Specification for

West Royalty Elementary School Mobile Classrooms Connector

Charlottetown, PEI

TIE #670-20015

The PEI Department of Transportation, Infrastructure and Energy

Chandler Architecture Inc

May 21, 2020

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TIE Public Works and Planning is moving forward with our capital building repair and construction program and will be issuing tenders as follows:
We have developed modifications to the tender process to minimize everyone's potential exposure to COVID-19.
Tenders will continue to be advertised and posted to the PEI Government tender site:
https://www.princeedward island.ca/en/tenders
Tender submissions will be received in clearly marked, sealed envelopes in the tender box provided at the Security Desk at the main entrance of the Jones Building, 11 Kent Street, Charlottetown, PE C1A 7N8 between 11:00 AM and 2:00 PM, Local Time, on Thursday, June 11, 2020. Tenders are to be clearly marked to indicate the project being tendered on.

West Royalty Elementary – Mobiles Connection
TIE #670-20015
Charlottetown, Queens County, PE

There will be a non-mandatory Bidder's Site Visit held at West Royalty Elementary School, 80 Commonwealth Ave, Charlottetown, PE on Friday, May 29 at 10:00 AM.
Hard copies (paper copies) of tender documents will **not** be made available to bidders at this time. All tender documentation will only be available electronically. Electronic documents will be posted electronically to the Government tender page:
https://www.princeedward island.ca/en/tenders
Electronic documents will be issued to the Construction Association of PEI (CAPEI) as well as to NB and NS Construction Associations. Addenda will only be posted to the Government tender site and issued to the Construction Associations. **It is the Contractor's responsibility to ensure that they have incorporated all addenda into their bid submission.**

- Tender envelopes must be clearly marked with the Project Name.
- Tender documents must be received prior to 2:00 PM on the date specified in the tender.
- No submissions will be accepted after that time.
- The tender opening will not be opened to the public.
- Tender envelopes will be opened immediately after the tender closing and there will be a representative of the CAPEI present to witness the opening.

Refer to "Instructions to Bidders" for Bid Security and Contract Security requirements.
Lowest or any Tender will not necessarily be accepted.
Any additional information can be obtained by contacting **Tyler Richardson, at 902-368-4249 or fax 902-569-0590.**

END

1. GENERAL

   COVID-19

   a) The parties acknowledge that the obligations of each party from time to time to meet certain terms and conditions of this Contract may be impeded by the COVID-19 pandemic and related issues. The parties agree to act in good faith by making all reasonable accommodations as the circumstances of the pandemic may require and each party will exercise reasonable efforts to comply with this Contract notwithstanding the effect of the pandemic. No party will require or encourage any person acting on its behalf to violate the terms of any public health directive or to perform any act which would place such person at a material risk of contracting COVID-19 virus.

   b) This contractor acknowledges that any costs associated with COVID-19 construction protocol related to all required Health and Safety measures during the duration of this construction contract, as referenced in the Tender Documents, shall be included in the base bid for this Contract.

   c) Until further notice and as directed by the Provincial Chief Public Health Office (CPHO), all works shall be conducted with he intent and spirit of the health directives given. As such, bidders shall include provisions within their bids to achieve social and physical distancing between all workers during travel times to and from the site, working, rest breaks, lunch breaks, etc. For more information related to CPHO and COVID-19 refer to the following links provided by the Government of PEI, Federal Government of Canada and the Construction Association of PEI:

      - Government of PEI: www.princeedwardisland.ca/covid19
      - Government of Canada: www.canada.ca/coronavirus
      - CAPEI: www.capei.ca/

   d) In response to the current COVID-19 pandemic, we will require all Contractors to develop a written worksite-specific Pandemic Preparedness plan based on the criteria in the CAPEI industry guide "Pandemic Planning for the Construction Industry – A Guide" found at the following link: https://capei.ca/memberaccess/LiveEditor/images/pdf/INDUSTRYGUIDECOVID19.pdf

   e) The successful contractor shall have designated an on-site staff person with the authority to enforce the requirements of the "Pandemic Preparedness Plan" throughout the project(s) or until such directive is deferred by the CPHO. TIE will

require that the Contractor develop a written site-specific Pandemic Preparedness plan and have it available prior to the award of a tender.

f) The Tender Documents including General Conditions of Contract, the Instructions to bidders, Specifications, Tender Form and Drawings are all complementary and shall be read together.

g) Each Tenderer shall examine the Tender Documents as soon as possible after receipt thereof and should he or she discover any errors or omissions therein, he or she shall notify the Department as soon as possible and at least seven (7) days prior to the date set for receiving tenders so that further instructions and/or drawings may be issued to all Tenderers before the date set for receiving tenders.

2. ADDENDA

a) Tenders may, during the tendering period, be advised by addenda of required additions to, deletions from, or alterations to the requirements of the tender documents. All such changes shall become an integral part of the Tender Documents and shall be allowed for in arriving at the fixed sum tender figure. Addenda will only be posted to the Government tender site and issued to the Construction Associations. **It is the Contractor's responsibility to ensure that they have incorporated all addenda into their bid submission.**

3. BID AND CONTRACT SECURITY

BID SECURITY

a) Each Tender submitted shall be accompanied by the following security:

.1 General Contract Tender less than or equal to Three Million ($3,000,000.00) Dollars, including mechanical and electrical subcontract values:

A Bid Bond equal to at least ten percent (10%) of the Tender amount and a Letter of Surety from a bonding company guaranteeing to supply a Performance Bond in the amount of fifty percent (50%) of the total contract amount.

OR

A Security Deposit equal to at least ten percent (10%) of the Tender amount.

.2 General Contract Tender more than Three Million ($3,000,000.00) Dollars, including mechanical and electrical subcontract values:

A Bid Bond equal to at least ten percent (10%) of the Tender amount and a Letter of Surety from a bonding company guaranteeing to supply a Performance Bond in the amount of fifty percent (50%) of the total contract amount and a Labour and Material Payment Bond in the amount of fifty percent (50%) of the total contract amount.

b) .1 All Bonds and Letter of Surety, provided by General Contractors, made payable to the Owner.

.2 Bonds and Letters of Surety supplied by the General Contractor to the Owner shall be from a recognized surety company, satisfactory to, and approved by the Owner.

c) .1 Security Deposits, provided by General Contractors, must be in the form of a Certified Cheque or Bank Draft drawn on a Bank to which the Bank Act applies or a Credit Union, payable to "**Minister of Finance, Province of Prince Edward Island**".

OR

.2 Bond of the Government of Canada, unconditionally guaranteed, as to the principal and interest by the Government of Canada if such Bonds are:

(a) Payable to the bearer, or

(b) Accompanied by a duly executed instrument of transfer to the Owner, in the form prescribed by the Domestic Bonds of Canada Regulations, or

(c) Negotiated as to principal or as to principal and interest in the name of the Owner, pursuant to the Domestic Bonds of Canada Regulations.

(d) Security deposits submitted through the Bid Depository shall be accompanied by the Bid Security. The subcontractors shall advise General Contractors what form of bid security is being used and what form of contract security will be used.

CONTRACT SECURITY

a) Upon award of a contract the Contractor is to provide the following contract security:

.1 <u>General Contract Tender less than or equal to Three Million ($3,000,000.00) Dollars, including mechanical and electrical subcontract values:</u>

A Performance Bond in the amount of fifty percent (50%) of the contract amount.

OR

A Security Deposit in an amount equal to at least ten percent (10%) of the contract amount.

.2 <u>General Contract Tender more than Three Million ($3,000,000.00) Dollars, including mechanical and electrical subcontract values:</u>

A Performance Bond and a Labour and Materials Payment Bond, each in the amount of fifty percent (50%) of the contract amount.

b) .1 All bonds, provided by General Contractors, are to be made payable to the Owner.

.2 Bonds shall be from a recognized surety company, satisfactory, and approved by the Owner.

.3 If a Performance Bond is utilized, it shall be maintained in force for a period of not less than twelve (12) months after the issuance of the total Performance Certificate.

c) .1 Security Deposits, provided by General Contractors, must be in the form of a Certified Cheque or Bank Draft drawn on a Bank to which the Bank Act applies or a Credit Union, payable to "**Minister of Finance, Province of Prince Edward Island**".

OR

.2 Bonds of the Government of Canada, unconditionally guaranteed, as to the principal and interest by the Government of Canada if such Bonds are:

(a) Payable to the bearer, or
(b) Accompanied by a duly executed instrument of transfer to the Owner, in the form prescribed by the Domestic Bonds of Canada Regulations, or
(c) Negotiated as to principal or as to principal and interest in the name of the Owner pursuant to the Domestic Bonds of Canada Regulations.
(d) Contract security shall be provided at the expense of the Contractor, bonds shall be provided by an established surety company satisfactory to, and approved by the Owner. Certified Cheques or Bank Drafts shall be drawn on an account with a recognized financial institution.

Contract security submitted by subcontractors, to General Contractors, shall be in a form satisfactory to the General Contractor.

4. CONSTRUCTION SCHEDULE
   a) Work is to begin immediately following contract award unless indicated otherwise.
   b) The completion date for this project shall be August 21, 2020.
   c) Contractor to provide a construction schedule, safety policy, proof of insurance and signed contract documents prior to starting work.

5. MATERIALS AND EQUALS
   a. Materials, plant and equipment are described and named specifically in the Specifications ONLY to describe types and qualities of materials, plant and equipment required.
   b. Suppliers or manufacturers wishing to have their material, plant or equipment approved as an equal shall submit complete technical information to the Consultant seven (7) days prior to the receipt of tenders. The Consultant shall review the material submitted and notify all prospective bidders of any materials, plant or equipment that have been accepted as equal.
   c. All bidders submitting a tender shall include in their tender amount only materials, plant or equipment as specified or that have been approved as an equal.

6. ALTERNATE PRODUCTS
   a) Approval may be given by the Consultant after the award of the Contract, on application in writing from the Contractor, for the substitution of a similar material, item or plant or equipment bearing another brand name or of other manufacture, subject to the following:

   .1 Any top quality material or item of plant and equipment proposed as a substitute by the Contractor and considered by the Engineer to be of equal quality, value and price to that specified and suitable for the purpose intended, may be accepted as a substitute.

.2 Materials and items of plant and equipment which the Contractor proposes as substitutes and which are considered by the Engineer to be suitable for the purpose intended, but which are in their opinion of lesser value, quality and price than those specified will only be accepted as substitutes if reasonable credits are allowed for their use.

.3 Requests for alternates must be made by the Contractor well in advance of the time the item is to be ordered. The request shall be accompanied by sufficient information in the form of manufacturers literature, samples, and other data to permit proper investigation of the substitutes proposed.

b) Bidders are requested to include information on alternates as an appendix to this tender. The information should indicate the proposed credit or extra, to the tender amount, and include sufficient data to allow the Consultant to evaluate the item proposed as an alternate.

7. SUPERVISION AND COORDINATION

a) The Contractor shall be responsible for supervising and coordinating all aspects of the work.

b) The Contractor shall include in their quotation all cost relative to supervising sub-Contractors, including those submitting tenders directly to the Owner, which form a portion of the complete project and shall be assigned to the successful General Contractor.

8. RESPONSIBILITY

The Contractor shall be responsible to be fully familiar with the complete documents and shall include in their tender those items which are named, implied, or traditionally a part of the general contract work.

9. DEFINITIONS

In this specification the following terms shall have the definitions noted below:

OWNER: **Government of Prince Edward Island as represented by the Minister of Transportation, Infrastructure and Energy**

CONSULTANT: Chandler Architecture Inc

10. SITE INSPECTOR

a) There will be an Inspector representing the Department of Transportation, Infrastructure and Energy, Province of PEI. No work is to be covered without having received approval from the Inspector. The Inspector will have the authority to cause any part of the work to cease, should, in their opinion, there be a cause to do so.
This work shall be examined by the Department and approval granted to resume when a satisfactory solution has been found.

b) The inspector does not have authority to authorize changes to work. He or she shall confer with the Consultant or Engineer who, if necessary will authorize any change.

c) The fact that the inspector does not reject any work shall not remove the responsibility for completing all work as specified; from the Contractor.

11. OWNERS RIGHT TO TERMINATE CONTRACT

a) The Owner reserves the right to remove the Contractor from the site if the work is not completed as specified in Paragraph 4. If the Contractor is removed, the Owner shall have the work completed and deduct the cost of this work from the amount owing the Contractor and their bid deposit.

12. SUB-CONTRACTORS

a) Bidders shall include with their tender, in the space in **Section E – Contract Tender**, Appendix A, the name of each Subcontractor and/or Supplier, as designated, whose price has been included in their tender and who will perform the trade work. Substitution for another Subcontractor in the event that the listed Subcontractor is unable to do the work shall be subject to the approval of the Owner and contingent on evidence satisfactory to the Owner that the original Subcontractor's price was legitimately carried in the Tender, and that the original Subcontractor is now incapable of carrying out the work required under the subcontract, or that he refuses to carry out the work and provides documented reasons for such incapability or refusal.
b) The term "Own Forces," as a subcontractor, may be used by a Bidder where the Bidder is equipped to and in fact normally carries out the trade work using employees in the direct employment of the Contractor or a wholly owned subsidiary company. Other designations such as "Own Estimate" are unacceptable and may be cause for rejection of the tender by the Owner. **Carrying Subcontractor options next to identified work will not be acceptable.**
c) When a Bidder indicates "Own Forces" as a subcontractor, the Bidder may be required to demonstrate to the Owner that he has the resources, experience and employees necessary, available and qualified to perform the trade work in a manner and quality satisfactory to fulfill the obligations of the Contract Documents and that the trade work is a normal and continual part of his business.
d) A Bidder, whose tender is accepted, that included "Own Forces" for a subcontract will if requested, provide the Owner with payroll records verifying that the employees carrying out the "Own Forces" subcontract work are direct employees of the Contractor or of a wholly owned subsidiary company of the Contractor.
e) All Sub-Contractors are advised to become familiar with all Specifications and Drawings. The General Contractor shall ensure that all sub-trades understand their entire responsibilities in order to complete the project. Sub-trade work may appear in various sections of Specifications and on various drawings.

