neglect if it be that of a third party.

29.2 Claims under this GC shall be made in writing to the party liable within reasonable time after the first observance of such damage and not later than the time limits stipulated in GC 21 - Certificates and Payments, and may be adjusted by agreement or in the manner set out in GC 16 - Settlement of Disputes and Claims.

29.3 If the Contractor has caused damage to any Other Contractor on the work, the Contractor agrees upon due notice to settle with such Other Contractor by agreement or arbitration, if he will so settle. If such Other Contractor sues the Owner on account of any damage alleged to have been so sustained, the Owner shall notify the Contractor and may require the Contractor to defend the action at the Contractor's expense. If any final order or judgment against the Owner arises therefrom the Contractor shall pay or satisfy it and pay all costs incurred by the Owner.

29.4 If the Contractor becomes liable to pay or satisfy any final order, judgment or award against the Owner then the Contractor, upon undertaking to indemnify the Owner against any and all liability for costs, shall have the right to appeal in the name of the Owner such final order or judgment to any and all courts of competent jurisdiction.

GC 30 BONDS

30.1 The Owner shall have the right during the period stated in the tender documents for acceptance of the tender to require the Contractor to provide and maintain in good standing until the fulfillment of the Contract, bonds covering the faithful performance of the Contract including the requirements of the Warranty provided for in GC 31 Warranty, and the payment of all obligations arising under the Contract.

30.2 All such bonds shall be issued by a duly incorporated surety company approved by the Owner and authorized to transact a business or surety-ship in the Province of Newfoundland.

30.3 If bonds are called for in the tender documents or supplementary general conditions or instructions to bidders, the costs attributable to providing such bonds shall be included in the tender price.

30.4 Should the Owner require the provision of a bond or bonds by the Contractor other than those provided for under 30.3, the Contract Price shall be increased by all costs attributable to providing such bonds.

30.5 The Contractor shall promptly provide the Owner with any bonds that are required.

GC 31 WARRANTY

31.1 Without restricting any warranty or guarantee implied or stipulated by law the Contractor shall at his own expense rectify and make good any defect or fault however caused appearing within a period of one year from the date of Substantial Performance of the Work provided that the Contractor shall not be responsible for any defect or fault resulting from the design of the Work.

31.2 The Contractor shall correct and/or pay for any damage to other work resulting from any corrections required under the conditions of 31.1.

31.3 Neither the Engineer/Architect's final certificate nor payment thereunder shall relieve the Contractor from his responsibility hereunder.

31.4 The Owner and/or the Engineer/Architect shall give the Contractor written notice of observed defects promptly.

GC 32 CONTRACTOR'S RESPONSIBILITIES AND CONTROL OF THE WORK

32.1 The Contractor shall have complete control of the Work except as provided in GC 15 -Emergencies. He shall effectively direct and supervise the Work using his best skill and attention. He shall be solely responsible for all construction means, methods, techniques, sequences and procedures and for coordinating all parts of the Work under the Contract.

32.2 The Contractor shall have the sole responsibility for the design, erection, operation, maintenance and removal of temporary structural and other temporary facilities and the design and execution of construction methods required in their use. The Contractor shall engage and pay for registered professional engineering personnel skilled in the appropriate discipline to perform these functions where required by law or by the Contract Documents and in all 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.

32.3 Notwithstanding the provisions of paragraphs 32.1 and 32.2 above, or any provisions to the contrary elsewhere in the Contract Documents where such Contract Documents include designs for temporary structural and other temporary facilities and methods shall be deemed to comprise part of the overall design of the Work and the Contractor shall not be held responsible for that part of the design or the specified method of construction. The Contractor shall, however, be responsible for the execution of such design or specified method of construction in the same manner that he is responsible for the execution of the Work.

32.4 The Contractor shall carefully examine the Contract Documents and shall promptly report to the Engineer/Architect any error, inconsistency or omission he may discover. The Contractor shall not be held liable for any damage resulting from any such errors, inconsistencies or omissions in the Contract Documents.

GC 33 SUPERINTENDENCE

33.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Work site at all times while work is being performed.

33.2 The superintendent shall be satisfactory to the Engineer/Architect and shall not be changed except for good reason and only then after consultation with and agreement by the Engineer/Architect.

33.3 The superintendent shall represent the Contractor at the Work site and directions given to him by the Engineer/Architect shall be held to have been given to the

Contractor. Important directions shall be confirmed to the Contractor in writing, other directions will be so confirmed if requested.

GC 34 LABOUR AND PRODUCTS

34.1 Unless otherwise stipulated elsewhere in the Contract Documents, the Contractor shall provide and pay for all labour products, tools, construction equipment and machinery, water, heat, light, power, transportation and other facilities and services necessary for the proper performance of the Work.

34.2 All products provided shall be new unless otherwise specified in the Contract Documents. Any products which are not specified shall be of a quality best suited to the purpose required and their use subject to the approval of the Engineer/Architect.

34.3 The Contractor shall at all times maintain good order and discipline among his employees engaged on the Work and shall not employ on the Work any unfit person nor anyone not skilled in the task assigned to him.

GC 35 SUBSURFACE CONDITIONS

35.1 The Contractor shall promptly notify the Engineer/Architect in writing if, in his opinion, the subsurface conditions at the Project site differ materially from those indicated in the Contract Documents or as may have been represented to him by the Owner or Engineer/Architect before the time of tender submission.

35.2 After prompt investigation, should the Engineer/Architect determine that conditions do differ materially, he shall issue appropriate instructions for changes in the Work as provided for in GC 18 - Changes in the Work.

GC 36 USE OF PREMISES

36.1 The Contractor shall confine his apparatus, the storage of products and the operations of his workmen to limits indicated by laws, ordinances, permits or by directions of the Engineer/Architect and shall not unreasonably encumber the premises with his products.

36.2 The Contractor shall not load or permit to be loaded any part of the Work with a mass that will endanger its safety.

36.3 The Contractor shall enforce the Engineer/Architect's instructions regarding signs, advertisements, fires and smoking.

36.4 Unless otherwise provided the Contractor shall, at his own expense, and without extra cost to the Owner, make suitable provision to accommodate all traffic either pedestrian or vehicular, over or around, the project upon which work is being performed, in a manner satisfactory to the Engineer/Architect.

36.5 The Contractor shall provide and maintain at his own expense such fences, barriers, signs, lights and watchmen as may be necessary to prevent avoidable accidents to residents or to the public generally.

GC 37 CLEANUP AND FINAL CLEANING OF WORK

37.1 The Contractor shall maintain the Work in a tidy condition and free from the accumulation of waste products and debris, other than that caused by the Owner, other Contractors or their employees.

37.2 When the Work is Substantially Performed the Contractor shall remove all of his surplus products, tools, construction machinery and equipment not required for the performance of the remaining work. He shall also remove any waste products and debris and leave the Work clean and suitable for occupancy by the Owner unless otherwise specified.

37.3 When the Work is Totally Performed, the Contractor shall remove all of his surplus Products, tools, construction machinery and equipment. He shall also remove any waste products and debris, other than that caused by the Owner, other Contractors or their employees.

GC 38 CUTTING AND REMEDIAL WORK

38.1 The Contractor shall do all cutting and remedial work that may be required to make the several parts of the Work come together properly.

38.2 The Contractor shall co-ordinate the schedule for the Work to ensure that this requirement is kept to a minimum.

38.3 Should the Owner or anyone employed by him be responsible for ill-timed work necessitating cutting and/or remedial work shall be valued as provided in GC 19 Valuation and Certification of Changes in the Work and added to the Contract Price.

38.4 Cutting and remedial work shall be performed by specialists familiar with the materials affected and shall be performed in a manner to neither damage nor endanger any Work.

GC 39 INSPECTION OF WORK

39.1 The Owner and his authorized representatives shall have access to the Work for inspection wherever it is in preparation or progress. The Contractor shall co-operate to provide reasonable facilities for such access.

39.2 If special tests, inspections or approvals are required by the Contract Documents, the Engineer/ Architect's instructions or the laws or ordinances of the place of building the Contractor shall give the Engineer/Architect timely notice requesting inspection. Inspection by the Engineer/ Architect shall be made promptly. The Contractor shall arrange inspection by other authorities and shall notify the Engineer/Architect of the date and time.

39.3 If the Contractor covers or permits to be covered any of the Work that is subject to inspection or before any special tests and approvals are completed without the approval of the Engineer/Architect, the Contractor shall uncover the Work, have the inspection satisfactorily completed and make good the Work at his own expense.

39.4 Examination of any questioned Work maybe ordered by the Engineer/Architect. If such Work be found in accordance with the Contract the Owner shall pay the cost of examination and replacement, together with the cost of subsequent verification testing. If such Work be found not in accordance with the Contract through the fault of the Contractor, the Contractor shall pay such cost.

39.5 The Contractor shall furnish promptly to the Engineer/Architect two (2) copies of all certificates and inspection reports relating to the Work.

GC 40 REJECTED WORK

40.1 Defective Work, whether the result of poor workmanship, use of defective products or damage through carelessness or other act or omission of the Contractor, and whether incorporated in the Work or not, which has been rejected by the Engineer/Architect as failing to conform to the Contract Documents shall be removed promptly from the premises by the Contractor and placed and/or reexecuted promptly in accordance with the Contract Documents at the Contractor's expense.

40.2 Other Contractor's work destroyed or damaged by such removals or replacements shall be made good promptly at the Contractor's expense.

40.3 If in the opinion of the Engineer/Architect it is not expedient to correct defective work not done in accordance with the Contract Documents, the Owner may deduct from the Contract Price the difference in value between the Work as done

and that called for by the Contract, the amount of which shall be determined in the first instance by the Engineer/Architect.

GC 41 SHOP DRAWINGS

41.1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures, and other data which are to be provided by the Contractor to illustrate details of a portion of the Work.

41.2 The Contractor shall arrange for the preparation of clearly identified shop drawings as called for by the Contract Documents or as the Engineer/Architect may reasonably request.

41.3 Prior to Submission to the Engineer/Architect the Contractor shall review all shop drawings. By this review the Contractor represents that he has determined and verified all field measurements, field construction criteria, materials, catalogue numbers and similar data or will do so and that he has checked and co-ordinated each shop drawing with the requirements of the Work and of the Contract Documents. The Contractor's review of each shop drawing shall be indicated by stamp, date and signature of a responsible person.

41.4 The Contractor shall submit shop drawings to the Engineer/Architect for his review with reasonable promptness and in orderly sequence so as to cause no delay in the Work or in the Work of Other Contractors. If either the Contractor or the Engineer/Architect so requests they shall jointly prepare a schedule fixing the dates for submission and return of shop drawings. Shop drawings shall be submitted in the form of a responsible transparency or prints as the Engineer/Architect may direct. At the time of submission the Contractor shall notify the Engineer/Architect in writing of any deviations in the shop drawings from the requirements of the Contract Documents.

41.5 The Engineer/Architect will review and return shop drawings in accordance with any schedule agreed upon, or otherwise with reasonable promptness so as to cause no delay. The Engineer/Architect's review shall be for conformity to the design concept and for general arrangement only and such review shall not relieve the Contractor of responsibility for errors or omissions in the shop drawings or of responsibility for meeting all requirements of the Contract Documents unless a deviation on the shop drawings has been approved in writing by the Engineer/Architect.

41.6 The Contractor shall make any changes in shop drawings which the Engineer/Architect may require consistent with the Contract Documents and resubmit unless otherwise directed by the Engineer/Architect. When resubmitting the Contractor shall notify the Engineer/ Architect in writing of any revisions other than those requested by the Engineer/Architect.

GC 42 SAMPLES

42.1 The Contractor shall submit for the Engineer/Architect's approval such standard manufacturers' samples as the Engineer/Architect may reasonably require. Samples shall be labelled as to origin and intended use in the Work and shall conform to the requirements of the Contract Documents.

42.2 The Contractor shall provide samples of special products, assemblies, or components when so specified. The cost of such samples not specified shall be authorized as an addition to the Contract Price as provided in GC 18 - Changes in the Work.

GC 43 TESTS AND MIX DESIGNS

43.1 The Contractor shall furnish to the Engineer/Architect test results and mix designs as may be requested. The testing company must first be approved by the Engineer/Architect.

43.2 The cost of tests and mix designs beyond those called for in the Contract Documents or beyond those required by laws, ordinances, rules and regulations relating to the work and the preservation of public health, shall be authorized as an addition to the Contract Price as provided in GC 18 - Changes in the Work.

GC 44 MATERIALS AND SUBSTITUTIONS

44.1 Materials, described and named in the specifications with "or approved equal" clause after the Manufacturer's name, or so described as to establish quality only and substitutions of a similar material may be made after award of the contract provided the Engineer/Architect's approval is obtained.

44.2 Requests for substitutions must be accompanied by sufficient information in the form of shop drawings, manufacturer's literature, samples and other data to permit proper investigation of the substitutes proposed. Also, indicate the increase or decrease in price.

44.3 Whenever a substitute is proposed for approval the Contractor shall guarantee that such proposed substitute will not adversely affect the space requirements allocated on the drawings for the material specified, and he shall agree to bear any additional expense incurred due to his use of the proposed substitute.

44.4 The Engineer/Architect may accept or reject any or all of the proposed substitutions as he sees fit, and his decision on a question of equality shall be final.

GC 45 LABOUR

45.1 In carrying out his duties under this contract, the Contractor should comply with all Provincial and Federal legislation respecting labour and the employment of labour, where applicable, including the labour standards code and shall not operate in conflict with the Human Rights legislation. In the employment of labour, preference should be given to persons normally resident in Newfoundland and Labrador.

45.2 The Contractor and Subcontractors shall maintain and keep available for inspection by the Owner, a record of the names and addresses of all men employed on the Project.

45.3 All Work shall be done by workmen skilled in their various trades.

45.4 There shall be no discrimination in the selection of workers for employment on the project in respect of race, religious views or political affiliation, and the office of the Canada Manpower will be used in the recruitment of workers wherever practicable.

45.5 The Contractor shall pay fair wages and shall pay rates of wages and allowances to the various classes of labour not less favourable than those prevailing in the area where the Work is being performed.

GC 46 PROVINCIAL PREFERENCE POLICY

46.1 Preference will be given to Newfoundland and Labrador Contractors and Subcontractors and to products manufactured, processed or supplied in Newfoundland and Labrador, in accordance with the Provincial Preference Act, associated regulations and guidelines.

GC 47 TIME OF ESSENCE

47.1 Time is of the essence of the Contract.

1. GC17 INDEMNIFICATION

(a) Except as provided in (b) the Contractor shall be liable for, and shall indemnify and hold harmless the Owner against all claims, demands, losses, costs, damages, actions, suits or proceedings, whatsoever arising under any statute or Common Law:

(i) in respect of personal injury to or the death of any person whomsoever arising out of, or in the course of, or caused by the carrying out of the Work; and

(ii) in respect of any injury or damage whatsoever to any property, real or personal or any chattel real, insofar as such injury or damage arises out of, or in the course of, or by reason of the carrying out of the Work.

(b) The Contractor shall not be liable under (a) if the injury, death, loss or damage is due to any act or neglect of the Owner.

2. GC22 TAXES AND DUTIES

Add to Clause 22.1, the following:

CONTRACTORS ARE ADVISED THAT GOVERNMENT IS NOT EXEMPT FROM THE HARMONIZED SALES TAX (H.S.T.). THE LUMP SUM PRICE QUOTED BY THE CONTRACTOR ON THE TENDER FORM SHOULD INCLUDE THE HST. THE DEPT. OF TRANSPORTATION & WORKS, WILL PAY THE HST TO THE CONTRACTOR WITH EACH REGULAR PROGRESS BILLING.

3. GC23 LAWS, NOTICES, PERMITS AND FEES

Add the following to Clause 23.1

The Department is not required by law to obtain any permit from any municipality in this Province related to the Work. As such, the Contractor is not to carry the cost of a municipal permit related to the conduct of the Work as part of the Contractor's tender price related to the same. If any such permit is found by the Department to be required as it deems fit, the payment for such to the municipality concerned will either be directly by the Department as Owner, or alternately by the Contractor on behalf of the Owner. If payment of any such permit is by the Contractor on behalf of the Owner, the Department will issue a change order to allow for its payment. Nothing in this S.G.C. relieves the Contractor of its obligation to make such filings and to submit such documents and notices with respect to the Work on behalf of the Owner as are normally required by the municipality to facilitate its conduct. Further the Contractor is to advise the Department of any request by a municipality that the Contractor pay for and obtain a permit related to the conduct of the Work. The Department and the Contractor will jointly deal with any such requests in the manner provide for in this S.G.C. All other permits are remaining the responsibility of the contractor.

4. GC 25 WORKPLACE HEALTH, SAFETY AND COMPENSATION COMMISSION

25.3 Non incorporated companies i.e.: partnerships, sole proprietorships, and independent operators must provide coverage for any employees and personal coverage for the principal(s).

5. INSURANCE

Contractors are advised that General Conditions #26 LIABILITY INSURANCE and #27 PROPERTY INSURANCE are revised as follows:

GC 26 LIABILITY INSURANCE

26.1 Commercial General Liability Insurance

(a) Without restricting the generality of GC 17 - Indemnification, the Contractor shall provide and maintain, either by way of a separate policy or by an endorsement to his existing policy, Commercial Liability Insurance acceptable to the Owner and subject to limits set out in detail in the Certificate of Insurance inclusive per occurrence for bodily injury, death, and damage to property including loss of use thereof.

(b) This insurance shall include as an additional insured Her Majesty the Queen in Right of Newfoundland and the Occupant/Operator of the property. The Contractor shall not commence any work until he obtains, at his expense, all required insurances as specified in the General Conditions and the Supplementary General Conditions. Such insurance must have the approval of the Engineer/Architect and be to the limits, form and amounts specified. The Contractor will not permit any Subcontractor to commence work on this Project until the same insurance requirements have been compiled with by the Subcontractor.

(c) The insurance shall also include as Unnamed Insureds the architectural and engineering consultants of the Owner with respect to work performed by the Contractor, but excluding professional liabilities associated with such architectural and engineering consultants.

(d) The Commercial General Liability Insurance will not be limited to, but shall include coverage for:

1) premises and operations liability
2) products or complete operations
8) personal injury liability
9) liability with respect to

Liability
3) blanket contractual liability
4) broad form property damage
5) cross liability
6) elevator and hoist liability
7) contingent employer's liability
non-owned licensed vehicles
10) shoring, blasting, excavating, underpinning, demolition, pile driving and caisson work, work below ground service, tunnelling and grading, as applicable only.

26.2 Automobile Liability Insurance

The Contractor shall provide and maintain liability insurance in respect of (i) owned licensed vehicles and (ii) leased vehicles, subject to limits set out in the Supplementary General Conditions inclusive.

26.3 Aircraft and Watercraft Liability Insurance

The Contractor shall provide and maintain liability insurance with respect to owned and non-owned aircraft and watercraft, as may be applicable, subject to limits set out in the Supplementary General Conditions inclusive. Such insurance shall be in the names of the Contractor, Her Majesty the Queen in Right of Newfoundland, the Owner and the Engineer/Architect as defined in 26.1(b) and (c) where they have an insurable interest in the use and operation of such aircraft and watercraft.

26.4 Completed operations shall be maintained continuously until twelve (12) months after the date the Engineer/Architect issues a Certificate of Substantial Performance.

26.5 All insurance policies shall contain an endorsement requiring notification of Her Majesty and the Named Insured, in writing, thirty (30) days prior to cancellation of any policy or material change, except in the event of non-payment where policy conditions dealing with termination will apply.

GC 27 PROPERTY INSURANCE

27.1 The Contractor shall provide and maintain property insurance, acceptable to Her Majesty the Queen in the right of Newfoundland, insuring the full value of the Work in the amount of the contract price and the full value as stated of products for incorporation into the work. The insurance shall include as additional insured Her Majesty the Queen in Right of Newfoundland. This insurance requirement shall not apply to public schools.

27.2 Such coverage shall be provided for by **either** Broad Form Builders' Risks Policy or an Installation Floater **or** Piers, Wharves, and Docks Rider.

27.3 The policies shall insure on a Broad Form basis direct loss or damage subject to any exclusions specified in the Supplementary General Condition. Such coverage shall apply to:

(a) all products, labour, and supplies of any nature whatsoever, the property of the Insureds or of others for which the Insureds may have assumed responsibility, to be used in or pertaining to the site preparations, demolitions of existing structures, erections and/or fabrication and/or reconstruction and/or repair of the insured project, while on the site or in transit, subject to the exclusion of the property specified.

(b) the installation, testing and any subsequent use of machinery and equipment including boilers, pressure vessels or vessels under vacuum.

(c) damage to the Work caused by an accident to and/or the explosion of any boiler(s) or pressure vessel(s) forming part of the work.

Such coverage shall exclude construction machinery, equipment, temporary structural and other temporary facilities, tools, and supplies used in the construction of the work and which are not expendable under the Contract.

27.4 Policies provided shall contain an endorsement requiring notification of Her Majesty and the Named Insured, in writing, thirty (30) days prior to cancellation of any policy or material change of coverage except in the event of non-payment where policy conditions dealing with termination will apply.

27.5 All such insurance shall be maintained continuously until the date the Engineer/Architect issues a Certificate of Substantial Performance. All such insurance shall provide for the Owner to take occupancy of the work or any part thereof during the term of the insurance. Any increase in the cost of this insurance arising out of such occupancy shall be at the Owner's expense.

27.6 The policies shall provide that in the event of a loss, payment for damage to the Work shall be made to the Owner and the Contractor as their respective interests may appear. The Contractor shall act on behalf of the Owner and himself for the purpose of adjusting the amount of such loss with the Insurers. On the determination of the extent of the loss, the Contractor shall immediately proceed to restore the Work and shall be entitled to receive from the Owner (in addition to any sum due under the Contract) the amount at which the Owner's interest in the restoration work has been appraised, such amount to be paid as the work of restoration proceeds and in accordance with the Engineer/Architect’s certificates for payment. Damage shall not affect the rights and obligations of either party under the Contract except that the Contractor shall be entitled to such reasonable extension of time for Substantial and Total Performance of the work as the Engineer/Architect may decide.

27.7 The Contractor shall be responsible for any deductible amounts under the policies and for providing such additional insurance as may be required to protect the insureds against loss on items excluded from the policies. Contractors are also advised that tender documents contain a certificate of insurance indicating type and limit of liability insurance required for this project. The successful bidder will be required prior to commencement of work, to have the Certificate of Insurance completed by his insurance

company and delivered to Labrador Grenfell Health not later than 30 days after the award of the contract.

6. GC 44 MATERIALS AND SUBSTITUTIONS

Delete GC 44 in its entirety refer to Section 01 61 00 – Common Product Requirements.

7. GC 46 PROVINCIAL PREFERENCE POLICY

Delete GC 46 in its entirety.

8. GC 48 ASSESSMENT AND DAMAGES FOR LATE COMPLETION

Add Article GC 48 - Assessments and Damages for Late Completion to read as follows:

.1 For purposes of this General Condition

(a) The Work shall be deemed to be completed on the date that a Certificate of Substantial Performance referred to in GC21.6 is issued, and

(b) "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 in which, in the opinion of the Engineer/Architect, completion of the Work was delayed for reasons beyond the control of the Contractor.

.2 If the Contractor does not complete the Work by the day fixed for its completion by the Articles of Agreement but completes it thereafter, the contractor shall pay Her Majesty an amount equal to the aggregate of

(a) 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, and

(b) 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.

9. GC49 CERTIFICATE OF RECOGNITION FOR CONTRACTS

49.1 The Contractor shall within 14 days of award of the contract, and prior to commencement of the Work, provide a Letter of Good Standing under the Certificate of Recognition Program from the Newfoundland and Labrador Construction Safety Association.

49.2 At anytime during the term of the Contract, when requested by the Owner, the Contractor shall provide such evidence of compliance by any or all of his or her Subcontractors.

10. ENGINEER/ARCHITECT

The Engineer/Architect for the purposes of administrating this construction Contract shall be the designated representative of Labrador Grenfell Health.

CERTIFICATE OF INSURANCE

DESCRIPTION & LOCATION OF WORK:		
PROJECT NO:	**AWARD DATE:**	**VALUE $:**
INSURER:		
ADDRESS:		
BROKER:		
ADDRESS:		
INSURED NAME OF CONTRACTOR:		
ADDRESS:		

ADDITIONAL INSURED (Excluding Automobile Liability Policy)
√ The OWNER:
√ The Occupant/Operator of the Property:
□ Project Consultants of the OWNER (excluding professional liabilities)

This document certifies that the following policies of insurance and indicated coverage are at present in force subject to the terms, conditions and exclusions as contained therein covering the operations of the insured in connection with the above noted contract made between the named insured and the Owner.

POLICY TYPE	NUMBER	INCEPTION DATE	EXPIRY DATE Y/M/D	LIMITS OF LIABILITY
1.1 COMMERCIAL GENERAL LIABILITY or **1.2 WRAP-UP LIABILITY (Including where indicated)** **A. BLASTING** **B. PILE DRIVING OR CAISSON WORK** **C. REMOVAL OR WEAKENING OF SUPPORT**				$2,000,000 Minimum
2A. BUILDERS' RISK "BROAD FORM" or 2B. INSTALLATION FLOATER "BROAD FORM" or 2C. PIERS, WHARVES, & DOCKS RIDER				100% Contract Value if Exceeds $25,000
3. AUTOMOBILE LIABILITY INSURANCE				$2,000,000 Minimum
4. AIRCRAFT and/or WATER CRAFT LIABILITY INSURANCE	Not required			
5. ENVIRONMENTAL IMPAIRMENT LIABILITY	Not required			
6. SHIPBUILDER'S or SHIP REPAIRER'S LIABILITY INSURANCE	Not required			
7. HULL & MACHINERY INSURANCE, and PROTECTION & INDEMNITY Insurance including 4/4th COLLISION LIABILITY	Not required			

The Insurer agrees to notify the Owner, as defined above, in writing, thirty (30) days prior to cancellation, termination or material change of any policy.

NAME OF INSURER'S OFFICER or AUTHORIZED REPRESENTATIVE :	**SIGNATURE:**	**Date:** **Tele.:** **Email:**

Issuance of this certificate shall not limit or restrict the right of the Owner to request at any time duplicate certified copies of said insurance policies.

PART 1 GENERAL

1.1 SECTION INCLUDES

.1 Title and description of Work.

.2 Contractor use of premises.

.3 Owner occupancy.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

.1 Work of this Contract comprises the re-roofing and all associated work, tie-ins and finishing of various parts of the existing Old Hospital in St. Anthony, NL; and further identified as Old Hospital Re-Roofing Project. The full extent of the work is detailed and specified in the Contract Documents.

.2 The Work under this Contract generally includes, but not necessarily limited to, demolition, renovations, and new construction as follows and as detailed and specified in the Contract Documents:

- .1 Work Locations and Completion Priorities (in order):
  - .1 Areas of roofing as identified on drawings.
- .2 Demolition, Removal and Disposal:
  - .1 Demolish, Removal from Site and Dispose of, in accordance with the Contract Documents, all existing materials required to carry out the Work and provide a completed Project for the "purposes intended" and covered by the Contract Documents.
  - .2 Existing roofing materials to permit new roofing and tie-in of new construction as indicated and/or as required to carry out the Work;
- .3 Architectural
  - .1 Supply and Installation of all Materials specified, detailed, implied, and/or as indicated in the Contract Documents to carry out the Work required to provide re-roofing and to reinstate fireproofing and finishes in existing spaces to provide a finished project complete and ready for occupancy and the "purpose intended".
  - .2 The Work associated with the tie-ins to the existing building including the roof assemblies, wall assemblies, ceiling assemblies, floor assemblies and existing finishes.
  - .3 Reinstatement of existing and new materials associated with the Work under this Contract and the supply and installation of new materials and finishes shall match adjacent existing materials and finishes.
  - .4 Supply and Installation of new roofing, insulation and air barrier in the locations indicated on the drawings.

.3 Carry out the Work as required under the Contract in accordance with the CAN/CSA Standard Z317.13.12 governing Infection Control during Construction, Renovation, or Maintenance of Health Care Facilities outlined in Section 01 35 00 – Infection Control.

.1 All work associated with Old Hospital Re-Roofing Project is identified as Contraction "Group A" with a Population Risk Group of "4" and a Construction Activity of "Level I/III".

.2 All work associated with John M Gray Centre & Complex is identified as Contraction "Group C" with a Population Risk Group of "3" and a Construction Activity of "Level III/IV".

.3 Any Areas not identified in these documents will be assessed prior to Construction and the Construction Activity Class will be provided.

.4 All control measures must be provided and maintained in accordance with this Infection Control Construction Permit designation.

.5 Access to the Construction area is limited and the Contractor shall coordinate all activities with the Hospital Representatives including, but not necessarily limited to:

.1 Workers traffic to and from the Work Area;

.2 Demolition and removals for the Work Area;

.3 Delivery of goods and materials to the Work Area;

.4 Noise levels;

.5 Vibrations to adjacent areas;

.6 Shut down of building services;

.7 Access to the Building during and after normal working hours;

.8 Attendance at Coordination and Safety Meetings requested by the Owner including one (1) Seminar on working under the requirements and restrictions of CAN/CSA Standard Z317.13.12.

.4 Site Safety, Hoarding and Infection/Dust Control

.1 Contractor is advised to ensure all trades are familiar with all Division 1 Specification Sections to ensure that all Work on the Site is in compliance with the requirements of these sections.

.2 Site Safety will be enforced in accordance with Division 1.

.3 Hoarding is required for Public and Worker Safety in accordance with Division 1 and as may be specified and/or detailed elsewhere in the Contract Documents.

.4 Infection and Dust Control measures shall be enforced as required to meet the intent of the Division 1 Sections and all standards.

1.3 CONTRACTOR USE OF PREMISES

.1 Contractor has restricted use of site and other parts of the facility, and unrestricted use of the area under Renovation.

.2 Coordinate use of premises under direction of Owner's Representative in cooperation with the Owner.

.3 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.

.4 Remove or alter existing work to prevent injury or damage to portions of existing work which remain.

.5 Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as directed by Engineer/Architect.

.6 Refer to Section 01 14 00 – Work Restrictions for information regarding the lay-down areas.

.7 Contractor is advised that access to the loading dock at the rear of the hospital is to be maintained at all times for the delivery of freight.

.8 Contractor is to provide hoarding as per the Specifications around the work site.

1.4 OWNER OCCUPANCY

.1 Owner will occupy premises during entire construction period for execution of normal operations.

.2 Cooperate with Owner in scheduling operations to minimize conflict and to facilitate Owner usage.

1.5 ON-SITE DOCUMENTS

.1 Maintain at job site documents as indicated in Section 01 31 00 – Project Management and Coordination.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

.1 Connecting to existing services.

.2 Special scheduling requirements.

1.2 RELATED SECTIONS

.1 Section 01 32 00 – Construct Progress Documentation.

.2 Section 01 56 00 - Temporary Barriers and Enclosures.

1.3 EXISTING SERVICES

.1 Provide for pedestrian and vehicular traffic.

1.4 SCHEDULE OF WORK

.1 Schedule Work in coordination with Owner.

.2 Complete Work in one area before starting Work in another area.

.3 Prepare Work Schedules and submit to the Owner for approval.

.4 Schedule Work between the hours of 8:00AM and 6:00PM daily.

.5 Work outside the hours indicated above may be permitted by the Owner upon a request being submitted 10 days prior to the proposed Work.

1.5 USE OF AND ACCESS TO SITE

.1 The Contractor has restricted access to the Site.

.2 The Contractor shall maintain security and separation barriers around the Work areas.

.3 Parking on the Site will be restricted by the Owner. Coordinate parking with the Owner.

.4 Owner will designate construction lay down and storage space.

.5 The Contractor shall insure that all barriers are in compliance with Occupational Health and Safety, Infection Control and Security requirements specified in other Sections of the Contract Documents.

1.6 RESTRICTIONS

.1 Coordinate interior Work with Owner and schedule Work to reduce interruptions to a minimum.

.2 Ensure ventilation systems are shut down while working in the general area or up wind of the system.

.3 Ensure the Owner is advised to close windows in the general work area and those windows that may be impacted by construction if winds are above 24 kph.

1.7 HOARDING

.1 Provide hoarding in accordance with Section 01 56 00 – Temporary Barriers and Enclosures and as may be specified and/or detailed elsewhere in the Contract Documents as necessary for public and staff safety.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

.1 Inspecting and testing by inspecting firms or testing laboratories designated by Engineer/Architect

1.2 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

.1 Particular requirements for inspection and testing to be carried out by testing laboratory designated by Engineer/Architect are specified under various sections.

1.3 APPOINTMENT AND PAYMENT

.1 Engineer/Architect will appoint and pay for services of testing laboratory except as follows:

.1 Inspection and testing required by laws, ordinances, rules, regulations or orders of public authorities.

.2 Inspection and testing performed exclusively for Contractor's convenience.

.3 Testing, adjustment and balancing of conveying systems, mechanical and electrical equipment and systems.

.4 Mill tests and certificates of compliance.

.5 Tests specified to be carried out by Contractor under the supervision of Engineer/Architect.

.6 Additional tests specified in the following paragraph.

.2 Where tests or inspections by designated testing laboratory reveal Work not in accordance with contract requirements, pay costs for additional tests or inspections as required by Engineer/Architect to verify acceptability of corrected work.

1.4 CONTRACTOR'S RESPONSIBILITIES

.1 Provide labour, equipment and facilities to:

.1 Provide access to Work to be inspected and tested.

.2 Facilitate inspections and tests.

.3 Make good Work disturbed by inspection and test.

.4 Provide storage on site for laboratory's exclusive use to store equipment and cure test samples.

.2 Notify Engineer/Architect sufficiently in advance of operations to allow for assignment of laboratory personnel and scheduling of test.

.3 Where materials are specified to be tested, deliver representative samples in required quantity to testing laboratory.

.4 Pay costs for uncovering and making good Work that is covered before required inspection or testing is completed and approved by Engineer/Architect.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

.1 Coordination work with other contractors and subcontractors under administration of Engineer/Architect.

.2 Scheduled project meetings.

1.2 RELATED SECTIONS

.1 Section 01 11 00 - Summary of Work.

.2 Section 01 91 13 – General Commissioning (Cx) Requirements.

1.3 DESCRIPTION

.1 Coordination of progress schedules, submittals, use of site, temporary utilities, construction facilities, and construction Work, with progress of Work of other contractors and subcontractors under instructions of Engineer/Architect.

1.4 PROJECT MEETINGS

.1 Project meetings to be held at times and locations as determined by Engineer/Architect.

.2 Engineer/Architect will arrange project meetings and record and distribute minutes.

1.5 CONSTRUCTION ORGANIZATION AND START-UP

.1 Within 10 days after award of Contract, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.

.2 Establish time and location of meetings and notify parties concerned minimum 5 days before meeting.

.3 Agenda to include following:

.1 Appointment of official representative of participants in Work.

.2 Schedule of Work, progress scheduling in accordance with Section 01 32 00 - Construction Progress Documentation.

.3 Schedule of submission of shop drawings, samples, colour chips in accordance with Section 01 33 00 - Submittal Procedures.

.4 Requirements for temporary facilities, site sign, offices, storage sheds, utilities, fences in accordance with Section 01 51 00 - Temporary Utilities.

.5 Delivery schedule of specified equipment in accordance with Section 01 32 00 - Construction Progress Documentation.

.6 Site security in accordance with Section 01 52 00 - Construction Facilities.

.7 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, and administrative requirements.

.8 Record drawings in accordance with Section 01 78 00 - Closeout Submittals.

.9 Maintenance manuals in accordance with Section 01 78 00 - Closeout Submittals.