13. GUARANTEES

a) The Contractor shall be required to guarantee the work of this Contract for a period of twelve (12) months after the Owner's acceptance of the work, against improper or defective materials and workmanship, and shall repair and make good at their own

expense any damage to the building and contents through any of the above causes during this period. Any contract omissions and/or deficiencies reported to the Contractor within twelve (12) months after acceptance of the work shall be made good by the Contractor at their own expense.

b) Notwithstanding the above, the bidder's attention is directed to the fact that certain individual items on this project may be required to be guaranteed by the manufacturer for periods in excess of twelve (12) months. These specific requirements are to be found in various sections of the Specifications for this project.

14. ACCEPTANCE / REJECTION OF TENDERS

a) Bids shall remain open to acceptance and irrevocable for a period of 30 days after the bid closing date.
b) The Owner reserves the right to reject any and all tenders.
c) Each bidder shall be prepared, if so requested by the Owner, prior to the award of the Contract to present evidence of their experience, qualifications and financial ability to carry out the terms of the Contract.

15. CONSULTANT'S INTERPRETATION

a) The Consultant's interpretation of plans and specifications shall be final. Should the Contractor have any doubt as to interpretation, he or she shall refer to the Consultant for clarification before submitting their tender. No allowances or extras will be made for misinterpretation of plans and specifications by the Contractor.

16. PERMITS, REGULATIONS AND TAXES

a) All permits and fees required for the proper completion and inspection of the work herein specified will be paid for by the Contractor. Except the building permit which will be paid for by the Owner. All applicable taxes shall be included in the tender price, excluding the Harmonized Sales Tax. The Contractor, as per current Provincial Regulations, shall include on all invoices the Harmonized Sales Tax as an additional line item. This would be in addition to the tender amount which does not include HST.
b) The work shall be completed to the satisfaction of the Consultant and local inspecting authorities.
c) In the absence of any provisions contained herein, the applicable Provincial Codes or the National Building Code shall govern in that order.
d) The latest edition of the Canadian Electrical Code shall govern all Electrical work, whether prewired and/or assembled remote from the site or not.
e) All equipment supplied or installed shall be CSA approved for the intended use.
f) All materials, components and equipment as well as construction methods shall comply with the latest edition of the National Building Code and all other applicable codes or regulations.
g) The latest edition of the PEI Occupational Health and Safety Act and Regulations shall govern safe construction practices.

17. EXISTING CONDITIONS
    a) Bidders will be held to have examined the Tender Documents, to have visited the site and to have informed themselves as to existing conditions and limitations.
    b) If in the performance of the contract, subsurface or latent conditions at the site are found to be materially different from those indicated by the drawings and specifications, or unknown conditions not usually inherent in work of the character shown and specified, the attention of the Consultant shall be called immediately in writing to such conditions before they are disturbed. Upon such notice, or upon their own observation of such conditions, the Consultant shall promptly make such changes in the drawings and specifications as he or she finds necessary to conform to the different conditions and any increase or decrease in the cost shall be adjusted as provided under "Changes in the Work".

18. RECEIPT AND OPENING OF TENDERS
    a) Tenders will be opened at the time and place stated in the tender call. The officer whose duty it is to open them will decide when the specified time has arrived. No responsibility will attach to any officer for the premature opening of a bid not properly addressed and identified.

19. AWARD OF CONTRACT
    a) Bids shall remain open to acceptance and irrevocable for a period of 30 days after the bid closing date.
    b) In making the decision to award the Contract pursuant to this invitation to tender, the Owner may take into account:
        a. The history of work performance of each bidder on similar or different types of work in prior Contracts with the Owner.
        b. The bidder's qualifications to perform the Work, the quality of the Bidder's past work, the bidder's financial capability to do the Work and the competence of the Bidder.
    c) If the tender is accepted the Contract will be awarded as promptly after the opening of bids as is possible. The selection of the tender that is accepted shall be at the sole discretion of the Owner.
    d) Each bidder shall be prepared, if so requested by the Owner, prior to the award of the Contract to present evidence of their experience, qualifications and financial ability to carry out the terms of the Contract.

20. TENDER SUBMISSION
    a) Tenders must be submitted on the form included with this specification. This form must be completely filled out in ink or be typewritten with the signature in longhand. The completed forms shall be without interlineations, alteration or erasures.
    b) The tender, together with the Tender Security described in this section must be addressed and delivered in a sealed envelope marked "Tender" and bearing the name of

the Contractor submitting the tender, together with identification indicating the name of the project.

c) Tenders will be received at the place and time indicated in the tender call. Late tenders will not be accepted and will be returned unopened to the tenderer.
d) Amendments to the submitted offer will be permitted if received in writing prior to tender closing and if endorsed by the same party or parties who signed and sealed the offer. Amendments submitted by fax will be accepted, if received prior to tender closing. (Fax (902) 569-0590).
e) The receipt of addenda for the project shall be acknowledged by filling in the addendum number and date of issue for each addendum on the appropriate line in the tender form. These lines shall be initialed by the person signing the tender after they have been filled in.
f) Any appendices to the tender form requesting information on suppliers, sub-contractors or alternate prices shall be filled in for the tender to be considered complete.

21. TAXES
    a) All tenders submitted shall EXCLUDE the Harmonized Sales Tax.

22. CONFIDENTIALITY AND FREEDOM OF INFORMATION (Effective November 1, 2002)
    a) By submitting your bid, you agree to disclosure of the information supplied, subject to the provisions of the Freedom of Information and Protection of Privacy (FOIPP) Act.
    b) Anything submitted in your bid that you consider to be "confidential information" because of its proprietary nature should be marked as "CONFIDENTIAL" and will be subject to appropriate consideration under the Freedom of Information and Protection of Privacy Act.
    c) During the delivery and installation of goods and/or services, you may have access to confidential or personal information. Should this occur, you must ensure that such information is not released to any third party or unauthorized individual.
    d) Any information provided on this contract may be subject to release under the Freedom of Information and Protection of Privacy Act. You will be consulted prior to the release of any information.

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1. DEFINITIONS
   a) The Contract Documents shall include instructions to Tenderers, General Conditions, Supplementary General Conditions, Specifications, Drawings, Tender Form and the signed agreement.
   b) The Owner, the Contractor and the Consultant are those names as such in the Agreement and Specifications.
   c) The term 'Subcontractor' includes only a person, firm or corporation having a contract for the execution of a part or parts of the work included in the Contract, and a person, firm or corporation furnishing material called for in the Contract and worked to a special design according to the Drawings or Specifications, but does not include one who merely furnishes material not so worked.
   d) The term 'work' includes all labour, materials and services required, as shown or described in the contract, documents, supplied and installed or erected complete at the place of building.
   e) The term 'Other Contractor' means any person, firm or corporation employed by or having a contract directly or indirectly with the Owner otherwise than through the Contractor.
   f) The place of building is the designated site or location of the completed work.
   g) The law of the place of building shall govern the work.
   h) For the purpose of contract signing authority, the Director is the Director of the Public Works and Planning Division of the PEI Department of Transportation, Infrastructure and Energy.

2. DOCUMENTS
   a) The Contract Documents shall be signed in duplicate by the Owner and Contractor. The Contract Documents are complementary and what is called for by anyone shall be as binding as if call for by all. The intention of the documents is to include all labour and materials reasonably necessary for the proper execution of the work. It is not intended however, that materials or work not covered by or properly inferable from any heading, section or trade in the specifications shall be supplied unless shown on the drawings. Descriptions of materials or work in words which so applied have well known technical or trade meanings shall be held to refer to such recognized standards. Should the specification conflict with the drawings, the specifications shall govern. In the case of discrepancies between drawings, those of larger scale, or if the scales are the same, those of later date shall govern.
   All drawings and specifications shall be interpreted in conformity with the agreement and these General Conditions which shall govern.

3. DETAIL DRAWINGS & INSTRUCTIONS
   a) The Consultant shall furnish as necessary for the execution of the work, additional instructions, by means of drawings or otherwise. All such additional instructions shall be consistent with the Contract Documents. The work shall be executed in conformity therewith and the Contractor shall do no work without such additional instructions. In giving such additional instructions, the Consultant shall have authority to make minor changes in the work, not inconsistent with the Contract.
   If either the Contractor or the Consultant so request, they shall jointly prepare a schedule, subject to change from time to time in accordance with the progress of the work fixing the dates at which the various detail drawings will be required and the Consultant shall furnish them in accordance with this schedule, and on like request, a schedule shall be prepared, fixing the dates for the submission of shop drawings, for the beginning of manufacture and installation of materials and for the completion of the various parts of the work.

4. COPIES FURNISHED
   a) The Consultant shall furnish to the Contractor, without charge, as many copies of all Drawings and Specifications as are reasonably necessary for the proper execution of the work.

5. SHOP DRAWINGS
   a) The Contractor shall furnish to the Consultant, at proper times, all shop and setting drawings or diagrams which the Consultant may deem necessary in order to clarify the details of the work. The Contractor shall make any changes in such drawings or diagrams which the Consultant may require consistent with the Contract, and shall submit sufficient copies of the revised prints to the Consultant for approval – all but one of which shall be returned to the Contractor if approved by the Consultant. When submitting such shop and setting drawings, the Contractor shall notify the Consultant in writing of changes made therein from the Consultant's Drawings or Specification. The Consultant's approval of such drawings or of the revised drawings shall not relieve the Contractor from responsibility for errors made by the Contractor therein or for changes made from the Consultant's Drawings or Specifications not covered by the Contractor's written notification to the Consultant.

6. DRAWINGS AND SPECIFICATIONS ON THE WORK
   a) The Contractor shall keep one copy of all Drawings, Specifications and approved shop drawing on the work, in good order, available to the Consultant and to his or her representatives.
7. OWNERSHIP OF DRAWINGS AND MODELS
   a) All drawings, specifications and copies thereof and all models furnished by the Consultant are property of the Owner. They are not to be used on other work and, with the exception of the signed contract set of the Drawings and Specifications, are to be

returned to him or her on request on the completion of the work. Any models furnished by the Contractor or the Owner are the property of the Owner.

8. SAMPLES
   a) The Contractor shall furnish for the Consultant's approval such samples as he or she may reasonably require. The work shall be in accordance with approved samples.

9. MATERIAL TESTS AND MIX DESIGNS
   a) The Contractor shall furnish for the Consultant's approval such material tests and mix designs as he or she may reasonably require. The cost of providing the foregoing beyond the extent called for in the specification shall be charged to the Owner. The work shall be in accordance with approved material tests and mix designs.

10. CONSULTANT AND CONTRACTOR
    a) The Consultant is, in the first instance, the interpreter of the Contract and the judge of its performance; he or she shall use his or her powers under the Contract to enforce its faithful performance by both parties hereto. The Contractor shall, however, have complete control, subject to Article 12, of his or her organization. In case of the termination of the employment of the Consultant, the Owner shall appoint any Consultant whose status under the Contract shall be that of the former Consultant.

11. THE CONSULTANT'S DECISION
    a) The Consultant shall decide on questions arising under the Contract Documents, whether as to the performance of the work or the interpretation of the Specifications and drawings, but should the Contractor hold such decisions to be at variance with the Contract Documents or to involve changes in the work already built, fixed, ordered or in hand in excess of the contract, or to be given in error, he or she shall notify the Consultant before proceeding to carry them out. In the event of the Consultant and the Contractor failing to agree as to such excess or error and the Consultant deciding to carry out such disputed work, the Contractor shall act according to such decision. Any question of excess of cost due to the aforesaid cause may be decided in the manner hereinafter provided in Article 43.

12. SUPERINTENDENCE
    a) The Contractor shall keep on the work, during its progress, a competent superintendent and any necessary assistants, all satisfactory to the Consultant. The superintendent shall not be changed except with the consent of the Consultant unless the superintendent proves to be unsatisfactory to the Contractor or ceases to be in his or her employ. The superintendent shall represent the Contractor in his or her absence and directions on minor matters given to him or her shall be held to be given to the Contractor. Important directions shall be given in writing to the Contractor. The Contractor shall give efficient supervision to the work using his or her best skill and attention.

13. MATERIALS, APPLIANCES, EMPLOYEES
    a) Unless otherwise stipulated, the Contractor shall provide and pay for all materials, labour, water, tools, equipment, light and power necessary for the execution of the work. Unless otherwise specified all materials shall be new. Both workmanship and materials shall be of the quality specified. The Contractor shall not employ on the work any unfit person or anyone not skilled in the work assigned to him or her.