.10 Take-over procedures, acceptance, and warranties in accordance with Section 01 77 00 - Closeout Procedures and 01 78 00 - Closeout Submittals.

.11 Monthly progress claims, administrative procedures, photographs, and holdbacks.

.12 Appointment of inspection and testing agencies or firms in accordance with Section 01 45 00 - Quality Control.

.13 Insurances and transcript of policies.

.4 Comply with Engineer/Architect's allocation of mobilization areas of site; for field offices and sheds, for access, traffic, and parking facilities.

.5 During construction coordinate use of site and facilities through Engineer/Architect's procedures for intra-project communications: Submittals, reports and records, schedules, coordination of drawings, recommendations, and resolution of ambiguities and conflicts.

.6 Comply with instructions of Engineer/Architect for use of temporary utilities and construction facilities.

1.6 ON-SITE DOCUMENTS

.1 Maintain at job site, one copy each of the following:

.1 Contract drawings.

.2 Specifications.

.3 Addenda.

.4 Reviewed shop drawings.

.5 List of outstanding shop drawings.

.6 Change orders.

.7 Other modifications to Contract.

.8 Field test reports.

.9 Copy of approved Work schedule.

.10 Health and Safety Plan and other Safety related documents.

.11 Manufacturers' installation and application instructions.

.12 Labour conditions and wage schedules.

.13 Other documents as specified.

1.7 SCHEDULES

.1 Submit preliminary construction progress schedule in accordance with Section 01 32 00 - Construction Progress Documents to Engineer/Architect coordinated with

Engineer/Architect's project schedule. Schedule to show anticipated progress stages and final completion of work within time period required by contract documents.

.2 After review, revise and resubmit schedule to comply with project schedule requirements.

.3 During progress of Work revise and resubmit at project progress meetings or as directed by Engineer/Architect.

1.8 SUBMITTALS

.1 Make submittal to Engineer/Architect for review.

.2 Submit preliminary shop drawings, product data and samples in accordance with Section 01 33 00 – Submittal Procedures for review for compliance with Contract Documents; for field dimensions and clearances, for relation to available space, and for relation to Work of other contracts. After review, revise and resubmit for transmittal to Engineer/Architect.

.3 Submit requests for payment for review to Engineer/Architect.

.4 Submit requests for interpretation of Contract Documents, and obtain instructions through Engineer/Architect.

.5 Process change orders through Engineer/Architect.

.6 Deliver closeout submittals for review by Engineer/Architect.

1.9 COORDINATION DRAWINGS

.1 Provide information required by Engineer/Architect for preparation of coordination drawings.

.2 Review and approve revised drawings for submittal to Engineer/Architect.

.3 Engineer/Architect may furnish additional drawings for clarification. These additional drawings have same meaning and intent as if they were included with plans referred to in contract documents.

1.10 CLOSEOUT PROCEDURES

.1 Notify Engineer/Architect when Work is considered ready for Substantial Performance.

.2 Accompany Engineer/Architect on preliminary inspection to determine items listed for completion or correction.

.3 Comply with Engineer/Architect's instructions for correction of items of Work listed in executed certificate of Substantial Performance and for access to Owner-occupied areas.

.4 Notify Engineer/Architect of instructions of items of Work determined in Engineer/Architect's final inspection.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION

PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 01 77 00 - Closeout Procedures.

1.2 SCHEDULES REQUIRED

.1 Submit schedules as follows:

- .1 Construction Progress Schedule.
- .2 Submittal Schedule for Shop Drawings and Product Data.
- .3 Submittal Schedule for Samples.
- .4 Product Delivery Schedule.
- .5 Cash Allowance Schedule for purchasing Products.
- .6 Shutdown or closure activity.

1.3 FORMAT

.1 Prepare schedule in form of a horizontal bar chart.

.2 Provide a separate bar for each major item of work, trade or operation.

.3 Split horizontally for projected and actual performance.

.4 Provide horizontal time scale identifying first work day of each week.

.5 Format for listings: chronological order of start of each item of work.

.6 Identification of listings: By Systems description.

1.4 SUBMISSION

.1 Submit initial format of schedules within 15 working days after award of Contract.

.2 Submit schedules in electronic format, forward on disc as PDF files.

.3 Submit one opaque reproduction, plus 2 copies to be retained by Engineer/Architect.

.4 Engineer/Architect will review schedule and return review copy within 10 days after receipt.

.5 Resubmit finalized schedule within 7 days after return of review copy.

.6 Submit revised progress schedule with each application for payment.

.7 Distribute copies of revised schedule to:

- .1 Job site office.
- .2 Subcontractors.

.3 Other concerned parties.

.8 Instruct recipients to report to Contractor within 10 days, any problems anticipated by timetable shown in schedule.

1.5 CRITICAL PATH SCHEDULING

.1 Include complete sequence of construction activities.

.2 Include dates for commencement and completion of each major element of construction as follows.

.1 Demolition, include when each roof areas will be torn up.
.2 Structural framing.
.3 Roofing, include specific information for different roof areas
.4 Special Subcontractor Work.
.5 Finishes.

.3 Show projected percentage of completion of each item as of first day of month.

.4 Indicate progress of each activity to date of submission schedule.

.5 Show changes occurring since previous submission of schedule:

.1 Major changes in scope.
.2 Activities modified since previous submission.
.3 Revised projections of progress and completion.
.4 Other identifiable changes.

.6 Provide a narrative report to define:

.1 Problem areas, anticipated delays, and impact on schedule.
.2 Corrective action recommended and its effect.
.3 Effect of changes on schedules of other prime contractors.

1.6 SUBMITTALS SCHEDULE

.1 Include schedule for submitting shop drawings, product data, and samples.

.2 Indicate dates for submitting, review time, resubmission time, last date for meeting fabrication schedule.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION

PART 1 GENERAL

1.1 SUMMARY

.1 Types of items described in this Section:

.1 Requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

.2 Types of items you will not find described in this Section:

.1 Requirements for submitting applications for payment and the schedule of values.

.2 Requirements for submitting schedules and reports, including contractor's construction schedule.

.3 Requirements for submitting operation and maintenance manuals.

.4 Requirements for submitting record drawings, record specifications, and record product data.

.5 Requirements for submitting video recordings of demonstration of equipment and training of owner's personnel.

1.2 DEFINITIONS

.1 Action Submittals: Written and graphic information and physical samples that require Owner's Representative's responsive action. Action submittals are those submittals indicated in individual Specification Sections as *action submittals.*

.2 Informational Submittals: Written and graphic information and physical samples that do not require Owner's Representative's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as *informational submittals.*

.3 Portable Document Format (PDF): a digital file format licensed by Adobe and other software developers and used to display and print information in a consistent format regardless of computer operating system, monitor, or printer.

.4 Days: Days of the week, excluding Saturday, Sunday, and any statutory holidays.

1.3 ACTION SUBMITTALS

.1 Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Owner's Representative and additional time for handling and reviewing submittals required by those corrections.

.1 Coordinate submittal schedule with list of subcontracts, and Contractor's construction schedule.

.2 Submit Submittal Schedule concurrently with the first complete submittal of Contractor's construction schedule.

.3 Format: Arrange the following information in a tabular format:

.1 Scheduled date for first submittal.

.2 Specification Section number and title.

.3 Submittal category: Action; informational.

.4 Name of subcontractor.

.5 Description of the Work covered.

.6 Scheduled date for Owner's Representative's final release.

.7 Scheduled date of fabrication.

1.4 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

.1 Digital Data Files: Electronic CAD files of the Contract Drawings are available upon request from the Owner's Representative for the Contractor's use in preparing submittals.

.1 Available files:

.1 Floor plans.

.2 Reflected ceiling plans.

.2 Owner's Representative makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.

.3 Digital Format: Files will be provided in the format generated by the drawing software used to produce the drawing.

.2 Coordination: Coordinate preparation and processing of submittals with the performance of the construction activities.

.1 Coordinate each submittal to accommodate time required for fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.

.2 Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.

.3 Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.

.4 Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

.5 Owner's Representative reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

.3 Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Owner's Representative's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

.1 Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Owner's Representative will advise Contractor when a submittal being processed must be delayed for coordination.

.2 Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.

.3 Resubmittal Review: Allow 15 days for review of each resubmittal.

.4 Electronic Submittals: Place a permanent label or title block on each submittal item for identification.

.1 Indicate name of firm or entity that prepared each submittal on label or title block.

.2 Include the following information for processing and recording action taken:

.1 Project name.

.2 Date.

.3 Name of Contractor.

.4 Name of subcontractor.

.5 Name of supplier.

.6 Submittal number or other unique identifier, including revision identifier.

.1 Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 061000.01.A).

.7 Number and title of appropriate Specification Section.

.8 Drawing number and detail references, as appropriate.

.9 Location(s) where product is to be installed, as appropriate.

.10 Other necessary identification.

.5 Transmittal for Submittals: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Owner's Representative may discard submittals received from sources other than Contractor.

.1 Transmittal Form for Submittals: Provide locations on form for the following information:

.1 Project name.

.2 Date.

.3 Name of Contractor.

.4 Names of subcontractor, manufacturer, and supplier.

.5 Category and type of submittal: action or informational as indicated in the applicable Specification Section.

.6 Specification Section number and title.

.7 Specification paragraph number or drawing designation and generic name for each of multiple items.

.8 Drawing number and detail references, as appropriate.

.9 Indication of full or partial submittal.

.10 Transmittal number, if applicable

.11 Submittal and transmittal distribution record.

.12 Remarks.

.13 Signature of transmitter.

.6 Options: Identify options requiring selection by Owner's Representative.

.7 Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Owner's Representative on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.

.8 Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

.1 Note date and content of previous submittal.

.2 Note date and content of revision in label or title block and clearly indicate extent of revision.

.3 Resubmit submittals until they are marked with approval notation from Owner's Representative's action stamp.

.9 Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities.

.10 Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Owner's Representative's action stamp.

PART 2 PRODUCTS

2.1 SUBMITTAL PROCEDURES

.1 ELECTRONIC SUBMITTAL PROCEDURES

.1 Summary:

.1 Submit all documents required by the Contract and Specification Sections to the Owner’s Representative, in PDF format unless

noted otherwise, using web-based electronic document management software (EDMS) called Submittal Exchange, www.submittalexchange.com; attention Bob Caylor; email bob.caylor@texturacorp.com; tel 800.714.0024 x2221
Documents include but not limited to the following:

.1 Shop drawings.

.2 Product data.

.3 As-built documents.

.4 Schedules.

.5 Requests for information (RFIs).

.6 Requests for extras (RCOs).

.7 Requests for payment.

.8 Contractor's photographs.

.9 Test reports.

.10 Logs.

.2 Owner reserves the right not to process any documents sent by other means; and reserves the right to withhold payments to the contractor of any kind should the Contractor fail to provide and use the EDMS software.

.3 Owner reserves the right to issue documents, including such items as Supplementary Information (SIs), drawings, and specifications, and respond to all documents submitted by the Contractor, using mail, email, or the referenced EDMS software.

.4 Provide five sets of CDs of all documents saved in EDMS software as part of the close-out submission.

.2 Contracting, Costs, and Administrative Rights

.1 Contract and pay costs of EDMS software for use by the Owner, the Contractor, the Consultant Team, and other project team members for the duration of the Work, plus 3 months beyond final completion.

.2 The Owner and the Owner's project team members will have no contractual relationship with the EDMS supplier.

.3 Pay for one-time only training by EDMS supplier for Owner, Consultant, and Owner's other project team members.

.4 Pay for training by EDMS supplier for Contractor and Contractor's project team members as required.

.5 Pay for use of EDMS software and initial training in full no later than 10 days after Notice of Award is given and provide payment receipt to Owner's Representative immediately thereafter.

.2 General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.

.1 Action Submittals: Submit electronic copy of each submittal unless otherwise indicated.

.2 Informational Submittals: Submit electronic copy of each submittal unless otherwise indicated. Owner's Representative will not return copies.

.1 Return of Action Submittals: Owner's Representative will return a PDF of a reviewed Submittal via online Construction Contract Administration service. No paper copies will be returned.

.3 Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

.1 If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.

.2 Mark each copy of each submittal to show which products and options are applicable.

.3 Include the following information, as applicable:

.1 Manufacturer's catalogue cuts.

.2 Manufacturer's product specifications.

.3 Standard colour charts.

.4 Statement of compliance with specified referenced standards.

.5 Testing by recognized testing agency.

.6 Application of testing agency labels and seals.

.7 Notation of coordination requirements.

.8 Availability and delivery time information.

.4 For equipment, include the following in addition to the above, as applicable:

.1 Wiring diagrams showing factory-installed wiring.

.2 Printed performance curves.

.3 Operational range diagrams.

.4 Clearances required to other construction, if not indicated on accompanying Shop Drawings.

.5 Submit Product Data before or concurrent with Samples.

.4 Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

.1 Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

.1 Identification of products.

.2 Schedules.

.3 Compliance with specified standards.

.4 Notation of coordination requirements.

.5 Notation of dimensions established by field measurement.

.6 Relationship and attachment to adjoining construction clearly indicated.

.7 Seal and signature of professional engineer if specified.

.2 Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets no larger than 11 x 17 in size.

.5 Samples: Submit Samples for review of kind, colour, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.

.1 Transmit Samples that contain multiple, related components such as accessories together in one submittal package.

.2 Identification: Attach label on unexposed side of Samples that includes the following:

.1 Generic description of Sample.

.2 Product name and name of manufacturer.

.3 Sample source.

.4 Number and title of applicable Specification Section.

.5 Specification paragraph number and generic name of each item.

.3 Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

.1 Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.

.2 Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.

.4 Samples for Initial Selection: Submit manufacturer's colour charts consisting of units or sections of units showing the full range of colours, textures, and patterns available.

.1 Number of Samples: Submit one full set(s) of available choices where colour, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Owner's Representative will return submittal with options selected.

.5 Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of colour and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or

fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing colour, texture, and pattern; colour range sets; and components used for independent testing and inspection.

.1 Number of Samples: Submit two sets of Samples. Owner's Representative will retain one Sample set; remainder will be returned.

.2 Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.

.3 If variation in colour, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least two sets of paired units that show approximate limits of variations.

.6 Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:

.1 Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.

.2 Manufacturer and product name, and model number if applicable.

.3 Number and name of room or space.

.4 Location within room or space.

.7 Coordination Drawing Submittals: Comply with requirements specified in Division 01 Section *Project Management and Coordination.*

.8 Contractor's Construction Schedule: Comply with requirements specified in Division 01 Section *Construction Progress Documentation.*

.9 Application for Payment and Schedule of Values: Comply with requirements specified in Division 01 Section *Payment Procedures.*

.10 Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Division 01 Section *Quality Requirements.*

.11 Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Division 01 Section *Closeout Procedures.*

.12 Maintenance Data: Comply with requirements specified in Division 01 Section *Operation and Maintenance Data.*

.13 LEED and other Environmental Submittals: Comply with requirements specified in Division 01 sustainable design requirements Section.

.14 Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of design consultants and owners, and other information specified.

.15 Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record. Include names of firms and personnel certified.

.16 Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

.17 Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

.18 Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

.19 Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

.20 Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

.21 Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

.22 Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:

.1 Name of evaluation organization.
.2 Date of evaluation.
.3 Time period when report is in effect.
.4 Product and manufacturers' names.
.5 Description of product.
.6 Test procedures and results.
.7 Limitations of use.

.23 Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.

.24 Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

.25 Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

.26 Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

2.2 LEED SUBMITTALS

.1 Submit indicate LEED submittals on LEED designated projects only.

.1 A LEED designated project will have Division 01 sections describing LEED requirements.

2.3 DELEGATED-DESIGN SERVICES

.1 Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

.1 Submittals shall bear the seal and signature of the Contractor's design professional licensed in the jurisdiction of the project.

.2 If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Owner's Representative.

PART 3 EXECUTION

3.1 CONTRACTOR'S REVIEW

.1 Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Owner's Representative.

.2 Project Closeout and Maintenance Material Submittals: See requirements in Division 01 Section *Closeout Procedures.*

.3 Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 OWNER'S REPRESENTATIVE'S ACTION

.1 Action Submittals: Owner's Representative will review each submittal, make marks to indicate corrections or revisions required, and return it. Owner's Representative will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.

.2 Informational Submittals: Owner's Representative will review each submittal and will not return it, or will return it if it does not comply with requirements.

.3 Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Owner's Representative.

.4 Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.

.5 Submittals not required by the Contract Documents may be returned by the Owner's Representative without action.

END OF SECTION

PART 1 INTRODUCTION AND RATIONALE

1.1 REFERENCE STANDARDS

.1 CAN/CSA Standard Z317.13.16 governing Infection Control during Construction, Renovation or Maintenance of Health Care Facilities.

1.2 RISKS

.1 Potential health risks for patients, staff and visitors may develop if dust particles contaminated with bacteria and fungi are dispersed during hospital renovation projects.

.2 The absence of early planning that integrates infection control may lead to nosocomial (hospital-acquired) infections, allergens, and workplace hazards.

.3 Several documented cases have reported specific incidents of construction related nosocomial infections caused by either Aspergillus or untreated Legionella species. The mortality rate is high for both nosocomial aspergillosis (65/100%) and Legionnaires disease (as high as 80%) in the immunosuppressed population if untreated.

.4 Clearly, the onset of hospital construction or renovation projects can pose a threat to patients and may also be a potential health risk to staff and visitors.

.5 Emphasis must be placed on prevention since nosocomial aspergillosis, in particular, is difficult to diagnose and treat. It is imperative that appropriate infection control and preventive measures are employed both before and during hospital construction or renovation projects to reduce the health risks of these activities. Clear lines of communication among all personnel involved must be established in the planning and construction phase of the project to ensure all players are kept informed.

PART 2 PREVENTION MANAGEMENT AND CONTROL PLAN

2.1 GENERAL

.1 A proactive approach is required to decrease the occurrence of construction-related nosocomial infections. Previous experience has indicated that the key to eliminating Aspergillus infections is first, to contain the dust generated during the construction activity, and secondly, to prevent dust infiltration into adjacent patient care areas. Likewise, special attention must be given to the hospital's plumbing system when disruptions occur during construction or renovation projects. Attention to infection prevention measures and ensuring appropriate personnel are involved is necessary to protect susceptible patients. A multidisciplinary team involving the Owner, Contractor and Consultant will be established to ensure that the preventive measures are effective. The following section with identifying the preventive measures required to decrease the risk of construction-related nosocomial infections.

PART 3 INFECTION CONTROL CONSTRUCTION PERMIT

.1 To assist the multidisplinary team involved with the renovation activities to identify the patient population at risk and the preventive measures that must be initiated, an Infection Control Construction Permit has been developed. The contractor will not be permitted to commence construction in any area of the building until the construction permit for the applicable area is completed and approved by the Engineer.

.2 The Infection Control Construction Permit describes four types of construction activities that may occur within a health care facility. In addition, the permit list four risk groups ranging from lowest to highest risk. The project planning committee has assigned the Infection Control Risk Group based on their close proximity or exposure to the construction zone. By using the Construction Activity Infection Control Matrix, appropriate infection preventive measures are identified by matching the construction activity with the risk group. The drawings outline the risk group number assigned to each area of construction.

.3 The Infection Control Construction Permit lists the preventive measures under two categories: construction/renovation activities and plumbing activities. The preventive measures are then further subdivided into categories that represent the personnel involved with the project.

.4 Instructions on How to Complete:

.1 The Infection Control Construction Permit must be completed during the planning phase of the construction/renovation project by the contractor and the multidisciplinary planning committee. An **Infection Control Practitioner (ICP)** will be assigned by the Owner and will be involved in each phase of the project to ensure that the appropriate prevention measures are initiated and followed. The type of "Construction Activity" is first identified by selecting the level of activity that best describes the project that is being planned for that area of the building. The types of construction activity are described in Part A. The second step (Part B) involves identifying the "Population Risk Group" that may be affected by the project because of their physical proximity or exposure to the construction renovation activity. There are four risk groups described in Part B that identify the risk group. The appropriate infection prevention measures are identified by matching the construction activity with the population risk group in Part C.

PART 4 INFECTION CONTROL PREVENTIVE MEASURES

.1 The contractor must ensure the following Infection Control Preventive Measures are initiated before the renovations are started.

.2 The Infection Control Preventive Measures are categorized into three areas and are listed in detail in the following subsections.

A) Preconstruction Prevention Measures

.1 Consult ICP and CAN/CSA Standard Z317.13.16 to provide information on infection prevention measures.

.2 Outline methods for dust containment and removal of construction debris.

.3 Establish traffic patterns for construction workers that do not go near patient care areas.

.4 Designate an elevator to be used solely by the construction workers.

.5 Clearly outline when the ICP can stop construction projects if breaches in prevention measures arise.

.6 Identify patient population that may be at risk and the prevention measures to ensure their safety.

.7 Identify essential services (i.e. water supply, electricity, ventilation systems) that may be disrupted and temporary measures to accommodate for the disruption.

.8 Review and assess the hospital's ventilation and water supply for any potential infection control problems.

.9 Correct infection control problems prior to starting the construction activity.

.10 Ensure plumbing materials selected are durable and resistant to corrosion and bacterial growth.

.11 Educate and train all personnel involved with the construction or renovation activity on the infection prevention measures.

.12 Plan large projects for the winter when the risk of fungal infections is lower.

B) **Prevention Measures During Construction**

.1 Consult ICP and CAN/CSA Standard Z317.13.16 to provide information on Prevention Measures During Construction.

.2 Patients who are immunosuppressed should be moved to an area away from the construction zone if the air quality cannot be assured during construction. Coordinate this work with the owner.

.3 Use portable HEPA filtered units in rooms of the severely immunocompromised and keep their windows and doors closed.

.4 Create a dust barrier from the floor to the true ceiling and seal edges. Plastic sheeting or Sheetrock are examples of materials that could be used to create dust barriers for short-term and long-term projects respectively.

.5 An impermeable dust barrier with an anteroom may need to be constructed if the project will take consecutive work shifts to complete.

.6 A moist carpet must be placed inside the anteroom and inside the entrance of the construction zone to trap dust. The carpet should be vacuumed daily.

.7 A mat with a sticky surface must be placed in the patient care area, outside the anteroom, to trap dust from the equipment and shoes of personnel leaving the construction zone.

.8 Construction workers must wear protective clothing when working in the construction zone.

.9 Before leaving the construction zone, construction workers must remove the protective clothing and vacuum themselves with a HEPA filtered vacuum to remove dust.

.10 All windows, doors, air intake and exhaust vents must be sealed in areas of the hospital adjacent to buildings that are going to be demolished plus areas housing patients who are most susceptible.

.11 All windows, doors, vents, plumbing penetrations, electrical outlets and any other sources of potential air leak must be sealed in the construction zone.

.12 Air ducts and spaces above ceilings must be vacuumed before starting the construction project it involves these areas.

.13 Consider applying copper-8-quinolinolate formulation to walls, doors, frames, baseboards, exterior surfaces of radiators, vents in the rooms in the construction area and above false ceilings in adjacent areas.

.14 Air in the construction zone must be exhausted directly outside if possible or filtered through a HEPA filter before being recirculated in the hospital.

.15 Open end of exhaust vents must be capped to prevent air, exhausted from the construction zone, from being drawn back into patient care areas or released to outdoor streets around the hospital.

.16 Air pressure within the construction zone must be negative compared to adjacent areas. A fan may be used for this purpose.

.17 Remove debris in the evening when patients are in their rooms and visitors have left. Remove covered containers or moisten and cover with moistened sheets prior to disposing the debris.

.18 If construction is not taking place on ground level then an external chute will need to be erected for removing debris.

.19 Vacuum the construction zone daily or more frequently if needed with HEPA filtered vacuums.

.20 Coordinate transport of clean or sterile supplies and equipment by a route that reduces risk of contamination from the construction site.

.21 Used supplies and equipment must be enclosed in containers when being moved to prevent unnecessary contamination in other areas.

.22 If the water supply has been disrupted, assess for discoloured potable water and culture for Legionella, especially in areas housing immunosuppressed patients.

.23 Report discoloured water to maintenance and ICP.

.24 The ICP shall increase surveillance for Legionella during soil excavation on h hospital grounds or when water supply has been disrupted and then repressurized.

.25 Remove faucet aerators and other obstructing and stagnating features (i.e. long pipes and plumbing dead-ends) if possible.

C) <u>Prevention Measures Post Construction</u>

.1 Consult ICP and CAN/CSA Standard Z317.13.16 to provide information on Prevention Measures Post Construction.

.2 Thoroughly clean the construction zone, including all horizontal surfaces, before the barrier is removed, after the barrier is removed and before patients are readmitted to the area.

.3 Multidisplinary project committee must conduct a final walk through to ensure ventilation system is functioning properly in construction zone and adjacent areas.

.4 Coordinate flushing of water lines prior to being used if they were disrupted.

.5 Before restoring or repressurizing the water system, consider hyperchlorinating stagnant potable water or superheating and flushing all distal sites.

.6 Disinfect unused cooling towers and water supply in unoccupied portions of buildings before being put into use.

.7 Assess hot water temperature to determine that it meets the standards set by the hospital.

.8 Multidisplinary project committee should evaluate the preventive measures and review their effectiveness for any problems and positive outcomes

4.2 INFECTION CONTROL CONSTRUCTION PERMIT

.1 The following is the inspection control construction permit and attachments which will be used on this project:

Infection Control Permit:					
Location of Construction:			Project Start Date:		Estimated Duration:
Project Manager (PM):			Contractor:		Infection Control Practitioner (ICP):
PM's Phone Number:			Contractor's phone number:		ICP's phone number:
Yes	No	Construction Activity (see Part A)	Yes	No	Population Risk Group (see Part B)
		Type A: Inspection, non-invasive activities			Group 1: Lowest Risk
		Type B: Small scale, short duration, minimal dust generating activities			Group 2: Medium Risk
		Type C: Activities that generate moderate to high levels of dust, requires greater than one work shift to complete			Group 3: Medium to High Risk
		Type D: Activities that generate high levels of dust, major demolition and construction activities requiring consecutive work shifts to complete			Group 4: Highest Risk
Comments:					

Note: Refer to floor plan for location of construction.

Infection Control Construction Permit
Part A: Types of Construction Activity

Type A	Inspection and Non-invasive Activities: These include, but are not limited to, activities that require removal of ceiling tiles for visual inspection (limited to 1 tile per 50 square feet), painting(but not sanding), wall covering, electrical trim work, minor plumbing (disrupts water supply to a localized patient care area (e.g. 1 room) for less than 15 minutes), and other maintenance activities which do not generate dust or require cutting of walls or ceilings or access to ceilings other than for visual inspection.
Type B	Small scale, short duration activities which create minimal dust. These include, but are not limited to, activities that require access to chase spaces, cutting of walls or ceilings where dust migration can be controlled for the installation/repairs of minor electrical work, ventilation components, telephone wires or computer cables, and sanding of walls for painting or wall covering to only repair small patches. It also includes plumbing that requires disruption to the water supply of more than one patient care area (e.g. > 2 rooms) for less than 30 minutes.
Type C	Any work which generates a moderate to high level of dust or requires demolition or removal of any fixed building components or assemblies (e.g. counter tops, cupboards, sinks). These include, but are not limited to, activities that require sanding of walls for painting or wall covering, removal of floor coverings, ceiling tiles and casework, new wall construction, minor duct work or electrical work above ceilings, major cabling activities, and any activity which cannot be completed within a single work shift. It also includes plumbing that requires disruption to the water supply of more than one patient care area (e.g. > 2 rooms) for more than 30 minutes but less than 1 hour.
Type D	Major demolition and construction projects. These include, but are not limited to, activities that require heavy demolition or removal of a complete cabling system and new construction which require consecutive work shifts to complete. It also includes plumbing that requires disruption to the water supply of more than one patient care area (e.g. > 2 rooms) for more than 1 hour.

Infection Control Construction Permit
Part B: Population Risks Groups

Group 1 Lowest Risk	Group 2 Medium Risk	Group 3 Medium to High Risk	Group 4 Highest Risk
• Office Areas	• All other patient care areas (e.g. Cardiac Rehab, Ambulatory Care Clinics unless stated in Group 3 or 4) • Outpatient clinics (except for oncology and surgery) • Admission/Discharge units	• Emergency Room • Radiology/MRI • Post Anesthesia Care Unit • Labour and Delivery • Newborn Nurseries • Day Surgery • Renal Patients • Nuclear Medicine • Physiotherapy tank areas • Echocardiography • Pump team • Laboratories (specimens) • General Med/Surg. • Pediatrics • Geriatrics • Long-term care	• All ICU's • All OR's • Sterile Processing Rooms • Oncology units (including outpatients) • Transplant Units (including outpatients) • Dialysis Units • Labour & Delivery Operating Rooms • All Cardiac Catherization & Angiography areas • Cardiovascular/Cardiology patients • Transplant patients • Anesthesia and Pump areas • All Endoscopy areas • Pharmacy Admixture Rooms

Infection Control Construction Permit
Part C: Construction Activity and Population Risk Group Matrix

A copy of the Infection Control Construction Permit must be sent to the Infection Prevention and Control Department.

	Construction Activity			
Population Risk Group	**Type A**	**Type B**	**Type C**	**Type D**
Group 1	I	II	II	III/IV
Group 2	I	II	III	IV
Group 3	I	III	III/IV	IV
Group 4	II	III/IV	III/IV	IV

Infection Control Construction Permit
Part D: Actions for Infection Control Preventive Measures

Class I Date: Initials:	Contractor a)Construction/Renovation Activities • Execute work by methods to minimize raising dust from construction/renovation activities • Immediately replace tiles displaced for visual inspection • Schedule water interruptions during low activity (e.g. evenings if at all possible) b) • Flush water lines prior to reuse • Observe for discoloured water • Ensure water temperature meets the standards set by the health care facility • Ensure gaskets and items made of materials that support the growth of Legionella are not being used • Ensure faucet aerators are not installed or used • Assess for discoloured water	Housekeeping a) Construction/Renovation Activities • Wet mop and vacuum area as needed and when work is completed b) Plumbing Activities • Report discoloured water to maintenance and ICP Infection Control Practitioner a) Construction/Renovation Activities • Educate construction workers on health risks that are involved with the project and rationale for the infection control preventive measures • Ensure preventive measures are being followed b) Plumbing Activities • Assess for discoloured water Medical/Nursing Staff a) Construction/Renovation Activities • Minimize patients exposure to construction/ b) Plumbing Activities • Report discoloured water to maintenance and ICP

Class II Date: Initials:	Contractor a)Construction/Renovation Activities • Provide active means to prevent dust from dispensing into the atmosphere • place dust mat at entrance and exit of work areas • use drop sheets to control dust • control dust by water misting work surfaces while cutting • seal unused doors with duct tape • block off seal air vents in construction/renovation area • disable the ventilation system in the construction/renovation area • contain debris in sealed, covered containers or cover with a moisten sheet before transporting to be disposed • monitor need to change and/or clean filters in construction/renovation area b) • Same as above in Class I • Collection tanks and long pipes that allow water to stagnate should be avoided • Consider hyperchlorinating or superheating stagnant potable water (especially if Legionella is already present in hospital potable water supply)	Housekeeping a) Construction/Renovation Activities • Wet mop and vacuum with a HEPA filtered vacuum as needed and when activity is completed • Wipe work surfaces with a disinfectant b) Plumbing Activities • same as above in Class I Infection Control Practitioner a) Construction/Renovation Activities • Same as above in Class I • Identify high risk patients who may need to be moved away from the construction zone • Designate a traffic pattern for construction workers that does not go near the patients • Consider temporarily moving high risk patients who are in or adjacent to the construction area b) Plumbing Activities • Same as above in Class I • Consider hyperchlorinating or superheating stagnant potable water (especially if Legionella is already present in hospital potable water supply Medical/Nursing Staff a) Construction/Renovation Activities • Same as above in Class I • Identify high risk patients who may need to be temporarily moved away from the construction zone b) Plumbing Activities • Same as above in Class I

Class III Date: Initials:	Contractor a) Construction/Renovation Activities • Same as above in Class I and II • Ensure ICP has been consulted • Ensure windows, doors, intake and exhaust vents are properly sealed with plastic and duct tape within the construction/renovation area • Erect an impermeable dust barrier from ceiling (includes area above false ceilings) to the floor • Maintain negative pressure within construction zone by using portable HEPA equipped air filtration units • Do not remove dust barrier until the project is completed and the area has been cleaned thoroughly • Remove debris as described above and cover transport receptacles or carts • Remove dust barrier carefully to minimize spreading dust and other debris particles associated with the construction project • Ensure ventilation system in functioning properly after construction or renovation projects is completed b) Plumbing Activities c) Same as above in Class I and II d) Flush water lines at construction or renovation site and adjacent patient care areas before patients are readmitted	Housekeeping a) Construction/Renovation Activities • Same as above in Class I and II • Vacuum work area with HEPA filtered vacuums • Wet mop the area and wipe all horizontal areas with disinfectant • Ensure construction zone is thoroughly cleaned when work is completed • Increase frequency of cleaning in areas adjacent to the construction zone while the project is underway b) Plumbing Activities • Same as above in Class I and II Infection Control Practitioner a) Construction/Renovation Activities • Same as above in Class I and II b) Plumbing Activities • Same as above in Class I and II Medical/Nursing Staff a) Construction/Renovation Activities • Same as above in Class I and II • Ensure area is thoroughly cleaned before patients are readmitted to the area b) Plumbing Activities • Same as above in Class I and II

Class IV Date: Initials:	Contractor Construction/Renovation Activities • Same as above in Class I, II & III • Erect an impermeable dust barrier consisting of 2 layers of 6 mil polyethylene that also has an anteroom before starting the construction project • Place a walk-off mat in patient care areas near the construction zone and outside the anteroom to trap dust from the workers' shoes, equipment and debris • Construction workers must enter and leave the construction zone through the anteroom so they can be vacuumed using a HEPA filtered vacuum cleaner before leaving the work site or they could wear cloth or paper coveralls that are removed each time they leave the work site • All personnel entering the construction zone are required to wear shoe covers • The construction workers must change the shoe covers each time they leave the work site • Ensure negative pressure is maintained within the anteroom and construction zone • Vacuum work area with HEPA filter vacuum cleaner daily or more often if needed • Ensure ventilation systems are working properly in adjacent areas • Review ventilation system requirements in the construction area with ICP to ensure system is appropriate and is functioning properly • Review infection control measures with other members of the planning team to evaluate their effectiveness and identify problems at the end of construction project	Housekeeping a) Construction/Renovation Activities • Same as above in Class I, II & III • Vacuum work area with HEPA filter vacuum cleaner daily or more often if needed • Review infection control measures with ICP and other members of the planning team to evaluate their effectiveness and identify problems at the end of construction project b) Plumbing Activities • Same as above in Class I, II & III Infection Control Practitioner a) Construction/Renovation Activities • Same as above in Class I, II & III • Review infection control measures with other members of the planning team to evaluate their effectiveness and identify problems at the end of construction project b) Plumbing Activities • Same as above in Class I, II & III • Hyperchlorinate or super heat stagnant potable water (especially if Legionella is already present in hospital potable water supply) Medical/Nursing Staff a) Construction/Renovation Activities • Same as above in Class I, II & III • Review infection control measures with other members of the planning team to evaluate their effectiveness and identify problems at the end of construction project b) Plumbing Activities • Same as above in Class I, II & III • Considering using another source of potable water for patients who are at greatest risk until hospital potable water has been cleared of signs of Legionella

	b) Plumbing Activities • Same as above in Class I, II & III • Hyperchlorinate or super heat stagnant potable water (especially if Legionella is already present in hospital potable water supply)	after major plumbing installation/repairs

PART 1 GENERAL

1.1 REFERENCES

.1 Canadian Standards Association (CSA)

- .1 CAN/CSA-Z259.1 Body Belts and Saddles for Work Positioning and Travel Restraint.
- .2 CAN/CSA-Z259.10 Full body Harnesses.
- .3 CAN/CSA-Z259.11 Energy Absorbers and Lanyards.
- .4 CAN/CSA-Z259.2.1 Fall Arresters, Vertical Lifelines and Rails.
- .5 FCC No. 301 Standard for Construction Operations.
- .6 CSA Z275.2 Occupational Safety Code for Diving Operations.
- .7 CSA Z275.4 Competency Standard for Divers Operations.
- .8 CSA Z797, Code of Practice for Access Scaffold.

.2 FCC No. 302 Standard for Welding and Cutting.
.3 Transportation of Dangerous Goods Act Regulations.
.4 Newfoundland Occupational Health and Safety Act, Amended
.5 Consolidated Newfoundland and Regulations 1149 WMIS Regulations Under the Occupational Health and Safety Act
.6 Consolidated Newfoundland and Regulations Occupational Health and Safety Regulations under the Occupational Health and Safety Act.
.7 Canada Labour Code, Part 2.
.8 National Building Code of Canada.
.9 Department of Transportation and Works Occupational Health and Safety Manual.

1.2 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.
.2 Section 01 35 43 - Environmental Procedures.
.3 Section 01 41 00 - Regulatory Requirements.

1.3 SUBMITTALS

.1 At least 10 (ten) working days prior to commencing any site work: submit to Owner's Representative copies of:

- .1 A complete Site Specific Health and Safety Plan.
- .2 If work entails blasting, submit the following:
  - .1 Valid Blaster's Certificate and Certificates of Qualification acceptable to the OHS Regulations 5/12 under section 419 identifying the Level of Qualification for the project requirements (Journey Persons Blaster Certificate will still be accepted). An acceptable letter of extension of blasters certificate from the Industrial Training Division of the Provincial Department of Education is required when certificate expires (5 years max.). Certificate numbers and names are required for all blasters proposed for the project.

.2 Temporary Magazine License, when required issued, by Natural Resources Canada.

.3 Explosives Vehicle Certificate, when required, issued by Transport Canada for transport of explosives regulated under the Transportation of Dangerous Good Act.

.4 Blaster resume which clearly states and demonstrates:

.1 Minimum five (5) years of experience in handling, storage and detonation of explosives.

.2 Training at a blaster's school which is acceptable to the provincial government.

.3 If work entails diving, submit the following:

.1 Diver(s) and dive supervisor (s).

.1 Copy of valid Diving Certificate and Supervisor Certificate from the Diving Certification Board of Canada (or equivalent) for the required work on the project. (i.e. Restricted SCUBA Diver, Unrestricted SCUBA Diver, SCUBA Supervisor, Restricted Surface-Supplied Diver, Unrestricted Surface-Supplied Diver, etc. (See www.divercertifcation.com)

.2 Resume which clearly demonstrates years of experience for the specific type (SCUBA, Surface Supplied Air, etc.) of diving to be performed at the site and projects completed to achieve minimum number of logged bottom time, hours and

.3 First aid and CPT Training Certification.

.2 Dive tender(s) resume which clearly states relevant training (including first aid and (CPR) and experience for the specific task (i.e. dive tender log book).

.3 Current (less than one year) medical examination certificate (s) from a licensed medical doctor in the Province of Newfoundland and Labrador who is knowledgeable and competent in diving and hyperbaric medicine for all dives.

.4 Certificates of Analysis for quality/purity of breathing air to be used by diver(s).

.5 Documentation showing that diving life support equipment is in good working order and properly maintained.

.6 Copies of documentation shall be submitted to show:

.1 An up-to-date dive site listing of the contact Hyperbaric facility and phone numbers for each location.

.2 Written arrangements with standby physician(s) specializing in diving/hyperbaric medicine for contingent emergency response and post dive follow-up for 48 hours after dive is completed.

.3 Effective means of communication between the diving supervisor and physician are available.

.4 The name, location and telephone number of the hospital and emergency department nearest the dive site.

.4 If work entails confined space, submit the following:

.1 Copies of confined space entry training certificates acceptable to WHSCC, as well as copies of confined space entry programs, confined space assessment, safe work practices and rescue plans.

.2 Acceptance of the Site Specific Health and Safety Plan and other submitted documents by the Owner's Representative shall only be viewed as acknowledgement that the contractor has submitted the required documentation under this specification section.

.3 Owner's Representative makes no representation and provides no warranty for the accuracy, completeness and legislative compliance of the Site Specific Health and Safety Plan and other submitted documents by this acceptance.

.4 Responsibility for errors and omissions in the Site Specific Health and Safety Plan and other submitted documents is not relieved by acceptance by Owner's Representative.

1.4 OCCUPATIONAL HEALTH AND SAFETY (SITE SPECIFIC HEALTH AND SAFETY PLANS)

.1 Conduct operations in accordance with latest edition of the Newfoundland Occupational Health and Safety (OH&S) Act and Regulations, with specific reference to codes and standards referenced therein, and the Department of Transportation and Works Occupational Health and Safety Manual (http://www.tw.gov.nl.ca/publications/ohs_full.pdf).

.2 Prepare a detailed Site Specific Health and Safety Plan that shall identify, evaluate and control job specific hazards and the necessary control measures to be implemented for managing hazards.

.3 Provide a copy of the Site Specific Health and Safety Plan upon request to Occupational Health and Safety Branch, Services NL, Province of Newfoundland and Labrador and the Owner.

.4 The written Site Specific Health and Safety Plan shall incorporate the following:

.1 Hazard assessment results.

.2 Engineering and administrative demonstrative controls (work-practices and procedures) to be implemented for managing identified and potential hazards, and comply with applicable federal and provincial legislation and more stringent requirements that have been specified in these specifications.

.3 An organizational structure which shall establish the specific chain of command and specify the overall responsibilities of contractor's employees at the work site.

.4 A comprehensive workplan which shall:

.1 define work tasks and objectives of site activities/operations and the logistics and resources required to reach these tasks and objectives.

.2 establish personnel requirements for implementing the plan, and

.5 A personal protected equipment (PPE) Program which shall detail PPE:

.1 Selection criteria based on site hazards.

.2 Use, maintenance, inspection and storage requirements and procedures.

.3 Decontamination and disposal procedures.

.4 Inspection procedures prior to during and after use, and other appropriate medical considerations.

.5 Limitations during temperature extremes, heat stress and other appropriate medical consideration.

.6 An emergency response procedure, refer to Clause 1.5 Supervision and Emergency Response Procedure of this section fro requirements.

.7 A hazard communication program for informing workers, visitors and individuals outside of the work area as required. This will include but not be limited to a visitor safety and orientation policy and program that will include education on hazards, required PPE and accompaniment while on site.

.8 A hearing conservation program in accordance with the OHS Regulations.

.9 A recent (current year) inspection form for all powered mobile equipment that will be used in fulfilling the terms of the contract. The inspection form shall, at a minimum, state that the equipment is in a safe operating condition.

.10 A complete listing of employee names, their driver's license classification, expiry date, endorsements and the type of equipment that they are qualified to operate for the complete scope of work for this project. The Driver's License Number should not be provided as this is confidential information. Provision of the License Number may breach *PIPEDA* - the Personal Information Protection and Electronic Documents Act. (Federal Act) or *ATIPPA - Access to Information and Protection of Privacy Act* - Part IV. (Provincial Act of Newfoundland and Labrador). This shall also include documentation where required of certification in power line hazards.

.11 An acceptable parking policy for all powered mobile equipment to be used on this project. The policy shall, at a minimum, be based on a hazard assessment that considers factors such as equipment type, potential for roll over, load capacity of the parking area, pedestrian and vehicular traffic, and potential for equipment tampering, equipment energy, and equipment contact with power lines.

.12 A diving program which shall contain standard operating procedures to be followed in the diving operation.

.13 A health and safety training program which includes a safety training matrix.

.14 General safety rules.

.5 Periodically review and modify as required each component of the Site Specific Health and Safety Plan when a new hazard is identified during completion of work and when an error or omission is identified in any part of the Site Specific Health and Safety Plan.

.6 Review the completeness of the hazard assessment immediately prior to commencing work, when a new hazard is identified during completion of work and when an error or omission is identified.

.1 Be solely responsible for investigating, evaluating and managing any report of actual or potential hazards.

.2 Clearly define accident incident investigation procedures.

.3 Clearly define policy and processes for early and safe return to work.

.4 Retain copies of all completed hazard assessments at the project site and make available to the Owner's Representative immediately upon request.

.7 Implement all requirements of the Site Specific Health and Safety Plan.

.1 Ensure that every person entering the project site is informed of requirements under the Site Specific Health and Safety Plan.

.2 Take all necessary measures to immediately implement any engineering controls, administrative contacts, personal protective equipment required or termination of work procedures to ensure compliance with the Site Specific Health and Safety Plan.

1.5 SUPERVISION AND EMERGENCY RESCUE PROCEDURE

.1 Carry out work under the direct supervision of competent persons responsible for safety by ensuring the work complies with the appropriate section of OH&S Act and Regulations

.2 Assign a sufficient number of supervisory personnel to the work site.

.1 Any person assigned to supervisory duties shall not conduct significant work in relation to the contract that inhibits them from the ability to properly supervise the work site.

.3 Provide a suitable means of communications and check–in for workers required to work alone.

.4 Develop an emergency rescue plan for the job site and ensure that supervisors and workers are trained in the emergency rescue plan.

.5 The emergency response plan shall address, as a minimum:

.1 Pre-emergency planning.

.2 Personnel roles, lines of authority and communication.

.3 Emergency recognition and prevention.

.4 Safe distances and places of refuge.

.5 Site security and control

.6 Evacuation routes and procedures

.7 Decontamination procedures which are not covered by the site specific safety and health plan.

.8 Emergency medical treatment and first aid.

.9 Emergency alarm, notification and response procedures including procedures for reporting incidents to local, provincial and federal government departments.

.10 PPE and emergency equipment.

.11 Procedures for handling emergency incidents.

.12 Site specific emergency response training requirements and schedules.

.13 For diving operation, include procedures for:

.1 Managing deteriorating environmental conditions.

.2 Managing unexpected weather or sea-state condition.

.3 Evacuation of diver(s) under pressures greater that atmospheric pressure.

.4 In-water emergency transfers.

.5 Managing failing of equipment below the surface that impairs the ability of a diver to complete a dive.

.6 Managing failure of any major component of diving plant or equipment.

.7 Emergency signalling between divers involved in the diving program and between the diver(s) and the attendants using umbilical, tethers or other suitable methods.

.8 Mobilizing stand-by divers.

.9 Mobilizing crafts, stand-by boats and any other devices to be used for rescue.

.10 Contacting evacuation, rescue, treatment facilities and medical services that will be used in the diving program.

.11 Operation of emergency power and lighting facilities.

.6 The emergency response procedures shall be rehearsed regularly as part of the overall training program.

.7 Provide adequate first aid facilities for the jobsite and ensure that a minimum number of workers are trained in first aid in accordance with the First Aid Regulations.

1.6 CONTRACTORS SAFETY OFFICER

.1 The contractor shall employ a Contractor's Safety Officer (CSO) who shall have as a minimum:

.1 Completed training in hazardous materials management and response/protocols.

.2 Completed training in the use, maintenance of fall protection systems certified by WHSCC at a minimum.

.3 Completed training in the erection and inspection of scaffolding.

.4 Completed training in confined space entry protocols, techniques and rescue plans, certified by WHSCC at a minimum.

.5 Completed supervisory training.

.6 Completed training in records and statistics.

.7 Completed training is hazard identification, inspections, analysis and control.

.8 Completed training in WHMIS.

.9 Completed training in health and safety program content.

.10 Completed training in investigations and reporting.

.11 Completed training in occupational health/hygiene.

.12 Completed training in employee training and communication.

.13 Completed training in Emergency Preparedness and First Aid.

.14 A working knowledge of occupational safety and health legislation and regulations (specific to Newfoundland and Labrador).

.15 A working knowledge of safe work practices required for execution of the work and operation of equipment specific to the project.

.16 A working knowledge of site safety and house keeping.

.17 A working knowledge of preventative maintenance program for Construction Site Equipment.

.2 The CSO shall:

.1 Be responsible for implementing, daily enforcement, monitoring and updating of the Site Specific Health and Safety Plan.

.2 Be responsible for the delivery of the site safety orientation and ensure that the personnel who have not been orientated are not permitted to enter the site.

.3 Report directly to and be under direction of the site superintendent or Contractor's Project Manager.

.4 Prior to mobilization on-site, hold an orientation meeting with the contractors, subcontractors and Owner's Representative to review project occupational health and safety. Include but not limit meeting to a review of:

.1 Site Specific Health and Safety Plan.

.2 Construction Safety Measures.

.3 Supervision and Emergency Rescue Procedures.

.4 Hazard Assessments

.5 Maintain a daily log of inspections, meetings, infractions and mitigating measures. Log is to be filed daily and copied to be the site superintendent and Owner's Representative.

1.7 HEALTH AND SAFETY COMMITTEE

.1 Establish an Occupational Health and Safety Committee where ten or more workers are employed on the job site as per the OH&S Act and Regulations.

1.8 RESPONSIBILITY

.1 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.

.2 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with Site Specific Health and Safety Plan.

.3 Where life safety risks exist, the contractor must stop the work until such time as the risk can be mitigated to a safe level.

.4 Take appropriate steps to ensure that the hazards are mitigated to a safe level, workers are notified of the hazards and how to protect themselves. As well, workers must be provided with any new safe work practices or information regarding mitigation of the risk.

1.9 UNFORSEEN HAZARDS

.1 Should any unforeseen or peculiar safety-related factor, hazard, or condition become evident during performance of Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Province having jurisdiction. Advise Owner's Representative verbally and in writing.

1.10 INSTRUCTION AND TRAINING

.1 Workers shall not participate in or supervise any activity on the work site until they have been trained to a level required by this job function and responsibility. Training shall as a minimum thoroughly cover the following:

.1 Federal and Provincial Health and Safety Legislation requirements including roles and responsibilities of workers and person(s) responsible for implementing, monitoring and enforcing health and safety requirements.

.2 Safety and health hazards associated with working on a contaminated site including recognition of symptoms and signs which might indicate over exposure to hazards.

.3 Limitations, use, maintenance and disinfection-decontamination of personal protective equipment associated with completing work.

.4 Limitations, use, maintenance and care of engineering controls and equipment.

.5 Limitations and use of emergency notifications and response equipment including emergency response protocol.

.6 Work practices and procedures to minimize the risk of an accident and hazardous occurrence from exposure to a hazard.

.2 Provide and maintain training of workers, as required, by Federal and Provincial legislation.

.3 Provide copies of all training certificates to Owner's Representative for review, before a worker is to enter the work site.

.4 Authorized visitors shall not access the work site until they have been:

.1 Notified of the names of persons responsible for implementing, monitoring and enforcing the Site Specific Health and Safety Plan.

.2 Briefed on safety and health hazards present on the site.

.3 Instructed in the proper use and limitations of personal protective equipment.

.4 Briefed as the emergency response protocol including notification and evacuation process.

.5 Informed of practices and procedures to minimize risks from hazards and applicable to activities performed by visitors.

.6 Accompanied while on site, and provided with the appropriate PPE.

.5 All workers will be instructed and trained on the hazards associated with work they will perform and how to protect themselves. This will include a review of all safe work practices, the reporting and documentation of hazards, reporting accidents and injuries as well as, formal training in areas of high risk (i.e. fall protection, power line hazards, traffic control persons training).

.6 The work site shall have the appropriate number of persons trained in emergency and Standard First Aid according to the First Aid Regulations.

1.11 CONSTRUCTION SAFETY MEASURES

.1 Observe construction safety measures of National Building Code, latest edition, Provincial Government, OH&S Act and Regulations, Workplace Health and Safety Compensation

Commission and Municipal Authority provided that in any case of conflict or discrepancy more stringent requirements shall apply.

.2 Administer the project in a manner that will ensure, at all times, full compliance with Federal and Provincial Acts, regulations and applicable safety codes and the Site Specific Health and Safety Plan.

.3 Provide Owner's Representative with copies of all orders, directions and any other documentation, issued by the Occupational Health and Safety Branch, Services NL, immediately after receipt.

1.12 POSTING OF DOCUMENTS

.1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of Province and authority having jurisdiction, and in consultation with Owner's Representative.

1.13 HEALTH AND SAFETY MONITORING

.1 Periodic inspections of the contractor's work may be carried out by the Owner's Representative to maintain compliance with the Health and Safety Program. Inspections will include visual inspections as well as testing and sampling as required.

.2 The contractor shall be responsible for any and all costs associated with delays as a result of contractor's failure to comply with the requirements outlined in this section.

1.14 NOTIFICATION

.1 For projects exceeding thirty (30) days or more, the contractor shall, prior to the commencement of work, notify in writing the Occupational Health and Safety Branch, Services NL with the following information:

.1 Name and location of construction site.

.2 Company name and mailing address of contractor doing the work.

.3 The number of workers to be employed.

.4 A copy of the Site Specific Health and Safety Plan if requested.

1.15 CORRECTION OF NON-COMPLIANCE

.1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Owner's Representative.

.2 Provide Owner's Representative with written report of action taken to correct non-compliance of health and safety issues identified.

.3 Owner's Representative may stop work if non-compliance of health and safety regulations is not corrected.

1.16 WHMIS

.1 Ensure that all controlled products are in accordance with the Workplace Hazardous Materials Information System (WHMIS) Regulations and Chemical Substances of the OH&S Act and Regulations regarding use, handling, labelling, storage, and disposal of hazardous materials.

.2 Deliver copies of relevant Material Safety Data Sheets (MSDS) to job site and the Owner's Representative. The MSDS must be acceptable to Labour Canada and Health

and Welfare Canada for all controlled products that will be used in the performance of this work.

.3 Train workers required to use or work in close proximity to controlled products as per OH&S Act and Regulations.

.4 Label controlled products at jobsite as per OH&S and Regulations.

.5 Provide appropriate emergency facilities as specified in the MSDS where workers might be exposed to contact with chemicals, e.g. eye-wash facilities, emergency shower.

.1 Workers to be trained in use of such emergency equipment.

.6 Contractor shall provide appropriate personal protective equipment as specified in the MSDS where workers are required to use controlled products.

.1 Properly fit workers for personal protective equipment

.2 Train workers in care, use and maintenance of personal protective equipment.

.7 No controlled products are to be brought on-site without prior approved MSDS.

.8 The MSDS are to remain on site at all times.

1.17 OVERLOADING

.1 Ensure no part of work or associated equipment is subjected to loading that will endanger its safety or will cause permanent deformation.

1.18 FALSEWORK

.1 Design and construct falsework in accordance with CSA S269.1.

1.19 SCAFFOLDING

.1 Design, erect, inspect, operate, modify, and dismantle scaffolding in accordance with CSA Z797, the OH&S Act and Regulations, and the scaffold manufacturer's written instructions.

.2 Provide trained and certified Competent Scaffold Erectors for all scaffold erection, modification and dismantling.

.3 Conduct and document daily inspections of scaffolding by trained and certified Competent Scaffold Inspectors or Erectors.

.4 Provide a scaffold tagging system as described in CSA Z797.

.5 Ensure that all industry best practices for safe scaffold usage, including fall protection, proper loading, safe access, electrical hazards, exit door management and other concerns are strictly adhered to.

1.20 WORKING AT HEIGHTS

.1 Ensure that fall restraint or fall arrest devices are used by all workers working at elevations greater than 3.05 meters above grade or floor level in accordance with CSA Z259, where alternate fall protection systems are not provided in accordance with Occupational Health and Safety Act and Regulations.

.2 All workers performing work at height and who will be required to utilize a fall arrest system must be trained in a fall protection program certified by the WHSCC.

.3 Prior to working at height workers shall be instructed in a Contractor SWP for working at height and associated rescue plan for working at height developed specific to the work, locations and risks.

1.21 PERSONAL PROTECTIVE EQUIPMENT

.1 Ensure workers on the jobsite use personal protective equipment appropriate to the hazards identified in the Site Specific Health and Safety Plan and those workers are trained in the proper care, use, and maintenance of such equipment.

.2 PPE selections shall be based on an evaluation of the performance characteristics of the PPE relative to the requirements and limitations of the site, task-specific conditions, duration and hazards and potential hazards identified on site.

.3 Provide workers and visitors to the site with proper respiratory protection equipment.

.1 No work shall be performed in an area where an airborne contaminant exceeds recommendations of the ACGIH, do not meet the appropriate standards for the specific contaminants or are not in accordance with the OHS regulations..

.2 Respiratory protection shall be provided in accordance with the requirements of the Occupational Health and Safety Branch, Services NL and these specifications.

.3 Establish, implement and maintain a respirator inspection and maintenance program in accordance with the CSA standard identified in the OHS Regulations.

.4 Copies of all respirator owners' maintenance manuals, shall be kept at all times at the contractor's site office.

.4 Provide and maintain a supply of dermal protection equipment to allow visitors and all workers proper dermal protection.

.1 Dermal protection shall be sufficient to act as a protective barrier between the skin and an airborne contaminant or hazardous material. Dermal protection shall also be provided for all physical hazards.

.2 Dermal protection equipment shall not be used after exceeding 75% of the break through time. The break through time shall be based on the contaminant which requires the least amount of time to break through the protective equipment

.3 Copies of all dermal protection user specifications, owners and maintenance manuals shall be kept at all times at the contractor's site office.

.4 Establish, implement and maintain air inspection program to ensure proper dermal protection in accordance with CSA, NIOSH, U.S. EPA and manufacturer's requirements.

.5 Provide all workers and up to five (5) visitors to the site with proper hearing protection. Workers and visitors shall not be exposed to noise levels greater than 85 dB (A) over an eight hour shift without proper hearing protection, in accordance with the Hearing Conservation Program.

.6 Provide all workers and up to five (5) visitors to the site with CSA approved eye protection sufficient to act as a protective barrier between the eye and airborne contaminants, hazardous materials and physical hazard.

.7 Provide workers and up to five (5) visitors to the site with CSA approved hard hats meeting the CSA Z94.1.

.8 Provide high visibility apparel as defined in Occupational Health and Safety Regulations.

.9 Provide CSA approved safety boots meeting CSA Z195.

.10 Provide other personal protective equipment, as may be required by the owner, depending on duties being performed.

1.22 TRAFFIC CONTROL

.1 Provide traffic control measures when working on, or adjacent to, roadways in accordance with the "Traffic Control Manual for Roadwork Operations", Department of Transportation and Works.

1.23 EXCAVATION SAFETY

.1 Protect excavations more than 1.25 metres deep against cave-ins or wall collapse by side wall sloping to the appropriate angle of repose, an engineered shoring/sheathing system or an approved trench box.

.1 Provide a ladder which can extend from the bottom of the excavation to at least 0.91 metres above the top of the excavation.

.2 Ensure that all excavations less than 1.25 metres deep are effectively protected when hazardous ground movement may be expected.

.3 Design trench boxes, certified by a registered Professional Engineer, and fabricated by a reputable manufacturer. Provide the manufacturer's Depth Certificate Statement permanently affixed. Use trench boxes in strict accordance with manufacturer's instructions and depth certification data.

.4 For excavations deeper than six (6) metres, provide a certificate from a registered Professional Engineer stating that the protection methods proposed have been properly designed in accordance with accepted engineering practice. The engineer's certificate shall verify that the trench boxes, if used, are properly designed and constructed to suit the depth and soil conditions.

.5 Ensure that the superintendent and every crew chief, foreperson and lead hand engaged in trenching operations or working in trenches have in his/her possession a copy of Occupational Health and Safety Regulations: Part XVII: Construction, Excavation and Demolition and Part XVIII: Excavation, Underground Work and Rock Crushing and where possible a copy of the Service NL's "Trench Excavation Safety Guide".

1.24 BLASTING OPERATIONS

.1 Ensure blasting operations are carried out under the direct visual supervision of a certified Blaster either registered with the Industrial Training Division of the Department of Education or has been issued a certificate from completion of a program approved by the Department of Service NL. Ensure that the certificate level is appropriate for the blasting activities which will occur. Comply with the requirements of:

.1 Explosives Act.

.2 Explosives Regulations.

.3 Newfoundland Regulation 5/12, Occupational Health and Safety Regulations.

.4 Role of certified blaster set out in section 419 of the Occupational Health and Safety Regulations 5/12.

.2 Store explosives in accordance with the "Explosives Act (Canada)" and transport, handle and use in the manner prescribed by the manufacturer of the substance and subject to specific regulations. An inventory of explosives shall be kept.

.3 Ensure that workers required to transport explosives have a valid Transportation of Dangerous Goods Training Certification in accordance with the "Act to Promote Public Safety in the Transportation of Dangerous Goods, and the "Explosives Act (Canada)".

Vehicle used to transport explosives on site shall be placarded and explosives shall be transported in containers lined with wood (reference section 428 of the Occupational Health and Safety Regulations 5/12 comply with section 42. Detonators shall not be placed in a magazine or daybox with other types of explosives or in a compartment of a vehicle with another type of explosive.

.4 Use of explosives on site shall comply with the Occupational Health and Safety Regulations 5/12 General Blasting requirements set out in Part XIX of the Regulations.

.5 Loaded holes shall be clearly identified with barricades put in place to prevent access to the holes. Drilling shall not be done closer to a loaded bore hole than a distance half the total depth of the hole being drilled and in no case shall drilling be conducted at a distance closer than 6.0 m from a loaded borehole. Drill cuttings shall not be used as stemming material.

.6 Advise the public by suitable public notices, advertisements, house to house contacts etc. for blasting operations in close proximity to areas occupied by the public. Advise of the warning device to be sounded and the procedure to be used before detonation of individual blasts. Roads and approaches to the danger area to be guarded or barricaded to prevent anyone from entering. Loaded holes which have not been fired by the end of the day shall not be left unattended.

.7 Prior to detonation of a blast, give sufficient warning in every direction and ensure that all persons have reached a place of safety before the blast is fired.

.8 File an Emergency Response Assistance Plan with the Explosives Branch, Natural Resources Canada.

.9 Blaster shall:

.1 Be solely responsible for implementation of the Explosives Management Program.

.2 Have a valid blaster's safety certificate from the Department of Education Division of Institutions and Industrial Education, and have a valid temporary Magazine License, when required issued by Natural Resources Canada, for storage and explosives.

.3 Possess a thorough working knowledge of the Federal Explosives Act and Provincial Regulations.

.4 Possess a specialized training in handling storage and detonation of explosives.

.5 Keep a field journal concerning the blast activities.

1.25 CONFINED SPACE WORK

.1 Comply with the Newfoundland and Labrador Occupational health and Safety Regulations.

.2 Ensure a hazard assessment has been conducted related to the confined space and the work to be performed within the space.

.3 Provide approved air monitoring equipment where workers are working in confined spaces and ensure any test equipment to be used is calibrated, in good working order and used by trained persons.

.4 Ensure all Required PPE is provided to the workers and workers are trained in its use, care and selection.

.5 Develop a confined space entry (CSE) program specific to the nature of work performed and in accordance with OH&S Act and Regulations and ensure supervisors and workers

are trained in the confined space entry program. This shall include training on the CSE permit system, rescue plan, testing, communication equipment and all equipment and safe work procedures conducted in and around the confined space.

.1 Ensure that personal protective equipment and emergency rescue equipment appropriate to the nature of the work being performed is provided and used.

.6 Provide and maintain training of workers through a provider certified by the WHSCC.

.7 Provide Owner's Representative with a copy of an "Entry Permit" for each entry into the confined space to ensure compliance Provincial Legislation.

1.26 HAZARDOUS MATERIALS

.1 Should material resembling hazardous materials (e.g. asbestos/mould) not previously identified/documented be encountered during the execution of work and notify Owner's Representative. Do not proceed until written instructions have been received from Owner's Representative.

.2 Unless otherwise noted the services of a recognized Environmental Consultant to provide all air monitoring and testing services required by regulatory requirements for hazardous materials abatement and repair.

1.27 HEAVY EQUIPMENT

.1 Ensure mobile equipment used on jobsite is of the type specified in OH&S Act and Regulations fitted with a Roll Over Protective (ROP) Structure and Falling Object Protective (FOP) Structure.

.2 Provide certificate of training in Power Line Hazards for operators of heavy equipment.

.3 Obtain written clearance from the power utility where equipment is used in close proximity to (within 5.5 metres) overhead or underground power lines.

.4 Equip cranes with:

.1 A mechanism which will effectively prevent the hook assembly from running into the top boom pulley.

.2 A legible load chart.

.3 A maintenance log book.

1.28 TREE AND BRUSH CLEARING

.1 Ensure workers using chain saws wear the following safety equipment:

.1 CSA safety hat.

.2 Hearing protection, e.g. ear muffs.

.3 CSA approved chain saw pants.

.4 CSA approved chain saw boots.

.5 Approved eye protection.

.2 Ensure that all workers using brush saws wear the following safety equipment:

.1 CSA approved safety hat fitted with face screen or shield or approved safety glasses.

.2 Hearing protection, e.g. ear muffs.

.3 CSA approved safety footwear.

.3 Equip chain saws with a safety chain break.

.4 A safe work practice (SWP) must be developed, implemented and all workers trained in the SWP prior to undertaking such tasks and utilizing tree and brush clearing equipment.

1.29 DIVING OPERATIONS

.1 Ensure diving operations conform to CSA Z275.2 - Occupational Safety Code for Diving Operations and CSA Z275.4 - Competency Standard for Diving Operations.

.2 Sampling:

.1 Prior to commencing diving activities, sample water and analyze sample(s) for:

.1 Fecal Coliforms (Escherichia coli).

.2 Total Coliforms.

.3 Any health hazard identified during the site specific hazard assessment.

.4 Any parameter as directed by the Service NL, Government of Newfoundland and Labrador.

.2 Water will be designated a contaminant if the chemical concentration of a contaminant exceeds:

.1 200 fecal Coliforms (Escherichia coli) per 1000 milliliter of water.

.2 100 times the guidelines concentration established in the most recent Guidelines of Canadian Drinking Water Quality.

.3 Any other criteria established by the Service NL, Government of Newfoundland and Labrador.

.3 Sample analysis is to be completed by a laboratory that is accredited by the Canadian Associates of Environmental and Analytical Laboratories (CAEAL) or other national equivalent.

.4 Dive personnel must meet the minimum competency requirements of CSA 275.4.

.1 The Dive supervisor(s) shall as a minimum:

.1 Possess a Valid Category 1 Diving Certificate, or equivalent, for a minimum of three (3) years for the type of diving to be performed.

.2 Have completed one hundred and fifty (150) hours of logged diving time for the type of diving to be performed.

.3 Have completed fifty (50) hours of dive supervision for the type of diving to be performed.

.2 Diver(s) shall as a minimum:

.1 Possess a valid Category 1 Diving Certificate or equivalent, for the type of diving to be performed.

.2 Have completed fifty (50) hours of logged dive time for the type of diving to be performed.

.5 A diving operation shall be interrupted or discontinued or not commenced when:

.1 Continuation of the diving operation would or is likely to compromise the safety of any person involved in the diving operation.

.2 The water currents at the underwater work site are likely to compromise the safety of any person involved in the diving operation.

.3 Combustible material is stored too close for safety to any diving plant and equipment used in the diving operation.

.6 A diving operation shall:

.1 Not be conducted in the vicinity for any other activity that might pose a danger to any person involved in the diving operation.

.2 Not use any craft that has insufficient power or stability for the safe continuity of the diving operation.

.3 Provide measures for making work area boundary and stopping unauthorized entry into the work area.

.4 Provide adequate illumination of the dive site and the underwater work site of the diving operation.

.7 Provide, at the worksite while completing diving operations, a diving operations log book that is permanently bound and has numbered pages.

.1 Produce on request, any log books, records or other documentation associated with the diving operation, for inspection by Owner's Representative.

.2 As a minimum, for each diving operation enter into the diving operation logbook:

.1 date and time the diving operation commenced and terminated including any time the diving operation was interrupted

.2 name of supervisor; names of all other persons involved

.3 the procedures followed

.4 the decompression table and the schedule in that the decompression table was used

.5 the maximum depth, bottom time, dive time and total dive time for each dive

.6 the type of diving plant and equipment and the type of breathing mixture used

.7 the type of discomfort, injury or illness including decompression sickness, suffered by any person involved

.8 any environmental conditions that affected or might have affected the diving operation

.9 any other factors relevant to the safety to health of any person involved

.8 Diving in free swim mode is not permitted at the work site.

.9 Provide separate first aid supplies for dive operation. All dive team personnel shall be trained in first aid and cardiopulmonary resuscitation (CPR).

.10 Provide medical oxygen for emergency response at work site. The dive supervisor shall be trained in administering medical oxygen.

1.30 WORK STOPPAGE

.1 Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations of Work.

PART 2 PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 PART 3 EXECUTION (NOT APPLICABLE

END OF SECTION

PART 1 GENERAL

1.1 FIRES

.1 Fires and burning of rubbish on site not permitted.

1.2 DISPOSAL OF WASTES

.1 Do not bury rubbish and waste materials on site.

.2 Do not dispose of waste or volatile materials, such as mineral spirits, oil or paint thinner into waterways, storm or sanitary sewers.

1.3 DRAINAGE

.1 Provide temporary drainage and pumping as necessary to keep excavations and site free from water.

.2 Do not pump water containing suspended materials into waterways, sewer or drainage systems.

.3 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.

1.4 SITE CLEARING AND PLANT PROTECTION

.1 Protect trees and plants on site and adjacent properties where indicated.

.2 Wrap in burlap, trees and shrubs adjacent to construction work, storage areas and trucking lanes, and encase with protective wood framework from grade level to height of 2 m.

.3 Protect roots of designated trees to dripline during excavation and site grading to prevent disturbance or damage. Avoid unnecessary traffic, dumping and storage of materials over root zones.

.4 Minimize stripping of topsoil and vegetation.

.5 Restrict tree removal to areas indicated or designated by Engineer/Architect.

1.5 WORK ADJACENT TO WATERWAYS

.1 Do not operate construction equipment in waterways.

.2 Do not use waterway beds for borrow material.

.3 Do not dump excavated fill, waste material or debris in waterways.

.4 Design and construct temporary crossings to minimize erosion to waterways.

.5 Do not skid logs or construction materials across waterways.

.6 Avoid indicated spawning beds when constructing temporary crossings of waterways.

.7 Do not blast under water or within 100 m of indicated spawning beds.

1.6 POLLUTION CONTROL

.1 Maintain temporary erosion and pollution control features installed under this contract.

.2 Control emissions from equipment and plant to local authorities emission requirements.

.3 Prevent sandblasting and other extraneous materials from contaminating air beyond application area, by providing temporary enclosures.

.4 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.

1.7 NOTIFICATION

.1 Engineer/Architect will notify Contractor in writing of observed non-compliance with Federal, Provincial or Municipal environmental laws or regulations, permits, and other elements of environmental protection. Contractor: after receipt of such notice, inform Engineer/Architect of proposed corrective action and take such action as approved by Engineer/Architect.

.2 Engineer/Architect may issue stop order of work until satisfactory corrective action has been taken.

.3 No time extensions will be granted or equitable adjustments allowed to Contractor for such suspensions.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION

PART 1 GENERAL

1.1 PREFACE

.1 Where building related projects involve work that could potentially disturb asbestos or lead based paints or mold, disturbances must be carefully controlled by registered abatement contractors in accordance with the Occupational Health and Safety Regulations (OHS) and other applicable Sections in this Contract.