14. INSPECTION OF WORK
    a) The Owner, or the Consultant on his or her behalf, and their representatives shall at all times have access to the work wherever it is in preparation or progress and the Contractor shall provide proper facilities for such access and for inspection. If the specifications, the Consultant's instructions, the laws, or the ordinances of any public authority require any work to be specially tested or approved, the Contractor shall give the Consultant timely notice of its readiness for inspection, and if the inspection is by an authority other than the Consultant, of the date and time fixed for such inspection. Inspections by the Consultant shall be promptly made. If any such work should be covered up without approval or consent of the Consultant, it must, if required by the Consultant, be uncovered for examination and made good at the Contractor's expense. Re-examination of questioned work may be ordered by the Consultant. If such work be found in accordance with the Contract, the Owner shall pay the cost of re-examination and replacement. If such work be found not in accordance with the contract, through the fault of the Contractor, the Contractor shall pay such cost.

15. REJECTED WORK
    a) The Contractor shall promptly remove from the premises any defective work, whether the result of poor workmanship, use of defective materials, damage through carelessness or other act of the Contractor, which has been condemned by the Consultant as failing to conform to the Contract Documents, whether incorporated in the work or not. The Contractor shall promptly replace and re-execute his or her own work in accordance with the contract and without expense to the Owner and shall bear the expense of making good all work of other Contractors destroyed or damaged by such removal or replacement. If the Contractor does not remove such condemned material or work within the time fixed by written notice, the Owner may remove them and may store such materials at the expense of the Contractor. If the Contractor does not pay the expense of such removal within Five (5) days thereafter, the Owner may, upon Ten (10) day's written notice, sell such materials at auction or at private sale and shall account for the net proceeds thereof, after deducting all the costs and expenses that should have been borne by the Contractor.

16. DEDUCTIONS FOR UNCORRECTED WORK
    a) If, in the opinion of the Consultant, it is not expedient to correct defective work or 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 final instance by the Consultant.

17. CORRECTION AFTER COMPLETION
    a) Subject to any special provisions in the Contract Documents, the Contractor shall remedy any defects due to faulty materials or workmanship appearing within a period of one year from the date of substantial completion of the work and shall pay for any damage to other work resulting therefrom which appears within such period and neither the final certificate nor payment thereunder shall relieve the Contractor from responsibility hereunder. The Owner shall give notice of observed defects promptly. Questions arising under this Article may be decided as provided in Article 43.

18. EMERGENCIES
    a) The Consultant has authority in an emergency to stop the progress of the work whenever, in his or her opinion, such stoppage may be necessary to ensure the safety of life, or of the structure, or neighbouring property. This includes authority to make such changes and to order, access and award the cost of such work extra to the Contract or otherwise as may in his or her opinion be necessary.

19. PROTECTION OF WORK AND PROPERTY
    a) The Contractor shall maintain continuously adequate protection of all his or her work from damage and shall take reasonable precautions to protect the Owner's property from all injury arising in connection with this Contract. He or she shall make good any damage or injury to his or her work and shall make good any damage or injury to the property of the Owner resulting from the lack of reasonable protective precautions. He or she shall not be responsible, however, for any damage or injury to his or her work and to the property of the Owner which may be directly due to errors in the Contract Documents or caused by the Owner, his or her agents, or employees, or from any work or risk which the Owner has agreed to insure, provided the Contractor has taken reasonable protective precautions. He or she shall adequately protect adjacent property as required by law and the Contract Documents.

20. CONTRACTORS' INSURANCE
    a) INDEMNITY/HOLD HARMLESS
        .1 The Contractor shall be liable for all injuries to persons and for damage to property caused by his or her operations, and those of his or her sub-contractors, and his or her and their employees, engaged on all operations in connection with the contract both on and off the site, and he or she shall indemnify and save harmless the Owner from all suits, claims, expenses, costs, demands, losses, and damages to which the Owner may be put by reason of injury, including death, to persons, and damage to property of the Owner and others, resulting from; negligence, carelessness and any other cause whatsoever in the performance of the work.

.2 The Contractor shall, until the date of issue of the final Certificate of Approval of the work by the Consultant, Indemnify and Save Harmless the Owner, and protect his or her own interests against:

(a) Theft, burglary or robbery of, and loss or damage to, all materials and equipment brought to the site for use in the work, whether or not such materials and equipment are incorporated in the work at the time that any such theft, burglary, robbery, loss or damage occurs.

(b) Theft or burglary of, and loss or damage to, any of his or her own plant and equipment being used on the Project and/or stored on the site.

b) BUILDERS RISK, ALL RISK PROPERTY INSURANCE

.1 The Contractor shall, without limiting its obligations or liabilities herein and at its own expense, provide and maintain the following insurances with Insurers and in forms and amounts acceptable to Government:

(a) The Contractor shall have Commercial General Liability coverage in an amount not less than Two Million ($2,000,000.00) dollars inclusive per occurrence against bodily injury and property damage. **The Government of Prince Edward Island is to be added as an additional insured under this policy**. Such insurance shall include, but not be limited to:

i) Blanket Written Contractual Liability;

ii) Personal Injury Liability;

iii) Non-owned Automobile Liability;

iv) Cross Liability;

v) Operation of Attached Machinery

Commercial General Liability insurance shall be endorsed to provide the Owner with thirty (30) day advance written notice of cancellation or material change and fifteen (15) days notice in the event of non-payment.

(b) Automotive liability coverage (Standard Automobile Policy) on all vehicles, the subject of this Agreement, owned, leased, operated or licensed in the name of the Contractor, in an amount not less than Two Million ($2,000,000.00) dollars

(c) If the work involves new construction or reconstruction of a property being repaired or maintained, the Contractor shall provide and maintain All Risk Course of Construction (Builder's Risk) to the full value of the work in the amount of the Contract Price. The policy will permit partial or complete use or occupancy by the Owner during the term of this insurance.

All the foregoing insurance shall be primary and not require the sharing of any loss by any insurer of the Government nor by any other form of recovery available such as the Provincial Self Insurance and Risk management Fund.

.2 Proof of Insurance

A Certificate(s) of Insurance and any renewals thereof, shall be furnished to the Government prior to commencement of work by the Contractor and must be updated as required during the Term.

The policies required by this Agreement shall be in a form and with insurers satisfactory to the Government. Default of deliver or receipt by the government

shall not be construed as acknowledgement or concurrence that there has been compliance with the terms of this Agreement.

.3 Indemnification

The Contractor shall indemnify and hold harmless the Government of Prince Edward Island, its agents, representatives and employees from and against all claims, demands, losses, costs, damages, actions, suits or proceedings of every nature and kind whatsoever arising out of or resulting from the performance of work (herein called the "claims"), provided that any such claim is caused in whole or in part of any act, error or omission, including but not limited to those of negligence of the Contractor, or anyone directly or indirectly employed by the Contractor anyone for whom the Contractor may be liable.

21. PERFORMANCE BOND

a) The Owner shall have the right to require the Contractor to furnish a bond covering the faithful performance of the Contract – including the corrections after completion provided for in Article 17 – and the payment of all obligations arising under the contract, in such form as the Consultant may prescribe and with such sureties as he or she may approve. If such bond is required by written instructions given previous to the receipt of bids, the premium shall be paid by the Contractor, if subsequent thereto, it shall be paid by the Owner.

22. CASH ALLOWANCES

a) The Contractor shall include in the contract sum all cash allowances mentioned in the Specifications, which allowances shall be expended in whole or in part as the Consultant shall direct and the amount of the contract sum being adjusted in conformity therewith. The Contract sum includes such sums for expenses and profit on account of such cash allowances as the Contractor requires except those allowances included for contingency purposes.

23. SUBSURFACE CONDITIONS

a) In the event that during the execution of the work, subsurface conditions at the site are found to differ materially from those indicated in the Contract Documents and soil reports, or otherwise represented by the Owner or Consultant to the Contractor, then the Contractor shall promptly notify the Consultant in writing of such conditions, the Consultant shall promptly investigate such conditions and if he or she finds that they differ materially and will result in an increase or decrease in the cost of, or time required for performance of this Contact, an equitable adjustment shall be made between the parties and the contract modified in writing accordingly. If the parties fail to agree upon the adjustment to be made, the dispute may be determined as provided for in Article 43.

24. CHANGES IN THE WORK

a) The Owner or the Consultant, without invalidating the contract, may make changes by altering, adding to, or deducting from the work, the contracts sum being adjusted accordingly. All such work shall be executed under the conditions of the Contract except that any claim for extension or reduction of time caused thereby shall be adjusted at the time of ordering such change. Except as provided in Article 18, no change shall be made unless in pursuance of a written order from the Consultant and no claim for an addition to or deduction from the contract sum shall be valid unless so ordered and at the same time valued, or agreed to be valued, as provided in Article 25.

25. VALUATION OF CHANGES

a) Change Orders calling for normal changes or additions to the work will be priced in detail giving actual material trade prices (not list prices) and actual labour costs (including Employment Insurance, Worker's Compensation, holiday pay) and actual equipment rental. To these prices the Contractor will add:

.1 For work less than $2,500 involving the General Contractor only, the General Contractor adds 20% to his or her costs.

.2 For work over $2,500 involving the General Contractor only, the General Contractor adds 15% to his or her costs.

.3 For work less than $2,500 involving a Sub-Contractor only, the Sub-Contractor adds 20% to his or her costs, submits this price to the General Contractor who adds 10%.

.4 For work over $2,500 involving a Sub-Contractor only, the Sub-Contractor adds 15% to his or her cost, submits this price to the General Contractor who adds 5%.

.5 (a) For work less than $2,500 involving the General Contractor and Sub-Contractor, the Sub-Contractor adds 20% to his or her costs, submits his or her price to the General Contractor who adds 10%; to this amount the General Contractor adds the cost of his or her own work plus 20% of the cost of his or her own work only.

(b) The General Contractor does not add a further 10% to the cost of his or her own work.

.6 (a) For work over $2,500 involving the General Contractor and a Sub-Contractor, the Sub-Contractor adds 15% to his or her cost, submits this price to the General Contractor who adds 5%; to this amount the General Contractor adds the cost of his or her own work plus 15% of the cost of his or her own work only.

(b) The General Contractor does not add a further 5% to the cost of his or her own work.

.7 Deletions to Contract: A mark-up shall **not** be charged nor credited on a credit portion of a Change Order.

.8 Supervision related to Change Orders shall be considered as included in the allowable mark-up and shall **not** be included in the labour charges for a Change Order.

26. APPLICATION FOR PAYMENTS

a) The Contractor shall – before the first application for payment – submit to the Consultant a schedule of values of the various parts of the work aggregating to the total

sum of the contract, divided so as to facilitate payments, made out in such form, and supported by such evidence as to its correctness as the Consultant may direct. This schedule, when approved by the Consultant, shall be used as a basis for applications of payment, unless it can be found to be in error.

b) The Contractor, as per current Provincial regulation, shall include on all invoices the Harmonized Sales Tax as an additional line item. This amount would be in addition to the tender amount which does not include HST. See article 28 of this Section.

27. CERTIFICATES AND PAYMENTS

a) Partial payments will be made monthly and within thirty (30) days after approval by the Owner and on the basis of a duly certified and approved estimate of work performed during the preceding period. In preparing estimates, the material delivered on the site and preparatory work done shall be taken into consideration.
b) In making such partial payments, there shall be retained a hold back in the amount of fifteen percent (15%) of the estimated amount on each partial payment estimate, less any holdback release which may have been made to specific sub-contractors under any progressive release of holdback provisions in Provincial Legislation.
c) All materials and work covered by partial payments made shall thereupon become the sole property of the Owner, but this shall not be construed as relieving the Contractor from the sole responsibility for the safety and preservation of all materials and work upon which payments have been made and restoration of any damaged work or as a waiver of the right of the Owner to require the fulfillment of all the terms of the contract. Nor shall Consultant's Certification of Partial Payment for any work be construed as his or her final or irrevocable acceptance of that work.
d) Document of Completion: Upon completion and acceptance of all work whatsoever required and the release of all claims against the Owner as specified, the Consultant shall file a written document with the Owner and with the Contractor as to the entire amount of work performed and compensation earned by the Contractor – including the extra work and compensation therefore.
e) Final Payment: Within sixty (60) days after the filing of such document of completion and minimum one (1 day after the lien period, and upon receipt from the General Contractor of declarations signed by each of his sub-contractors that the sub-contractor has been paid up to, and including the past previous partial payment, the Owner will pay the Contractor the amount stated therein less all deductions authorized by the terms of this contract and previous payments and advances whatsoever to or for the account of the Contractor. All previous estimates and payments, including those relating to extra work, shall be subject to correction at the time of this payment which is, throughout this contact, called Final Payment. Final Payment shall be subject to inspection and acceptance by the Owner or duly authorized representatives of the Owner and by representatives of all agencies having direct interest in the project. Submittals to include:
    - Certificate or letter of clearance from the Provincial Worker's Compensation Board

f) With the second and all subsequent applications for payment, the Contractor shall include a statutory declaration form CCDC 9B, or other similar acceptable form to the Owner, declaring that all labour and materials entering into the work, including Sub-Contractors, covered by the previous application, have been paid. With application for release of lien holdback, the Contractor shall include a statutory declaration form CCDC 9A, or other similar form acceptable to the Owner.

g) With application for release of lien holdback, the Contractor shall include certificates issued by the Worker's Compensation Board, indicating that Worker's Compensation premiums in relation to the project have been paid in full.