.2 Where building related projects involve work that has been determined not to contain asbestos, lead paints or mold; dust control procedures must be carried out in accordance with this Specification Section. The purpose of this procedure is to ensure that nuisance dust, not containing asbestos or lead, is controlled in an effective manner.

.1 Including:

.1 Ensuring that any maintenance, repair, construction or renovation activity that impacts building materials or creates dust is performed in such a way as to eliminate, minimize, contain and clean up any and all dust generated by the activity.

.2 This applies to work preparation, work activities and post-work activities; but is not limited to, the following types of dust generating activities.

.1 Disturbing gypsum board, plaster or other surfacing materials.

.2 Disturbing concrete or wood containing materials.

.3 Handing or disturbing fibrous building insulation.

.4 Generating welding fumes: in addition to the requirements of this procedure, a hot work permit is also required to be completed by the contractor and submitted to the Owner's Representative for review if hot work is required in an occupied building.

1.2 RELATED WORK

.1 Division 1 – General Requirements.

.2 Section 02 82 00.02 - Asbestos Abatement.

.3 Section 06 10 00 – Rough Carpentry.

.4 Section 07 26 00 - Vapour Retarder.

1.3 REFERENCES

.1 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-1.205, Sealer for Application to Asbestos-Fibre-Releasing Materials.

.2 Canadian Standards Association (CSA)

.1 CAN/CSA Z317.13-F07, Infection Control During Construction, Renovation and Maintenance of Health Care Facilities.

PART 2 PRODUCTS

2.1 MATERIALS

.1 Polyethylene sheet in accordance with Section 07 26 00 - Vapour Retarders.

.2 Wood studs for stand-alone barriers in accordance with Section 06 10 00 - Rough Carpentry.

PART 3 EXECUTION

3.1 PRE-WORK ACTIVITIES

.1 The contractor shall ensure the following prior to commencing work:

.1 Specific dust generating activities and associated controls shall be addressed in the Site Specific Health and Safety Plan.

.2 Workforce, including sub-contractors, must be made aware of the site dust control requirements.

.3 Check the various work zones within the building and adjacent areas to confirm the area are clean.

.4 Access to all active work areas shall be restricted to authorized contractors.

.5 For occupied buildings, dust generating activities shall be performed after normal hours of operations, unless prior permission if received from the Owner's Representative.

3.2 WORK ACTIVITIES

.1 Dust producing projects shall be classified as small scale, medium scale or large scale projects, as detailed in paragraph 3.3.

.2 For all dust generating activities, Contractor is required to have Site Safety Officer present to ensure dust control procedures are properly followed.

.3 Any dust related complaints brought to the Contractors attention, must be immediately reported to Owner's Representative, and an incident investigation must be initiated to prevent reoccurrence.

.4 Where practical, dust generation should be eliminated or minimized through the use of proper engineering controls (i.e. containment at source such as drilling wall surface through a wet sponge, wet suppression, use of HEPA vacuum equipped tools, etc).

.5 Dust generating power tools shall be equipped with HEPA filtered dust collectors where practical. Power tools capable of generating dust without dust collection shall only be used in conjunction with suitable work area containment and with Owner's Representative approval.

.6 Walk-off mats shall be employed for medium and large scale dust generating projects at all worker entrances/exits. Purpose of these mats is to trap dust from equipment and shoes of personnel leaving the dust contaminated work zone. Mats shall be vacuumed daily, or more frequently as necessary, using HEPA filtered vacuums. Mats shall be of sufficient size to place both feet on mat at once.

3.3 PROJECT CLASSIFICATION

.1 Class A - Small Scale Project: (Dust producing activities disturbing less than one (1) linear meter or one (1) square meter of material. These are small scale, short duration jobs generating minimal dust.

.1 Some examples include:

.1 Installing wires or cables, sanding/repairing small section of wall, cutting out gypsum board to install receptacles.

.2 Carry out Work as follows:

.1 Remove all furniture, fixtures and belongings from the work area to a minimum of 1.5 m in all directions.

.2 Restrict access to immediate work area. Keep all doors closed where practical. Post "Dust Hazard Area – Do Not Enter" signs at all entrances to work area. In common areas use barrier tape to establish the regulated area.

.3 Place a drop cloth of polyethylene sheeting immediately underneath the work area extending a minimum of 1.5 m in each direction (unless flooring is easily cleanable).

.4 Cover all air return or exhaust vents if within 1.5 m of the work area with polyethylene sheeting and duct tape.

.5 Complete the task, minimizing dust production, as prescribed in paragraph 3.2 - Work Activities.

.6 When the work is completed, wet-wipe polyethylene sheeting and flooring and if necessary, other areas close by with a damp rag.

.7 Visually inspect the area for any remaining dust and wet wipe as necessary.

.8 If installed, remove polyethylene sheeting from air return and exhaust vents.

.9 Where practical, transport debris after hours using least congested and most direct routes. If any debris is spilled outside the work area, immediately wet-wipe debris.

.10 Clean all tools and equipment before removal from the work area.

.2 Class B - Medium Scale Project (Dust producing activities disturbing greater than one (1) square meter and less than 30 square meters of material) with anticipated moderate dust levels that are typically one shift or more in duration.

.1 Examples include:

.1 Sanding several sheets of gypsum board.

.2 Electrical work above ceiling tiles where general debris is known above the ceiling.

.3 Removing numerous ceiling tiles in an area.

.4 New wall construction.

.2 Carry out the Work as follows:

.1 Determine the most effective way of isolating the work area from occupants (i.e. using plastic barriers or by sealing off doors).

.2 Complete all items specified under small scale projects.

.3 While performing the work, limit the dust generated by removing the materials in sections, lightly misting the material as necessary. Debris shall be bagged immediately for disposal. In addition to wet wiping, HEPA filtered vacuum systems shall be employed where practical to limit airborne dust.

.4 When the task is completed, HEPA vacuum and/or wet wipe the polyethylene sheeting.

.5 Prior to removing any temporary wall partitions from floor to ceiling or polyethylene barriers, a final inspection shall be preformed by the Site Safety Officer or designate to ensure proper clean up has been completed. This inspection shall be documented by the Contractor and made available at the request of the Owner's Representative.

.6 Establishment of containment may result in the accumulation of dust within the enclosure. As such, the need for respiratory protection and decontamination would be greater than for small scale projects (i.e. N95 half face respirator with tyvek body covering).

.3 Class C - Large Scale Projects (Dust Producing Activities disturbing greater than 30 meters of material with anticipated high dust levels and typically involves multiple work shifts.

.1 Examples include:

.1 Major demolition or construction.

.2 Extensive renovations to wall or ceiling surfaces.

.3 Generating significant amounts of concrete dust.

.2 Carry out the Work as follows:

.1 Complete all items as prescribed under the Medium Scale Projects section.

.2 If the work produces dust that cannot be limited by removal in sections or misting and the work area configuration allows, use HEPA filtered

negative air units with the intake directly across from the dust generating activity. Exhaust the HEPA unit outside the building.

.3 If using a disposal cart or container to transport debris within the building, ensure the lid is tightly secured and the wheels are clean prior to exiting the work area.

.4 If local source capture is employed (i.e. HEPA filtered power tool) and no significant debris anticipated then treat as a medium scale project.

.5 Negative air units shall be left operating at the completion of cleanup, for the duration stipulated in Table 4, CAN/CSA Z317.13-F07.

.6 Windows, doors, exhaust vents and supply intakes shall be sealed off in dust generating areas. Upper seals must be employed where necessary to prevent the spread of dust into adjacent areas.

.7 The contractor must be able to show that the work zone is negatively pressurized in relation to adjacent occupied areas.

END OF SECTION

PART 1 GENERAL

1.1 REFERENCES AND CODES

.1 Perform Work in accordance with National Building Code of Canada (NBC) including all amendments up to tender closing date and other codes of provincial or local application provided that in case of conflict or discrepancy, more stringent requirements apply.

.2 Meet or exceed requirements of:

.1 Contract documents.

.2 Specified standards, codes and referenced documents.

1.2 HAZARDOUS MATERIAL DISCOVERY

.1 Asbestos: stop work immediately should materials believed to contain asbestos be encountered in during the execution of the work and notify Engineer/Architect. Do not proceed until written instructions have been received from Engineer/Architect. Perform asbestos abatement and repair in accordance with Newfoundland and Labrador Asbestos Abatement Regulations, Latest Edition.

.2 Mould: stop work immediately should material resembling mould be encountered during the execution of work and notify Engineer/Architect. Do not proceed until written instructions have been received from Engineer/Architect.

1.3 BUILDING SMOKING ENVIRONMENT

.1 Comply with smoking restrictions.

1.4 RELICS AND ANTIQUITIES

.1 Protect relics, antiquities, items of historical or scientific interest such as cornerstones and contents, commemorative plaques, inscribed tablets, and similar objects found during course of work.

.2 Give immediate notice to Engineer/Architect and await Engineer/Architect's written instructions before proceeding with work in this area.

.3 Relics, antiquities and items of historical or scientific interest remain Her Majesty's property.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION

PART 1 GENERAL

1.1 RELATED DOCUMENTS

.1 Drawings and general provisions of this contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this section.

1.2 INDUSTRY STANDARDS

.1 Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made part of the Contract Documents by reference.

.2 All construction industry standards referenced in this specification to meet the edition of the standard referenced by the National Building Code of Canada (NBC). If the construction industry standard in not referenced in the National Building Code of Canada (NBC), the latest edition of the standard shall apply.

.3 Each entity engaged in construction on this Project must be familiar with construction industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Construction Documents.

.1 Where copies of construction industry standards are needed to perform a required construction activity, obtain copies directly from publication source and make them availably upon request.

1.3 ABBREVIATIONS AND ACRONYMS FOR INDUSTRY ORGANIZATIONS

.1 Where abbreviations and acronyms are used, they shall mean the recognized name of the entities in the following list. Names are believed to be accurate and up-to-date as of the date of the Contract Documents.

.2 Industry Organizations:

.1 Air Conditioning and Mechanical Contractors Association (AMCA).
.2 Air Conditioning and Refrigeration Institute (ARI).
.3 Americans with Disability Act (ADA).
.4 Air Movement and Control Association (AMCA).
.5 The Aluminum Association, Inc. (AA).
.6 American Architectural Manufacturers Association (AAMA).
.7 American Association of State Highway and Transportation Officials (AASHTO).
.8 American Association of Textile Chemists and Colourists (AATCC).
.9 American Bearing Manufacturers Association (ABMA).
.10 American Boiler Manufacturer's Association (ABMA).

.11 American Concrete Institute (ACI).
.12 American Industrial Hygiene Association (AIHA).
.13 American Institute of Steel Construction (AISC).
.14 American Iron & Steel Institute (AISI).
.15 American National Standards Institute (ANSI).
.16 American Petroleum Institute (API).
.17 American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE).
.18 American Society of Mechanical Engineers (ASME).
.19 American Society of Sanitary Engineer's (ASSE).
.20 American Society for Testing and Materials (ASTM).
.21 American Water Works Association (AWWA).
.22 American Welding Society (AWS).
.23 American Wood-Preservers' Association (AWPA).
.24 Architectural Woodwork Institute (AWI).
.25 Architectural Woodwork Manufacturers Association of Canada (AWMAC).
.26 Asphalt Institute (AI).
.27 Associated Air Balance Council (AABC).
.28 Association of the Wall and Ceilings Industries International (AWEI).
.29 Atomic Energy Control Board Regulations.
.30 Brick Industry Association (BIA).
.31 Building Industry Consulting Services International (BICSI).
.32 Canada Green Building Council (CaGCB).
.33 Canada Labour Code.
.34 Canadian Council of Ministers of the Environment (CCME).
.35 Canadian Code for Preferred Packaging.
.36 Canadian Construction Materials Centre (CCMC).
.37 Canadian Environmental Protection Act (CEPA).
.38 Canadian Gas Association (CGA).
.39 Canadian General Standards Board (CGSB).
.40 Canadian Institute of Steel Construction (CISC).
.41 Canadian Nursery Landscape Association (CNLA).
.42 Canadian Paint Manufacturer's Association (CPMA).
.43 Canadian Roofing Contractors' Association (CRCA).
.44 Canadian Sheet Steel Building Institute (CSSBI).
.45 Canadian Standards Association (CSA).
.46 Canadian Steel Door and Frame Manufacturers' Association (CSDFMA).

.47 Canadian Urethane Foam Contractors' Association Inc. (CUFCA).
.48 Carpet and Rug Institute (CRI).
.49 Ceramic Tile Institute (CTI).
.50 Consumer Electronics Association (CEA).
.51 Cooling Technology Institute (CTI).
.52 Department of Justice Canada (Jus).
.53 Electrical and Electronic Manufacturers' Association of Canada (EEMAC).
.54 Electronic Industries Alliance (EIA).
.55 Environment Canada (EC).
.56 The Environmental Choice Program.
.57 Environmental Protection Agency (EPA).
.58 Environmental Protection Services (EPS).
.59 ETL Listing Laboratories (ETL).
.60 Factory Mutual (FM).
.61 Federal Communications Commission (FCC).
.62 Flat Glass Manufacturers Association (FGMA).
.63 Green Seal Environmental Standards.
.64 Health Canada - Workplace Hazardous Materials Information System (WHMIS).
.65 Hydraulics Institute (HI).
.66 Hydronic Institute of Boiler and Radiator Manufacturers (IBR).
.67 Industry Canada - Terminal Attachment Program.
.68 Institute of Electrical and Electronics Engineers (IEEE).
.69 Institute for Research in Construction (IRC).
.70 Insulated Cable Engineers Association (ICEA).
.71 International ElectroTechnical Commission (IEC).
.72 International Masonry Industry All-Weather Council (IMIAC).
.73 International Standards Organization (ISO).
.74 Laminators Safety Glass Association (LSGA).
.75 Leadership in Energy and Environmental Design (LEED).
.76 Manufacturer's Standardization Society of the Valve and Fittings Industry (MSS).
.77 Master Painters Institute (MPI).
.78 Model National Energy Code of Canada for Buildings (MNECB).
.79 National Association of Architectural Metal Manufactures (NAAMM).
.80 National Association of Corrosion Engineers (NACE).
.81 National Building Code of Canada (NBC).
.82 National Bureau of Standards/Products Standard (NBS/PS).
.83 National Electrical Manufacturers Association (NEMA).

.84 National Environmental Balancing Bureau (NEBB).
.85 National Fire Code of Canada (NFC).
.86 National Fire Protection Association (NFPA).
.87 National Floor Covering Association (NFCA).
.88 National Hardwood Lumber Association (NHLA).
.89 National Lumber Grades Authority (NLGA).
.90 National Plumbing Code of Canada (NPC).
.91 National Research Council Canada (NRC).
.92 National Roofing Contractors Association (NRCA).
.93 National Sanitation Foundation (NSF).
.94 Newfoundland Occupational Health and Safety Act.
.95 Plumbing and Drainage Institute (PDI).
.96 Province of Newfoundland and Labrador Building Accessibility Regulations.
.97 Provincial Boiler, Pressure Vessel and Compressed Gas Regulations.
.98 Scientific Equipment and Furniture Association (SEFA).
.99 Sealant and Waterproofer's Institute.
.100 Sheet Metal and Air Conditioning Contractors' National Association (SMACNA).
.101 Society of Automotive Engineers (SAE).
.102 The Society for Protective Coatings (SSPC).
.103 South Coast Air Quality Management District (SCAQMD).
.104 Telecommunications Distribution Methods Manual (TDMM).
.105 Telecommunications Industries Association (TIA).
.106 Terrazzo Tile and Marble Association of Canada (TTMAC).
.107 Thermal Insulation Association of Canada (TIAC).
.108 Transport Canada (TC).
.109 Transport Canada - Marine Safety (TCMS).
.110 Treasury Board of Canada (TB).
.111 Treasury Board Information Technology Standard (TBITS).
.112 Truss Plate Institute of Canada (TPIC).
.113 Underwriters' Laboratories Inc. (UL).
.114 Underwriter's Laboratories of Canada (ULC).
.115 United States Federal Trade Commission (US Federal Trade Commission).
.116 U.S. Coast Guard Equipment List (USCG).
.117 U.S. Department of Transportation (DOT).

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION

PART 1 GENERAL

1.1 SECTIONS INCLUDE

.1 Inspection and testing, administrative and enforcement requirements.

.2 Tests and mix designs.

.3 Mock-ups.

.4 Mill tests.

.5 Equipment and system adjust and balance.

1.2 RELATED SECTIONS

.1 Section 01 21 00 – Allowances.

.2 Section 01 33 00 – Submittal Procedures

.3 Section 01 78 00 – Closeout Submittals

1.3 INSPECTION

.1 Allow Engineer/Architect access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.

.2 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Engineer/Architect instructions.

.3 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.

.4 Engineer/Architect may order any part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction. If such Work is found in accordance with Contract Documents, Engineer/Architect shall pay cost of examination and replacement.

1.4 INDEPENDENT INSPECTION AGENCIES

.1 Independent Inspection/Testing Agencies will be engaged by Engineer/Architect for purpose of inspecting and/or testing portions of Work.

.2 Allocated costs: to Section 01 21 00 – Allowances and Section 01 29 83 – Payment Procedures: Testing Laboratory Services.

.3 Provide equipment required for executing inspection and testing by appointed agencies.

.4 Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.

.5 If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Engineer/Architect at no cost to Engineer/Architect. Pay costs for retesting and reinspection.

1.5 ACCESS TO WORK

.1 Allow inspection/testing agencies access to Work, off site manufacturing and fabrication plants.

.2 Co-operate to provide reasonable facilities for such access.

1.6 PROCEDURES

.1 Notify appropriate agency and Engineer/Architect in advance of requirement for tests, in order that attendance arrangements can be made.

.2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in an orderly sequence so as not to cause delay in Work.

.3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

1.7 REJECTED WORK

.1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Engineer/Architect as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.

.2 Make good other Contractor's work damaged by such removals or replacements promptly.

.3 If in opinion of Engineer/Architect it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Owner may deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which shall be determined by Engineer/Architect.

1.8 REPORTS

.1 Submit 3 copies of inspection and test reports to Engineer/Architect, plus electronic copies in PDF format.

.2 Provide copy to Subcontractor of work being inspected or tested, manufacturer or fabricator of material being inspected or tested.

.3 Include copy of all inspection and test reports in Commissioning Manuals.

1.9 MOCK-UPS

.1 Prepare mock-ups for Work specifically requested in specifications. Include for Work of all Sections required to provide mock-ups.

.2 Construct in all locations acceptable to Engineer/Architect as specified in specific Section.

.3 Prepare mock-ups for Engineer's/Architect review with reasonable promptness and in an orderly sequence, so as not to cause any delay in Work.

.4 Failure to prepare mock-ups in ample time is not considered sufficient reason for an extension of Contract Time and no claim for extension by reason of such default will be allowed.

.5 Remove mock-up at conclusion of Work or when acceptable to Engineer/Architect

.6 Specification section identifies whether mock-up may remain as part of Work or if it is to be removed and when.

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

.8 Mock-ups may remain as part of Work.

1.10 EQUIPMENT AND SYSTEMS

.1 Submit adjustment and balancing reports for mechanical, electrical and building equipment systems.

.2 Mechanical – coordinate with mechanical division.

.3 Electrical – Coordinate with electrical division.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION

PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 01 52 00 - Construction Facilities.

.2 Section 01 56 00 - Temporary Barriers and Enclosures.

1.2 INSTALLATION AND REMOVAL

.1 Provide temporary utilities controls in order to execute work expeditiously.

.2 Remove from site all such work after use.

1.3 DEWATERING

.1 Provide temporary drainage and pumping facilities to keep excavations and site free from standing water.

1.4 WATER SUPPLY

.1 Arrange for connection with appropriate utility company and pay all costs for installation, maintenance and removal.

1.5 TEMPORARY HEATING AND VENTILATION

.1 Pay for costs of temporary heat and ventilation used during construction, including costs of installation, fuel operation, maintenance and removal of equipment. Use of direct, fired heaters discharging waste products into work areas will not be permitted unless prior approval is given by Engineer/Architect.

.2 Construction heaters used inside building must be vented to outside or be non-flameless type. Solid fuel salamanders are not permitted.

.3 Provide 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 Prevent moisture condensation on surfaces.
- .4 Provide ambient temperatures and humidity levels for storage, installation and curing of materials.
- .5 Provide adequate ventilation to meet health regulations for safe working environment.

.4 Maintain temperatures of minimum 10°C and relative humidity less than 60% in areas where construction is in progress.

.1 Maintain minimum temperature of 10°C or higher where specified as soon as finished work is commenced. Maintain until acceptance of structure by Engineer/Architect.

.2 Maintain ambient temperature and humidity levels as required for comfort of office personnel.

.5 Ventilating:

.1 Prevent accumulations of dust, fumes, mists, vapours or gases in areas occupied during construction.

.2 Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas.

.3 Dispose of exhaust materials in manner that will not result in harmful exposure to persons.

.4 Ventilate storage spaces containing hazardous or volatile materials.

.5 Ventilate temporary sanitary facilities.

.6 Continue operation of ventilation and exhaust system for time after cessation of work process to assure removal of harmful contaminants.

.6 Maintain strict supervision of operation of temporary heating and ventilating equipment to:

.1 Conform with applicable codes and standards.

.2 Enforce safe practices.

.3 Prevent abuse of services.

.4 Prevent damage to finishes.

.5 Vent direct-fired combustion units to outside.

.7 Be responsible for damage to Work due to failure in providing adequate heat, humidity and protection during construction.

.8 Use of new or existing systems for temporary heating, ventilating or air conditioning will not be permitted.

1.6 TEMPORARY POWER AND LIGHT

.1 Power supply is available and will be provided for construction usage.

.1 Make arrangements for the use of such services through the Departmental Representative.

.2 Departmental Representative will designate and approve each location of existing power source to which connections can be made to obtain temporary power service.

.3 Connect to existing power supply in accordance with Canadian Electrical Code, latest edition.

.2 Provide and maintain temporary lighting to conduct work. Ensure illumination level is not less than 162 lx in all locations.

.3 Electrical power and lighting systems installed under this Contract can be used for construction requirements provided that guarantees are not affected thereby. Make good damage. Replace lamps which have been used over period of 3 months.

.4 Temporary power for electric cranes and other equipment requiring in excess of above is responsibility of Contractor.

1.7 FIRE PROTECTION

.1 Provide and maintain temporary fire protection equipment during performance of Work required by insurance companies having jurisdiction and governing codes, regulations and bylaws.

.2 Burning rubbish and construction waste materials is not permitted on site.

1.8 SANITARY FACILITIES

.1 Provide sanitary facilities for work force in accordance with governing regulations and ordinances.

.2 Post notices and take precautions as required by local health authorities. Keep area and premises in sanitary condition.

.3 When permanent water and drain connections are completed, provide temporary water closets and urinals complete with temporary enclosures, inside building. Permanent facilities may be used on approval of Engineer/Architect.

1.9 TEMPORARY COMMUNICATION FACILITIES

.1 Provide and pay for temporary telephone, fax, data hook up, lines and equipment necessary for own use and use of Engineer/Architect.

1.10 SITE SIGN AND NOTICES

.1 Contractor is responsible for the construction of job sign frame and the installation of the plywood job sign. Timber frame shall be constructed as specified and detailed on “Job Sign Support Frame Detail”. Plywood job sign shall be as per layout on “Job Sign Detail”. Plywood job sign and timber frame shall remain the property of the Owner and shall be disposed of at the discretion of the Owner.

.2 Locate job sign as directed by Engineer/Architect so as to ensure good visibility by passing traffic.

.3 Construct timber job sign frame using two (2) 140 x 140mm timber posts set vertically in concrete to a ground depth of 1000mm or below the frost line, whichever is greater. Install three (3) 38 x 89mm horizontal timber braces, all as shown on "Job Sign Support Frame Detail". Attach plywood sign to timber frame using galvanized nails. Paint timber frame with two (2) coats of white paint if using untreated timber. Backfill compact and level ground around job sign frame to the satisfaction of the Engineer/Architect.

1.11 REMOVAL OF TEMPORARY FACILITIES

.1 Remove temporary facilities from site when directed by Engineer/Architect.

.2 When project is closed down at end of construction season keep temporary facilities operational until close down or removal is approved by Engineer/Architect.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

.1 Construction aids.

.2 Office and sheds.

.3 Parking.

.4 Project identification.

1.2 RELATED SECTIONS

.1 Section 01 35 29.06 – Health and Safety Requirements

.2 Section 01 51 00 - Temporary Utilities.

.3 Section 01 56 00 - Temporary Barriers and Enclosures.

1.3 INSTALLATION AND REMOVAL

.1 Provide construction facilities in order to execute work expeditiously.

.2 Remove from site all such work after use.

1.4 SCAFFOLDING

.1 Provide and maintain scaffolding in rigid, secure and safe manner.

.2 Erect scaffolding independent of walls. Remove promptly when no longer required. Refer to Section 01 35 29.06 – Health and Safety Requirements.

1.5 HOISTING

.1 Provide, operate and maintain hoists cranes required for moving of workers, materials and equipment. Make financial arrangements with Subcontractors for use thereof.

.2 Hoists cranes shall be operated by certified operator.

1.6 SITE STORAGE/LOADING

.1 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.

.2 Do not load or permit to load any part of Work with a weight or force that will endanger the Work.

1.7 CONSTRUCTION PARKING

.1 Parking will be permitted on site provided it does not disrupt performance of work.

.2 Provide and maintain adequate access to project site.

.3 Build and maintain temporary roads where indicated or directed by Engineer/Architect and provide snow removal during period of Work.

.4 If authorized to use existing roads for access to project site, maintain such roads for duration of Contract and make good damage resulting from Contractor's use of roads.

1.8 CONTRACTOR'S SITE OFFICES

.1 Provide office heated to 22 ^{o}C, lighted 750 lx and ventilated, of sufficient size to accommodate site meetings and furnished with drawing laydown table, fax machine, telephone, file cabinet and chair.

.2 Provide a clearly marked and fully stocked first-aid case in a readily available location.

.3 Subcontractors may provide their own offices as necessary. Direct location of these offices.

1.9 ENGINEER/ARCHITECT SITE OFFICE

.1 Provide temporary office for Engineer/Architect.

.2 Inside dimensions minimum 3.6m long x 3m wide x2.4m high, with floor 0.3m above grade, complete with 4 - 50% opening windows and one lockable door.

.3 Insulate building and provide heating system to maintain 22°C inside temperature at -20°C outside temperature.

.4 Finish inside walls and ceiling with plywood, hardboard or wallboard and paint in selected colours. Finish floor with 19mm thick plywood.

.5 Install electrical lighting system to provide min 750 lx using surface mounted, shielded commercial fixtures with 10% upward light component.

.6 Site office to have washroom facility complete with running water and sewage disposal. Maintain supply of washroom supplies.

.7 Equip office with drawing laydown table, fax machine, file cabinet, two chairs, telephone, phone line for internet.

.8 Maintain in clean condition.

1.10 EQUIPMENT, TOOL AND MATERIALS STORAGE

.1 Provide and maintain, in a clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.

.2 Locate materials not required to be stored in weatherproof sheds on site in a manner to cause least interference with work activities.

1.11 SANITARY FACILITIES

.1 Provide sanitary facilities for work force in accordance with governing regulations and ordinances.

.2 Post notices and take precautions as required by local health authorities. Keep area and premises in sanitary condition.

1.12 CLEAN-UP

.1 Remove construction debris, waste materials, packaging material from work site daily.

.2 Clean dirt or mud tracked onto paved or surfaced roadways.

.3 Store materials resulting from demolition activities that are salvageable.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

.1 Barriers.

.2 Environmental Controls.

.3 Traffic Controls.

.4 Fire Routes.

1.2 RELATED SECTIONS

.1 Section 01 35 00 – Infection Control

.2 Section 01 35 99 – Dust Control Procedures.

.3 Section 01 51 00 – Temporary Utilities.

.4 Section 01 52 00 – Construction Facilities.

1.3 INSTALLATION AND REMOVAL

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

.2 Remove from site all such work after use.

1.4 HOARDING

.1 Erect temporary site enclosures, as necessary for public and staff safety, and as may be specified and/or detailed elsewhere in the Contract Documents, using 38 x 89 mm construction grade lumber framing at 600 mm centres, installed on 89 x 89 mm wood posts at 2400 mm centres or 50 mm dia. steel posts at 2400 mm centres. Posts to be place in post holes filled with concrete to minimum 900 mm depth. Finish temporary site enclosures with 1200 x 2400 x 13 mm exterior grade fir plywood to CSA O121 or chain link fence fabric to Section 32 31 13 –Chain Link Fences and Gates.

.2 Apply plywood panels or chain link fence fabric vertically flush and butt jointed.

.3 Provide one lockable truck entrance gate and at least one pedestrian door as directed and conforming to applicable traffic restrictions on adjacent streets. Equip gates with locks and keys.

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

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

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

1.5 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.

.2 Provide as required by governing authorities.

1.6 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 Erect enclosures to allow access for installation of materials and working inside enclosure.

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

1.7 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.

1.8 ACCESS TO SITE

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

.2 Build and maintain temporary roads where indicated or directed and provide snow removal during period on work.

.3 If authorized to use existing roads for access to project site, maintain such roads for duration of Contract and make good damage resulting from Contractor’s use of roads.

1.9 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 the public.

1.10 FIRE ROUTES

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

1.11 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.

1.12 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 Engineer/Architect 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 (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

.1 Product quality, availability, storage, handling, protection, and transportation.

.2 Manufacturer's instructions.

.3 Quality of Work, coordination and fastenings.

1.2 RELATED SECTIONS

.1 Section 01 45 00 – Quality Control.

.2 Section 01 73 00 – Execution.

1.3 REFERENCES

.1 Within text of each specifications section, reference may be made to reference standards. Conform to these reference standards, in whole or in part as specifically requested in specifications.

.2 Conform to latest date of issue of referenced standards in effect on date of submission of Tenders, except where specific date or issue is specifically noted.

1.4 QUALITY

.1 Products, materials, equipment and articles (referred to as products throughout specifications) incorporated in Work shall be new, not damaged or defective, and of best quality (compatible with specifications) for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.

.2 Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.

.3 Should any dispute arise as to quality or fitness of products, decision rests strictly with Engineer /Architect based upon requirements of Contract Documents.

.4 Within 7 (seven) days of written request by Engineer/Architect, submit following information for material and equipment proposed for supply:

.1 Name and address of manufacturer.

.2 trade name, model and catalogue number,

.3 performance, descriptive and test data,

.4 manufacturer's installation or application instructions,

.5 evidence of arrangements to procure.

.5 Use products of one manufacturer for material and equipment of same type or classification unless otherwise specified.

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

1.5 AVAILABILITY

.1 Immediately upon signing Contract, review product delivery requirements and anticipate foreseeable supply delays for any items. If delays in supply of products are foreseeable, notify Engineer/Architect of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of work.

.2 In event of failure to notify Engineer/Architect at commencement of Work and should it subsequently appear that Work may be delayed for such reason, Engineer/Architect reserves right to substitute more readily available products of similar character, at no increase in Contract Price or Contract Time.

1.6 STORAGE, HANDLING AND PROTECTION

.1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.

.2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.

.3 Store products subject to damage from weather in weatherproof enclosures.

.4 Store cementitious products clear of earth or concrete floors, and away from walls.

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

.6 Store sheet materials, lumber on flat, solid supports and keep clear of ground. Slope to shed moisture.

.7 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.

.8 Remove and replace damaged products at own expense and to satisfaction of Engineer/Architect.

.9 Touch-up damaged factory finished surfaces to Engineer/Architect satisfaction. Use touch-up materials to match original. Do not paint over name plates.

1.7 TRANSPORTATION

.1 Pay costs of transportation of products required in performance of Work.

1.8 MANUFACTURER'S INSTRUCTIONS

.1 Unless otherwise indicated in specifications, install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.

.2 Notify Engineer/Architect in writing, of conflicts between specifications and manufacturer's instructions, so that Engineer/Architect may establish course of action.

.3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes Engineer/Architect to require removal and re-installation at no increase in Contract Price or Contract Time.

1.9 QUALITY OF WORK

.1 Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify Engineer/Architect if required Work is such as to make it impractical to produce required results.

.2 Do not employ anyone unskilled in their required duties. Engineer/Architect reserves right to require dismissal from site, workers deemed incompetent or careless.

.3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Engineer/Architect, whose decision is final.

1.10 CO-ORDINATION

.1 Ensure cooperation of workers in laying out Work. Maintain efficient and continuous supervision.

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

1.11 CONCEALMENT

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

.2 Before installation, inform Engineer/Architect if there is interference. Install as directed by Engineer/Architect.

1.12 REMEDIAL WORK

.1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Coordinate adjacent affected Work as required.

.2 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.

1.13 LOCATION OF FIXTURES

.1 Consider location of fixtures, outlets, and mechanical and electrical items indicated as approximate.

.2 Locate equipment, fixtures and distribution systems to provide minimum interference and maximum usable space and in accordance with manufacturer's recommendations for safety, access and maintenance.

.3 Inform Engineer/Architect of conflicting installation. Install as directed.

.4 Submit field drawings to indicate relative position of various services and equipment when required by Engineer/Architect.

1.14 FASTENINGS GENERAL

.1 Provide metal fastenings and accessories in same texture, colour and finish as base metal in which they occur. Prevent electrolytic action between dissimilar metals. Use non-corrosive fasteners, anchors and spacers for securing exterior work, unless stainless steel or other material is specifically requested in affected specification section.

.2 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wood plugs are not acceptable.

.3 Conceal fasteners where indicated. Space evenly and lay out neatly.

.4 Fastenings which cause Spalding or cracking are not acceptable.

.5 Obtain Engineer/Architect's approval before using explosive actuated fastening devices. If approval is obtained comply with CSA Z166.

1.15 FASTENINGS - EQUIPMENT

.1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.

.2 Use heavy hexagon heads, semi-finished unless otherwise specified. Use No. 304 stainless steel for exterior areas.

.3 Bolts may not project more than one diameter beyond nuts.

.4 Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur. Use resilient washers with stainless steel.

1.16 PROTECTION OF WORK IN PROGRESS

.1 Prevent overloading of any part of building. Do not cut, drill or sleeve any load bearing structural member, unless specifically indicated without written approval of Engineer/Architect.

1.17 EXISTING UTILITIES

.1 When breaking into or connecting to existing services or utilities, execute work at times directed by local governing authorities, with minimum of disturbance to work.

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

.3 Submit schedule to and obtain approval from Engineer/Architect for any shut-down or closure of active services or facility. Adhere to approved schedule and provide notice to affected parties.

.4 Where unknown services are encountered, immediately advise Engineer/Architect and confirm findings in writing.

.5 Remove abandoned services lines within 2m of structures. Cap or otherwise seal lines at cut-off points as directed by Engineer/Architect.

1.18 SELECTION OF MATERIAL AND EQUIPMENT

.1 Material and equipment will be specified in the tender documents, and selected by Contractor, by one or more of the following methods:

.1 Specification by reference to a relevant Standard, such as CSA, ASTM, ULC, etc., select any material or equipment that meets or exceeds the specified.

.2 Specification by reference to an accepted product evaluation publication, such as the CGSB “Qualified Products List”, or CCMC Registry of Product Evaluations”, - select any manufacturer’s product so listed.

.3 Specification by Prescriptive or Performance specification – select any material or equipment meeting or exceeding specification.

.4 Specification by identification of one or more Manufacturer’s specific product(s) as an “Acceptable Product”, along with a listing of other manufacturers who may offer equivalent products – select any product so named, or select from equivalent product(s) of other listed manufacturers.

.2 "Acceptable Product" is deemed to be a complete and working commodity as described by a manufacturer's name, catalogue number, trade name, or any combination thereof, and will constitute the minimum standard of acceptance.

.3 Engineer/Architect will determine acceptability of Contractor's selection of material and equipment at time of Shop Drawing review.

.4 When material or equipment is specified by a Standard, Prescriptive or Performance specification, upon request of the Engineer/Architect, obtain from manufacturer an independent laboratory reporting, showing that material or equipment meets or exceeds the specified requirements.

1.19 SUBSTITUTION OF MATERIAL AND EQUIPMENT

.1 **Prior to Tender** closing bidders may propose addition of other manufacturer's names to those listed in the tender documents providing requests are made in writing at least 7 days prior to tender closing date or bid depository where bid depository is used. Engineer/Architect will inform all prospective bidders of decision by addendum, issued at least 5 days prior to the tender closing date.

Where no manufacturer's names are listed, the onus is on contractor to provide material and equipment to meet performance specification.

.2 **After Contract award** substitutions of material or equipment, other than as selected by Contractor from those specified, will be considered by Engineer/Architect only if:

.1 material or equipment selected from those specified are not available

.2 delivery date of material or equipment selected from those specified would unduly delay completion of the Contract; or

.3 alternative material or equipment to those specified, provided they are determined by the Engineer/Architect to be equivalent to or better that those specified, will result in a credit to the Contract amount.

.3 Requests for substitutions after Contract award must be accompanied by sufficient information in the form of shop drawings, manufacturer's literature, samples or other data to permit proper investigation of the substitutes used. Requests must also include statements of respective costs of material or equipment originally specified and the proposed substitution.

.4 Should a proposed substitution be accepted after Contract award either in part or in whole, assume full responsibility and costs when substitution affects other work on Project. Contractor to pay for design or drawing changes required as a result of the substitution.

.5 Amounts of all credits arising from approval of substitutions after Contract award will be determined by Engineer/Architect and the Contract amount will be reduced accordingly.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

.1 Field engineering survey services to measure and stake site.

.2 Survey services to establish and confirm inverts for Work.

.3 Recording of subsurface conditions found.

1.2 QUALIFICATIONS OF SURVEYOR

.1 Qualified registered land surveyor, licensed to practise in the Province of Newfoundland and Labrador.

1.3 SURVEY REFERENCE POINTS

.1 Existing base horizontal and vertical control points are designated on drawings.

.2 Locate, confirm and protect control points prior to starting site work. Preserve permanent reference points during construction.

.3 Make no changes or relocations without prior written notice to Engineer/Architect.

.4 Report to Engineer/Architect when reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.

.5 Require surveyor to replace control points in accordance with original survey control.

1.4 SURVEY REQUIREMENTS

.1 Establish permanent bench marks on site, referenced to established bench marks by survey control points. Record locations, with horizontal and vertical data in Project Record Documents.

.2 Establish lines and levels, locate and lay out, by instrumentation.

.3 Stake for grading, fill placement .

.4 Establish pipe invert elevations.

.5 Stake batter boards for foundations.

.6 Establish foundation column locations and floor elevations.

.7 Establish lines and levels for mechanical and electrical work.

1.5 EXISTING SERVICES

.1 Where work involves breaking into or connecting to existing services, carry out work at times directed by authorities having jurisdiction, with minimum of disturbance to pedestrian and vehicular traffic.

.2 Before commencing work, establish location and extent of service lines in area of Work and notify Engineer/Architect of findings.

.3 Remove abandoned service lines within 2 m of structures. Cap or otherwise seal lines at cut-off points as directed by Engineer/Architect.

1.6 LOCATION OF EQUIPMENT AND FIXTURES

.1 Location of equipment, fixtures and outlets indicated 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 manufacturer's recommendations for safety, access and maintenance.

.3 Inform Engineer/ Architect of impending installation and obtain approval for actual location.

.4 Submit field drawings to indicate relative position of various services and equipment when required by Engineer/Architect.

1.7 RECORDS

.1 Maintain a complete, accurate log of control and survey work as it progresses.

.2 Record locations of maintained, re-routed and abandoned service lines.

1.8 SUBMITTALS

.1 Submit name and address of Surveyor to Engineer/Architect.

.2 On request of Engineer/Architect, submit documentation to verify accuracy of field engineering work.

.3 Submit certificate signed by surveyor certifying and noting those elevations and locations of completed Work that conform and do not conform with Contract Documents.

1.9 SUBSURFACE CONDITIONS

.1 Promptly notify Consultant in writing if subsurface conditions at Place of Work differ materially from those indicated in Contract Documents, or a reasonable assumption of probable conditions based thereon.

.2 After prompt investigation, should Engineer/Architect determine that conditions do differ materially, instructions will be issued for changes in Work.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

.1 Requirements and limitations for cutting and patching the Work.

1.2 RELATED SECTIONS

.1 Section 01 11 00 - Summary of Work.

.2 Section 01 33 00 - Submittal Procedures.

1.3 SUBMITTALS

.1 Submit written request in advance of cutting or alteration which affects:

- .1 Structural integrity of any element of Project.
- .2 Integrity of weather-exposed or moisture-resistant elements.
- .3 Efficiency, maintenance, or safety of any operational element.
- .4 Visual qualities of sight-exposed elements.
- .5 Work of Owner or separate contractor.

.2 Include in request:

- .1 Identification of Project.
- .2 Location and description of affected Work.
- .3 Statement on necessity for cutting or alteration.
- .4 Description of proposed Work, and products to be used.
- .5 Alternatives to cutting and patching.
- .6 Effect on Work of Owner or separate contractor.
- .7 Written permission of affected separate contractor.
- .8 Date and time work will be executed.

1.4 PREPARATION

.1 Inspect existing conditions, including elements subject to damage or movement during cutting and patching.

.2 After uncovering, inspect conditions affecting performance of Work.

.3 Beginning of cutting or patching means acceptance of existing conditions.

.4 Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of project from damage.

.5 Provide protection from elements for areas which may be exposed by uncovering work; maintain excavations free of water.

.6 Obtain Engineer/Architect's approval before cutting, boring or sleeving load-bearing members.

1.5 EXECUTION

.1 Execute cutting, fitting, and patching including excavation and fill, to complete Work.

.2 Fit several parts together, to integrate with other Work.

.3 Uncover Work to install ill-timed Work.

.4 Remove and replace defective and non-conforming Work.

.5 Provide openings in non-structural elements of Work for penetrations of mechanical and electrical Work.

.6 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.

.7 Employ original installer to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.

.8 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed on masonry work without prior approval.

.9 Restore work with new products in accordance with requirements of Contract Documents.

.10 Fit Work to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

.11 At penetration of fire rated wall, ceiling, or floor construction, completely seal voids with firestopping material in accordance with Section 07 84 00 - Firestopping, full thickness of the construction element.

.12 Refinish surfaces to match adjacent finishes: For continuous surfaces refinish to nearest intersection; for an assembly, refinish entire unit.

.13 Conceal pipes, ducts and wiring in floor, wall and ceiling construction of finished areas except where indicated otherwise.

.14 Make cuts with clean, true, smooth edges.

.15 Where new work connects with existing, and where existing work is altered, cut, patch and make good to match existing work.

1.6 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials in accordance with Section 01 74 21 – Construction/Demolition Waste Management and Disposal.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION

PART 1 GENERAL

1.1 GENERAL

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

.2 Store volatile waste in covered metal containers and remove from premises at end of each working day.

.3 Provide adequate ventilation during use of volatile or noxious substances. Use for building ventilation systems is not permitted for this purpose.

1.2 RELATED SECTION

.1 Section 01 77 00 - Closeout Procedures.

1.3 PROJECT CLEANLINESS

.1 Maintain Work in tidy condition, free from accumulation of waste products and debris, other than that caused by Owner or other Contractors.

.2 Remove waste materials and debris from site at the end of each working day. Do not burn waste materials on site.

.3 Clear snow and ice from access to building.

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

.5 Provide on-site containers for collection of waste materials and debris.

.6 Clean interior areas prior to start of finish work, maintain areas free of dust and other contaminants during finishing operations.

.7 Store volatile waste in covered metal containers, and remove from premises at end of each working day.

.8 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.

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

.10 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

1.4 FINAL CLEANING

.1 Refer to General Conditions.

.2 When Work is Substantially Performed, remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.

.3 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.

.4 When the Work is Totally Performed, remove surplus products, tools, construction machinery and equipment. Remove waste products and debris other than that caused by the Owner or other Contractors.

.5 Remove waste materials from the site at regularly scheduled times or dispose of as directed by the Engineer/Architect. Do not burn waste materials on site.

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

.7 Leave the work broom clean before the inspection process commences.

.8 Clean and polish glass, mirrors, hardware, wall tile, stainless steel, chrome, porcelain enamel, baked enamel, plastic laminate, and mechanical and electrical fixtures. Replace broken, scratched or disfigured glass.

.9 Remove stains, spots, marks and dirt from decorative work, electrical and mechanical fixtures, furniture fitments, walls, floors and ceilings.

.10 Clean lighting reflectors, lenses, and other lighting surfaces.

.11 Vacuum clean and dust building interiors, behind grilles, louvres and screens.

.12 Wax, seal, shampoo or prepare floor finishes, as recommended by manufacturer.

.13 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.

.14 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.

.15 Remove dirt and other disfiguration from exterior surfaces.

.16 Clean and sweep roofs.

.17 Sweep and wash clean paved areas.

.18 Clean equipment and fixtures to a sanitary condition; clean or replace filters of mechanical equipment.

.19 Remove snow and ice from access to building.

1.5 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

.1 Text, schedules and procedures for systematic Waste Management Program for construction, deconstruction, demolition, and renovation projects, including:

- .1 Diversion of Materials.
- .2 Waste Audit (WA) - Schedule A.
- .3 Waste Reduction Workplan (WRW) - Schedule B.
- .4 Demolition Waste Audit (DWA) - Schedule C.
- .5 Cost/Revenue Analysis Workplan (CRAW) - Schedule D.
- .6 Materials Source Separation Program (MSSP).
- .7 Canadian Governmental Responsibility for the Environment Resources - Schedule E.

1.2 DEFINITIONS

.1 Demolition Waste Audit (DWA): Relates to actual waste generated from project.

.2 Materials Source Separation Program (MSSP): Consists of series of ongoing activities to separate reusable and recyclable waste material into material categories from other types of waste at point of generation.

.3 Recyclable: Ability of product or material to be recovered at end of its life cycle and re-manufactured into new product for reuse by others.

.4 Recycle: Process by which waste and recyclable materials are transformed or collected for purpose of being transferred into new products.

.5 Recycling: Process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for purpose of using in altered form. Recycling does not include burning, incinerating, or thermally destroying waste.

.6 Reuse: Repeated use of product in same form but not necessarily for same purpose. Reuse includes:

- .1 Salvaging reusable materials from re-modelling projects, before demolition stage, for resale, reuse on current project or for storage for use on future projects.
- .2 Returning reusable items including pallets or unused products to vendors.

.7 Salvage: Removal of structural and non-structural materials from deconstruction/disassembly projects for purpose of reuse or recycling.

.8 Separate Condition: Refers to waste sorted into individual types.

.9 Source Separation: Acts of keeping different types of waste materials separate beginning from first time they became waste.

1.3 MATERIALS SOURCE SEPARATION PROGRAM (MSSP)

.1 Prepare MSSP and have ready for use prior to project start-up.

.2 Implement MSSP for waste generated on project in compliance with approved methods and as reviewed by authorities having jurisdiction.

.3 Provide on-site facilities for collection, handling, and storage of anticipated quantities of reusable and recyclable materials.

.4 Provide containers to deposit reusable and recyclable materials.

.5 Locate containers in locations, to facilitate deposit of materials without hindering daily operations.

.6 Locate separated materials in areas which minimize material damage.

.7 Collect, handle, store on-site, and transport off-site, salvaged materials in separate condition.

.1 Transport to recycling facility.

1.4 STORAGE, HANDLING AND PROTECTION

.1 Unless specified otherwise, materials for removal become Contractor's property.

.2 Protect, stockpile, store and catalogue salvaged items.

.3 Separate non-salvageable materials from salvaged items. Transport and deliver non-salvageable items to approved local facility.

.4 Protect structural components not removed for demolition from movement or damage.

.5 Support affected structures. If safety of building is endangered, cease operations and immediately notify Department having jurisdiction.

.6 Protect surface drainage, mechanical and electrical from damage and blockage.

.7 Separate and store materials produced during dismantling of structures in designated areas.

.8 Prevent contamination of materials to be salvaged and recycled and handle materials in accordance with requirements for acceptance by designated facilities.

.1 On-site source separation is recommended.

1.5 DISPOSAL OF WASTES

.1 Do not bury rubbish or waste materials.

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

.3 Remove materials from deconstruction as deconstruction/disassembly Work progresses.

.4 Prepare project summary to verify destination and quantities on a material-by-material basis as identified in pre-demolition material audit.

1.6 USE OF SITE AND FACILITIES

.1 Execute work with least possible interference or disturbance to normal use of premises.

.2 Provide security measures approved by Engineer/Architect.

1.7 SCHEDULING

.1 Coordinate Work with other activities at site to ensure timely and orderly progress of Work.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.1 APPLICATION

.1 Handle waste materials not reused, salvaged, or recycled in accordance with appropriate regulations and codes.

3.2 CLEANING

.1 Remove tools and waste materials on completion of Work, and leave work area in clean and orderly condition.

.2 Clean-up work area as work progresses.

.3 Source separate materials to be reused/recycled into specified sort areas.

3.3 DIVERSION OF MATERIALS

.1 From following list, separate materials from general waste stream and stockpile in separate piles or containers, as reviewed by Engineer/Architect and consistent with applicable fire regulations.

.1 Mark containers or stockpile areas.

.2 Provide instruction on disposal practices.

.2 On-site sale or distribution of salvaged materials to third parties in not permitted.

END OF SECTION

PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 01 74 11 - Cleaning.

.2 Section 01 78 00 - Closeout Submittals.

.3 Section 01 91 13 – General Commissioning (Cx) Requirements.

1.2 FINAL INSPECTION AND DECLARATION PROCEDURES

.1 Contractor's Inspection: The Contractor and all Subcontractors shall conduct an inspection of Work, identify deficiencies and defects; repair as required. Notify the Engineer/Architect in writing of satisfactory completion of the Contractor's Inspection and that corrections have been made. Request an Engineer/Architect's Consultant's Inspection.

.2 Engineer/Architect's Inspection: Engineer/Architect and the Contractor will perform an inspection of the Work to identify obvious defects or deficiencies. The contractor shall correct Work accordingly.

.3 Completion: submit written certificate that the following have been performed:

- .1 Work has been completed and inspected for compliance with Contract Documents.
- .2 Defects have been corrected and deficiencies have been completed.
- .3 Equipment and systems have been tested, adjusted and balanced and are fully operational.
- .4 Certificates required by Fire Commissioner, Utility companies have been submitted.
- .5 Operation of systems have been demonstrated to Owner's personnel.
- .6 Work is complete and ready for Final Inspection.

.4 Final Inspection: When items noted above are completed, request final inspection of Work by the Engineer/Architect, representative of Owner and the Contractor. If Work is deemed incomplete by the Engineer/Architect, complete outstanding items and request a reinspection.

.5 Declaration of Substantial Performance: When the Engineer/Architect considers deficiencies and defects have been corrected and it appears requirements of Contract have been substantially performed, make application for Certificate of Substantial Performance. Refer to General Conditions for specifics to application.

.6 Commencement of Lien and Warranty Periods: The date of Owner acceptance of the submitted declaration of Substantial Performance shall be the date for commencement for the warranty period and commencement of the lien period.

.7 Declaration of Total Performance: When the Engineer/Architect considers final deficiencies and defects have been corrected and it appears requirements of the Contract have been totally performed, make application for certificate of Total Performance. Refer to General Conditions for specifics to application. If Work is deemed incomplete by the Consultant, complete the outstanding items and request a reinspection.

1.3 REINSPECTION

.1 Should status of work require reinspection by Engineer/Architect due to failure of work to comply with Contractor's claims for inspection, Owner will deduct amount of compensation for reinspection services from payment to Contractor.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

.1 As-built, samples, and specifications.

.2 Equipment and systems.

.3 Product data, materials and finishes, and related information.

.4 Operation and maintenance data.

.5 Spare parts, special tools and maintenance materials.

.6 Warranties and bonds.

.7 Final site survey.

1.2 RELATED SECTIONS

.1 Section 01 33 00 – Submittal Procedures.

.2 Section 01 45 00- Quality Control.

.3 Section 01 71 00 – Examination and Preparation.

.4 Section 01 77 00 - Closeout Procedures.

.5 Section 01 91 13 – General Commissioning (Cx) Requirements.

1.3 SUBMISSION

.1 Prepare instructions and data using personnel experienced in maintenance and operation of described products.

.2 Submit one copy of completed volumes in final form 15 days prior to final inspection.

.3 Copy will be returned after final inspection, with Engineer/Architect's comments.

.4 Revise content of documents as required prior to final submittal.

.5 Two weeks prior to Substantial Performance of the Work, submit to the Engineer/Architect, two final copies of operating and maintenance manuals.

.6 Ensure spare parts, maintenance materials and special tools provided are new, undamaged or defective, and of same quality and manufacture as products provided in Work.

.7 If requested, furnish evidence as to type, source and quality of products provided.

.8 Defective products will be rejected, regardless of previous inspections. Replace products at own expense.

.9 Pay costs of transportation.

1.4 FORMAT

.1 Organize data in the form of an instructional manual.

.2 Binders: vinyl, hard covered, 3 'D' ring, loose leaf 219 x 279 mm with spine and face pockets.

.3 When multiple binders are used, correlate data into related consistent groupings. Identify contents of each binder on spine.

.4 Cover: Identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.

.5 Arrange content under Section numbers and sequence of Table of Contents.

.6 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.

.7 Text: Manufacturer's printed data, or typewritten data.

.8 Drawings: provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

.9 Provide CAD files in DWG format on CD. Also provide electronic files in PDF format.

1.5 CONTENTS - EACH VOLUME

.1 Table of Contents: provide title of project; names, addresses, and telephone numbers of Consultant and Contractor with name of responsible parties; schedule of products and systems, indexed to content of volume.

.2 For each product or system:

.1 List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.

.3 Product Data: mark each sheet to clearly identify specific products and component parts, and data applicable to installation; delete inapplicable information.

.4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.

.5 Typewritten Text: as required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01 45 00 - Quality Control.

.6 Training: Refer to Section 01 91 13 – General Commissioning (Cx) Requirements.

1.6 AS-BUILTS AND SAMPLES

.1 In addition to requirements in General Conditions, maintain at the site for Engineer/Architect one record copy of:

.1 Contract Drawings.
.2 Specifications.
.3 Addenda.
.4 Change Orders and other modifications to the Contract.
.5 Reviewed shop drawings, product data, and samples.
.6 Field test records.
.7 Inspection certificates.
.8 Manufacturer's certificates.

.2 Store record documents and samples in field office apart from documents used for construction. Provide files, racks, and secure storage.

.3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual. Label each document "PROJECT RECORD" in neat, large, printed letters.

.4 Maintain record documents in clean, dry and legible condition. Do not use record documents for construction purposes.

.5 Keep record documents and samples available for inspection by Engineer/Architect.

1.7 RECORDING ACTUAL SITE CONDITIONS

.1 Record information on set of blue line opaque drawings, provided by Engineer/Architect.

.2 Provide felt tip marking pens, maintaining red color pens for recording information.

.3 Record information concurrently with construction progress. Do not conceal Work until required information is recorded.

.4 Contract Drawings and shop drawings: legibly mark each item to record actual construction, including:

.1 Measured depths of elements of foundation in relation to finish first floor datum.

.2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.

.3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.

.4 Field changes of dimension and detail.

.5 Changes made by change orders.

.6 Details not on original Contract Drawings.

.7 References to related shop drawings and modifications.

.5 Specifications: legibly mark each item to record actual construction, including:

.1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.

.2 Changes made by Addenda and change orders.

.6 Other Documents: submit manufacturer's certifications, inspection certifications, field test records, required by individual specifications sections.

.7 At completion of project provide all recorded information on print drawings or alternatively transfer to CAD files in DWG format. Submit DWG files, also with electronic files in PDF format as part of the Closeout Submittals..

1.8 FINAL SURVEY

.1 Submit final site survey certificate certifying that elevations and locations of completed Work are in conformance, or non-conformance with Contract Documents.

1.9 EQUIPMENT AND SYSTEMS

.1 Each Item of Equipment and Each System: include description of unit or system, and component parts. Give function, normal operation characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.

.2 Panel board circuit directories: provide electrical service characteristics, controls, and communications.

.3 Include installed colour coded wiring diagrams.

.4 Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.

.5 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

.6 Provide servicing and lubrication schedule, and list of lubricants required.

.7 Include manufacturer's printed operation and maintenance instructions.

.8 Include sequence of operation by controls manufacturer.

.9 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

.10 Provide installed control diagrams by controls manufacturer.

.11 Provide Contractor's coordination drawings, with installed colour coded piping diagrams.

.12 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.

.13 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

.14 Include test and balancing reports

.15 Additional requirements: As specified in individual specification sections.

1.10 MATERIALS AND FINISHES

.1 Building Products, Applied Materials, and Finishes: include product data, with catalogue number, size, composition, and colour and texture designations. Provide information for re-ordering custom manufactured products.

.2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

.3 Moisture-protection and Weather-exposed Products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

.4 Additional Requirements: as specified in individual specifications sections.

1.11 SPARE PARTS

.1 Provide spare parts, in quantities specified in individual specification sections.

.2 Provide items of same manufacture and quality as items in Work.

.3 Deliver to site location as directed; place and store.

.4 Receive and catalogue all items. Submit inventory listing to Engineer/Architect. Include approved listings in Maintenance Manual.

.5 Obtain receipt for delivered products and submit prior to final payment.

1.12 MAINTENANCE MATERIALS

.1 Provide maintenance and extra materials, in quantities specified in individual specification sections.

.2 Provide items of same manufacture and quality as items in Work.

.3 Deliver to site location as directed; place and store.

.4 Receive and catalogue all items. Submit inventory listing to Engineer/Architect. Include approved listings in Maintenance Manual.

.5 Obtain receipt for delivered products and submit prior to final payment.

1.13 SPECIAL TOOLS

.1 Provide special tools, in quantities specified in individual specification section.

.2 Provide items with tags identifying their associated function and equipment.

.3 Deliver to project site place and store.

.4 Receive and catalogue all items. Submit inventory listing to Engineer/Architect. Include approved listings in Maintenance Manual.

1.14 STORAGE, HANDLING AND PROTECTION

.1 Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.

.2 Store in original and undamaged condition with manufacturer's seal and labels intact.

.3 Store components subject to damage from weather in weatherproof enclosures.

.4 Store paints and freezable materials in a heated and ventilated room.

.5 Remove and replace damaged products at own expense and to satisfaction of Engineer/Architect.

1.15 WARRANTIES AND BONDS

.1 Develop warranty management plan to contain information relevant to Warranties.

.2 Submit warranty management plan to Engineer/Architect’s approval.

.3 Warranty management plan to include required actions and documents to assure that Owner receives warranties to which it is entitled.

.4 Provide plan in narrative form and contain sufficient detail to make it suitable for use by future maintenance and repair personnel.

.5 Assemble approved information in binder and submit upon acceptance of work. Organize binder as follows:

.1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.

.2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

.3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten days after completion of the applicable item of work.

.4 Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial Performance is determined.

.5 Verify that documents are in proper form, contain full information, and are notarized.

.6 Co-execute submittals when required.

.7 Retain warranties and bonds until time specified for submittal.

.6 Include information contained in warranty management plan as follows:

.1 Roles and responsibilities of personnel associated with warranty process, including points of contact and telephone numbers within the organizations of Contractors, subcontractors, manufacturers or suppliers involved.

.2 Listing and status of delivery of Certificates of Warranty for extended warranty items, to include roofs, HVAC balancing, pumps, motors, transformers, and commissioned systems such as fire protection, alarm systems, sprinkler systems, lightning protection systems.

.3 Provide list for each warranted equipment, item, feature of construction or system indicating:

.1 Name of item.

.2 Model and serial numbers.

.3 Location where installed.

.4 Name and phone numbers of manufacturers or suppliers.

.5 Names, addresses and telephone numbers of sources of spare parts.

.6 Warranties and terms of warranty: include one-year overall warranty of construction. Indicate items that have extended warranties and show separate warranty expiration dates.

.7 Cross-reference to warranty certificates as applicable.

.8 Starting point and duration of warranty period.

.9 Summary of maintenance procedures required to continue warranty in force.

.10 Cross-Reference to specific pertinent Operation and Maintenance manuals.

.11 Organization, names and phone numbers of persons to call for warranty service.

.12 Typical response time and repair time expected for various warranted equipment.

.4 Procedure and status of tagging of equipment covered by extended warranties.

.5 Post copies of instructions near selected pieces of equipment where operation is critical for warranty and/or safety reasons.

.7 Respond in a timely manner to oral or written notification of required construction warranty repair work.

.8 Written verification will follow oral instructions. Failure to respond will be cause for the Engineer/Architect to proceed with action against Contractor.

1.16 PRE-WARRANTY CONFERENCE

.1 Meet with Engineer/Architect to develop understanding of requirements of this section. Schedule meeting prior to contract completion, and at time designated by Engineer/Architect.

.2 Engineer/Architect will establish communication procedures for:

.1 Notification of construction warranty defects.

.2 Determine priorities for type of defect.

.3 Determine reasonable time for response.

1.17 WARRANTY TAGS

.1 Tag, at time of installation, each warranted item. Provide durable, oil and water resistant tag approved by Engineer/Architect.

.2 Leave date of acceptance until project is accepted for occupancy.

.3 Indicate following information on tag:

.1 Type of product/material.

.2 Model number.

.3 Serial number.

.4 Contract number.

.5 Warranty period.

.6 Inspector's signature.

.7 Construction Contractor.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION

PART 1 GENERAL

1.1 RELATED REQUIREMENTS

.1 Section 01 11 00 - Summary of Work.

.2 Section 01 35 29.06 - Health and Safety Requirements.

.3 Section 01 35 43 - Environmental Procedures.

.4 Section 01 52 00 - Construction Facilities.

.5 Section 01 56 00 - Temporary Barriers and Enclosures.

.6 Section 01 74 21 – Construction/Demolition Waste Management and Disposal.

1.2 REFERENCE STANDARDS

.1 CSA International

.1 CSA S350, Code of Practice for Safety in Demolition of Structures.

.2 National Research Council Canada (NRC)

.1 National Building Code of Canada, Latest Edition.

.2 National Fire Code of Canada, Latest Edition.

1.3 SITE CONDITIONS

.1 If material resembling spray or trowel-applied asbestos or other designated substance be encountered, stop work, take preventative measures, and notify Owner's Representative immediately. Do not proceed until written instructions have been received.

.2 Notify Owner's Representative before disrupting access or services.

.3 Structures to be demolished to be based on their condition on date that tender is accepted.

.4 Salvage items as identified by Owner's Representative. Remove, protect and store salvaged items as directed by Owner's Representative. Deliver to Owner as directed.

1.4 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials in accordance with Section 01 74 21 – Construction/Demolition Waste Management and Disposal.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.1 EXAMINATION

.1 Inspect building and/or site with Owner's Representative and verify extent and location of items designated for removal, disposal, alternative disposal, recycling, salvage and items to remain.

.2 Locate and protect utilities. Preserve active utilities traversing site in operating condition.

.3 Notify and obtain approval of utility companies before starting demolition.

.4 Disconnect, cap, plug or divert, as required, existing public utilities within the property where they interfere with the execution of the work, in conformity with the requirements of the authorities having jurisdiction. Mark the location of these and previously capped or plugged services on the site and indicate location (horizontal and vertical) on the record drawings. Support, shore up and maintain pipes and conduits encountered.

.1 Immediately notify Owner's Representativeand utility company concerned in case of damage to any utility or service, designated to remain in place.

.2 Immediately notify Owner's Representativeshould uncharted utility or service be encountered, and await instruction in writing regarding remedial action.

3.2 PREPARATION

.1 Temporary Erosion and Sedimentation Control:

.1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to: requirements of authorities having jurisdiction.

.2 Inspect, repair, and maintain erosion and sedimentation control measures during demolition.

.3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal after completion of demolition work..

.2 Protection of In-Place Conditions:

.1 Prevent movement, settlement, or damage to adjacent utilities, and parts of building and landscaping features, structures, to remain in place. Provide bracing and shoring required.

.2 Keep noise, dust, and inconvenience to occupants to minimum.

.3 Protect building systems, services and equipment.

.4 Provide temporary dust screens, covers, railings, supports and other protection as required.

.5 Do Work in accordance with Section 01 35 29.06- Health and Safety Requirements]

.3 Demolition/Removal:

.1 Remove items as indicated.

.2 Removal of Pavements, Curbs and Gutters:

.1 Square up adjacent surfaces to remain in place by saw cutting or other method approved by Owner's Representative.

.2 Protect adjacent joints and load transfer devices.

.3 Protect underlying and adjacent granular materials.

.3 Remove parts of existing [building]to permit new construction.

.4 Trim edges of partially demolished building elements to tolerances as defined by Owner's Representative to suit future use.

3.3 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11- Cleaning.

.1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment.

END OF SECTION

PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.2 Section 06 05 73 - Wood Treatment.

.3 Section 07 52 00 - Modified Bituminous Membrane Roofing

.4 Section 07 91 00 - Joint Sealants.

1.2 REFERENCES

.1 American Society for Testing and Materials (ASTM)

.1 ASTM C36/C36M, Specification for Gypsum Wallboard.

.2 ASTM C578, Specification for Rigid, Cellular Polystyrene Thermal Insulation.

.3 ASTM D5055, Specification for Establishing and Monitoring Structural Capacities of Prefabricated Wood I-Joists.

.2 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-51.32, Sheathing, Membrane, Breather Type.

.2 CAN/CGSB-51.34, Vapour Barrier, Polyethylene Sheet for Use in Building Construction.

.3 CAN/CGSB-71.26, Adhesive for Field-Gluing Plywood to Lumber Framing for Floor Systems.

.3 Canadian Standards Association (CSA)

.1 CSA A123.2, Asphalt Coated Roofing Sheets.

.2 CAN/CSA-A247, Insulating Fiberboard.

.3 CSA B111, Wire Nails, Spikes and Staples.

.4 CAN/CSA-G164, Hot Dip Galvanizing of Irregularly Shaped Articles.

.5 CSA O112 Series, CSA Standards for Wood Adhesives.

.6 CSA O121, Douglas Fir Plywood.

.7 CAN/CSA-O141, Softwood Lumber.

.8 CSA O151, Canadian Softwood Plywood.

.9 CAN/CSA-O325.0, Construction Sheathing.

.4 National Lumber Grades Authority (NLGA)

.1 Standard Grading Rules for Canadian Lumber.

1.3 QUALITY ASSURANCE

.1 Lumber identification: by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.

.2 Plywood, particleboard, OSB and wood based composite panels in accordance with CSA and ANSI standards.

1.4 SUBMITTALS

.1 Submit proof of compatibility between Alkaline Copper Quaternary (ACQ) pressure treated lumber and fasteners to be utilized.

PART 2 PRODUCTS

2.1 FRAMING AND LUMBER MATERIALS

.1 Lumber: unless specified otherwise, softwood, No. 1 or No. 2 grade, S4S, moisture content 19% (S-dry) or less in accordance with following standards:

.1 CAN/CSA-O141.

.2 NLGA Standard Grading Rules for Canadian Lumber.

.2 Framing and board lumber: in accordance with NBC.

.3 Furring, blocking, nailing strips, grounds, rough bucks, fascia backing and sleepers:

.1 Board sizes: "Standard" or better grade.

.2 Dimension sizes: "Standard" light framing or better grade.

.3 Post and timbers sizes: "Standard" or better grade.

.4 Pressure treated material to be Alkaline Copper Quaternary (ACQ).

2.2 PANEL MATERIALS

.1 Plywood, OSB and wood based composite panels: to CAN/CSA-O325.0.

.2 Douglas fir plywood (DFP): to CSA O121, standard construction.

.3 Canadian softwood plywood (CSP): to CSA O151, standard construction.

.4 Insulating fiberboard sheathing: to CAN/CSA-A247.

.5 Expanded polystyrene sheathing: to Section 07 21 13 – Board Insulation.

.6 Gypsum sheathing.

2.3 ACCESSORIES

.1 Exterior wall sheathing paper: to CAN/CGSB-51.32 single ply, spunbonded olefin type coated impregnated as indicated.

.2 Polyethylene film: to Section 07 26 00 – Vapour Retarders.

.3 Sill Gasket Air seal: closed cell polyurethane or polyethylene.

.4 Sealants: Section 07 91 00 – Joint Sealants.

.5 General purpose adhesive: to CSA O112 Series.

.6 Nails, spikes and staples: to CSA B111.

.7 Bolts: 12.5 mm diameter unless indicated otherwise, complete with nuts and washers.

.8 Proprietary fasteners: toggle bolts, expansion shields and lag bolts, screws and lead or inorganic fibre plugs, explosive actuated fastening devices, recommended for purpose by manufacturer.

.9 Joist hangers: minimum 1 mm thick sheet steel, galvanized ZF001 coating designation.

.10 Roof sheathing H-Clips: formed "H" shape, thickness to suit panel material, type approved by Owner's Representative.

2.4 FASTENER FINISHES

.1 Galvanizing: to CAN/CSA-G164, use galvanized fasteners for exterior work, interior highly humid areas and fire-retardant treated lumber.

2.5 WOOD PRESERVATIVE

.1 Surface-applied wood preservative: clear or copper napthenate or 5% pentachlorophenol solution, water repellent preservative.

PART 3 EXECUTION

3.1 PREPARATION

.1 Treat surfaces of material with wood preservative, before installation.

.2 Apply preservative by dipping, or by brush to completely saturate and maintain wet film on surface for minimum 3 minute soak on lumber and one minute soak on plywood.

.3 Re-treat surfaces exposed by cutting, trimming or boring with liberal brush application of preservative before installation.

.4 Treat all material as indicated as follows:

.1 Wood fascia, backing, curbs, nailers.

.2 Wood furring for sheeting/siding on outside surface of exterior masonry concrete walls.

.3 Wood sleepers supporting wood subflooring over concrete slabs in contact with ground or fill.

3.2 INSTALLATION

.1 Comply with requirements of NBC latest edition, Part 9 supplemented by following paragraphs.

.2 Install members true to line, levels and elevations, square and plumb.

.3 Construct continuous members from pieces of longest practical length.

.4 Install spanning members with "crown-edge" up.

.5 Select exposed framing for appearance. Install lumber and panel materials so that grade-marks and other defacing marks are concealed or are removed by sanding where materials are left exposed.

.6 Install subflooring and combined subfloor and underlay with panel end-joints located on solid bearing, staggered at least 800 mm.

.1 In addition to mechanical fasteners, apply subflooring adhesive under panels installed on wood joints. Place continuous adhesive bead in accordance with manufacturer's instructions, single-bead on each joist and double-bead on joists where panel ends butt.

.2 Use decking screws for mechanical fasteners when weather conditions are unsuitable for subflooring adhesive.

.7 Install wall sheathing in accordance with manufacturer's printed instructions.

.8 Install roof sheathing in accordance with requirements of NBC.

.9 Install furring and blocking as required to space-out and support casework, cabinets, wall and ceiling finishes, facings, fascia, soffit, siding electrical equipment mounting boards, and other work as required.

.10 Install furring to support siding applied vertically where there is no blocking and where sheathing is not suitable for direct nailing.