28. TAXES

a) Unless otherwise provided herein, the Contractor shall pay all government sales or excise taxes in force at the date of the Agreement, provided that any increase or decrease in such taxes shall increase or decrease the contract sum accordingly.

29. PERMITS, NOTICES, LAWS AND RULES

a) The Contractor shall apply and pay for all necessary permits or licenses required for the execution of the work (but this shall not include the obtaining of the Building Permit or permanent easement or right of servitude). The Contractor shall give all necessary notices and pay all fees required by law and comply with all laws, ordinances, rules and regulations relating to the work and to the preservation of the public's health. The Contractor shall be responsible for the safety of all workmen and equipment on the project in accordance with all applicable safety legislation passed by federal, provincial and local authorities governing construction safety.
If the Contract Documents are at variance therewith, any resulting additional expense incurred by the Contractor shall constitute an addition to the contract price.

30. PATENT FEES

a) The Contractor shall pay all royalties and license fees and shall save the Owner harmless from loss on account of suits or claims for infringement of patents in the doing of the work.

31. USE OF PREMISE

a) The Contractor shall confine his or her apparatus, the storage of materials and the operations of his or her workmen to limits indicated by laws, ordinances, permits or by direction of the Consultant and shall not unreasonably encumber the premises with his or her materials. The Contractor shall not load – or permit to be loaded – any part of the work with a weight that will endanger its safety. The Contractor shall enforce the Consultant's instructions regarding signs, advertisements, fires and smoking.

32. CLEANING UP

a) The Contractor shall at all times keep the premises free from accumulations of waste material or rubbish caused by his or her employees or work and, at the completion of

the work, he or she shall remove all his or her rubbish and all tools, equipment and surplus materials from and about the work and shall leave the work "broom clean" or its equivalent, unless more exactly specified. In case of dispute, the Owner may remove the rubbish and charge the cost as the Consultant shall determine to be just.

33. CUTTING, PATCHING AND DIGGING

a) The Contractor shall do all cutting, fitting or patching of his or her work that may be required to make its several parts come together properly and fit it to receive or be received by work of Other Contractors shown upon, or reasonably implied by, the Contract Documents.
Any cost caused by ill-times work shall be borne by the party responsible, therefore.
The Contractor shall not endanger any existing work by cutting, digging or otherwise and shall not cut or alter the work of any other Contractor save with the consent of the Consultant.

34. DELAYS

a) If the Contractor is delayed in the completion of the work by any act or neglect of the Owner, Consultant or any Other Contractor or any employee of any one of them or by changes ordered in the work, then the time of completion shall be extended for such reasonable time as the Consultant may decide.

b) If the Contractor is delayed in the performance of the Work by:

.1 labour disputes, strikes, lockouts (including lockouts decreed or recommended for its members by a recognized contractors' association of which the Contractor is a member or to which the Contractor is otherwise bound,

.2 fire, unusual delay by common carriers or unavoidable casualties,

.3 abnormally adverse weather conditions or any cause beyond the Contractor's control other than one resulting from a default or breach of Contract by the Contractor,

The Contractor will make reasonable efforts to counter the circumstances giving rise to the delay or to otherwise remedy its inability to perform its obligations by utilizing all resources reasonably required in the circumstances, including obtaining supplies or services from other sources if the same are reasonably available (including seeking injunctive relief or other judicial, quasi-judicial or law enforcement remedy, provided that the Contractor will not be required to settle or resolve any labour disturbance, strike, lockout or work slowdown (collectively "Employment Matters") but excluding any Employment Matters involving persons retained, employed or hired by the Contractor to supply materials or services to meet the Contractor's obligations under this Contract; or any Employment Matter caused by or attributable to any act (including any pricing or other practice or method of operation) or omission of the Contractor. Only after the Contractor has made such reasonable efforts shall the Contract Time be extended for such reasonable time as the Consultant may recommend in consultation with the Contractor. The extension of time shall not be less than the time lost as the result of the event causing the

delay unless the Contractor agrees to a shorter extension. The Contractor shall not be entitled to payment for costs incurred by such reasonable efforts or delays unless such reasonable efforts or delays were required as a result of actions by the Owner, Consultant or anyone employed or engaged by them directly or shall be necessary. No such extension shall be made for delay unless written notice of claim is given to the Consultant within seven (7) days of its commencement provided, however, that in the case of a continuing cause of delay only one claim shall be necessary.
If no schedule is made under Article 3, no claim for delay shall be allowed on account of failure to furnish drawings until two (2) weeks after demand for such drawings and not then unless such claim be reasonable.
The Consultant shall not, except by written notice to the Contractor, or as provided in Article 18, stop or delay any part of the work pending decisions or proposed changes either by him or herself or by the Owner.

35. OWNER'S RIGHT TO DO WORK

a) If the Contractor should neglect to execute the work properly or fail to perform any provision of this Contract, the Owner, after five (5) days written notice to the Contractor, may without prejudice to any other right or remedy he or she may have, make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due the Contractor; provided however, that the Consultant shall approve both such actions and the amount charged to the Contractor.

36. OWNER'S RIGHT TO TERMINATE CONTRACT

a) If the Contractor should be adjusted as bankrupt, or if he or she should make a general assignment for the benefit of his or her creditors, or if a receiver should be appointed on account of his or her insolvency or if he or she should – except in case of recited in Article 35 – refuse or fail to supply enough properly skilled workmen or proper materials after having received seven (7) days notice in writing from the Consultant to supply additional workmen or materials, or if he or she should fail to make prompt payment to Sub-Contractors or for material or labour, or persistently disregard laws, ordinances or the instruction of the Consultant, or otherwise be guilty of a substantial violation of the provisions of the Contract, then the Owner, upon the certificate of the Consultant that sufficient cause exists to justify such action , may, without prejudice to any right or remedy he or she may have, by giving the Contractor written notice, terminate the employment of the Contractor and take possession of the premises and of all materials, tools and appliances thereon and finish the work by whatever method he or she may deem expedient, but without undue delay or expense. In such case, the Contractor shall not be entitled to receive the expense of finishing the work, including compensation to the Consultant for his or her additional services; such excess shall be paid to the Contractor. If such expense shall exceed such unpaid balance, the Contractor shall pay the difference to the Owner. The expense incurred by the Owner as herein provided, shall be certified by the Consultant.

37. CONTRACTOR'S RIGHT TO SUSPEND WORK OR TERMINATE CONTRACT

a) If the work should be stopped under an order of any court or other public authority through no act or fault of the Contractor or of anyone employed by him or her, or if the Consultant fails to issue a certificate in accordance with Article 27, or if the Owner should fail to pay to the Contractor within seven (7) days of its maturing and presentation, any sum certified by the Consultant or awarded by arbitrators, then the Contractor may, upon five (5) days written notice to the Owner and the Consultant, stop work and/or terminate this Contract without prejudice to any other right or remedy he or she may have and recover from the Owner payment for all work executed and any loss sustained upon the plant or material with reasonable profit and damages.

38. DAMAGES AND MUTUAL RESPONSIBILITY

a) If either party to this Contract should suffer damage in any manner because of any wrongful act or neglect of the other party or of anyone employed by him or her then he or she shall be reimbursed by the other party for such damage. Claims under this paragraph shall be made in writing to the party liable within a reasonable time after the first observance of such damage and not later than the time of final certificate, except as expressly stipulated otherwise in the case of faulty work or materials, and may be adjusted by agreement or in the manner set out in Article 43 and the party reimbursing the other party as aforesaid shall thereupon 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. Should the Contractor cause 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 or she 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 who shall defend such proceedings at the Owner's expense and 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 provided that if the Contractor becomes liable to pay or satisfy any final order or judgment against the Owner, then the Contractor shall have the right upon undertaking to indemnify the Owner against any and all liability for sots to appeal, in the name of the Owner, such final order or judgment to any and all courts or competent jurisdiction.

39. SEPARATE CONTRACTS WITH OTHER CONTRACTORS

a) The Owner reserves the right to let separate contracts in connection with the undertaking of which the work is a part and the Contractor shall connect properly and coordinate this work with that of other Contractors. If any part of the Contractor's work depends – for its proper execution or results – upon the work of any other Contractor, the Contractor shall inspect the work prior to proceeding with his or her work as required by the Contract. Should the Contractor fail so to inspect and report, he or she shall have no claim against the Owner by reason of the defective or unfinished work of any other Contractor except as to latent defects not reasonably noticeable at the time of the commencement of the Contractor's work. In letting separate contracts, the

Owner shall be responsible for the coordination of fire and other insurance coverages and shall take all precautions reasonable possible to avoid possible occurrence of a labour dispute or disputes on the work.

40. ASSIGNMENT
    a) Neither party to the Contract shall assign the Contract without the written consent of the other.

41. SUB-CONTRACTS
    a) The Contractor agrees that the list of names of sub-contractors supplied prior to the signing of the Contract is the list of Sub-Contractors proposed to be used to carry out those parts of the work noted thereon and he or she shall not employ any to whom the Consultant may reasonable object.
    If the change of any name on such list is required by the Consultant and the work has to be awarded to a higher bidder, the contract price shall be increased by the difference between the two bids.
    The Consultant shall, on request, furnish to any Sub-Contractor wherever practicable, evidence of the amounts certified to on his or her account.
    The Contractor shall be held as fully responsible to the Owner for the acts and omissions of his or her sub-contractors and of persons directly or indirectly employed by them, as for the acts and omissions of persons directly employed by him or her. In view of this responsibility, the Contractor shall not be obliged to employ as a sub-contractor or supplier any person or firm to whom he or she may reasonably object.

42. RELATIONS OF CONTRACTOR AND SUB-CONTRACTOR
    a) The Contractor agrees to bind every sub-contractor by the terms of the Contract Documents, as far as applicable to his or her work.

43. ARBITRATION
    a) In the case of any dispute arising between the Owner (or the Consultant acting on his or her behalf) and the Contractor as to their respective rights and obligations under the Contract, either party hereto shall be entitled to give to the other notice of such dispute and to request arbitration thereof; and the parties may, with respect to the particular matters then in dispute, agree to submit the same to arbitration in accordance with the applicable law of the place of building.
    Arbitration proceedings shall not take place until after the completion or alleged completion of the work except (a) on a question of certificate for payment, or (b) in a case where either party can show that the matter in dispute is of such nature as to require immediate consideration while evidence is available.

44. OWNER SIGNING AUTHORITY
    a) Mr. Alan Maynard, P. Eng. is designated as the Director for the purposes of this agreement, the Director shall represent Government in all matters pertaining to the

construction project being provided pursuant to this agreement, and will administer said agreement, and shall complete necessary approvals of all plans and specifications provided for under this agreement on behalf of Government, provided however, that the Director shall not be authorized to amend the terms of the Agreement. Government may replace the Director by providing written notice, in accordance with the notice requirements of this Agreement.

45. CONFLICT OF INTEREST

a) The Contractor warrants that as at the date of this Agreement, no conflict of interest, or any circumstance that might interfere with independent and objective exercise of judgment, exists or is likely to arise in relation to execution of this Agreement or its subject matter. The Contractor shall immediately notify Government, in writing, if any such actual or potential conflict of interest should arise at any time during the Term. In the event Government discovers or is notified by the Contractor of an actual or potential conflict of interest, Government, in its sole discretion, may either:
   i) allow the Contractor to resolve the actual or potential conflict to the satisfaction of Government; or
   ii) terminate the Agreement in accordance with the Termination section of this Agreement.

END

PART 1 – GENERAL

1.1 Related Sections

.1 Section 03 20 00 - Concrete Reinforcing.

.2 Section 03 30 00 - Cast In Place Concrete.

1.2 References

.1 Canadian Standards Association

.1 CSA-A23.1-04/A23.2-04, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.

.2 CSA O121-M1978(R2003), Douglas Fir Plywood.

.3 CSA O151-04, Canadian Softwood Plywood.

.4 CSA O153-M1980(R2003), Poplar Plywood.

.5 CAN/CSA-O325.0-92(R2003), Construction Sheathing.

.6 CAN/CSA-S269.3-M92(R2003), Concrete Formwork, National Standard of Canada

.2 Underwriters' Laboratories of Canada (ULC)

.1 CAN/ULC-S701-05, Standard for Thermal Insulation, Polystyrene, Boards and Pipe Covering.

PART 2 – PRODUCTS

2.1 Materials

.1 Formwork materials:

.1 For concrete without special architectural features, use wood and wood product formwork materials to CSA-O121 CAN/CSA-O86.

.2 Rigid insulation board: to CAN/ULC-S701.

.2 Form ties:

.1 For concrete not designated 'Architectural', use removable or snap-off metal ties, fixed or adjustable length, free of devices leaving holes larger than 25 mm diameter in concrete surface.

.3 Form liner:

.1 Plywood: Canadian Softwood Plywood to CSA O151, grade, T and G edge, 19 mm thick.

.4 Form release agent: non-toxic.

.5 Form stripping agent: colourless mineral oil, non-toxic, free of kerosene, with viscosity between 70 and 110s Saybolt Universal at 40 degrees C, flashpoint minimum 150 degrees C, open cup.