.1 Align and plumb faces of furring and blocking to tolerance of 1:600.

.11 Install rough bucks, nailers and linings to rough openings as required to provide backing for frames and other work.

.12 Install wood cants, fascia backing, nailers, curbs and other wood supports as required and secure using galvanized steel fasteners. Coordinate height of roof curbs with Section 07 52 00 – Modified Bituminous Membrane Roofing.

.13 Install sleepers as indicated.

.14 Use dust collectors and high quality respirator masks when cutting or sanding wood panels.

3.3 ERECTION

.1 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.

.2 Countersink bolts where necessary to provide clearance for other work.

.3 Use nailing disks for soft sheathing as recommended by sheathing manufacturer.

3.4 SCHEDULES

.1 Roof sheathing:

.1 Plywood, DFP or CSP sheathing grade (SHG) T&G edge, 16 mm thick, unless otherwise indicated.

.2 Exterior wall sheathing:

.1 Plywood, DFP or CSP sheathing grade or (SHG) grade, T&G edge, 16 mm thick, unless otherwise indicated.

.2 Expanded polystyrene sheathing, Type 1, RSI indicated, shiplapped edges, thickness as indicated.

.3 Gypsum sheathing.

.3 Subflooring:

.1 Plywood, DFP or CSP sheathing grade (SHG) T&G edge, 19 mm thick, unless otherwise indicated.

.4 Electrical equipment mounting boards:

.1 Plywood, DFP or CSP grade, (G1S) select square edge 16 mm thick, unless otherwise indicated.

.5 Underlay:

.1 Plywood, DFP or CSP sheathing grade (Select), square edge 6 mm thick, unless otherwise indicated.

END OF SECTION

PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 01 29 83 - Payment Procedures for Testing Laboratory Services.

.2 Section 01 74 21 – Construction/Demolition Waste Management and Disposal.

.3 Section 06 10 00 – Rough Carpentry.

1.2 REFERENCES

.1 Canadian Standards Association (CSA)

.1 CSA B111, Wire Nails, Spikes and Staples.

.2 CAN/CSA O80 Series, Wood Preservation.

.3 CSA O86, Engineering Design in Wood.

.2 National Lumber Grades Authority

.1 NLGA Standard Grading Rules for Canadian Lumber.

1.3 QUALITY ASSURANCE

.1 Lumber identification: by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.

PART 2 PRODUCTS

2.1 MATERIALS

.1 Wood decking: to NLGA standard Grading Rules for Canadian Lumber Select grade Spruce 38 mm, predrilled at 750mm o.c. for lateral spiking, single tongue and groove and "Veed" one side. Kiln dry decking to 15% maximum moisture content.

.2 Decking lengths: 1.8 to 6 m or longer with a minimum of 90% planks exceeding 3.0 m. square end trimmed. For single spans shorter than 3 m use decking of same length as span.

.3 Nails: to CSA B111, hot dipped galvanized finish; sizes as recommended in CAN/CSA-O86. Supply 200 mm spiral spikes for lateral nailing.

.4 Splines: galvanized metal, as recommended by decking manufacturer.

.5 Wood preservative: water borne type to CAN/CSA O80.

PART 3 EXECUTION

3.1 INSTALLATION

.1 Do wood deck work in accordance with CAN/CSA O86 except where specified otherwise.

.2 Install decking in accordance with CAN/CSA O86, simple span pattern.

.3 Provide minimum of one bearing support for each plank.

.4 Stagger end joints in adjacent planks minimum of 0.5 m. Separate joints in same area by at least two intervening courses. Avoid joints in first fifth of end spans. Minimize joints in middle third of any span.

.5 Touch up end cuts with preservative where pressure treated lumber is specified.

3.2 FIELD QUALITY CONTROL

.1 Testing moisture content of delivered material will be performed by testing laboratory designated by Owner's Representative.

.2 Owner's Representative will pay for costs of testing as specified in Section 01 29 83-Payment Procedure for Testing Laboratory Procedures.

3.3 CLEANING

.1 Remove tool marks, bruises, and scratches.

3.4 FINISH

.1 Refer to Exterior Painting Section 09 91 13.

3.5 PROTECTION

.1 Protect installed products and components from damage during construction.

.2 Repair damage to adjacent materials caused by wood decking installation.

END OF SECTION

PART 1 GENERAL

1.1 RELATED DOCUMENTS

.1 Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

.1 Types of items described in this Section:

.1 Roof tear-off.

.2 Removal of base flashings.

.2 Types of items not described in this Section:

.1 Use of the premises and phasing requirements.

.2 Temporary construction and environmental-protection measures for reroofing preparation.

.3 HVAC equipment removal and reinstallation.

.4 Electrical equipment disconnection and reconnection.

1.3 MATERIALS OWNERSHIP

.1 Except for items or materials indicated to be reused, reinstalled, or otherwise indicated to remain Owner's property, demolished materials shall become Contractor's property and shall be removed from Project site.

1.4 DEFINITIONS

.1 Roofing Terminology: Refer to ASTM D 1079 and glossary in NRCA's "*The NRCA Roofing and Waterproofing Manual*" for definition of terms related to roofing work in this Section.

.2 Existing Membrane Roofing System: Visit site for description of existing membrane roofing system. Items included in system, if present, include roofing membrane, roof insulation, surfacing, and components and accessories between deck and roofing membrane.

.3 Roof Tear-Off: Removal of existing membrane roofing system from deck.

.4 Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and reinstalled.

.5 Existing to Remain: Existing items of construction that are not indicated to be removed.

1.5 QUALITY ASSURANCE

.1 Installer Qualifications: Installer of new membrane roofing system .

.2 Reroofing Conference: Conduct conference at Project site.

.1 Meet with Owner; Owner's Representative; Owner's insurer if applicable; testing and inspecting agency representative; roofing system manufacturer's representative; deck Installer; roofing Installer including project manager, superintendent, and foreman; and installers whose work interfaces with or affects reroofing including installers of roof accessories and roof-mounted equipment.

.2 Review methods and procedures related to roofing system tear-off and replacement including, but not limited to, the following:

.1 Reroofing preparation, including membrane roofing system manufacturer's written instructions.

.2 Temporary protection requirements for existing roofing system that is to remain during and after installation.

.3 Existing roof drains and roof drainage during each stage of reroofing, and roof drain plugging and plug removal requirements.

.4 Construction schedule and availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.

.5 Existing deck removal procedures and Owner notifications.

.6 Condition and acceptance of existing roof deck and base flashing substrate for reuse.

.7 Structural loading limitations of deck during reroofing.

.8 Base flashings, special roofing details, drainage, penetrations, equipment curbs, and condition of other construction that will affect reroofing.

.9 HVAC shutdown and sealing of air intakes.

.10 Shutdown of fire-suppression, -protection, and -alarm and -detection systems.

.11 Asbestos removal and discovery of asbestos-containing materials.

.12 Governing regulations and requirements for insurance and certificates if applicable.

.13 Existing conditions that may require notification of Owner's Representative before proceeding.

1.6 PROJECT CONDITIONS

.1 Owner will occupy portions of building immediately below reroofing area. Conduct reroofing so Owner's operations will not be disrupted. Provide Owner with not less than 72 hours' notice of activities that may affect Owner's operations.

.1 Coordinate work activities daily with Owner so Owner can place protective dust or water leakage covers over sensitive equipment or furnishings, shut down HVAC and fire-alarm or -detection equipment if needed, and evacuate occupants from below the work area.

.2 Before working over structurally impaired areas of deck, notify Owner to evacuate occupants from below the affected area. Verify that occupants below the work area have been evacuated before proceeding with work over the impaired deck area.

.2 Protect building to be reroofed, adjacent buildings, walkways, site improvements, exterior plantings, and landscaping from damage or soiling from reroofing operations.

.3 Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.

.4 Conditions existing at time of inspection for bidding will be maintained by Owner as far as practical.

.1 If a roof moisture survey of existing membrane roofing system is available, it will be noted on the drawings, and will be available for Contractor's reference.

.2 If the results of an analysis of test cores from existing membrane roofing system are available, it will be noted on the drawings and will be available for Contractor's reference.

.5 Weather Limitations: Proceed with reroofing preparation only when existing and forecasted weather conditions permit Work to proceed without water entering existing roofing system or building.

.6 Hazardous Materials: It is not expected that hazardous materials such as asbestos-containing materials will be encountered in the Work.

.1 If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Owner's Representative and Owner.

PART 2 PRODUCTS

.1 Not used.

PART 3 EXECUTION

3.1 PREPARATION

.1 Protect existing membrane roofing system that is indicated not to be reroofed.

.1 Loosely lay 25 mm minimum thick, moulded expanded polystyrene (MEPS) insulation over existing adjacent roofing assemblies scheduled to remain. Loosely lay 12 mm plywood or OSB panels over MEPS. Extend MEPS past edges of plywood or OSB panels a minimum of 25 mm.

.2 Limit traffic and material storage to areas of existing roofing membrane that have been protected.

.3 Maintain temporary protection and leave in place until replacement roofing has been completed. Remove temporary protection on completion of reroofing.

.2 Coordinate with Owner to shut down air-intake equipment in the vicinity of the Work. Cover air-intake louvers before proceeding with reroofing work that could affect indoor air quality or activate smoke detectors in the ductwork.

.3 During removal operations, have sufficient and suitable materials on-site to facilitate rapid installation of temporary protection in the event of unexpected rain.

.4 Maintain roof drains in functioning condition to ensure roof drainage at end of each workday. Prevent debris from entering or blocking roof drains and conductors. Use roof-

drain plugs specifically designed for this purpose. Remove roof-drain plugs at end of each workday, when no work is taking place, or when rain is forecast.

.1 If roof drains are temporarily blocked or unserviceable due to roofing system removal or partial installation of new membrane roofing system, provide alternative drainage method to remove water and eliminate ponding. Do not permit water to enter into or under existing membrane roofing system components that are to remain.

.5 Verify that rooftop utilities and service piping have been shut off before beginning the Work.

3.2 ROOF TEAR-OFF

.1 General: Notify Owner each day of extent of roof tear-off proposed for that day.

.2 Remove aggregate and ballast from existing roofing assembly.

.3 Remove loose aggregate from aggregate-surfaced built-up bituminous roofing using a power broom. Clean and grind smooth to accommodate new roofing assembly.

.4 Remove pavers and accessories from roofing membrane.

.5 Remove protection mat and extruded-polystyrene insulation from protected roofing membrane.

.6 Roof Tear-Off: Remove existing roofing membrane and other membrane roofing system components down to the deck.

.1 Remove cover boards and substrate boards, unless otherwise noted on drawings.

.2 Bitumen and felts that are firmly bonded to wood decks are permitted to remain if felts are dry. Remove unadhered bitumen and felts and wet felts.

.3 Remove excess asphalt from wood deck. A maximum of 0.72 kg/sq. m of asphalt is permitted to remain on wood decks.

.4 Remove fasteners from deck or cut fasteners off slightly above deck surface.

3.3 DECK PREPARATION

.1 Inspect deck after tear-off of membrane roofing system.

.2 Verify that substrate is visibly dry and free of moisture. Test for capillary moisture by plastic sheet method according to ASTM D 4263 or by pouring 0.5 L of hot roofing asphalt on deck at start of each day's work and at start of each roof area or plane. Do not proceed with roofing work if moisture condenses under the plastic sheet or if asphalt test sample foams or can be easily and cleanly stripped after cooling.

.3 If broken or loose fasteners that secure deck panels to one another or to structure are observed or if deck appears or feels inadequately attached, immediately notify Owner's Representative. Do not proceed with installation until directed by Owner's Representative.

.4 If deck surface is not suitable for receiving new roofing or if structural integrity of deck is suspect, immediately notify Owner's Representative. Do not proceed with installation until directed by Owner's Representative.

3.4 EXISTING BASE FLASHINGS

.1 Remove existing base flashings around parapets, curbs, walls, and penetrations.

.1 Clean substrates of contaminants such as asphalt, sheet materials, dirt, and debris.

.2 Do not damage metal flashings or trim that are to remain. Replace metal flashings or trims damaged during removal with counterflashings of same metal, weight or thickness, and finish.

.3 Inspect parapet sheathing and framing for deterioration and damage. If deteriorated, immediately notify Owner's Representative.

3.5 DISPOSAL

.1 Collect demolished materials and place in containers. Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.

.1 Storage or sale of demolished items or materials on-site is not permitted.

.2 Transport and legally dispose of demolished materials off Owner's property.

END OF SECTION

PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 74 21 – Construction/Demolition Waste Management and Disposal.

.3 Section 06 10 53 – Miscellaneous Rough Carpentry.

.4 Section 07 26 00 - Vapour Retarders.

1.2 REFERENCES

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

.1 ASTM C1289, Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.

.2 Canadian Standards Association (CSA)

.1 CSA B149 PACKAGE, Consists of B149.1 Natural Gas and Propane Installation Code and B149.2, Propane Storage and Handling Code.

.3 Canadian General Standards Board (CGSB).

.1 CGSB 71-GP-24M, Adhesive, Flexible, for Bonding Cellular polystyrene Insulation.

.4 Underwriters Laboratories of Canada (ULC).

.1 CAN/ULC-S701, Standard for Thermal Insulation, Polystrene, Boards and Pipe Coverings.

.2 CAN/ULC-S702, Standard for Thermal Insulation, Mineral Fibre, for Buildings.

.3 CAN/ULC-S704, Standard for Thermal Insulation Polyurethane and Polyisocyanurate, Boards, Faced.

1.3 SUBMITTALS

.1 Product Data:

.1 Submit manufacturer's printed product literature, specifications and data.

.2 Submit two copies of WHMIS MSDS - Material Safety Data Sheets. Indicate VOC's insulation products and adhesives.

.2 Manufacturer's Instructions:

.1 Submit manufacturer's installation instructions.

1.4 QUALITY ASSURANCE

.1 Provide certificate of quality compliance from insulation manufacturer.

PART 2 PRODUCTS

2.1 INSULATION

.1 Expanded polystyrene (EPS): for use below grade and exterior walls: to CAN/ULC-S701 Type 2, RSI 0.70 per 25 mm, total thickness as indicated on drawings.

.2 Urethane (Isocyanurate): Faced, to CAN/ULC-S704 foil facing, RSI 1.05 per 25 mm, total thickness as indicated on drawings.

.3 Mineral fibre board: to CAN/ULC-S702, Type 2, semi-rigid, density 17.6 kg/m^2, flexible spinbonded olefin facing, RSI 0.70 per 25 mm, total thickness as indicated on drawings.

.4 Extruded polystyrene (XPS): to CAN/ULC S701 Type 3, RSI 0.88 per 25 mm, total thickness as indicated on drawings.

.5 Insulation types not indicated on drawings to be expanded polystyrene (EPS), Type 2 as a default, as per article 2.1.1.

2.2 ADHESIVE

.1 Adhesive suitable for bonding polystyrene and mineral fibre insulation to substrates as indicated.

2.3 ACCESSORIES

.1 Insulation clips: impale type, perforated 50 x 50 mm cold rolled carbon steel 0.8 mm thick, spindle of 2.5 mm diameter annealed steel, length to suit insulation, 25 mm diameter washers of self locking type.

.2 Joint sealing tape: air resistant pressure sensitive adhesive tape as recommended by insulation manufacturer.

PART 3 EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

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

3.2 WORKMANSHIP

.1 Install insulation after building substrate materials are dry.

.2 Install insulation to maintain continuity of thermal protection to building elements and spaces.

.3 Fit insulation tight around electrical boxes, plumbing and heating pipes and ducts, around exterior doors and windows and other protrusions.

.4 Keep insulation minimum 75 mm from heat emitting devices such as recessed light fixtures, and CSA B149.1 and CSA B149.2 type B and L vents.

.5 Cut and trim insulation neatly to fit spaces. Butt joints tightly, offset vertical joints. Use only insulation boards free from chipped or broken edges. Use largest possible dimensions to reduce number of joints.

.6 Offset both vertical and horizontal joints in multiple layer applications.

.7 Do not enclose insulation until it has been inspected and approved by Owner's Representative.

3.3 EXAMINATION

.1 Examine substrates and immediately inform Owner's Representative in writing of defects.

.2 Prior to commencement of work ensure:

.1 Substrates are firm, straight, smooth, dry, free of snow, ice or frost, and clean of dust and debris.

3.4 RIGID INSULATION INSTALLATION

.1 Apply adhesive to insulation board in accordance with manufacturer's recommendations.

.2 Imbed insulation boards into vapour barrier type adhesive, applied as specified, prior to skinning of adhesive.

.3 In addition to adhesive install mineral fibre insulation boards with insulation clips and disk, 2 per 600 x 1200 mm board minimum, fit boards tight, cut off fastener spindle 3 mm beyond disk.

.4 Leave insulation board joints unbonded over line of expansion and control joints. Bond a continuous 150 mm wide 0.15 mm modified bituminous membrane over expansion and control joints using compatible adhesive and primer before application of insulation.

.5 Carefully inspect for continuity of air barrier prior to placement of insulation.

3.5 PERIMETER FOUNDATION INSULATION

.1 Exterior application: extend boards vertically below bottom of finish floor slab to depth as indicated on drawings. Install on exterior face of perimeter foundation wall with adhesive.

3.6 CLEANING

.1 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION

PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.3 Section 01 45 00 - Quality Control.

.4 Section 01 51 00 - Temporary Utilities.

.5 Section 07 26 00 –Vapour Retarders

.6 Section 07 27 00.01 – Air Barriers - Descriptive or Proprietary.

1.2 REFERENCES

.1 Canadian Urethane Foam Contractors' Association Inc. (CUFCA)

.2 Underwriters' Laboratories of Canada (ULC)

.1 CAN/ULC-S101, Fire Endurance Tests of Building Construction and Materials.

.2 CAN/ULC-S102, Surface Burning Characteristics of Building Materials and Assemblies.

.3 CAN/ULC-S705.1, Standard for Thermal Insulation Spray Applied Rigid Foam, Medium Density, Material Specification.

.4 CAN/ULC-S705.2, Standard for Thermal Insulation Spray Applied Rigid Foam, Medium Density, Installer's Responsibilities-Specification.

1.3 TEST REPORTS

.1 Submit test reports, verifying qualities of foam sealant meet or exceed requirements of this specification.

.2 Submit test reports in accordance with CAN/ULC-S101 for fire endurance and CAN/ULC-S102 for surface burning characteristics.

1.4 QUALITY ASSURANCE

.1 Applicators to conform to CUFCA Quality Assurance Program.

1.5 SAFETY REQUIREMENTS

.1 Protect workers as recommended by CAN/ULC-S705.2 and manufacturer's recommendations:

.1 Workers must wear gloves, respirators, dust masks, eye protection, protective clothing when applying foam sealant.

.2 Workers must not eat, drink or smoke while applying foam sealant.

1.6 PROTECTION

.1 Ventilate area in accordance with Section 01 51 00 - Temporary Utilities.

.2 Ventilate area to receive insulation by introducing fresh air and exhausting air continuously during and 24 hours after application to maintain non-toxic, unpolluted, safe working conditions.

.3 Provide temporary enclosures to prevent spray and noxious vapours from contaminating air beyond application area.

.4 Protect adjacent surfaces and equipment from damage by overspray, fall-out, and dusting of insulation materials.

.5 Dispose of waste foam sealant daily in location designated by Owner's Representative and decontaminate empty drums in accordance with foam sealant manufacturer's instructions.

1.7 ENVIRONMENTAL REQUIREMENTS

.1 Apply foam sealant only when surfaces and ambient temperatures are within manufacturers' prescribed limits.

PART 2 PRODUCTS

2.1 MATERIALS

.1 Low expanding, one-component, polyurethane foam sealant, curing to a semi-rigid, closed cell urethane foam providing a RSI of 0.9 per 25.4 mm. To meet the following physical properties:

.1	Density:	25.7 kg/m^3
.2	Compressive Strength Parallel @ 10%:	69-96 psi
.3	Tensile Strength:	103 psi
.4	Water Vapour Transmission:	5.97 perms
.5	Flame Spread:	20
.6	Smoke Development:	70

PART 3 EXECUTION

3.1 APPLICATION

.1 Apply foam sealant to clean surfaces in accordance manufacturer's printed instructions. Surfaces to be free of dust, dirt, oil and other foreign materials.

.2 Cover surfaces not intended to be foamed.

.3 Apply foam sealant to perimeter of openings indicated and to thickness as recommended by manufacturer. Trim excess cured foam from finished area.

.4 Cover exposed urethane foam sealants to protect from adverse affects from ultraviolet light (sunlight).

END OF SECTION

PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 01 74 21 – Construction/Demolition Waste Management and Disposal.

.2 Section 01 45 00 - Quality Control.

.3 Section 01 51 00 - Temporary Utilities.

.4 Section 07 26 00 –Vapour Retarders

.5 Section 07 27 00.01 – Air Barriers - Descriptive or Proprietary.

1.2 REFERENCES

.1 American Society for Testing and Materials (ASTM)

- .1 ASTM D1621, Standard Test Method for Compressive Properties of Rigid Cellular Plastics.
- .2 ASTM D1622, Standard Test Method for Apparent Density of Rigid Cellular Plastics.
- .3 ASTM D1623, Standard Test Method for Tensile and Tensile Adhesion Properties of Rigid Cellular Plastics.
- .4 ASTM D2842, Standard Test Method for Water Absorption of Rigid Cellular Plastics.
- .5 ASTM E96, Standard Test Methods for Water Vapour Transmission of Materials.
- .6 ASTM E2178, Standard Test Method for Air Permeance of Building Materials.

.2 Canadian Urethane Foam Contractors' Association Inc. (CUFCA)

.3 Underwriters' Laboratories of Canada (ULC)

- .1 CAN/ULC-S101, Fire Endurance Tests of Building Construction and Materials.
- .2 CAN/ULC-S102, Surface Burning Characteristics of Building Materials and Assemblies.
- .3 CAN/ULC-S705.1, Standard for Thermal Insulation Spray Applied Rigid Foam, Medium Density, Material Specification.
- .4 CAN/ULC-S705.2, Standard for Thermal Insulation Spray Applied Rigid Foam, Medium Density, Installer's Responsibilities-Specification.

1.3 SUBMITTALS

.1 Product Data:

.1 Submit manufacturer's printed product data literature, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.

.2 Submit two copies of WHMIS MSDS – Material Safety Data Sheets.

.2 Test Reports

.1 Submit certified test reports, from approved independent testing laboratories verifying qualities of insulation meet or exceed requirements of this specification.

.2 Submit test reports in accordance with CAN/ULC-S101 for fire endurance and CAN/ULC-S102 for surface burning characteristics.

.3 Submit manufacturer's installation instructions and special handling criteria, installation sequence and cleaning procedures.

1.4 QUALITY ASSURANCE

.1 Installer to conform to CUFCA Quality Assurance Program or an equivalent recognized quality assurance and training program.

.2 Qualifications:

.1 Installer: person specializing in sprayed insulation installations with minimum 5 years experience approved by manufacturer.

.2 Manufacturer: company with minimum 5 years experience in producing of material used for work required for this project, with sufficient production capacity to produce and deliver required units without causing delay in work.

1.5 MOCK-UP

.1 Construct mock-up in accordance with Section 01 45 00 - Quality Control.

.2 Construct mock-up 10 m^2 minimum, of spray in place urethane foam insulation including one inside corner and one outside corner. Mock-up may be part of finished work.

.3 Allow two (2) working days for inspection of mock-up by Owner's Representative before proceeding with waterproofing work.

1.6 SAFETY REQUIREMENTS

.1 Protect workers as recommended by CAN/ULC-S705.2 and manufacturer's recommendations:

.1 Workers must wear gloves, respirators, dust masks, eye protection, protective clothing when applying foam insulation.

.2 Workers must not eat, drink or smoke while applying foam insulation.

1.7 PROTECTION

.1 Ventilate area in accordance with Section 01 51 00 - Temporary Utilities.

.2 Ventilate area to receive insulation by introducing fresh air and exhausting air continuously during and 24 hours after application to maintain non-toxic, unpolluted, safe working conditions.

.3 Provide temporary enclosures to prevent spray and noxious vapours from contaminating air beyond application area.

.4 Protect adjacent surfaces and equipment from damage by overspray, fall-out, and dusting of insulation materials.

.5 Dispose of waste foam daily in location designated by Owner's Representative and decontaminate empty drums in accordance with foam manufacturer's instructions.

1.8 ENVIRONMENTAL REQUIREMENTS

.1 Apply insulation only when surfaces and ambient temperatures are within manufacturers' prescribed limits.

1.9 WARRANTY

.1 Provide a written guarantee, signed and issued in the name of the owner, stating the sprayed polyurethane foam insulation shall remain free from defects in materials and workmanship for a period of one (1) year from the date of Substantial Completion.

PART 2 PRODUCTS

2.1 MATERIALS

.1 Insulation: spray polyurethane foam to CAN/ULC-S705.1, thickness and RSI Value as indicated on drawings.

- .1 Initial thermal resistance: minimum RSI 2.5 per 50 mm.
- .2 Long term thermal resistance: minimum RSI 2.0 per 50 mm.
- .3 Density: 28 kg/m^3, to ASTM D1622.
- .4 Air barrier properties: to ASTM E2178.
  - .1 @75 Pa: maximum 0.05 L/s.
- .5 Water Vapour Permeance, to ASTM E96:
  - .1 50 mm thick: maximum 60 ng/(Pa.s.m^2).
- .6 Tensile Strength: minimum 200 kPa, to ASTM D1621.
- .7 Flame Spread: to CAN/ULC-S102, in accordance with the latest edition of the National Building Code.
- .8 Water Absorption by volume: maximum 4%, to ASTM D2842.

.2 Primers: in accordance with manufacturer's recommendations for surface conditions.

PART 3 EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.2 APPLICATION

.1 Apply insulation to clean surfaces in accordance with CAN/ULC-S705.2 and manufacturer's printed instructions.

.2 Use primer where recommended by manufacturer.

.3 Apply sprayed foam insulation in thickness as indicated to seal all openings in exterior wall envelope to produce a continuous air/vapour barrier.

3.3 FIELD QUALITY CONTROL

.1 Manufacturer's Field Services:

.1 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

3.4 CLEANING

.1 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

END OF SECTION

PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 – Submittal Procedures.

.2 Section 01 74 21 – Construction/Demolition Waste Management and Disposal.

.3 Section 06 10 53 – Miscellaneous Rough Carpentry.

1.2 REFERENCES

.1 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-51.34, Vapour Barrier, Polyethylene Sheet, for Use in Building Construction.

.2 Underwriters Laboratories Canada (ULC)

.1 CAN/ULC S102, Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.

1.3 SUBMITTALS

.1 Submit manufacturer's printed product literature, specifications and datasheet and include:

.1 Product characteristics.

.2 Performance criteria.

.3 Limitations.

.2 Submit two copies of Workplace Hazardous Materials Information System (WHMIS) Material Safety Data Sheets (MSDS).

.3 Quality assurance submittals:

.1 Certificates: submit certificates certifying that materials comply with specified performance characteristics and physical properties.

.2 Instructions: submit manufacturer's installation instructions and comply with written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheet.

1.4 MOCK-UPS

.1 Construct mock-up of sheet vapour barrier installation including one lap joint, one inside corner and at one electrical box. Mock-up may be part of finished work.

.2 Mock-up will be used to judge workmanship, substrate preparation, and material application.

.3 Allow two (2) working days for inspection of mock-up by Owner's Representative before proceeding with vapour barrier work.

.4 When accepted, mock-up will demonstrate minimum standard of quality required for this work.

PART 2 PRODUCTS

2.1 SHEET VAPOUR RETARDER

.1 Polyethylene film: to CAN/CGSB-51.34, 0.15mm thick with a water vapour permeance of not greater than 45 ng/(P·s·m^2), flame spread rating of less than 150 to CAN/ULC S102.

2.2 ACCESSORIES

.1 Joint sealing tape: air resistant pressure sensitive adhesive tape, type recommended by vapour barrier manufacturer, 50 mm wide for lap joints and perimeter seals, 25 mm wide elsewhere.

.2 Sealant: compatible with vapour retarder, recommended by vapour retarder manufacturer, to Section 07 92 00 - Joint Sealants.

.3 Staples: minimum 6 mm leg.

.4 Moulded box vapour barrier: factory-moulded polyethylene box for use with recessed electric switch and outlet device boxes.

PART 3 EXECUTION

3.1 INSTALLATION

.1 Ensure services are installed and inspected prior to installation of retarder.

.2 Install sheet vapour retarder on warm side of exterior wall and ceiling space assemblies prior to installation of gypsum board to form continuous retarder.

.3 Install Sheet Vapour retarder under stone cover in crawl space to form continuous retarder.

.4 Use sheets of largest practical size to minimize joints.

.5 Inspect for continuity. Repair punctures and tears with sealing tape before work is concealed.

3.2 EXTERIOR SURFACE OPENINGS

.1 Cut sheet vapour retarder to form openings and ensure material is lapped and sealed to frame.

3.3 PERIMETER SEALS

.1 Seal perimeter of sheet vapour barrier as follows:

.1 Apply continuous bead of sealant to substrate at perimeter of sheets.

.2 Lap sheet over sealant and press into sealant bead.

.3 Install staples through lapped sheets at sealant bead into wood substrate.

.4 Ensure that no gaps exist in sealant bead. Smooth out folds and ripples occurring in sheet over sealant.

3.4 LAP JOINT SEALS

.1 Seal lap joints of sheet vapour barrier as follows:

.1 Attach first sheet to substrate.

.2 Apply continuous bead of sealant over solid backing at joint.

.3 Lap adjoining sheet minimum 150 mm and press into sealant bead.

.4 Install staples through lapped sheets at sealant bead into wood substrate.

.5 Ensure that no gaps exist in sealant bead. Smooth out folds and ripples occurring in sheet over sealant.

3.5 ELECTRICAL BOXES

.1 Seal electrical switch and outlet device boxes that penetrate vapour barrier as follows:

.1 Install moulded box vapour barrier or wrap boxes with film sheet providing minimum 300 mm perimeter lap flange.

.2 Apply sealant to seal edges of flange to main vapour barrier and seal wiring penetrations through box cover.

3.6 CLEANING

.1 Upon completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

.1 Materials and installation methods providing primary air/vapour barrier materials and assemblies.

.2 Air/vapour barrier materials to provide continuous seal between components of building envelope and building penetrations.

1.2 RELATED SECTIONS

.1 Section 01 45 00 - Quality Control.

.2 Section 01 51 00 - Temporary Utilities.

.3 Section 01 61 00 - Common Product Requirements.

.4 Section 07 92 00 - Joint Sealants.

1.3 REFERENCES

.1 Canadian General Standards Board (CGSB)

- .1 CAN/CGSB-19.13M, Sealing Compound, One Component, Elastomeric Chemical Curing.
- .2 CAN/CGSB-19.18M, Sealing Compound, One Component, Silicone Base Solvent Curing.
- .3 CAN/CGSB-19.24M, Multi-Component, Chemical Curing Sealing Compound.
- .4 CGSB 19-GP-14M, Sealing Compound, One Component, Butyl-Polyisobutylene Polymer Base, Solvent Curing.

.2 National Building Code of Canada (NBCC)

- .1 NBCC, Part 5 - Environmental Separation

.3 Sealant and Waterproofer's Institute - Sealant and Caulking Guide Specification.

1.4 SUBMITTALS

.1 Submit manufacturer’s product data sheets.

.2 Submit manufacturer’s installation instructions.

1.5 QUALITY ASSURANCE

.1 Perform Work in accordance with Sealant and Waterproofer's Institute - Sealant and Caulking Guide Specification requirements for materials and installation.

.2 Perform Work in accordance with National Air Barrier Association - Professional Contractor Quality Assurance Program and requirements for materials and installation.

.3 Manufacturer's Representative:

.1 Inspect substrate prior to commencement of work, twice during application of membrane and at commissioning to ascertain that air/vapour barrier system is installed according to membrane manufacturer's most current published specifications and details.

.2 Provide technical assistance to applicator and assist where required in correct installation of membrane.

.3 Provide certificate of quality compliance upon satisfactory completion of installation.

.4 Maintain one copy of documents on site.

1.6 QUALIFICATIONS

.1 Applicator: Company specializing in performing work of this section with minimum 5 years documented experience with installation of air/vapour barrier systems. Complete installation must be approved by the material manufacturer.

.2 Applicator: Company who is currently licensed by certifying organization must maintain their license throughout the duration of the project.

1.7 MOCK-UP

.1 Construct mock-up in accordance with Section 01 45 00 - Quality Control.

.2 Construct typical panel, 10 m^2 minimum, incorporating wall openings, insulation, building corner condition, illustrating materials interface and seals.

.3 Locate where directed.

.4 Mock-up may remain as part of the Work.

.5 Allow two (2) working days for inspection of mock-up by Owner's Representative before proceeding with air/vapour barrier Work.

1.8 PRE- INSTALLATION MEETINGS

.1 Convene one week prior to commencing work of this section.

1.9 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.

.2 Deliver, store and handle materials in accordance with manufacturer's written instructions. Deliver membrane materials in factory wrapped packaging indicating name of manufacturer and product.

.3 Avoid spillage. Immediately notify Owner's Representative if spillage occurs and start clean up procedures.

.4 Clean spills and leave area as it was prior to spill.

.5 Store roll materials on end in original packaging.

.6 Store primers at temperatures of 5°C and above to facilitate handling. Keep solvent away from open flame and excessive heat.

1.10 PROJECT ENVIRONMENTAL REQUIREMENTS

.1 Do not install solvent curing sealants or vapour release adhesive materials in enclosed spaces without ventilation.

.2 Ventilate enclosed spaces in accordance with Section 01 51 00 - Temporary Utilities.

.3 Maintain temperature and humidity recommended by materials manufactures before, during and after installation.

1.11 WARRANTY

.1 Provide a written warranty for work of this section from Manufacturer for failure due to defective materials and from contractor for failure due to defective installation workmanship for ten (10) years respectively from the date of Substantial Completion.

.2 Include coverage of installed sealant and sheet materials which fail to achieve air tight and watertight seal, exhibit loss of adhesion or cohesion or do not cure.

PART 2 PRODUCTS

2.1 SHEET MEMBRANE AIR BARRIER (TYPE 1)

.1 Sheet Seal: Self-Adhesive bitumen laminated to high-density polyethylene film, nominal total thickness of 1.0 mm.

.1 Membrane Physical Properties

.1 Application min 5°C

.2	Service Temperature	-40˚C to 70˚
.3	Elongation	min 200%
.4	Tensile strength	min 2.4 Mpa
.5	Puncture Resistance	min 178 N
.6	Water vapour transmission	2.8mg/Pa.s.m² (0.05 perms)
.7	Moisture Absorption	0.1%
.8	Air Leakage at 75 Pa	0.02L/Sm²
.9	Air Leakage of the 3000 Pa test	No change

.2 Sheet Seal: Self-Adhered Elastomeric Film Air Vapour Barrier Membrane with high tack acrylic adhesive, nominal total thickness of 0.25 mm. Primer not required on most construction surfaces.

.1 Membrane Physical Properties

.1	Application	min -18˚ C
.2	Service Temperature	-40˚ C to 80˚ C
.3	Elongation	ASTM D882 – min 700%
.4	Tensile Strength	min 12 Mpa
.5	Water Vapour Transmission	8 ng/Pa.s.m^2 (0.14 perms)
.6	Moisture Absorption	0.1%
.7	Air Leakage at 75 Pa	0.01 L/Sm^2
.8	Air Leakage of the 3000 Pa Test	No Change

2.2 LIQUID MEMBRANE AIR/VAPOUR BARRIER (TYPE 2)

.1 Single component, liquid applied, water-based, polymer-modified air barrier providing a seamless, elastomeric membrane when cured, wet film thickness 1.53 mm, cured film thickness 1.15 mm.

.2 Liquid membrane Air/Vapour physical properties:

.1	Application Temperature:	min. 4° C
.2	Service Temperature:	-29° C to 49° C
.3	Elongation:	1500%
.4	Tensile Strength:	0.10 MPa
.5	Water Vapour Permeance:	0.03 perms
.6	Air Leakage at 75 Pa:	< 0.02 L/s/m^2

2.3 LIQUID MEMBRANE VAPOUR PERMEABLE AIR BARRIER (TYPE 3)

.1 Water-based air-barrier providing a tough, seamless, elastomeric membrane when cured, allowing moisture vapour to pass through it, wet film thickness 2.3 mm, cured film thickness 1.15 mm.

.2 Liquid membrane vapour permeable air barrier physical properties:

.1	Application Temperature:	min. 4° C
.2	Service Temperature:	-29° C to 49° C
.3	Elongation:	1500%
.4	Water Vapour Permeance:	12 perms
.5	Air Leakage at 75 Pa:	< 0.02 L/s/m^2

2.4 SHEET MEMBRANE VAPOUR PERMEABLE AIR BARRIER (TYPE 4)

.1 Self-adhering reinforced modified polyolefin tri-laminate water resistive, vapour permeable, air barrier membrane to the following properties:

.1	Weight:	160 g/m^2
.2	Water Vapour Transmission:	202 g/m^2
.3	Tensile Strength:	182N MD and 129N CD
.4	Water Vapour Permeance:	1658 ng/Pa.m2.s
.5	Air Leakage:	<0.02 L/s/m2
.6	Average Dry Breaking Force:	565N MD and 405N CD

2.5 SEALANTS

.1 Sealants in accordance with Section 07 92 00 - Joint Sealants.

.2 Primer: recommended by sealant manufacturer.

.3 Primer for type 4 Air Barrier: quick setting, synthetic rubber based adhesive aerosol.

2.6 SCHEDULE

.1 Type 1 Air Barrier: for installation on any solid surface.

.2 Type 2 Air Barrier: for installation on masonry or concrete surfaces.

.3 Type 3 Air Barrier: for installation on wood/gypsum board surfaces.

.4 Type 4 Air Barrier: for installation on any solid surface approved by manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION

.1 Verify that surfaces and conditions are ready to accept the Work of this section.

.2 Ensure all surfaces are clean, dry, sound, smooth, continuous and comply with air barrier manufacturer’s requirements.

.3 Report any unsatisfactory conditions to the Owner's Representative in writing.

.4 Do not start work until deficiencies have been corrected.

3.2 PREPARATION

.1 Remove loose or foreign matter which might impair adhesion of materials.

.2 Ensure all substrates are clean of oil or excess dust; all masonry joints struck flush, and open joints filled; and all concrete surfaces free of large voids, spalled areas or sharp protrusions.

.3 Ensure all substrates are free of surface moisture prior to application of membrane and primer.

.4 Ensure metal closures are free of sharp edges and burrs.

.5 Prime substrate surfaces to receive adhesive and sealants in accordance with manufacturer's instructions.

3.3 INSTALLATION (SHEET MEMBRANE)

.1 Install materials in accordance with manufacturer's instructions.

.2 Over the properly prepared substrate surface apply primer, as per manufacturer's recommendations, with a roller and allow drying to a tacky surface. Prime only area to be covered in a working day. Re-prime area not covered with membrane within 24 hours.

.3 After primer has dried, using a hand roller firmly press the entire membrane onto the primed surface, in strict accordance with membrane manufacturer's written instructions.

.4 Ensure complete coverage of and adhesion of all substrates to receive membrane, including wall penetrations. Co-operate with other trades to ensure continuity of membrane.

.5 Overlap membrane 50mm and carefully smooth out with a roller to ensure full continuous bond throughout overlaps without fissures or fishmouthing.

.6 It is important that a complete air seal be achieved. Be responsible for the completeness of membrane wherever it is not specifically detailed. Consult with Owner's Representative if there is any doubt as to the integrity of membrane, whether detailed or not.

.7 In order to ensure a complete seal, seal membrane to all penetrations in an approved manner.

.8 Apply a trowelled bead of mastic to all terminations of the membrane at the end of a day's work.

.9 Do not enclose membrane until it has been inspected and approved by Owner's Representative. Inform Owner's Representative two (2) working days prior to required inspection.

3.4 INSTALLATION (LIQUID MEMBRANE AIR/VAPOUR BARRIER)

.1 Install materials in accordance with manufacturer's instructions.

.2 Prepare surfaces ensuring they are clean, structurally sound and smooth. Patch all cracks, small voids, irregularities and small deformities with manufacturer approved patch material.

.3 Apply minimum 150 mm wide self-adhering air barrier strip between joints of dissimilar building materials.

.4 Apply liquid membrane to substrate by spraying or nap roller as per manufacturer's instructions.

.5 Ensure complete coverage of and adhesion of all substrates to receive liquid membrane, including wall penetrations. Co-operate with other trades to ensure continuity of membrane.

.6 It is important that a complete air seal be achieved. Be responsible for the completeness of liquid membrane wherever it is not specifically detailed. Consult with Owner's Representative if there is any doubt as to the integrity of the liquid membrane, whether detailed or not.

.7 In order to ensure a complete seal, seal liquid membrane to all penetrations in an approved manner.

.8 Do not enclose membrane until it has been inspected and approved by Owner's Representative. Inform Owner's Representative two (2) working days prior to required inspection.

3.5 INSTALLATION (LIQUID MEMBRANE VAPOUR PERMEABLE AIR BARRIER)

.1 Install materials in accordance with manufacturer's instructions.

.2 Prepare surfaces ensuring they are clean, structurally sound and smooth. Patch all cracks, small voids, irregularities and small deformities with manufacturer approved patch material.

.3 Joints in exterior sheeting of 6.4 mm or greater to be covered with tape or filled with mastic caulking compound prior to application of liquid membrane as per manufacturer's recommendations.

.4 Apply minimum 150 mm wide self-adhering air barrier strip between joints of dissimilar building materials.

.5 Apply liquid membrane to substrate by spraying or roller as per manufacturer's instructions.

.6 Ensure complete coverage of and adhesion of all substrates to receive liquid membrane, including wall penetrations. Co-operate with other trades to ensure continuity of membrane.

.7 It is important that a complete air seal be achieved. Be responsible for the completeness of liquid membrane wherever it is not specifically detailed. Consult with Owner's Representative if there is any doubt as to the integrity of the liquid membrane, whether detailed or not.

.8 In order to ensure a complete seal, seal liquid membrane to all penetrations in an approved manner.

.9 Do not enclose membrane until it has been inspected and approved by Owner's Representative. Inform Owner's Representative two (2) working days prior to required inspection.

3.6 PROTECTION OF WORK

.1 Protect finished Work in accordance with Section 01 61 00 - Common Product Requirements.

.2 Do not permit adjacent work to damage work of this section.

.3 Ensure finished Work is protected from climatic conditions.

3.7 INSPECTION

.1 Carefully inspect for continuity of air barrier prior to placement of insulation.

.2 Repair all deficient membrane areas.

.3 Misaligned or inadequately lapped seams, punctures or other damage must be repaired with a patch of air barrier membrane extending 50mm in all directions from edge of damaged areas.

.4 Cover membrane immediately after Owner's Representative's inspection to protect from damage by other trades.

3.8 TESTING

.1 Air leakage testing as directed by Owner's Representative and paid for by contractor will be performed by professional testing agency for the locations selected at random for penetrations, laps, corners, etc.

.2 Testing will be witnessed by Owner's Representative and test reports will be signed by tester, site representative and contractor.

.3 Inform Owner's Representative two (2) working days prior to required testing.

END OF SECTION

PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 – Submittal Procedures.

.2 Section 01 74 21 – Construction/Demolition Waste Management and Disposal.

.3 Section 06 10 53 – Miscellaneous Rough Carpentry.

.4 Section 07 62 00 – Sheet Metal Flashing and Trim.

.5 Section 07 92 00 - Joint Sealants.

1.2 REFERENCES

.1 American Society of Mechanical Engineers (ASME)

.1 ASME B18.6.3, Machine Screws, Tapping Screws, and Metallic Drive Screws (Inch Series).

.2 ASTM International

.1 ASTM D2369, Test Method for Volatile Content of Coatings.

.2 ASTM D2832, Standard Guide for Determining Volatile and Nonvolatile Content of Paint and Related Coatings.

.3 ASTM D5116, Standard Guide For Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products.

.3 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-51.32, Sheathing, Membrane, Breather Type.

.2 CAN/CGSB-93.4, Galvanized and Aluminum-Zinc Alloy Coated Steel Siding Soffits and Fascia, Prefinished, Residential.

.3 CGSB 93.5, Installation of Metal Residential Siding, Soffits and Fascia.

.4 Canadian Standards Association (CSA)

.1 CSA B111, Wire Nails, Spikes and Staples.

1.3 SUBMITTALS

.1 Product data: submit manufacturer's printed product literature, specifications and data sheet.

.1 Submit two copies of WHMIS MSDS - Material Safety Data. Indicate VOC's for caulking materials during application and curing.

.2 Submit duplicate 300 x 300 mm samples of siding material, of colour and profile specified.

.3 Shop drawings to indicate dimensions, profiles, attachment methods, schedule of wall elevations, trim and closure pieces, soffits, fascia, metal furring, and related work.

.4 Submit manufacturer's installation instructions.

1.4 WARRANTY

.1 Provide a written guarantee, signed and issued in the name of the owner, covering the metal cladding/siding material for 10 (ten) years and workmanship for a period of two (2) years from the date of Substantial Completion.

.2 Areas which prove to be defective in any way shall be repaired or replaced and any damage to other work as a result of such defects shall be repaired at no cost to the Owner.

PART 2 PRODUCTS

2.1 STEEL CLADDING AND COMPONENTS

.1 Strip siding: to CGSB 93.4, Type A vertical, Class plain.

- .1 Finish coating: silicone modified polyester (SMP) topcoat system.
- .2 Colour: colour selected by Owner's Representative.
- .3 Gloss: 30 ± 5.
- .4 Thickness: 0.65 mm base metal thickness.
- .5 Profile: preformed interlocking joints, fastener holes prepunched, profile as indicated on drawings.

.2 Soffit: to CGSB 93.4, class plain

- .1 Finish coating: silicone modified polyester (SMP) topcoat system.
- .2 Colour: selected by Owner's Representative.
- .3 Gloss: 30 ± 5.
- .4 Thickness: 0.65 mm base metal thickness.
- .5 Profile: flat sheet "V" crimped for stiffness, vented 0.1m^2 of opening for every 30 m^2 of building area.

.3 Fascia facings and exposed trim: to CGSB 93.4, Class plain

- .1 Finish coating: silicone modified polyester (SMP) topcoat system.
- .2 Colour: colour selected by Owner's Representative.
- .3 Gloss: 30 ± 5.
- .4 Thickness: 0.65 mm base metal thickness.
- .5 Profile: flat sheet "V" crimped for stiffness, preformed with elongated slits and small perforations.

2.2 ACCESSORIES

.1 Exposed trim: inside corners, outside corners, cap strip, drip cap, undersill trim, starter strip and window/door trim of same material, colour and gloss as cladding, with fastener holes pre-punched.

2.3 FASTENERS

.1 Nails: to CSA B111. Screws to ASME B18.6.3. Purpose made aluminum alloy stainless steel.

2.4 CAULKING

.1 Sealants: Section 07 92 00 – Joint Sealants.

2.5 SHEATHING MEMBRANE

.1 Exterior wall sheathing membrane: to CAN2-51.32, single ply spunbound olefin type coated.

PART 3 EXECUTION

3.1 INSTALLATION

.1 Install cladding in accordance with CGSB 93.5, and manufacturer's written instructions

.2 Install one layer exterior wall sheathing membrane horizontally by stapling or nailing lapping edges 150 mm.

.3 Install continuous starter strips, inside and outside corners, edgings, soffit, drip, cap, sill and window/door opening flashings as indicated.

.4 Install outside corners, fillers and closure strips with carefully formed and profiled work.

.5 Install soffit and fascia cladding as indicated.

.6 Maintain joints in exterior cladding, true to line, tight fitting, hairline joints.

.7 Attach components in manner not restricting thermal movement.

.8 Caulk junctions with adjoining work with sealant. Do work in accordance with Section 07 92 00 - Joint Sealants.

3.2 CLEANING

.1 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION

PART 1 GENERAL

1.1 SUMMARY

.1 Types of items described in this Section:

- .1 SBS-modified bituminous membrane roofing applied over top of a steel or concrete deck.
- .2 Deck covering.
- .3 Vapour retarder.
- .4 Roof insulation on top of the roof deck.
- .5 Recovery board.
- .6 Pavers.
- .7 Demarkation Stripping to denote 3.0 metre line from edge of roof.
- .8 Installation of acoustical roof deck rib insulation strips if furnished under Division 05 Section *Steel Decking*.

.2 Types of items not described in this Section:

- .1 Preparation for reroofing.
- .2 SBS-modified bituminous membrane roofing apply over top of a wood deck.
- .3 Furnishing acoustical deck rib insulation.
- .4 Wood nailers, cants, curbs, and blocking.
- .5 Metal roof penetration flashings, flashings, and counterflashings.
- .6 Manufactured roof expansion Joints.
- .7 Storm drainage piping specialties for roof drains.

1.2 DEFINITIONS

.1 Roofing Terminology: Refer to ASTM D 1079 and glossary of NRCA's *The CRCA Specification Manual* for definition of terms related to roofing work in this Section.

1.3 PERFORMANCE REQUIREMENTS

.1 General: Provide installed roofing membrane and base flashings that remain watertight; do not permit the passage of water; and resist specified uplift pressures, thermally induced movement, and exposure to weather without failure.

.2 Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing manufacturer based on testing and field experience.

.3 Provide Roof assembly to withstand *Performance Requirements* identified on drawings.

1.4 ACTION SUBMITTALS

.1 Product Data: For each type of product indicated.

.2 Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other work.

.1 Base flashings and membrane terminations.

.2 Base insulation and tapered insulation, including slopes.

.3 Crickets, saddles, and tapered edge strips, including slopes.

.4 Insulation fastening patterns for corner, perimeter, and field-of-roof locations.

.3 Delegated-Design Submittal: submit shop drawings showing fastening patterns for corners, perimeter, and field for the particular building's roof shape and location, to comply with the performance requirements and design criteria, and sealed by the qualified professional engineer responsible for their preparation.

.4 Samples for Verification: For the following products:

.1 Sheet roofing materials, including base sheet, base-ply sheet, roofing membrane sheet, membrane cap sheet, and flashing sheet, of color specified.

.2 Roof insulation.

1.5 INFORMATIONAL SUBMITTALS

.1 Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system complies with requirements specified in *Performance Requirements* Article.

.1 Submit evidence of complying with performance requirements.

.2 Inspection Report: Copy of roofing system manufacturer's inspection report of completed roofing installation.

.3 Warranties: Sample of special warranties.

1.6 SUBMITTALS

.1 Product Data: For each type of product indicated.

.2 Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other Work.

.1 Base flashings, cants, and membrane terminations.

.2 Tapered insulation, including slopes.

.3 Crickets, saddles, and tapered edge strips, including slopes.

.4 Insulation fastening patterns.

.3 Maintenance Data: For roofing system to include in maintenance manuals.

.4 Warranties: Special warranties specified in this Section.

1.7 QUALITY ASSURANCE

.1 Installer Qualifications: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's warranty.

.2 Source Limitations: Obtain roof membrane components from or approved by roofing system manufacturer.

.3 Exterior Fire-Test Exposure: CAN/ULC-S107, *Fire Tests of Roof Coverings*, Class A, B, or C; for application and roof slopes indicated, as determined by testing identical membrane roofing materials by a qualified testing agency. Materials shall be identified with appropriate markings of applicable testing agency.

.4 Preinstallation Roofing Conference: Conduct conference at Project site.

.1 Meet with Departmental Representative, Canada's insurer if applicable, 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.

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

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

.4 Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.

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

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

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

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

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

1.8 DELIVERY, STORAGE, AND HANDLING

.1 Deliver roofing materials to Project site in original containers with seals unbroken and labelled with manufacturer's name, product brand name, and type, date of manufacture, and directions for storage.

.2 Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.

.1 Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.

.3 Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.

.4 Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

1.9 PROJECT CONDITIONS

.1 Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

1.10 WARRANTY

.1 Special Warranty: Manufacturer's standard form, without monetary limitation, in which manufacturer agrees to repair or replace entire roofing assemblies that fail in materials or workmanship within specified warranty period. Failure includes but is not limited to roof leaks.

.1 Special warranty includes entire roofing assembly including but not limited to roof membranes, cover board, insulation, substrate board and flashings.

.2 Warranty Period: 15 years from date of Substantial Completion.

PART 2 PRODUCTS

2.1 SBS-MODIFIED ASPHALT-SHEET MATERIALS

.1 Base sheet: to CGSB 37-GP-56M, Styrene-Butadiene-Styrene (SBS) elastomeric polymer, prefabricated sheet, glass or polyester reinforcement, weighing not less than 180 g/m2.

.1 Type 1, fully adhered.

.2 Class A - plain surface.

.3 Grade 1 - standard service.

.4 Top and bottom surfaces:

.1 Polyethylene/polyethylene.

.2 Cap sheet: to CGSB 37-GP-56M, Styrene-Butadiene-Styrene (SBS) elastomeric polymer, prefabricated sheet, glass or polyester reinforcement, weighing not less than 250 g/m2.

.1 Type 1, fully adhered.

.2 Class A-granule surfaced.

.3 Colour: When not otherwise indicated, then selected by Departmental Representative from manufacturer's full range.

.4 Grade 1-standard service.

.5 Bottom surface polyethylene.

2.2 BASE FLASHING SHEET MATERIALS

.1 Flashing Sheet: as per requirements for Cap Sheet.

2.3 AUXILIARY ROOFING MEMBRANE MATERIALS

.1 General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with roofing membrane.

.1 Liquid-type auxiliary materials shall comply with VOC limits of authorities having jurisdiction.

.2 Adhesives and sealants that are not on the exterior side of weather barrier shall comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):

.1 Plastic Foam Adhesives: 50 g/L.

.2 Gypsum Board and Panel Adhesives: 50 g/L.

.3 Multipurpose Construction Adhesives: 70 g/L.

.4 Fiberglas Adhesives: 80 g/L.

.5 Contact Adhesive: 80 g/L.

.6 Other Adhesives: 250 g/L.

.7 Nonmembrane Roof Sealants: 300 g/L.

.8 Sealant Primers for Nonporous Substrates: 250 g/L.

.9 Sealant Primers for Porous Substrates: 775 g/L.

.2 General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with roofing membrane.

.3 Asphalt Primer: ASTM D 41.

.4 Cold-Applied Insulation Adhesive: Roofing system manufacturer's standard asphalt-based, two component, asbestos-free, cold-applied adhesive specially formulated for compatibility and use with roofing membrane and base flashings.Metal Flashing Sheet: Metal flashing sheet is specified in Division 07 Section *Sheet Metal Flashing and Trim*.

.5 Roofing Granules: Ceramic-coated roofing granules, No. 11 screen size with 100 percent passing 2.36 mm sieve and 98 percent of mass retained on 0.425 mm sieve, colour to match roofing membrane.

.6 Miscellaneous Accessories: Provide miscellaneous accessories recommended by roofing system manufacturer.

2.4 SUBSTRATE BOARDS

.1 Substrate Board: ASTM C 1177/C 1177M, glass-mat, water-resistant gypsum substrate, Type X, 16 mm thick.

.1 Product: Subject to compliance with requirements, provide *Dens-Deck* by Georgia-Pacific Corporation, or approved alternate.

.2 Cold-Applied Insulation/ Substrate Board Adhesive: Roofing system manufacturer's standard asphalt-based, two component, asbestos-free, cold-applied adhesive specially formulated for compatibility and use with roofing membrane and base flashings

2.5 VAPOUR RETARDER

.1 Self-Adhering Sheet Vapour Retarder: 1.0 mm thick, polyethylene film laminated to layer of rubberized asphalt adhesive; maximum permeance rating of 6 ng/Pa x s x sq. m; cold-applied, with slip-resisting surface and release paper backing. Provide primer when recommended by vapour-retarder manufacturer.

2.6 ROOF INSULATION

.1 General: Provide preformed roof insulation boards that comply with requirements and referenced standards, selected from manufacturer's standard sizes and of thicknesses indicated.

.2 Polyisocyanurate Board Insulation: ASTM C 1289, Type II, felt or glass-fibre mat facer on both major surfaces.

.3 Tapered Insulation: Provide factory-tapered insulation boards fabricated to slope of 1:48, unless otherwise indicated.

.4 Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.

2.7 COVER BOARD

.1 Cover Board: 6 mm thick rigid asphalt impregnated protection board.

.2 Cold-Applied Insulation/Coverboard Adhesive: Roofing system manufacturer's standard asphalt-based, two-component, asbestos-free, cold-applied adhesive specially formulated for compatibility and use with roofing membrane and base flashings.

2.8 INSULATION ACCESSORIES

.1 General: Roof insulation accessories recommended by insulation manufacturer for intended use and compatible with membrane roofing.

.2 Cold-Applied Insulation Adhesive: Roofing system manufacturer's standard asphalt-based, two component, asbestos-free, cold-applied adhesive specially formulated for compatibility and use with roofing membrane and base flashings.

.3 Substrate Joint Tape: 150- or 200 mm wide, coated, glass-fibre joint tape.

2.9 DEMARKATION STRIPPING

.1 Demarkation Strips: 100 mm wide strips, same as Cap Sheet except as follows:

.1 Colour: Manufacturer’s standard red.

.2 Locate @ 1800mm from roof edge throughout entire perimeter of new roofing assemblies. Verification location with Owner’s Representative prior to installation.

PART 3 EXECUTION

3.1 EXAMINATION

.1 Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:

.1 Verify that roof openings and penetrations are in place and set and braced and that roof drains are securely clamped in place.

.2 Verify that wood cants, blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.

.3 Verify that concrete curing compounds that will impair adhesion of roofing components to roof deck have been removed.

.4 Verify that concrete substrate is visibly dry and free of moisture. Test for capillary moisture by plastic sheet method according to ASTM D 4263.

.5 Verify that deck is securely fastened with no projecting fasteners and with no adjacent units in excess of 1.6 mm out of plane relative to adjoining deck.

.6 Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

.1 Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.

.2 Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.

.3 Prime surface of concrete deck with asphalt primer at a rate of 0.3 L/sq. m and allow primer to dry.

.4 If Division 05 section “Steel Decking” specifies the supply and installation of acoustical roof deck rib insulation strips, install these strips under the work of this Section in accordance with the manufacturer’s written instructions.

3.3 SUBSTRATE BOARD INSTALLATION

.1 Install substrate board with long joints in continuous straight lines, perpendicular to roof slopes with end joints staggered between rows. Tightly butt substrate boards together.

.1 Fasten substrate board to top flanges of steel deck according to recommendations in National Research Council Canada’s Wind Roof Calculator.

.2 Fasten substrate board to top flanges of steel deck to resist uplift pressure at corners, perimeter, and field of roof according to roofing system manufacturer's written instructions.

3.4 VAPOUR-RETARDER INSTALLATION

.1 Self-Adhering Sheet Vapour Retarder: Prime substrate if required by manufacturer. Install self-adhering sheet vapour retarder over area to receive vapour retarder, side and end lapping each sheet a minimum of 90 mm and 150 mm, respectively. Seal laps by rolling.

.2 Completely seal vapour retarder at terminations, obstructions, and penetrations to prevent air movement into roofing system.

3.5 INSULATION INSTALLATION

.1 Comply with roofing system manufacturer's written instructions for installing roof insulation.

.2 Install one lapped base sheet course and adhere to substrate according to roofing system manufacturer's written instructions.

.3 Install tapered insulation under area of roofing to conform to slopes indicated.

.4 Install insulation with long joints of insulation in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 6 mm with insulation.

.1 Cut and fit insulation within 6 mm of nailers, projections, and penetrations.

.5 Install one or more layers of insulation under area of roofing to achieve required thickness. Where overall insulation thickness is 50 mm or greater, install 2 or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 150 mm in each direction.

.6 Trim surface of insulation where necessary at roof drains so completed surface is flush and does not restrict flow of water.

.7 Install tapered edge strips at perimeter edges of roof that do not terminate at vertical surfaces.

.8 Fully Adhere Insulation: Install each layer of insulation and secure to deck using insulation adhesive specifically designed for fastening specified board-type roof insulation to deck type.

.1 Fasten insulation according to National Research Council Canada’s Wind Roof Calculator .

.2 Adhere insulation to resist uplift pressure at corners, perimeter, and field of roof.

.9 Install cover boards over insulation with long joints in continuous straight lines with end joints staggered between rows. Stagger joints from joints in insulation below a minimum of 150 mm in each direction. Loosely butt cover boards together and fasten to roof deck. Tape joints if required by roofing system manufacturer.

.1 Adhere according to National Research Council Canada’s Wind Roof Calculator.

.2 Adhere to resist uplift pressure at corners, perimeter, and field of roof.

3.6 ROOFING MEMBRANE INSTALLATION, GENERAL

.1 Install roofing membrane system according to roofing system manufacturer's written instructions.

.2 Cooperate with testing and inspecting agencies engaged or required to perform services for installing roofing system.

.3 Coordinate installing roofing system so insulation and other components of the roofing membrane system not permanently exposed are not subjected to precipitation or left uncovered at the end of the workday or when rain is forecast.

.1 Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system.

.2 Remove and discard temporary seals before beginning work on adjoining roofing.

3.7 BASE-SHEET INSTALLATION

.1 Install modified bituminous roofing membrane sheet and cap sheet according to roofing manufacturer's written instructions, starting at low point of roofing system. Extend roofing membrane sheets over and terminate beyond cants, installing as follows:

.1 Torch apply to substrate.

.2 Unroll roofing membrane sheets and allow them to relax for minimum time period required by manufacturer.

.2 Laps: Accurately align roofing membrane sheets, without stretching, and maintain uniform side and end laps. Stagger end laps. Completely bond and seal laps, leaving no voids.

.1 Repair tears and voids in laps and lapped seams not completely sealed.

.2 Apply roofing granules to cover exuded bead at laps while bead is hot.

.3 Install roofing membrane sheets so side and end laps shed water.

3.8 SBS-MODIFIED BITUMINOUS MEMBRANE INSTALLATION

.1 Install modified bituminous roofing membrane sheet and cap sheet according to roofing manufacturer's written instructions, starting at low point of roofing system. Extend roofing membrane sheets over and terminate beyond cants, installing as follows:

.1 Torch apply to substrate.

.2 Unroll roofing membrane sheets and allow them to relax for minimum time period required by manufacturer.

.2 Laps: Accurately align roofing membrane sheets, without stretching, and maintain uniform side and end laps. Stagger end laps. Completely bond and seal laps, leaving no voids.

.1 Repair tears and voids in laps and lapped seams not completely sealed.

.2 Apply roofing granules to cover exuded bead at laps while bead is hot.

.3 Install roofing membrane sheets so side and end laps shed water.

3.9 FLASHING AND STRIPPING INSTALLATION

.1 Install base flashing over cant strips and other sloping and vertical surfaces, at roof edges, and at penetrations through roof, and secure to substrates according to roofing system manufacturer's written instructions and as follows:

.1 Flashing Sheet Application: Torch apply flashing sheet to substrate.

.2 Extend base flashing up walls or parapets a minimum of 200 mm above roofing membrane and 100 mm onto field of roofing membrane.

.3 Fasten top of base flashing securely at terminations and perimeter of roofing.

.1 Seal top termination of base flashing.

.4 Install roofing membrane cap-sheet stripping where metal flanges and edgings are set on membrane roofing according to roofing system manufacturer's written instructions.

.5 Roof Drains: Set 760-by-760 mm metal flashing in bed of asphalt roofing cement on completed roofing membrane. Cover metal flashing with roofing membrane cap-sheet stripping and extend a minimum of 150 mm beyond edge of metal flashing onto field of roofing membrane. Clamp roofing membrane, metal flashing, and stripping into roof-drain clamping ring.

.1 Install stripping according to roofing system manufacturer's written instructions.

.6 Roof Penetrations.

.1 Install roof drain pans, vent stack covers and other roof penetration flashings and seal to membrane in accordance with the manufacturer's recommendations and details.

3.10 INSTALLATION OF DEMARKATION STRIPES

.1 Install demarkation stripes by first carefully degranulating cap sheet where stripe will be installed. Torch apply striping overtop of cap sheet in accordance with installation requirements for cap flashing.

.2 Install a continuous demarkation stripe located 3.0 metres back from the edge of each roof.

3.11 FIELD QUALITY CONTROL

.1 Inspections required by Manufacturer for Warranty purposes: Arrange for periodic manufacturer representative’s reviews required by manufacturer to attain 15 year warranty.

.1 Notify Departmental Representative 48 hours in advance of date and time of inspection.

.2 Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion and submit report to Departmental Representative.

.1 Notify Departmental Representative 48 hours in advance of date and time of inspection.

.3 Repair or remove and replace components of roofing system where test results or inspections indicate that they do not comply with specified requirements.

.4 Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.12 PROTECTING AND CLEANING

.1 Protect roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Departmental Representative.

.2 Correct deficiencies in or remove roofing system that does not comply with requirements, repair substrates, and repair or reinstall roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

.3 Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION

PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 74 21 – Construction/Demolition Waste Management and Disposal.

.3 Section 06 10 00 – Rough Carpentry.

.4 Section 07 52 00 – Modified Bituminous Membrane Roofing.

.5 Section 07 92 00 – Joint Sealants.

1.2 REFERENCES

.1 The Aluminum Association Inc. (AA)

.1 Aluminum Sheet Metal Work in Building Construction.

.2 AA DAF45, Designation System for Aluminum Finishes.

.2 American Society for Testing and Materials (ASTM International)

.1 ASTM A653/A653M, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

.2 ASTM A792/A792M, Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.

.3 ASTM D523, Standard Test Method for Specular Gloss.

.4 ASTM D822, Standard Practice for Filtered Open-Flame Carbon-Arc Exposures of Paint and Related Coatings.

.3 Canadian General Standards Board (CGBS)

.1 CAN/CGSB-37.5, Cutback Asphalt Plastic Cement.

.4 Canadian Roofing Contractors Association (CRCA)

.1 Roofing Specifications Manual.

.5 Canadian Standards Association (CSA International)

.1 CSA A123.3, Asphalt Saturated Organic Roofing Felt.

.2 CSA B111, Wire Nails, Spikes and Staples.

1.3 SAMPLES

.1 Submit duplicate 50 x 50 mm samples of each type of sheet metal material, colour and finish.

PART 2 PRODUCTS

2.1 SHEET METAL MATERIALS

.1 Aluminum-zinc alloy coated steel sheet: to ASTM A792/A792M, commercial quality, grade 33 with AZ150 coating, regular spangle surface, 0.60 mm base metal thickness. Pre-painted to CGSB –GP-71.

2.2 PREFINISHED STEEL SHEET

.1 Prefinished sheet with factory applied polyvinylidene fluoride.

- .1 Class F1S
- .2 Colour as selected by Owner's Representative from manufacturer's standard range.
- .3 Specular gloss: 30 units +/- 5 in accordance with ASTM D523.
- .4 Coating thickness: not less than 22 micrometres.
- .5 Resistance to accelerated weathering for caulk rating of 8, colour fade 5 units or less and erosion rate less than 20 % to ASTM D822 as follows:
  - .1 Outdoor exposure period 2500 hours.
  - .2 Humidity resistance exposure period 5000 hours.

2.3 ACCESSORIES

.1 Isolation coating: alkali resistant bituminous paint.

.2 Plastic cement: to CAN/CGSB 37.5.

.3 Underlay for metal flashing: No. 15 perforated asphalt felt to CSA A123.3.

.4 Sealants: Section 07 92 00 – Joint Sealants.

.5 Cleats: of same material, and temper as sheet metal, minimum 50 mm wide. Minimum 16 ga.

.6 Fasteners: of same material as sheet metal, to CSA B111, ring thread flat head roofing nails of length and thickness suitable for metal flashing application.

.7 Washers: of same material as sheet metal, 1 mm thick with rubber packings.

.8 Touch-up paint: as recommended by prefinished material manufacturer.

2.4 FABRICATION

.1 Fabricate metal flashings and other sheet metal work in accordance with applicable CRCA 'FL' series details as indicated.

.2 Fabricate aluminum flashings and other sheet aluminum work in accordance with Aluminum Association Aluminum Sheet Metal Work in Building Construction.

.3 Form pieces in 2400 mm maximum lengths. Make allowance for expansion at joints.

.4 Hem exposed edges on underside 12 mm. Mitre and seal corners with sealant.

.5 Form sections square, true and accurate to size, free from distortion and other defects detrimental to appearance or performance.

.6 Apply isolation coating to metal surfaces to be embedded in concrete or mortar.

2.5 METAL FLASHINGS

.1 Form flashings, copings and fascias to profiles indicated of 0.60 mm thick prefinished steel.

PART 3 EXECUTION

3.1 INSTALLATION

.1 Install sheet metal work in accordance with CRCA FL series details and as detailed.

.2 Use concealed fastenings except where approved before installation.

.3 Provide underlay under sheet metal. Secure in place and lap joints 100 mm.

.4 Counterflash bituminous flashings at intersections of roof with vertical surfaces and curbs. Flash joints using S-lock forming tight fit over hook strips, as detailed.

.5 Lock end joints and caulk with sealant.

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

.1 Materials, preparation and application for caulking and sealants.

.2 Text to complete other various Sections containing sealant or caulking specifications, including Section 07 52 00 - Modified Bituminous Membrane Roofing.

1.2 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 45 00 - Quality Control.

.3 Section 01 61 00 - Common Product Requirements.

.4 Section 01 74 21 – Construction/Demolition Waste Management and Disposal.

1.3 REFERENCES

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

.1 ASTM C919, Standard Practice for Use of Sealants in Acoustical Applications.

.2 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-19.13, Sealing Compound, One-component, Elastomeric, Chemical Curing.

.3 Department of Justice Canada (Jus)

.1 Canadian Environmental Protection Act (CEPA).

.4 Health Canada/Workplace Hazardous Materials Information System (WHMIS)

.1 Material Safety Data Sheets (MSDS).

.5 Transport Canada (TC)

.1 Transportation of Dangerous Goods Act (TDGA).

1.4 SUBMITTALS

.1 Manufacturer's product to describe.

.1 Caulking compound.

.2 Primers.

.3 Sealing compound, each type, including compatibility when different sealants are in contact with each other.

.4 Installation instructions, surface preparation and product limitations.

.2 Submit duplicate samples of each type of material and colour.

.3 Cured samples of exposed sealants for each color where required to match adjacent material.

.4 Manufacturers' instructions to include installation instructions for each product used.

1.5 QUALITY ASSURANCE/MOCK-UP

.1 Construct mock-up in accordance with Section 01 45 00 - Quality Control.

.2 Construct mock-up to show location, size, shape and depth of joints complete with back-up material, primer, caulking and sealant. Mock-up may be part of finished work.

.3 Allow 24 hours for inspection of mock-up by Owner's Representative before proceeding with sealant work.

.4 Mock-up will be used:

.1 To judge workmanship, substrate preparation, operation of equipment and material application.

.5 When accepted, mock-up will demonstrate minimum standard of quality required for this Work.

1.6 DELIVERY, STORAGE, AND HANDLING

.1 Deliver, handle, store and protect materials in accordance with Section 01 61 00 - Common Product Requirements.