.6 Falsework materials: to CSA-S269.1.

PART 3 – EXECUTION

3.1 Fabrication & Erection

.1 Verify lines, levels and centres before proceeding with formwork/falsework and ensure dimensions agree with drawings.

.2 Obtain Consultant's approval for use of earth forms framing openings not indicated on drawings.

.3 Hand trim sides and bottoms and remove loose earth from earth forms before placing concrete.

.4 Fabricate and erect falsework in accordance with CSA S269.1.

.5 Refer to architectural drawings for concrete members requiring architectural exposed finishes.

.6 Do not place shores and mud sills on frozen ground.

.7 Provide site drainage to prevent washout of soil supporting mud sills and shores.

.8 Fabricate and erect formwork in accordance with CAN/CSA-S269.3 to produce finished concrete conforming to shape, dimensions, locations and levels indicated within tolerances required by CSA-A23.1/A23.2.

.9 Align form joints and make watertight.

.1 Keep form joints to minimum.

.10 Locate horizontal form joints for exposed columns 2400 mm above finished floor elevation.

.11 Use 19 mm chamfer strips on external corners and/or 19 mm fillets at interior corners, joints, unless specified otherwise.

.12 Form chases, slots, openings, drips, recesses, expansion, and control joints as indicated.

.13 Construct forms for architectural concrete, and place ties as indicated.

.1 Joint pattern not necessarily based on using standard size panels or maximum permissible spacing of ties.

.14 Build in anchors, sleeves, and other inserts required to accommodate Work specified in other sections.

.1 Ensure that anchors and inserts will not protrude beyond surfaces designated to receive applied finishes, including painting.

.15 Clean formwork in accordance with CSA-A23.1/A23.2, before placing concrete.

3.2 Removal & Reshoring

.1 Leave formwork in place for following minimum periods of time after placing concrete.

.1 3 days for walls and sides of beams.

.2 7 days for columns.

.3 28 days for beam soffits, slabs, decks and other structural members, or 7 days when replaced immediately with adequate shoring to standard specified for falsework.

.4 2 days for footings and abutments.

.2 Remove formwork when concrete has reached 70% of its design strength or minimum period noted above, whichever comes later, and replace immediately with adequate reshoring.

.3 Provide necessary reshoring of members where early removal of forms may be required or where members may be subjected to additional loads during construction as required.

.4 Space reshoring in each principal direction at not more than 3000 mm apart.

.5 Re-use formwork and falsework subject to requirements of CSA-A23.1/A23.2.

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 Section 03 20 00 - Concrete Reinforcing.

.2 Section 03 35 00 - Concrete Finishing

1.2 MEASUREMENT PROCEDURES

.1 Cast-in-place concrete will not be measured.

.2 Supply and installation of anchor bolts, nuts and washers and bolt grouting will not be measured but considered incidental to work.

1.3 REFERENCES

.1 Canadian General Standards Board (CGSB)
.1 CAN/CGSB-37.2-M88, Emulsified Asphalt, Mineral Colloid-Type, Unfilled, for Dampproofing and Waterproofing and for Roof Coatings.
.2 CAN/CGSB-51.34-M86(R1988), Vapour Barrier, Polyethylene Sheet for Use in Building Construction.

.2 Canadian Standards Association (CSA International)
.1 CSA-A23.1/A23.2-2004, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
.2 CSA A283-00(R2003), Qualification Code for Concrete Testing Laboratories.
.3 CAN/CSA-A3000-03, Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005).
.1 CSA-A3001-03, Cementitious Materials for Use in Concrete.

1.4 ACRONYMS AND TYPES

.1 Cement: hydraulic cement or blended hydraulic cement (XXb - where b denotes blended).
.1 Type GU or GUb - General use cement.
.2 Type MS or MSb - Moderate sulphate-resistant cement.
.3 Type MH or MHb - Moderate heat of hydration cement.
.4 Type HE or Heb - High early-strength cement.
.5 Type LH or LHb - Low heat of hydration cement.
.6 Type HS or HSb - High sulphate-resistant cement.

1.4 ACRONYMS AND TYPES (Cont'd)

.2 Fly ash:
- .1 Type F - with CaO content less than 8%.
- .2 Type CI - with CaO content ranging from 8 to 20%.
- .3 Type CH - with CaO greater than 20%.

.3 GGBFS - Ground, granulated blast-furnace slag.

1.5 SUBMITTALS

.1 Concrete pours: submit accurate records of poured concrete items indicating date and location of pour, quality, air temperature and test samples taken as described in PART 3 - FIELD QUALITY CONTROL.

.2 Concrete hauling time: submit for review by Consultant deviations exceeding maximum allowable time of 90 minimum for concrete to be delivered to site of Work and discharged after batching.

1.6 QUALITY ASSURANCE

.1 Quality Assurance: verify project requirements.

.2 Site Meetings: convene pre-installation meeting one week prior to beginning concrete works.
- .1 Ensure key personnel, site supervisor, Departmental RepresentativeEng ineer, Consultant speciality contractor - finishing, forming, concrete producer, testing laboratories attend.
- .2 Verify project requirements.

.3 If requested, submit to Consultant, minimum 2 weeks prior to starting concrete work, valid and recognized certificate from plant delivering concrete.
- .1 When plant does not hold valid certification, provide test data and certification by qualified independent inspection and testing laboratory that materials used in concrete mixture will meet specified requirements.

.4 Minimum 2 weeks prior to starting concrete work, submit proposed quality control procedures for review by Consultant on following items:
- .1 Falsework erection.
- .2 Hot weather concrete.
- .3 Cold weather concrete.
- .4 Curing.
- .5 Finishes.
- .6 Formwork removal.
- .7 Joints.

1.6 QUALITY ASSURANCE (Cont'd)

.5 Quality Control Plan: submit written report, as described in PART 3 - VERIFICATION, to Consultant verifying compliance that concrete in place meets performance requirements of concrete as established in PART 2 - PRODUCTS.

.6 Health and Safety Requirements: Verify project requirements.

1.7 DELIVERY, STORAGE AND HANDLING

.1 Concrete hauling time: maximum allowable time for concrete to be delivered to site of Work and discharged not to exceed 90 minutes after batching.
.1 Modifications to maximum time limit must be agreed to Consultant and concrete producer as described in CSA A23.1/A23.2.
.2 Deviations to be submitted for review by Consultant.

.2 Concrete delivery: ensure continuous concrete delivery from plant meets CSA A23.1/A23.2.

.3 Waste Management and Disposal:
.1 Divert unused concrete materials from landfill to local quarry or facility approved by Consultant.
.2 Provide an appropriate area on the job site where concrete trucks can be safely washed.
.3 Divert unused admixtures and additive materials (pigments, fibres) from landfill to official hazardous material collections site as approved by the Consultant.
.4 Unused admixtures and additive materials must not be disposed of into sewer systems, into lakes, streams, onto ground or in other location where it will pose health or environmental hazard.
.5 Prevent admixtures and additive materials from entering drinking water supplies or streams. Using appropriate safety precautions, collect liquid or solidify liquid with inert, noncombustible material and remove for disposal. Dispose of waste in accordance with applicable local, Provincial/Territorial and National regulations.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Cement: to CAN/CSA-A3001, Type GU.

.2 Supplementary cementing materials: with minimum 20 % Type F fly ash replacement, by mass of total cementitious materials to CAN/CSA-A3001.

2.1 MATERIALS (Cont'd)

.3 Water: to CSA-A23.1.

.4 Aggregates: to CAN/CSA-A23.1/A23.2.

.5 Admixtures:
.1 Air entraining admixture: to ASTM C 260.
.2 Chemical admixture: to ASTM C 494
ASTM C 1017. Consultant to approve accelerating or set retarding admixtures during cold and hot weather placing.

.6 Shrinkage compensating grout: premixed compound consisting of non-metallic aggregate, Portland cement, water reducing and plasticizing agents to CSA-A23.1/A23.2.
.1 Compressive strength: 40 MPa at 28 days.

.7 Non premixed dry pack grout: composition of non metallic aggregate Portland cement with sufficient water for mixture to retain its shape when made into ball by hand and capable of developing compressive strength of 50 MPa at 28 days.

.8 Curing compound: to CSA-A23.1/A23.2 white a.d
ASTM C 309, Type 1-chlorinated rubber

.9 Premoulded joint fillers:
.1 Bituminous impregnated fiber board: to
ASTM D 1751.

.10 Weep hole tubes: plastic.

.11 Dovetail anchor slots: minimum 0.6 mm thick galvanized steel with insulation filled slots.

.12 Dampproofing:
.1 Emulsified asphalt, mineral colloid type, unfilled: to CAN/CGSB-37.2, and to S.ction 07 11 13 - Bituminous Dampproofing

.13 Polyethylene film: 0.4 mm thickness to CAN/CGSB-51.34.

.14 Bonding adhesive: Two-part epoxy type.

2.2 MIXES

.1 1 - Performance Method for specifying concrete: to meet Consultant performance criteria in accordance with CAN/CSA-A23.1/A23.2.
.1 Ensure concrete supplier meets performance criteria as established below and provide verification of compliance as described in PART 3 - VERIFICATION.

2.2 MIXES (Cont'd)

.1 (Cont'd)

.2 Provide concrete mix to meet following hard state requirements:

.1 Durability and class of exposure: See drawings.

.2 Use Type 10 cement or mixture of cement and supplementary cementing materials to CAN/CSA-A23.5.

.3 Minimum compressive strength at 28 days: See drawings.

.4 Minimum cement content: 320 kg/cu.m. for concrete in excess of 30 MPa and 280 kg/cu.m. for concrete in excess of 24 MPa.

.5 Class of exposure: See drawings.

.6 Noominal size of coarse aggregate: 14-20 mm.

.7 Slump at time and point of discharge: 80 mm.

.8 Air content: As per Class of Exposure.

.9 Surface texture: steel trowel finish.

.3 Do not change concrete mix without the prior written approval of the Consultant. Should a change in material source be proposed, new mix design to be approved by Consultant.

.4 Provide quality management plan to ensure verification of concrete quality to specified performance.

.5 Concrete supplier's certification.

PART 3 - EXECUTION

3.1 PREPARATION

.1 Obtain Consultant's approval before placing concrete.

.1 Provide 24 hours notice prior to placing of concrete.

.2 Place concrete reinforcing in accordance with Section 03 20 00 - Concrete Reinforcing.

.3 During concreting operations:

.1 Development of cold joints not allowed.

.2 Ensure concrete delivery and handling facilitates placing with minimum of re-handling, and without damage to existing structure or Work.

.4 Ensure reinforcement and inserts are not disturbed during concrete placement.

.5 Prior to placing of concrete obtain Consultant's approval of proposed method for protection of concrete during placing and curing in adverse weather.

3.1 PREPARATION (Cont'd)

.6 Protect previous Work from staining.

.7 Clean and remove stains prior to application for concrete finishes.

.8 Maintain accurate records of poured concrete items to indicate date, location of pour, quality, air temperature and test samples taken.

.9 In locations where new concrete is dowelled to existing work, drill holes in existing concrete.
.1 Place steel dowels of deformed steel reinforcing bars and pack solidly with epoxy grout to anchor and hold dowels in positions as indicated.

.10 Do not place load upon new concrete until authorized by Consultant.

3.2 CONSTRUCTION

.1 Do cast-in-place concrete work in accordance with CSA-A23.1/A23.2.

.2 Sleeves and inserts:
.1 Do not permit penetrations, sleeves, ducts, pipes or other openings to pass through joists, beams, column capitals or columns, except where indicated or approved by Consultant.
.2 Where approved by Consultant, set sleeves, ties, pipe hangers and other inserts and openings as indicated or specified elsewhere.
.3 Sleeves and openings greater than 100 x 100 mm not indicated, must be reviewed by Consultant.
.4 Do not eliminate or displace reinforcement to accommodate hardware. If inserts cannot be located as specified, obtain approval of modifications from Consultant before placing of concrete.
.5 Check locations and sizes of sleeves and openings shown on drawings.
.6 Set special inserts for strength testing as indicated and as required by non-destructive method of testing concrete.

.3 Anchor bolts:
.1 Set anchor bolts to templates under supervision of appropriate trade prior to placing concrete.
.2 With approval of Consultant, grout anchor bolts in preformed holes or holes drilled after concrete has set. Formed holes to be minimum 100 mm diameter. Drilled holes to be minimum 25 mm larger in diameter than bolts used.

3.2 CONSTRUCTION (Cont'd)

.3 (Cont'd)

.3 Protect anchor bolt holes from water accumulations, snow and ice build-ups.

.4 Set bolts and fill holes with epoxy grout.

.5 Locate anchor bolts used in connection with expansion shoes, rollers and rockers with due regard to ambient temperature at time of erection.

.4 Drainage holes and weep holes:

.1 Form weep holes and drainage holes in accordance with Section 03 10 00 - Concrete Forming and Accessories. If wood forms are used, remove them after concrete has set.

.2 Install weep hole tubes and drains as indicated.

.5 Dovetail anchor slots:

.1 Install continuous vertical anchor slot to forms where masonry abuts concrete wall or columns.

.2 Install continuous vertical anchor slots at 600 mm on centre where concrete walls are masonry faced.

.6 Grout under base plates using procedures in accordance with manufacturer's recommendations which result in 100 % contact over grouted area.