.2 Deliver and store materials in original wrappings and containers with manufacturer's seals and labels, intact. Protect from freezing, moisture, water and contact with ground or floor.

1.7 PROJECT CONDITIONS

.1 Environmental Limitations:

.1 Do not proceed with installation of joint sealants under following conditions:

.1 When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer or are below 4.4˚C.

.2 When joint substrates are wet.

.2 Joint-Width Conditions:

.1 Do not proceed with installation of joint sealants where joint widths are less than those allowed by joint sealant manufacturer for applications indicated.

.3 Joint-Substrate Conditions:

.1 Do not proceed with installation of joint sealants until contaminants capable of interfering with adhesion are removed from joint substrates.

PART 2 PRODUCTS

2.1 SEALANT MATERIALS

.1 Sealants and Caulking compounds must:

.1 Meet or exceed all applicable governmental and industrial safety and performance standards; and

.2 Be manufactured and transported in such a manner that all steps fo the process, including the disposal of waste products arising therefrom, will meet the requirements of all applicable governmental acts, by laws and regulations including, for facilities located in Canada, the Fisheries Act and the Canadian Environmental Protection Act (CEPA).

.2 Sealant and caulking compounds must not be formulated or manufactured with: aromatic solvents, fibrous talc or asbestos, formaldehyde, halogenated solvents, mecury, lead, cadium, hexavalent chromium, barium or their compounds, except barium sulphate.

.3 Sealant and caulking compounds must no contain a total of volatile organic compound (VOC's) in excess of 5% by height as calculated from records of the amounts of constituents used to make the product.

.4 Sealant and caulking compounds must be accompanied by detailed instructions for proper application so as to minimize health concerns and maximize performance, and information describing proper disposal methods.

.5 Do not use caulking that emits strong odours, contains toxic chemicals or is not certified as mould resistant in air handling units.

.6 When low toxicity caulks are not possible, confine usage to areas which off-gas to exterior, are contained behind air barriers, or are applied several months before occupancy to maximize off-gas time.

.7 Where sealants are qualified with primers use only these primers.

.8 Sealants acceptable for use on this project must be listed on CGSB Qualified Products List issued by CGSB Qualification Board for Joint Sealants. Where sealants are qualified with primers use only these primers.

2.2 SEALANT MATERIAL DESIGNATIONS

.1 Urethanes One Part.

.1 Non-Sag to CAN/CGSB-19.13, Type 2.

.2 Silicones One Part.

.1 To CAN/CGSB-19.13, mildew resistant.

.3 Acoustical Sealant.

.1 To ASTM C919.

.4 Preformed Compressible and Non-Compressible back-up materials.

.1 Polyethylene, Urethane, Neoprene or Vinyl Foam.

.1 Extruded closed cell foam backer rod.

.2 Size: oversize 30 to 50 %.

.2 Neoprene or Butyl Rubber.

.1 Round solid rod, Shore A hardness 70.

.3 High Density Foam.

.1 Extruded closed cell polyvinyl chloride (PVC), extruded polyethylene, closed cell, Shore A hardness 20, tensile strength 140 to 200 kPa, extruded polyolefin foam, 32 kg/m^3 density, or neoprene foam backer, size as recommended by manufacturer.

.4 Bond Breaker Tape.

.1 Polyethylene bond breaker tape which will not bond to sealant.

2.3 SEALANT SELECTION

.1 Perimeters of exterior openings where frames meet exterior facade of building, Sealant type CAN/CGSB- 19.13.

.2 Expansion and control joints in exterior surfaces of poured-in-place concrete walls: Sealant type CAN/CGSB – 19.13.

.3 Control and expansion joints in exterior surfaces of unit masonry walls: Sealant type: CAN/CGSB – 19.13.

.4 Seal interior perimeters of exterior openings as detailed on drawings: Sealant type: CAN/CGSB – 19.13.

.5 Control and expansion joints on the interior of exterior surfaces of unit masonry walls. Sealant Type CAN/CGSB -19.13.

.6 Interior control and expansion joints in floor surfaces: Sealant type CAN/CGSB -19.13.

.7 Perimeters of interior frames, as detailed and itemized: Sealant type CAN/CGSB -19.13.

.8 Interior masonry vertical control joints (block-to-block, block-to-concrete, and intersecting masonry walls): Sealant type CAN/CGSB -19.13.

.9 Perimeter of bath fixtures (e.g. sinks, tubs, urinals, stools, waterclosets, basins, vanities, counters, plastic laminate and adjacent wall finish, etc.): Sealant type CAN/CGSB – 19.13, mildew resistant.

.10 Exposed interior control joints in drywall: Sealant type: CAN/CGSB -19.13.

.11 Acoustical Sealant ASTM C919.

2.4 JOINT CLEANER

.1 Non-corrosive and non-staining type, compatible with joint forming materials and sealant recommended by sealant manufacturer.

.2 Primer: as recommended by manufacturer.

PART 3 EXECUTION

3.1 PROTECTION

.1 Protect installed Work of other trades from staining or contamination.

3.2 SURFACE PREPARATION

.1 Examine joint sizes and conditions to establish correct depth to width relationship for installation of backup materials and sealants.

.2 Clean bonding joint surfaces of harmful matter substances including dust, rust, oil grease, and other matter which may impair work.

.3 Do not apply sealants to joint surfaces treated with sealer, curing compound, water repellent, or other coatings unless tests have been performed to ensure compatibility of materials. Remove coatings as required.

.4 Ensure joint surfaces are dry and frost free.

.5 Prepare surfaces in accordance with manufacturer's directions.

3.3 PRIMING

.1 Where necessary to prevent staining, mask adjacent surfaces prior to priming and caulking.

.2 Prime sides of joints in accordance with sealant manufacturer's instructions immediately prior to caulking.

3.4 BACKUP MATERIAL

.1 Apply bond breaker tape where required to manufacturer's instructions.

.2 Install joint filler to achieve correct joint depth and shape, with approximately 30% compression.

3.5 MIXING

.1 Mix materials in strict accordance with sealant manufacturer's instructions.

3.6 APPLICATION

.1 Sealant.

.1 Apply sealant in accordance with manufacturer's written instructions.

.2 Mask edges of joint where irregular surface or sensitive joint border exists to provide neat joint.

.3 Apply sealant in continuous beads.

.4 Apply sealant using gun with proper size nozzle.

.5 Use sufficient pressure to fill voids and joints solid.

.6 Form surface of sealant with full bead, smooth, free from ridges, wrinkles, sags, air pockets, embedded impurities.

.7 Tool exposed surfaces before skinning begins to give slightly concave shape.

.8 Remove excess compound promptly as work progresses and upon completion.

.2 Curing.

.1 Cure sealants in accordance with sealant manufacturer's instructions.

.2 Do not cover up sealants until proper curing has taken place.

.3 Cleanup.

.1 Clean adjacent surfaces immediately and leave Work neat and clean.

.2 Remove excess and droppings, using recommended cleaners as work progresses.

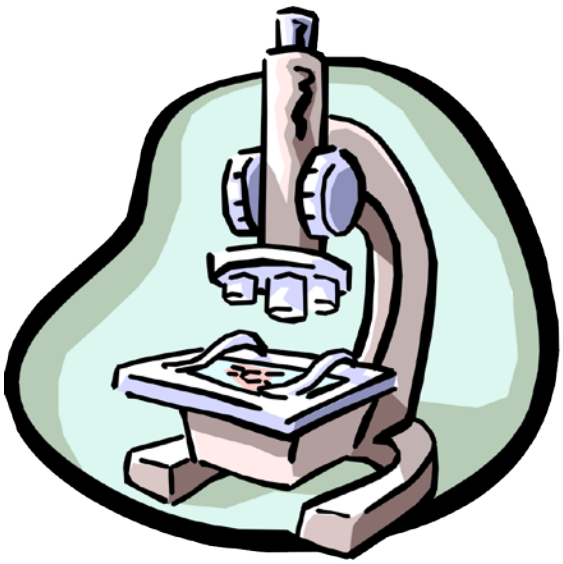
.3 Remove masking tape after initial set of sealant.

END OF SECTION

Appendix A - Construction, Renovation and Maintenance Related Nosocomial Infection Protocol

CONSTRUCTION, RENOVATION AND MAINTENANCE RELATED NOSOCOMIAL INFECTION PROTOCOL

Labrador - Grenfell Health



By. Randy Cull, RD Support Services

Original January 07; Revised June 07, May 09
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1. Preamble

Hospital Acquired (Nosocomial) infections occurs in a relatively small percentage of the clients we serve. It has been proven beyond doubt that some of these infections are caused by particles being disturbed during construction. The particulate is then suspended in a medium, usually air or water, thus acquiring the ability to travel and potentially infect our clients. The Canadian Standards Association (CSA) studied and understood the severity of the risk and in April of 2003 introduced the first version of standard #***CSA-Z317, Infection Control during Construction or Renovation of Health Care Facilities.*** In August 2008 the second edition # ***CSA-Z317.13.07, Infection control during construction, renovation and maintenance of health care*** facilities was approved by CSA***.*** LGHeath makes all efforts to adhere to this latest standard and has revised and re-developed this protocol in response to the August 2008 standard. When a conflict exist the standard supersedes all documents.

2. Definitions

The following definitions apply in this Standard:

Adjacent areas – all of the areas surrounding an area where construction, renovation or maintenance work is occurring, including, where applicable, all or part of the floors above and below:
Note: determining what constitutes an adjacent area, depends on the risks created by the work. For example, where Type A construction work (which does not generate dust) is being performed (see Table 3), iti s possible that only the rooms whose walls, floors, and roofs adjoin the area where the work is being performed will be considered adjacent areas. Conversely, where Type D construction work, involving major demolition or road repair outside the health care facility is being performed (see Table 3), it is possible that the entire facility will be considered an adjacent area.

Anteroom – a small room that is immediately adjacent to or within a construction area and is intended to be used by constructors for purposes such as storage or removal of protective clothing, cleaning of debris-removal containers, and/or removal of contaminants from footwear.

Aspergillosis – an Aspergillus infection.

Aspergillus – a genus of fungi found in soil, water, decaying vegetation and damp materials. The fungal spores (conidia) proliferate on dead organic debris and can remain viable for months in dry locations.

Construction – major and minor facility activities that disturb or modify facility structures and systems in this Standard, the term includes not only construction but also renovation, maintenance and repair work.

Constructor – the person who undertakes a construction or renovation project for an owner. A constructor can be, for example, a contractor, subcontractor, construction manager, construction worker or tradesperson. The term also includes an owner who personally undertakes all or part of a construction or renovation project.

Cytotoxic – destructive to cells.

Environmental Services – heatlh care facility services such as general housekeeping, waste management, pest control and hazardous material cleanup.

Fungi – a diverse group of organisms that includes yeasts, moulds (fungi capable of producing mould), and mushrooms. They are found in soil, water and air and lacking chlorophyll, derive nourishment from breaking down organic matter. Many types of fungi reproduce by means of spores that are readily dispersed in air.

Granulocytopenia – an abmormal reduction of granulocytes in the blood. A granulocyte is a type of white blood cell.

Heatlh Care facility - a set of physical infrastructure elements supporting the delivery of health-related services.

Health care staff – medical, nursing and auxiliary personnel involved in patient care.

HEPA (high-efficiencyparticulate air) filter – an air filter with an efficiency of 99.97% in the removal of airborne particles 0.3 or larger in diameter.

I**mmunodeficiency** – a decreased or compromised ability to respond to antigenic stimuli (stimuli capable of causing antibody production) with an appropriate cellular immunity reaction.

Immunosuppressive – acting to suppress the body's natural immune response to an antigen (a substance on the surface of a cell that stimulates the production of antibodies).

Ketoacidosis – acidosis (an increase in the acidity of the blood) resulting from an excess of detone bodies (a group of substances in the blood that increase as a result of impaired carbohydrate metabolism).

Legionella – a genus of gram-negative bacteria found in soil, water and dust.

Legionellosis – legionella infection.

Legionnaires' disease – a pneumonia that is caused by Legionella nd is usually acquired by inhalation of contaminated aerosols. Although many species of Legionella can cause this disease, it is most commonly associated with Legionella pneumophila.

Maintenance – see **Construction.**

Micro-organism – a minute organism not perceptible to normal or corrected-to-normal vision.

Mould – microscopic spores that can cause human infections or allergic reactions if dispersed. Construction, renovation, maintenance and demolition can increase the risk of infections or allergic reactions by dispersing spores.

Neoplastic disease – any disease characterized by new and abnormal tissue formation.

Neutropenia – an abnormal redution of neutrophils in the blood. A neutrophil is a type of white blood cell.

Occupant – a patient, resident, staff member, or visitor in a health care facility.

Patient – a person underoing medical investigation, care or treatment.

Plumbing dead leg - a pipe or other plumbing component or system that has contained, contains or likely will contain stagnant water.

Pseudo-infection – a false-positive laboratory result produced by contaminated equipment during a test for infection.
Note: improper handling of laboratory specimens can produce false positives.

Renovation – see **Construction.**

Surveillance – systematic observation of the occurrence and distribution of disease processes in a population.

Temporary works – all constructed items that are required by a constructor to complete a project bu are removed before the project is completed.
Note: Temporary works include, for example, hoardings, ramps and temporary supports.

Walk-off mat – a specially designed mat that is placed outside a construction area or in an anteroom and is intended for removal of contaminants from the footwear of constructors.
Note: Walk-off mats include, for example, mats for removal of sand and winter road salt, mats with a sticky surface for removal of dust, and antibacterial mats that include a frame allowing for placement of antibacterial solutions.

3. Sources of infection

Some of the environmental sources of infection in health care facilities include soil, water and dust contaminated with fungal spores, bacteria or other micro-organisms.

Examples of construction, maintenance and renovations that cause contamination infections include soil excavation, heating, ventilation and air conditioning (HVAC), potable plumbing systems, windows, failure of moisture barriers and building envelopes and a host of other activities.

Water leaks and flooding shall be dealt with in accordance to section 9 of the standard and immediately reported to the manager of the affected area and to a member of the multidisciplinary team who will remove the pt, minimize the damage, record the event and implement remedial measures. The Support Services Manager or designate must be notified. If moisture is detected in less that 48h the materials may be dried, more than 48h mould abatement should be carried out.

4. Selection & Design

To reduce risk consideration should be given to the selection, design, application, specification and assembly of construction materials.

Consideration should be given to using low-emission materials in accordance with Canada's Green Building Council's LEED Canada.

Construction materials for permanent and temporary installations shall be protected from dust and moisture during shipping handling and storage.

New construction requires approval of the multidisciplinary team and all preventive measures.

5. Preventive Measure (PM)

The preventive measure (PM) of any construction, renovation and maintenance activity that has a potential of causing a nosocomial infection is determined by matrixing the type of construction activity (A to D) and location of the work (population Risk Group 1-4).

PM I & II activities may be carried out without convening the Multi Disciplinary Team (MDT) providing protocol is met.

When the population Risk Group is 4, and the construction is Type A, the Infection Control Department is consulted to determine the appropriate PM (I-III).

Any PM exceeding three and above must be forwarded to the MDT for permit approval and plan development before any construction occurs.

- PM 1 (Page 7)

Preventive Measure I activities consist mainly of Type A construction, such as non-destructive inspection and minor general maintenance. These activities do not require a permit and can be pre-approved to be routinely carried out by Maintenance Repairmen and Tradesmen, as long as the correct protocol is adhered to.

- PM 2 (Page 8-9)

Preventive Measure II activities are detailed on page # 8 and consist mainly of small scale short duration activities which create minimal dust. These activities can be approved to be carried out by the Maintenance, Project and Housekeeping Team Leaders, Infection Control Practitioners and first line managerial staff in the area concerned, as long as proper protocol is met and an Infection Control Construction Permit is generated. When the population Risk Group is 4, and the construction is Type A, the Infection Control Department is consulted to determine the appropriate PM (I-III)

- PM 3 and above (Page 10-12)

Note: PM's, three and above, must be brought before a MDT for detailed plan development and permit approval.

6. Types of Construction Activity

Type A	Inspection and Non-invasive Activities: These include, but are not limited to, activities that require removal of ceiling tiles for visual inspection (limited to 1 tile wall or ceiling panel), painting (but not sanding), wall covering, electrical trim work, minor plumbing (disrupts water supply to a localized patient care area (e.g. 1 room) for less than 15 minutes, and other maintenance activities which do not generate dust or require cutting of walls or ceilings or access to ceilings, other than for visual inspection.
Type B	Small scale, short duration activities which increase minimal dust. These include, but are not limited to, activities that require access to chase spaces, cutting of walls or ceilings where dust migration can be controlled for the installation/repairs of minor electrical work, ventilation components, telephone wires or computer cables and sanding of walls for painting or wall covering to only repair small patches. It also includes plumbing that requires disruption to the water supply of more than one patient care areas (e.g. > 2 rooms) for less than 30 minutes.
Type C	Any work which generates a moderate to high level of dust or requires demolition or removal of any fixed building components or assemblies (e.g. counter tops, cupboards, sinks) or cannot be completed in one shift. These include, but are not limited to, activities that require sanding of walls for painting or new wall construction, minor duct work or electrical work above ceilings, major cabling activities, and any activity which cannot be completed within a single work shift. It also includes plumbing that requires disruption to the water supply of more than one patient care area (e.g. > 2 rooms) for more than 30 minutes, but less than one hour.
Type D	Major demolition and construction projects. These include, but are not limited to, activities that require heavy demolition or removal of a complete cabling system and new construction which require consecutive work shifts to complete. It also includes plumbing that requires disruption to the water supply of more than one patient care area (e.g. > 2 rooms) for more than one hour.

7. Population Risk Groups

Group 1 Lowest Risk	Group 2 Medium Risk	Group 3 Medium to High Risk	Group 4 Highest Risk
• Office Areas • Unoccupied wards • Plant • L/S.Linen	• All other patient care areas (e.g. Cardiac Rehab, Ambulatory Care Clinics, unless stated in Group 3 or 4) • Outpatient Clinics (except for Oncology and Surgery) • Admission/Discharge Units. • Waiting Rooms	• Emergency Room • Radiology/MRI • Post Anesthesia Care Unit. • Labour and Delivery • Newborn Nurseries • Day Surgery • Renal patients • Nuclear Medicine • Physiotherapy tank areas. • Echocardiography. • Pump Team • Laboratories (specimens) • General Med/Surg • Pediatrics • Geriatrics • Long-term Care • Clean Linen • R/T	• All ICU's • All OR's • Sterile Processing Rooms. • Oncology Units (including Out-Patients) • Transplant Units (Including Out-Patients) • Dialysis Units • Labour & Delivery Operating Rooms. • All Cardiac Catherization and Angiography areas. • Cardiovascular/Cardiology patients. • Transplant Patients. • Anesthesia and Pump areas. • All Endoscopy areas. • Pharmacy Admixture Rooms. • Cystoscopy • CSR • Dental

8. Preventive Measure Matrix

Construction Activity				
Population Risk Group	**Type A**	**Type B**	**Type C**	**Type D**
Group 1	I	II	II	III/IV
Group 2	I	II	III	IV
Group 3	I	III	III/IV	IV
Group 4	I-III*	III/IV	III/IV	IV

***I/C must be Consulted**

Preventive measure III or above the multidisciplinary shall determine and approve procedures

8. PM I:Detailed Preventive Measures

PM I	**Contractor/Maintenance** **a) Construction/Renovation Activities** • Execute work by methods to minimize raising dust from construction/renovation activities. • Immediately replace tiles displaced for visual inspection. • Clean with HEPA vacuum if necessary **b) Plumbing Activities** • Flush water lines prior to reuse • Observe for discolored water • Ensure water temperature meets the standards set by the Health Care facility. • Schedule water interruptions during low activity; i.e., evenings if at all possible. • Ensure gaskets and items made of materials that support the growth of Legionella are not being used. • Ensure faucet aerators are not installed or used. • Assess for discolored water. • Maintain a dry work environment	**Housekeeping** **a) Construction Renovation Activities** • Wet mop and HEPA vacuum area as needed and when work is completed. **b) Plumbing Activities** • Report discolored water to Maintenance and ICP. • Ensure pt equipment is protected from dust **Infection Control Practitioner** **a) Construction/Renovation Activities** • Educate construction workers on health risks that are involved with the project and rationale for the infection control preventive measures. • Ensure preventive measures are being followed. **b) Plumbing Activities** • Assess for discolored water. **Medical/Nursing Staff** **a) Construction/Renovation Activities** • Minimize patients & equipment exposure to construction/renovation area. **b) Plumbing Activities** • Report discolored water to Maintenance and ICP.

9. PM II: Detailed Preventive Measures (requires permit)

PM II	Contractor/Maintenance	Housekeeping
	a) Construction/Renovation/Maintenance Activities Provide active means to prevent dust from dispensing into the atmosphere • Place dust mat at entrance and exit of work areas. • Use drop sheets to control dust. • Control dust by water misting work surfaces while cutting. • Seal unused doors with duct tape. • Block off seal air vents in construction/renovation area. • Disable the ventilation system in the construction/renovation area. • Contain debris in sealed, covered containers or cover with a moistened sheet before transporting to be disposed. • Monitor need to change and/or clean filters in construction/renovation area. • Use walk off mats • Remove debris in the evening and or minimize exposure **b) Plumbing Activities** • Same as above in PM I • Collection tanks and long pipes that allow water to stagnate should be avoided. • Hyperchlorinate or superheat stagnant potable water (especially if Legionella is already present in hospital potable water supply) • Maintain a dry environment	**a) Construction/Renovation Activities.** • Wet mop and vacuum with a HEPA filtered vacuum, as needed, and when activity is completed, wipe work surfaces with a disinfectant. **b) Plumbing Activities** • Same as above in PM I **Infection Control Practitioner** **a) Construction/Renovation Activities** • Same as above in PM I • Identify high risk patients who may need to be moved away from the construction zone • Designate a traffic pattern for construction workers that do not go near the patients. • Consider temporarily moving high risk patients who are in or adjacent to the construction area. **b) Plumbing Activities** • Same as above in PM I • Consider the method used to sanitize the water lines.

PM II	(Cont'd)	**<u>Medical/Nursing Staff</u>** **a) Construction/Renovation Activities** • Same as above in PM I. • Identify high risk patients who may need to be temporarily moved away from the construction zone **b) Plumbing Activities** • Same as above in PM I.

10. PM III: Detailed Preventive Measure (requires permit)

PM III	**Contractor/Maintenance** **a) Construction/Renovation Activities** • Same as above in PM I and II • Ensure ICP has been consulted. • Ensure windows, doors, intake and exhaust vents are properly sealed duct tape within the construction/renovation area. • Erect an impermeable dust barrier from ceiling (includes area above false ceilings) to the floor with two layers of fire retardant plastic and gypsum wallboard. • Maintain negative pressure within construction zone by using portable HEPA equipped air filtration units. • Use impermeable vessels constructed to contain contaminates • Do not remove dust barrier until the project is completed and the area has been cleaned thoroughly. • Remove protective clothing before entering pt care areas. • Remove debris as described above and cover transport receptacles or carts. • Remove dust barrier carefully to minimize spreading dust and other debris particles associated with the construction project. • Ensure ventilation system is functioning properly after construction or renovation project is completed. **b) Plumbing Activities** • Same as above in PM I and II. • Flush water lines at construction or renovation site and adjacent patient care areas before patients are re-admitted.	**Housekeeping** **a) Construction/Renovation Activities** • Same as above in PM I and II. • Vacuum work area with HEPA filtered vacuums. • Wet mop the area and wipe all horizontal areas with disinfectant. • Ensure construction zone is thoroughly cleaned when work is completed. • Increase frequency of cleaning in areas adjacent to the construction zone while the project is underway. **b) Plumbing Activities** • Same as above in PM I and II. **Infection Control Practitioner** **a) Construction/Renovation Activities** • Same as above in PM I and II. **b) Plumbing Activities** • Same as above in PM I and II. **Medical/Nursing Staff** **a) Construction/Renovation Activities** • Same as above in PM I and II. • Ensure area is thoroughly cleaned before patients are re-admitted to area. **b) Plumbing Activities** • Same as above in PM I and II.

11. PM IV: Detailed Preventive Measures (requires permit)

PM IV	Contractor/Maintenance	Housekeeping
	a) Construction/Renovation Activities • Same as above in PM I, II and III. • Ensure access is from the outside or install an anteroom, before starting the construction project. • Place a walk-off mat in patient care areas near the construction zone and outside the anteroom to trap dust from the workers' shoes, equipment and debris. • Construction workers must enter and leave the construction zone directly to the outside or through the anteroom, so they can be vacuumed using a HEPA filtered vacuum cleaner before leaving the work site or they could wear cloth or paper coveralls that are removed each time they leave the work site. • Ensure negative pressure is maintained within the anteroom and construction zone. • Vacuum work area with HEPA filter vacuum cleaner daily or more often if needed. • Ensure ventilation systems are working properly in adjacent areas. • Review ventilation system requirements in the construction area with ICP to ensure the system is appropriate and is functioning properly. • Review infection control measures with other members of the planning team to evaluate their effectiveness and identify problems at the end of construction project.	**a) Construction/Renovation Activities** • Same as above in PM I, II, III. • Vacuum work area with HEPA filter vacuum daily or more often if needed. • Review infection control measures with ICP and other members of the planning team to evaluate their effectiveness and identify problems at the end of construction project. **b) Plumbing Activities** • Same as above in PM I, II & III. **Infection Control Practitioner** **a) Construction/Renovation Activities** • Same as above in PM I, II & III. • Review infection control measures with other members of the planning team to evaluate their effectiveness and identify problems at the end of construction project. **b) Plumbing Activities** • Same as above in PM I, II & III. • Hyperchlorinate or super heat stagnant potable water (especially if Legionella is already present in hospital potable water supply.

PM IV	(Cont)	**<u>Medical/Nursing Staff</u>** **a) Construction/Renovation Activities** • Same as above in PM I, II & III • Review infection control measures with other members of the planning team, to evaluate their effectiveness and identify problems at the end of construction period. **b) Plumbing Activities** • Same as above in PM I, II & III. • Consider using another source of potable water for patients who are at greatest risk, until hospital potable water has been cleared of signs of Legionella, after major plumbing installation/repairs.

12. Forms and Logs

Preventive Measures Analysis
Preventive Measure Matrix

Construction Activity				
Population Risk Group	**Type A**	**Type B**	**Type C**	**Type D**
Group 1	I	II	II	III/IV
Group 2	I	II	III	IV
Group 3	I	III	III/IV	IV
Group 4	I-III*	III/IV	III/IV	IV

***I/C must be Consulted**

Preventive measure III or above the multidisciplinary shall determine and approve procedures

Permit Log (Maintained by IC for PM three and above)

Appendix B - Contractor and Vendor Safety Policy

SUBJECT: Contractor and Vendor Safety Policy
APPROVED BY: Chief Executive Officer _____
EFFECTIVE DATE: 2011 09
REVIEW/REVISED DATE:

Purpose:

To provide directives to all contractors and vendors conducting business with Labrador-Grenfell Health to do so in a professional manner within a safe environment.

Policy/Standard:

All contractors, vendors and their employees, including subcontractors, must abide by the Newfoundland and Labrador Occupational Health and Safety Act and Regulations, the Personal Health Information Act, and all Labrador-Grenfell Health policies including the Contractor and Vendor Policy and Safety Handbook.

Materials Required:

- Contractor and Vendor Handbook — OHS-10-0100-4
- Contractor and Vendor Orientation Checklist — Form #OHS-10-0100-1
- Contractor and Vendor Safety Agreement Form — Form #OHS-10-0100-2
- Work Permit — Form #OHS-10-0100-3
- LG Health Identification Badge
- Preventative Measures Analysis Form (Infection Control) — Appendix 2, IC-6-60
- Oath/Affirmation of Confidentiality — Form #P&A-9-020-2

Related Policies:

- Incident Reporting — PSQ-5-020
- Identification of Personnel — HR-3-010
- Oath/Affirmation of Confidentiality (Contractors/Vendors) — P&A-9-020
- Construction, Renovation or Maintenance in Health Care Facilities — IC-6-60

Procedure:

1. All vendors will be required to book appointments through the Regional Director of Materials Management or designate and report to their offices for the orientation process.

2. All contractors will be required to book appointments through the Regional Director of Support Services or designate or the Regional Director of Capital Projects or designate and report to their offices for orientation process before commencing any work.

3. All contractors and vendors must participate in a job-specific risk assessment process, review this Contractor and Vendor Policy, the Contractor and Vendor Handbook, sign the Contractor and Vendor Safety Agreement Form, and receive an approved Labrador-Grenfell Health Work Permit (if applicable) before starting any work.

4. Contractors, vendors and their employees/agents must wear appropriate identification at all times while at LG Health premises.

5. Contractors, vendors and their employees/agents must sign an individual Oath/Affirmation of Confidentiality prior to commencing business with Labrador-Grenfell Health, as outlined in policy P&A-9-020.

6. While on LG Health property, contractors and vendors may be subject to the inspections and direction of the site Occupational Health and Safety Committee, the Site Representative, Occupational Health and Safety Department staff, other LG Health management, or Department of Government Services Occupational Health and Safety Inspectors. Any directives issued by Department of Government Services must be disclosed to LG Health.

7. LG Health will exercise its right to terminate a contract, without penalty, or refuse the entry of a contractor or vendor if there is evidence of violation of this policy.

References:

Province of Newfoundland and Labrador: *Personal Health Information Act*, SNL 2008, c. P-7.01.

Province of Newfoundland and Labrador: *Occupational Health and Safety Act* and Regulations, SNL 1990, c. O-3.

Appendix C - Privacy and Confidentiality

Labrador-Grenfell Health

SUBJECT: **PRIVACY AND CONFIDENTIALITY**
APPROVED BY: Chief Executive Officer _____
EFFECTIVE DATE: 2011 04
REVIEW/REVISED DATE:

Purpose:

To set organizational expectations regarding the protection of confidential, private and/or personal information relating to clients, employees and the business of Labrador-Grenfell Health.

Policy/Standard:

It is the responsibility and obligation of all employees and others affiliated either directly or indirectly with Labrador-Grenfell Health to ensure that information to which they have access is kept confidential and private. Therefore, all reasonable measures must be taken to ensure that information is collected, used and disclosed only in circumstances necessary and authorized for client care, research and education, or as necessary in conducting the business of the organization. The collection, use, access, disclosure and disposal of information must be in accordance with the appropriate legislative authority, professional standards/codes of ethics and/or the Authority's procedures, policies and practices.

All employees, agents, volunteers, students, contractors, vendors and others that are directly or indirectly affiliated with Labrador-Grenfell Health must:

- be expressly informed of their responsibility to protect privacy/confidentiality;
- be asked to read in its entirety a copy of Labrador-Grenfell Health's privacy/confidentiality policies;
- be required to participate in training on privacy/confidentiality and the Personal Health Information Act (PHIA); and
- take an *"Oath/Affirmation of Confidentiality"* upon engagement with the organization or at the first reasonable opportunity; a verbal or written offer provided by Labrador-Grenfell Health is conditional upon completion of this Oath/Affirmation (refer to *"Oath/Affirmation of Confidentiality"* P&A-9-020).

Breaches

Individuals are held accountable for breaches of privacy and/or confidentiality. A breach includes unauthorized access, use and/or disclosure of confidential information and including actions that are intentional or unintentional. A breach can include recorded and/or unrecorded information.

All employees and others affiliated with Labrador-Grenfell Health have a responsibility to report breaches of privacy and/or confidentiality without fear of reprisal. If a breach is suspected, it must be reported to the Patient Safety and Quality Department for follow-up (refer to *"Incident Reporting Policy"* PSQ-5-20). If it is established that a breach has occurred, those individuals deemed responsible may be subject to penalty or discipline up to and including termination of employment, cancellation of contract or services, termination of the relationship with Labrador-Grenfell Health, withdrawal of privileges and/or legal action. Where applicable, reporting to an individual's professional regulatory body will also be considered.

Legal Limits

Legislation necessitates the disclosure of a client's personal health information in some cases, including the common law recognition of the *Duty to Warn*.

Reasonable Limits

While every effort must be made to maintain confidentiality and privacy, Labrador-Grenfell Health recognizes that in practice, reasonable limits may be placed on the principle of confidentiality. For example, the actual facilities and dynamic environment in which health care services are provided can limit the degree to which privacy and confidentiality can be protected (i.e. 4-bed client rooms, busy clinics, crowded emergency room departments, home visit environments. etc.). While considering the environmental limitations inherent in the health care setting, confidential information is not to be discussed in any public location where unauthorized persons are present and are likely to overhear.

Investigation of privacy/confidentiality breaches and/or other organizational processes defined by Labrador-Grenfell Health policies and procedures may necessitate disclosure of confidential information to employees that would not routinely be privy to this level of access.

Recognition of Professional Standards/Regulations

Employees and other affiliates of Labrador-Grenfell Health may have disclosure and/or advocacy obligations arising from professional standards, regulations and concerns regarding client safety, safety of others and/or service delivery. The Authority acknowledges the responsibility of health care professionals and organizations for appropriate disclosure to the public. However, it is the expectation that concerns or issues be first directed through the Authority's operational departments and programs as the initial step toward resolution.

Definitions:

Privacy is the right of an individual or entity to control the collection, use, and disclosure of information about themselves.

Confidentiality is an obligation to keep confidential information private by ensuring that only authorized persons have access to the information.

Duty to Warn is a term referring to the responsibility of a clinician to inform third parties or authorities if a client poses a threat to himself or to another identifiable individual. Based on common law, *Duty to Warn* gives clinicians the right to breach confidentiality if a client poses a risk to another person.

Confidential Information is that which would not otherwise be publicly available and includes, but is not limited, to the following:

Client Information	Any client's personal information of any type, including information in oral or recorded form, and relating to their: • name, address or telephone number; • health care status or history; • race, nationality or ethnic origin; religious or political beliefs or associations; • age, sex, sexual orientation, marital and/or family status; • any identifying number or symbol assigned to the client; • fingerprints, blood type or inheritable characteristics;

	• educational, financial, criminal or employment status or history; • a person's opinions about the client; and • the client's personal views or opinions.
Financial	Any information pertaining to an individual's finances; any unpublished financial information of the organization (i.e. suppliers, debtors, payroll).
Human Resources	All personal and employment information that is gathered as a result of established relationships/affiliations with Labrador-Grenfell Health.
Legal	Any information outlined in a legal document (i.e. contracts, agreements, disputes) for which privilege is claimed.
Other Administrative Information	Any information used for administrative purposes (i.e. clinic schedules, client census, employee lists, client lists or health foundation databases).
Business Initiatives	Any information related to the organization's initiatives (i.e. organizational restructuring, mergers, recruitment).
Operational/Service Delivery	Information related to business decisions and/or operations for which disclosure would cause harm.

Materials Required:

- Oath/Affirmation of Confidentiality (Employees/Agents, Volunteers, Students, etc.) Form # P&A-9-020-1
- Oath/Affirmation of Confidentiality (Contractors/Vendors) Form # P&A-9-020-2
- Client Incident Report Form # PSQ-5-20-1 (Blue)

Related Policies:

- Oath/Affirmation of Confidentiality P&A-9-020
- Security of Confidential Information P&A-9-030

- Privacy/Confidentiality Breach Management P&A-9-040
- Incident Reporting PSQ-5-20
- Management of Adverse Events PSQ-5-030

References:

Province of Newfoundland and Labrador. *The Personal Health Information Act Policy Development Manual* (2010).

Province of Newfoundland and Labrador. *Personal Health Information Act*, SNL 2008, c. P-7.01.

Eastern Health *Privacy/Confidentiality Administration Policy Manual*, ADM-030 (2008).