.7 Finishing and curing:

.1 Finish concrete in accordance with CSA-A23.1/A23.2.

.2 Use procedures as reviewed by Consultant or those noted in CSA-A23.1/A23.2 to remove excess bleed water. Ensure surface is not damaged.

.3 Use curing compounds compatible with applied finish on concrete surfaces. Provide written declaration that compounds used are compatible.

.4 Provide smooth finish unless otherwise indicated.

.5 Rub exposed sharp edges of concrete with carborundum to produce 3 mm radius edges unless otherwise indicated.

.8 Waterstops:

.1 Install waterstops to provide continuous water seal.

.2 Do not distort or pierce waterstop in way as to hamper performance.

.3 Do not displace reinforcement when installing waterstops.

.4 Use equipment to manufacturer's requirements to field splice waterstops.

.5 Tie waterstops rigidly in place.

.6 Use only straight heat sealed butt joints in field.

.7 Use factory welded corners and intersections unless otherwise approved by Consultant.

3.2 CONSTRUCTION (Cont'd)

.9 Joint fillers:
.1 Furnish filler for each joint in single piece for depth and width required for joint, unless otherwise authorized by Consultant.
.2 When more than one piece is required for joint, fasten abutting ends and hold securely to shape by stapling or other positive fastening.
.3 Locate and form isolation, construction and expansion joints as indicated or approved by Consultant.
.4 Install joint filler.
.5 Use 12 mm thick joint filler to separate slabs-on-grade from vertical surfaces and extend joint filler from bottom of slab to within 12 mm of finished slab surface unless indicated otherwise.

.10 Dampproof membrane (vapour barrier):
.1 Install dampproof membrane under concrete slabs-on-grade inside building.
.2 Lap dampproof membrane minimum 150 mm at joints and seal.
.3 Seal punctures in dampproof membrane before placing concrete.
.4 Use patching material at least 150 mm larger than puncture and seal.

3.3 SURFACE TOLERANCE

.1 Concrete tolerance in accordance with CSA-A23.1/A23.2. Tolerance for floor slabs shall be as per Clause 22.

3.4 FIELD QUALITY CONTROL

.1 Site tests: conduct following test and submit report.
.1 Concrete pours.
.2 Slump tests.

.2 Inspection and testing of concrete and concrete materials will be carried out by testing laboratory designated by Consultant and paid for by Owner for review in accordance with CSA-A23.1/A23.2.
.1 Ensure testing laboratory is certified in accordance with CSA A283.

.3 Consultant will take additional test cylinders during cold weather concreting. Cure cylinders on job site under same conditions as concrete which they represent.

.4 Non-Destructive Methods for Testing Concrete: in accordance with CSA-A23.1/A23.2.

3.4 FIELD QUALITY CONTROL (Cont'd)

.5 Inspection or testing by Consultant will not augment or replace Contractor quality control nor relieve Contractor of his contractual responsibility.

3.5 VERIFICATION

.1 Quality Control Plan: ensure concrete supplier meets performance criteria of concrete as established in PART 2 - Products, by Consultant and provide verification of compliance as described in PART 1 - QUALITY ASSURANCE.

END OF SECTION

PART 1 - GENERAL

1.1 Related

.1 Section 03 30 00 - Cast-in-Place Concrete.

1.2 References

.1 Canadian General Standards Board (CGSB)
.1 CAN/CGSB-25.20-95, Surface Sealer for Floors.

.2 Canadian Standards Association (CSA)
.1 CSA-A23.1-94, Concrete Materials and Methods of Concrete Construction.

1.3 Performance Requirements

.1 Submit written declaration that components used are compatible and will not adversely affect finished flooring products and their installation adhesives.

1.4 Product Data

.1 Submit product data.

.2 Include application instructions for concrete floor treatments.

1.5 Waste and

.1 Place materials defined as hazardous or toxic waste in designated containers.

.2 Ensure emptied containers are sealed and stored safely for disposal away for children.

.3 Use chemical hardeners that are non-toxic, biodegradable and have zero or low VOC's.

.4 Dispose of surplus chemical and finishing materials in accordance with federal, provincial and municipal regulations.

.5 Dispose of waste from stripping of floors in a manner that will not have unfavourable effects on the environment.

1.6 Environmental Requirements

.1 Temporary lighting:
.1 Minimum 1200 W light source, placed 2.5 m above floor surface, for each 40 sq m of floor being treated.

1.6 Environmental Requirements (Cont'd)

.2 Electrical power:
.1 Provide sufficient electrical power to operate equipment normally used during construction.

.3 Work area:
.1 Make the work area water tight protected against rain and detrimental weather conditions.

.4 Temperature:
.1 Maintain ambient temperature of not less than 10 °C from 7 days before installation to at least 48 hours after completion of work and maintain relative humidity not higher than 40% during same period.

.5 Moisture:
.1 Ensure concrete substrate is within moisture limits prescribed by flooring manufacturer.

.6 Safety:
.1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials.

.7 Ventilation:
.1 Ventilate area of work as directed by Consultant by use of approved portable supply and exhaust fans.
.2 Ventilate enclosed spaces as required by the project.
.3 Provide continuous ventilation during and after coating application.

PART 2 - PRODUCTS

2.1 Sealing

.1 Surface sealer: to CAN/CGSB-25.20, Type 2 - water based, clear.

.2 Surface sealers may not be manufactured or formulated with aromatic solvents, formaldehyde, halogenated solvents, mercury, lead, cadmium, hexavelant chromium and their compounds.

2.2 Curing

.1 Select low VOC, water-based, curing compounds.

2.3 Mixes

.1 Mixing, ratios and application in accordance with manufacturer's instructions.

PART 3 - EXECUTION

3.1 Examination

.1 Verify that slab and site conditions surfaces are ready to receive work and elevations are as indicated on drawings.

3.2 Application

.1 After floor treatment is dry, seal control joints and joints at junction with vertical surfaces with sealant.

.2 Apply floor treatment in accordance with Sealer manufacturer's written instructions.

.3 Clean overspray. Clean sealant from adjacent surfaces.

3.3 Protection

.1 Protect finished installation in accordance with manufacturer's instructions.

END OF SECTION

PART 1 - GENERAL

1.1 REFERENCES

.1 American Society for Testing and Materials International (ASTM)
- .1 ASTM C 208-95(2001), Specification for Cellulosic Fiber Insulating Board.
- .2 ASTM C 591-01, Standard Specification for Unfaced Preformed Rigid Cellular Polyisocyanurate Thermal Insulation.
- .3 ASTM C 612-04, Standard Specification for Mineral Fibre Block and Board Thermal Insulation.
- .4 ASTM C 726-05, Standard Specification for Mineral Fiber Roof Insulation Board.
- .5 ASTM C 728-05, Standard Specification for Perlite Thermal Insulation Board.
- .6 ASTM C 1126-04, Standard Specification for Faced or Unfaced Rigid Cellular Phenolic Thermal Insulation.
- .7 ASTM C 1289-05a, Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
- .8 ASTM E 96/E 96M-05, Standard Test Methods for Water Vapour Transmission of Materials.

.2 Canadian General Standards Board (CGSB)
- .1 CGSB 71-GP-24M-77(R1983), Adhesive, Flexible, for Bonding Cellular polystyrene Insulation.

.3 Underwriters Laboratories of Canada (ULC)
- .1 CAN/ULC-S604-M91, Standard for Type A Chimneys.
- .2 CAN/ULC-S701-05, Standard for Thermal Insulation, Polystyrene, Boards and Pipe Coverings.
- .3 CAN/ULC-S702-97, Standard for Thermal Insulation, Mineral Fibre, for Buildings.
- .4 CAN/ULC-S704-03, Standard for Thermal Insulation Polyurethane and Polyisocyanurate, Boards, Faced.

.4 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
- .1 Material Safety Data Sheets (MSDS).

1.2 SUBMITTALS

.1 Product Data:
- .1 Submit manufacturer's printed product literature, specifications and data sheet.
- .2 Submit two copies of WHMIS MSDS - Material Safety Data Sheets. Indicate VOC's insulation products and adhesives.

1.2 SUBMITTALS (Cont'd)

.2 Manufacturer's Instructions:
.1 Submit manufacturer's installation instructions.

1.3 QUALITY ASSURANCE

.1 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.

.2 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

.3 Convene pre-installation meeting one week prior to beginning work of this Section and on-site installations in accordance with Section 01 32 16.07 - Construction Progress Schedules - Bar (GANTT) Chart.
.1 Verify project requirements.
.2 Review installation and substrate conditions.
.3 Co-ordinate with other building subtrades.
.4 Review manufacturer's installation instructions and warranty requirements.

.4 Health and Safety Requirements: do construction occupational health and safety in accordance with project requirements.

PART 2 - PRODUCTS

2.1 INSULATION

.1 Exterior walls: Extruded polystyrene (XPS): to CAN/ULC-S701.
.1 Type: 3.
.2 20.0 - 21.6 R-Value.
.3 Compressive strength: 20 psi.
.4 Thickness: 150 mm as indicated.
.5 Edges: shiplap.
.6 Acceptable product: Foamular C-200 XPS by Owens Corning or approved equal.

.2 Under slab: Extruded polystyrene (XPS): to CAN/ULC-S701.
.1 Type: 4.
.2 Compressive strength: 40 psi.
.3 Thickness: 38 mm or as indicated.
.4 Edges: square.
.5 Acceptable product: Foamular 400 XPS by Owens Corning or approved equal.

2.1 INSULATION (Cont'd)

.3 Roof: Polyisocyanurate. Refer to Modified Roof Section.

2.2 ADHESIVE

.1 Adhesive (for polystyrene): to CGSB 71-GP-24.

2.3 ACCESSORIES

.1 Insulation clips: impale type, perforated 50 x 50 mm cold rolled carbon steel 0.8 mm thick, adhesive back, spindle of 2.5 mm diameter annealed steel, length to suit insulation, 25 mm diameter washers of self locking type.

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.

.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 Tape all joints in each layer of insulation.

3.2 WORKMANSHIP (Cont'd)

.8 Do not enclose insulation until it has been inspected and approved by Consultant.

3.3 EXAMINATION

.1 Examine substrates and immediately inform Consultant 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 UNDER SLAB INSULATION

.1 Under slab application: extend boards 1200 mm in from perimeter foundation wall as indicated, and under all concrete floor slabs that have infloor heat. Lay boards on level compacted fill.

3.5 ROOF INSTALLATION

.1 Refer to Section 07 61 00, Sheet Metal Roofing.

3.6 CLEANING

.1 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION

PART 1 – GENERAL

1.1 References

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

.1 ASTM C 665-01e1, Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.

.2 ASTM C 1320-05, Standard Practice for Installation of Mineral Fiber Batt and Blanket Thermal Insulation for Light Frame Construction.

.2 Canadian Standards Association (CSA International)

.1 CSA B111-1974(R2003), Wire Nails, Spikes and Staples.

.3 Underwriters Laboratories of Canada (ULC)

.1 CAN/ULC-S702-1997, Standard for Mineral Fibre Insulation.

1.2 Submittals

.1 Product Data:

.1 Submit manufacturer's printed product literature, specifications, and data sheet.

PART 2 – PRODUCTS

2.1 Insulation

.1 Exterior Wall assemblies: Batt and blanket mineral fibre: to CAN/ULC S702.

.1 Type: 1.

.2 Thickness: 5.5” Required to achieve R-24.

.3 Acceptable Product: R-24 Rockwool Insulation by Roxul or approved equal.

.2 Interior Wall fire-rated assemblies between Units and Corridors: Batt and blanket mineral fibre: to CAN/ULC S702.

.1 Type: 1.

.2 Thickness: 5.5” Required to achieve R-24.

.3 Acceptable Product: R-24 Rockwool Insulation by Roxul or approved equal.

.3 Interior non-rated assemblies within Units: to CAN/ULC S702.

.1 Type: 1.

.2 Thickness: 4”.

.3 Acceptable Product: EcoTouch QuietZone Pink Fiberglas Acoustic Insulation by Owens Corning or approved equal.

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 Installation

.1 Install insulation to maintain continuity of thermal protection to building elements and spaces.

.2 Fit insulation closely around electrical boxes, pipes, ducts, frames, and other objects in or passing through insulation.

.3 Do not compress insulation to fit into spaces.

.4 Keep insulation minimum 75 mm from heat emitting devices such as recessed light fixtures.

.5 Do not enclose insulation until it has been inspected and approved by Consultant.

3.3 Schedule

.1 Exterior perimeter walls: Within the stud cavity of all exterior walls.

.2 Interior fire-rated walls: Interior walls identified on the Floor Plan as being fire-rated. Includes the dividing walls between adjacent Units and walls between corridors and adjacent Units.

.3 Interior non-fire-rated walls: All other interior walls not having a fire-rating. Includes partitions within Units.

PART 1 – GENERAL

1.1 References

.1 ASTM International

.1 ASTM C 423-09a, Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.

.2 ASTM C 518-10, Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.

.2 Underwriters Laboratories of Canada (ULC)

.1 CAN/ULC-S102.2-10, Standard Methods for Surface Burning Characteristics of Flooring, Floor Coverings, and Miscellaneous Materials and Assemblies.

.2 CAN/ULC-S703-09, Standard for Cellulose Fibre Insulation (CFI) for Buildings.

1.2 Submittals

.1 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for sprayed insulation - cellulose and include product characteristics, performance criteria, physical size, finish and limitations.

.2 Certificates:

.1 Submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

.3 Test Reports:

.1 Submit certified test reports showing compliance with specified performance characteristics and physical properties.

1.3 Delivery, Storage, and Handling:

.1 Deliver, store and handle materials in accordance manufacturer's written instructions.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.3 Storage and Handling Requirements:

.1 Store materials off ground indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

.2 Store and protect specified materials from nicks, scratches, and blemishes.

.3 Replace defective or damaged materials with new.

1.3 Site Conditions

.1 Site Requirements:

.1 Safety: comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials.

PART 2 – PRODUCTS

2.1 Materials

.1 Insulation: pure cellulose fibres, chemically impregnated to resist mould, mildew and fire, with an internal binder which does not react with base surface and adjacent materials. Applied and cured insulation to

.1 Cellulose fibre insulation: to CAN/ULC-S703.

.2 R factor: R-40 minimum to ASTM C 518.

.3 Density: as per manufacturer according to ASTM E 605.

.4 Surface burning characteristics: to CAN/ULC-S102.2.

.2 Adhesive: as recommended by insulation manufacturer.

PART 3 – EXECUTION

3.1 Examination

.1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for sprayed insulation application in accordance with manufacturer's written instructions.

3.2 Preparation

.1 Protection:

.1 Provide temporary enclosures to prevent spray from contaminating air beyond application area.

.2 Protect adjacent surfaces and equipment from damage by over spray, fall-out, and dusting of insulation materials.

3.3 Application

.1 Apply insulation when surfaces and ambient temperatures are within manufacturers' prescribed limits.

.2 Apply insulation to clean dry surfaces.

.3 Apply primer as recommended by manufacturer.

.4 Apply insulation in thickness to achieve effective R-40.

.5 Tamp smooth, surfaces visible in finished work.

PART 1 - GENERAL

1.1 REFERENCES

.1 Canadian Construction Documents Committee
.1 CCDC 2-94, Stipulated Price Contract.

.2 Canadian General Standards Board (CGSB)
.1 CAN/CGSB-19.13M-M87, Sealing Compound, One Component, Elastomeric Chemical Curing.
.2 CAN/CGSB-19.24M-M90, Multi-Component, Chemical Curing Sealing Compound.
.3 CGSB 19-GP-14M-84, Sealing Compound, One Component, Butyl-Polyisobutylene Polymer Base, Solvent Curing.

.3 Sealant and Waterproofer's Institute - Sealant and Caulking Guide Specification.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

.1 Product Data:
.1 Submit manufacturer's printed product literature, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.
.2 Submit WHMIS MSDS - Material Safety Data Sheets.

.2 Quality Assurance Submittals:
.1 Existing Substrate Condition: report deviations, as described in PART 3 -EXAMINATION in writing to Departmental Representative DCC Representative Consultant.
.2 Manufacturer's Instructions: submit manufacturer's installation instructions and special handling criteria, installation sequence, cleaning procedures and.

1.3 QUALITY

.1 Qualifications:
.1 Applicator: company specializing in performing work of this section with minimum years documented experience with installation of air/vapour barrier systems.
.1 Completed installation must be approved by the material manufacturer.
.2 Applicator:
.1 Currently licensed by National Air Barrier Association Canadian Urethane Foam Contractor's Association or certifying organization.

1.3 QUALITY (Cont'd)

.1 (Cont'd)
.2 (Cont'd)
.2 Must maintain their license throughout the duration of the project.

.2 Mock-Up:.
.1 Construct typical exterior wall panel, incorporating window and frame and sill, insulation, building corner condition, junction with roof system and; illustrating materials interface and seals.
.2 Locate where directed.
.3 Mock-up may remain as part of finished work if accepted by the Consultant.
.4 Allow 24 hours for inspection of mock-up by the Consultant before proceeding with air/vapour barrier Work.

.3 Site Meetings: as part of Manufacturer's Services described in PART 3 - FIELD QUALITY CONTROL, schedule site visits, to review Work, at stages listed.
.1 After delivery and storage of products, and when preparatory Work is complete, but before installation begins.
.2 Twice during progress of Work at 25% and 60% complete.
.3 Upon completion of Work, after cleaning is carried out.

1.4 DELIVERY, AND HANDLING

.1 Deliver, store and handle materials in accordance with manufacturer's written instructions.

.2 Avoid spillage: immediately notify the Consultant if spillage occurs and start clean up procedures.

.3 Clean spills and leave area as it was prior to spill.

1.5 WASTE AND DISPOSAL

.1 Separate waste materials for reuse and recycling.
.2 Ensure emptied containers are sealed and stored safely for

.2 Ensure emptied containers are sealed and stored safely for disposal away from children.

1.6 AMBIENT

.1 Install solvent curing sealants and vapour release adhesive materials in open spaces with ventilation.

.2 Ventilate enclosed spaces.

1.6 AMBIENT (Cont'd)

.3 Maintain temperature and humidity recommended by materials manufactures before, during and after installation.

1.7 SEQUENCING

.1 Sequence work in accordance with Contruction Progress Schedule.

.2 Sequence work to permit installation of materials in conjunction with related materials and seals.

1.8 WARRANTY

.1 For sealant and sheet materials refer to warranty period prescribed in General Conditions section.

.2 Warranty: include coverage of installed sealant and sheet materials which:
- .1 Fail to achieve air tight and watertight seal.
- .2 Exhibit loss of adhesion or cohesion.
- .3 Do not cure.

PART 2 - PRODUCTS

2.1 SHEET MATERIALS

.1 Sheet Seal: Self-adhered water resistive air barrier membrane. 160 g/sq.m., 29 Perm water vapour transmission, trilaminate of modified polyolefin with 2 layers of non-woven polyethylene bonded with layer of permeable adhesive and split back poly-release film.
- .1 Acceptable product: Blueskin VP 160, Blueskin Primer, Blueskin Thru-Wall Flashing by Henry Bakor or approved equal.

PART 3 - EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.2 GENERAL

.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.

3.3 EXAMINATION

.1 Verify that surfaces and conditions are ready to accept work of this section.

.2 Ensure surfaces are clean, dry, sound, smooth, continuous and comply with air barrier manufacturer's requirements.

.3 Report unsatisfactory conditions to the Consultant in writing.

.4 Do not start work until deficiencies have been corrected.
- .1 Beginning of Work implies acceptance of conditions.

3.4 PREPARATION

.1 Remove loose or foreign matter, which might impair adhesion of materials.

.2 Ensure substrates are clean of oil or excess dust; masonry joints struck flush, and open joints filled; and concrete surfaces free of large voids, spalled areas or sharp protrusions.

.3 Ensure substrates are free of surface moisture prior to application of self-adhesive 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.

3.5 INSTALLATION

.1 Install materials in accordance with manufacturer's instructions.

.2 Secure sheet seal Type to masonry materials with self-adhesive.
- .1 Caulk with Type sealant to ensure complete seal.
- .2 Position lap seal over firm bearing.

3.5 INSTALLATION (Cont'd)

.3 Install sheet seal between window and door frames and adjacent wall seal materials with sealant.
.1 Caulk to ensure complete seal.
.2 Position lap seal over firm bearing.

.4 Apply sealant within recommended application temperature ranges.
.1 Consult manufacturer when sealant cannot be applied within these temperature ranges.

3.6 CLEANING

.1 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

3.7 PROTECTION OF

.1 Protect finished work as per project requirements.

.2 Do not permit adjacent work to damage work of this section.

.3 Ensure finished work is protected from climatic conditions.

3.8 SCHEDULES

.1 Wall Air/Vapour Barrier Over Exterior Surface of Sheathing:
.1 Place sheet seal Type G over sheathing surfaces with Adhesive Type E.
.2 Seal with Type Y sealant.

.2 Window Frame Perimeter:
.1 Lap sheet seal Type H from wall air seal surface with 75 mm of full contact over firm bearing to window frame with 25 mm of full contact.
.2 Edge seal with Type Z sealant.

.3 Wall and Roof Junction:
.1 Lap sheet seal Type J from wall seal material with 150 mm of contact over firm bearing to roof air seal membrane with 100 mm of full contact.
.2 Seal with Type X sealant.

END OF SECTION

PART 1 – GENERAL

1.1 References

.1 ASTM International

.1 ASTM A 653/A 653M-10, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvanealed) by the Hot-Dip Process.

.2 ASTM A 792/A 792M-10, Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot Dip Process.

.3 ASTM B 32-08, Standard Specification for Solder Metal.

.4 ASTM D 822-01(R2006), Standard Practice for Filtered Open-Flame Carbon-Arc Exposures of Paint and Related Coatings.

Canadian General Standards Board (CGSB)

.1 CAN/CGSB-37.5-M89, Cutback Asphalt Plastic Cement.

.2 CAN/CGSB-37.29-M89, Rubber-Asphalt Sealing Compound.

.3 CAN/CGSB-51.32-M77, Sheathing, Membrane, Breather Type.

.4 CAN/CGSB-93.1-M85, Sheet Aluminum Alloy, Prefinished, Residential.

.4 Health Canada/Workplace Hazardous Materials Information System (WHMIS)

.1 Material Safety Data Sheets (MSDS).

1.2 Submittals

.1 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for sheet metal roofing and include product characteristics, performance criteria, physical size, finish and limitations.

.2 Proof of manufacturer's CCMC listing and listing number.

.2 Shop Drawings:

.1 Submit drawings stamped and signed by professional engineer registered or licensed in PEI, Canada.

1.4 Delivery, Storage, and Handling:

.1 Deliver, store and handle materials in accordance with Section 01 61 00 – Common Product Requirements and with manufacturer's written instructions.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.3 Storage and Handling Requirements:

.1 Store materials off ground in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

.2 Store and protect sheet metal cladding from nicks, scratches, and blemishes.

.3 Replace defective or damaged materials with new.

PART 2 – PRODUCTS

2.1 Pre-Finished Siding Material

.1 Steel siding: Fabricated from commercial grade to ASTM A 652M with Z275 zinc coating:

.1 Vertical siding to ASTM 283-91, ASTM 331.00, ASTM 330-97.

.1 Acceptable product: Vicwest Wall Cladding, Profile CL6025-SR, 24 gauge. Finish to be 56156, Pacific Turquoise. All trims used on this siding to match.

2.2 Steel Soffit

.1 Steel Soffit: Fabricated from commercial grade to ASTM A 652M with Z275 zinc coating:

.1 Profile: flat sheet 'V' crimped for stiffness, preformed with elongated slits and small perforations, insect screen cover at vents.

.2 Pattern: smooth surface.

.3 Finish coating: factory precoated with 2 coat system dry paint film thickness of 0.025 mm.

.4 Colour: colour to be 56156, Pacific Turquoise.

.5 Gloss: medium.

.6 Thickness: 26 ga base metal thickness.

2.3 Steel Fascia and Exposed Trims

.1 Fabricated from commercial grade to ASTM A 652M with Z275 zinc coating:

.1 Profile: manufacturer's standard as indicated.

.2 Finish coating: factory precoated with 2 coat system dry paint film thickness of 0.025 mm.

.3 Colour: to match cladding.

.4 Gloss: medium.

.5 Thickness: 26 ga base metal thickness.

2.4 Sealants

.1 Test for acceptable VOC emissions in accordance with ASTM D 2369 and ASTM D 2832.

.2 Adhesives and sealants: VOC limit 70 g/L maximum.

2.5 Exterior Wall Sheathing Paper to CAN/CGSB-51.32:

.1 Tyvek as indicated.

2.6 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.

PART 3 – EXECUTION

3.1 Examination

.1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for sheet metal cladding installation in accordance with manufacturer's written instructions.

.2 Be responsible for measurements of cladding material before ordering.

.3 Ensure that enough cladding material is ordered to complete job so colour lot is the same.

3.2 Preparation

.1 Clean surfaces thoroughly prior to installation.

.2 Repair substrate flaws or defects before applying siding or soffits.

.3 [Fur surfaces to even plane and free from obstructions.]

.4 Prepare surfaces using methods recommended by manufacturer for achieving best result for substrate under project conditions.

3.3 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.

3.4 Installation

.1 Install steel siding in accordance with manufacturer's written instructions.

.2 Install one layer exterior wall sheathing paper horizontally by [stapling] [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].

3.3 Cleaning

.1 Progress Cleaning:

.1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment.

3.4 Protection

.1 Protect installed products and components from damage during construction.

.2 Repair damage to adjacent materials caused by sheet metal cladding installation.

PART 1 – GENERAL

1.1 References

.1 ASTM International

.1 ASTM A 653/A 653M-10, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

.2 ASTM A 792/A 792M-10, Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot Dip Process.

.3 ASTM B 32-08, Standard Specification for Solder Metal.

.4 ASTM D 822-01(R2006), Standard Practice for Filtered Open-Flame Carbon-Arc Exposures of Paint and Related Coatings.

Canadian General Standards Board (CGSB)

.1 CAN/CGSB-37.5-M89, Cutback Asphalt Plastic Cement.

.2 CAN/CGSB-37.29-M89, Rubber-Asphalt Sealing Compound.

.3 CAN/CGSB-51.32-M77, Sheathing, Membrane, Breather Type.

.4 CAN/CGSB-93.1-M85, Sheet Aluminum Alloy, Prefinished, Residential.

.2 CSA International

.1 CSA A123.3-05(2010), Asphalt Saturated Organic Roofing Felt.

.3 Department of Justice Canada (Jus)

.1 Canadian Environmental Protection Act (CEPA), 1999.

.4 Health Canada/Workplace Hazardous Materials Information System (WHMIS)

.1 Material Safety Data Sheets (MSDS).

.5 National Building Code of Canada 2015 (NBC).

.1 CCMC- Registry of Product Evaluations.

.6 Transport Canada (TC)

.1 Transportation of Dangerous Goods Act (TDGA), 1992.

1.2 Submittals

.1 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for sheet metal roofing and include product characteristics, performance criteria, physical size, finish and limitations.

.2 Proof of manufacturer's CCMC listing and listing number.

.2 Shop Drawings:

.1 Submit drawings stamped and signed by professional engineer registered or licensed in PEI, Canada.

1.4 Delivery, Storage, and Handling:

.1 Deliver, store and handle materials in accordance with Section 01 61 00 – Common Product Requirements and with manufacturer's written instructions.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.3 Storage and Handling Requirements:

.1 Store materials off ground in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

.2 Store and protect sheet metal roofing from nicks, scratches, and blemishes.

.3 Replace defective or damaged materials with new.

PART 2 – PRODUCTS

2.1 Materials

.1 Zinc coated steel sheet: to ASTM A 653/A 653M, commercial quality, with Z275 coating, regular spangle surface, pre-finish as specified in 2.2, 28 ga minimum base metal thickness.

2.2 Pre-Finished Roofing Material

.1 Metal, 28 Gauge ABM Panel, with Anti-Siphon Channel, 9" centers on ribs. Overall panel coverage is 36"

.1 Colour: 56072, Graphite

.2 Acceptable Product: UltraVic Metal Roofing by VicWest or approved equal.

2.3 Strapping

.1 1" x 4" spruce strapping.

2.4 Accessories

.1 Isolation coating: alkali resistant bituminous paint.

.2 Plastic cement: to CAN/CGSB-37.5.

.3 Underlay: No.15 perforated asphalt felt to CSA A123.3.

.4 Slip sheet: reinforced sisal paper or a heavy felt kraft paper.

.5 Sealant: Caulking see Section 07 92 00 – Joint Sealants.

.6 Rubber-asphalt sealing compound: to CAN/CGSB-37.29.

.7 Fasteners: exposed.

.8 Washers: of same material as sheet metal, 1 mm thick with rubber packings.

.9 Touch-up paint: as recommended by sheet metal roofing manufacturer.

.10 Starter strip: 4" metal starter stripping on all eaves and 2" metal starter stripping up rakes. Colour to match roof metal.

.11 Snow guards:

.1 Acceptable product: Snow Defender 4500 or approved equal.

2.5 Fabrication

.1 Fabricate aluminum sheet metal in accordance with AA ASM-35.

.2 Form individual pieces in 2400 mm maximum lengths. Make allowances for expansion at joints.

.3 Hem exposed edges on underside 12 mm, mitre and seal.

.4 Form sections square, true and accurate to size, free from distortion and other defects detrimental to appearance or performance.

.5 Apply minimum 0.2 mm dry film thickness coat of plastic cement to both faces of dissimilar metals in contact.

.6 Protect metals against oxidization by backpainting with isolation coating where indicated.

.7 Tin edges of copper sheets to be soldered for width of 40 mm both sides with solder.

PART 3 – EXECUTION

3.1 Examination

.1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for sheet metal roofing installation in accordance with manufacturer's written instructions.

.2 Be responsible for measurements of roofing material before ordering.

.3 Ensure that enough roofing material is ordered to complete job so colour lot is the same.

3.2 Installation

.1 Install 1" x 4" spruce strapping, spaced 16" on centre up roof and fill in ends along rakes and around any protrusions and down valleys. The 2nd and 3rd rows are to be a double run of strapping to allow for fastening of snow guards.

.2 Install strapping using 2.5" wood screws with a counter sink head. Head of screw must be countersunk in wood minimum of 1/16". Space screws every 24" and installed into the rafters. Nailing is not acceptable.

.3 Install 4" metal starter stripping on all eaves and 2" metal starter stripping up rakes. Colour to match roof metal.

.4 Use exposed fastenings.

.5 Include underlay under sheet metal roofing.

.1 Secure in place and lap joints 100 mm minimum.

.6 Apply slip sheet over asphalt felt underlay to prevent bonding between sheet metal and felt.

.1 Secure with anchorage and lap joints 50 mm minimum in direction of waterflow.

.7 Install sheet metal roof panels using fasteners spaced to manufacturer's recommendations.

.8 Install metal roofing panels using coloured headed screws. Each sheet must have an overlap on sides of one rib and top and bottom of metal panel a minimum of 8". Install fitted foam on bottom edge of metal panels along eave line. Screws installed on the ribs at every run of strapping. Tighten screws as not to dimple metal roofing. Screws are to be 2" in length.

.9 Stagger transverse seams in adjacent panels.

.10 Flash roof penetrations with material matching roof panels and make watertight.

.11 Form seams in direction of water-flow and make watertight.

.12 Install vent flashing over all vent pipes as per manufacturer's recommendations. All exhaust vents to be replaced using flat stock metal to match roof colour.

.13 Roof Cap: Install breathing strips on both sides ridge line on metal roof. Install 12" metal ride cape using coloured headed screws. Ensure roof sheathing is cut on each side of ridge to allow for ventilation to take place.

.14 Valleys: Install 20.5" valley flashing bent to fit valley. Install metal roof panels over valley flashing with a foam fitted stripped under edge of metal panels on the valley flashing. All valley flashing to be constructed out of same material as roofing panels in weight and colour.

.15 Snow Guards: Install metal snow guards using coloured screws every 18" apart between every second rib in a horizontally and vertically staggered pattern up 2 rows of strapping not counting the 1st starter row along the eave.

.16 Caulking - Caulk around any protrusions, pipes, etc. Caulking to match roof colour.

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 in accordance with Section 01 74 11 - Cleaning.

3.4 Protection

.1 Protect installed products and components from damage during construction.

.2 Repair damage to adjacent materials caused by sheet metal roofing installation.

PART 1 - GENERAL

1.1 REFERENCES

.1 The Aluminum Association Inc. (AAI)
.1 AAI-Aluminum Sheet Metal Work in Building Construction-2002.

.2 Canadian Roofing Contractors Association (CRCA)
.1 Roofing Specifications Manual 1997.

.3 Canadian General Standards Board (CGSB)
.1 CAN/CGSB-51.32-M77, Sheathing, Membrane, Breather Type.
.2 CAN/CGSB-93.1-M85, Sheet Aluminum Alloy, Prefinished, Residential.

.4 Canadian Standards Association (CSA International)
.1 CSA A123.3-05, Asphalt Saturated Organic Roofing Felt.
.2 AAMA/WDMA/CSA 101/I.S.2/A440-2008, Standard/Specification for Windows, Doors, and Unit Skylights.
.3 CSA B111-1974(R2003), Wire Nails, Spikes and Staples.

.5 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
.1 Material Safety Data Sheets (MSDS).

1.2 SUBMITTALS

.1 Shop Drawings:
.1 Shop drawings: submit drawings stamped and signed by professional engineer registered or licensed in Province of Prince Edward Island, Canada.

1.3 QUALITY

.1 Pre-Installation Meetings: convene pre-installation meeting one week prior to beginning work of this Section and on-site installation, with contractor's representative and Consultant.
.1 Verify project requirements.
.2 Review installation and substrate conditions.
.3 Co-ordination with other building subtrades.
.4 Review manufacturer's installation instructions and warranty requirements.

1.4 DELIVERY, AND HANDLING

.1 Waste Management and Disposal:
  .1 Separate waste materials for reuse and recycling.

PART 2 - PRODUCTS

2.1 SHEET METAL MATERIALS

.1 Zinc coated steel sheet: commercial quality to ASTM A 653/A 653M, with Z275 designation zinc coating.

2.2 ACCESSORIES

.1 Isolation coating: alkali resistant bituminous paint.

.2 Plastic cement: to CAN/CGSB 37.5.

.3 Underlay for metal flashing: dry sheathing to CAN/CGSB-51.32 asphalt laminated 3.6 to 4.5 kg kraft paper No. 15 perforated asphalt felt to CSA A123.3.

.4 Cleats: of same material, and temper as sheet metal, minimum 50 mm wide. Thickness same as sheet metal being secured.

.5 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.

.6 Washers: of same material as sheet metal, 1 mm thick with rubber packings.

.7 Flux: rosin, cut hydrochloric acid, or commercial preparation suitable for materials to be soldered.

.8 Touch-up paint: as recommended by prefinished material manufacturer.

2.3 FABRICATION

.1 Fabricate metal flashings and other sheet metal work in accordance with applicable CRCA 'FL' series details.

.2 Form pieces in 2400 mm maximum lengths.
  .1 Make allowance for expansion at joints.

.3 Hem exposed edges on underside 12 mm.
  .1 Mitre and seal corners with sealant.

2.3 FABRICATION (Cont'd)

.4 Form sections square, true and accurate to size, free from distortion and other defects detrimental to appearance or performance.

.5 Apply isolation coating to metal surfaces to be embedded in concrete or mortar.

2.4 METAL FLASHINGS

.1 Form flashings, copings and fascias to profiles indicated of 0.80 mm thick steel prefinished.

2.5 REGLETS AND CAP FLASHINGS

.1 Form recessed reglets metal cap flashing of 0.80 mm thick sheet metal to be built-in masonry work for base flashings as detailed.
.1 Provide slotted fixing holes and steel/plastic washer fasteners.

PART 3 - EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written recommendations, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.2 INSTALLATION

.1 Install sheet metal work in accordance with as detailed.

.2 Use concealed fastenings except where approved before installation.

.3 Provide underlay under sheet metal.
.1 Secure in place and lap joints 100 mm.

.4 Counterflash bituminous flashings at intersections of roof with vertical surfaces and curbs.
.1 Flash joints using S-lock forming tight fit over hook strips, as detailed.

.5 Lock end joints and caulk with sealant.

.6 Install surface mounted reglets true and level, and caulk top of reglet with sealant.

3.2 INSTALLATION (Cont'd)

.7 Insert metal flashing into reglets and under cap flashing to form weather tight junction.

.8 Turn top edge of flashing into recessed reglet or mortar joint minimum of 25 mm. Lead wedge flashing securely into joint.

.9 Caulk flashing at reglet and cap flashing with sealant.

.10 Install pans, where shown around items projecting through roof membrane.

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.

.2 Leave work areas clean, free from grease, finger marks and stains.

END OF SECTION

PART 1 – GENERAL

1.1 References

.1 Aluminum Association (AA), Designation System for Aluminum Finishes (2000)

.2 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-1.40-97, Anticorrosive Structural Steel Alkyd Primer.

.2 CAN/CGSB-79.1-M91, Insect Screens.

.3 Canadian Standards Association (CSA) International

.1 CSA-A440-00/A440.1-00, A440-00, Windows / Special Publication A440.1-00, User Selection Guide to CSA Standard A440-00, Windows.

.2 CAN/CSA-Z91-M90(R2000), Safety Code for Window Cleaning Operations.

1.2 Submittals

.1 Indicate materials and details in full size scale for head, jamb and sill, profiles of components, spandrel panels, interior and exterior trim junction between combination units elevations of unit, anchorage details, location of isolation coating, description of related components and exposed finishes fasteners, and caulking. Indicate location of manufacturer's nameplates.

1.3 Test Reports

.1 Submit test reports from approved independent testing laboratories, certifying compliance with specifications, for:

.1 Windows classifications.

.2 Anodized finish.

.3 Air tightness.

.4 Water tightness.

.5 Wind load resistance.

.6 Condensation resistance.

.7 Forced entry resistance.

1.4 Delivery, Storage, and Handling:

.1 Deliver, store and handle materials in accordance with manufacturer's written instructions.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.3 Storage and Handling Requirements:

.1 Store materials off ground in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

.2 Store and protect sheet metal cladding from nicks, scratches, and blemishes.

.3 Replace defective or damaged materials with new.

1.4 Closeout Submittals

.1 Provide operation and maintenance data for windows for incorporation into manual.

PART 2 – PRODUCTS

2.1 Materials

.1 Materials: to CSA-A440/A440.1 supplemented as follows:

.2 All aluminum windows by same manufacturer.

.3 Main frame: aluminum thermally broken.

.4 Glass: to CAN/CGSB 12.8, sealed insulating glass units minimum glass thickness of 4 mm and minimum 15 mm air space and argon gas.

.5 Exterior metal sills and aluminum facings: extruded aluminum brake formed aluminum sheet metal of type and size to suit job conditions; minimum 3 mm thick, complete with joint covers, jamb drip deflectors, chairs, anchors and anchoring devices.

.6 Aluminum windows shall be thermally broken, have a nominal depth of 100mm minimum, with vent units installed in a separate frame, which is set in the basic window frame.

.7 Screens: to CAN/CGSB-79.1.

.1 Insect screening mesh: count 18 x 14

.2 Fasteners: tamper proof.

.3 Screen frames: aluminum colour to match window frames.

.4 Mount screen frames for interior replacement.

.8 Isolation coating: alkali resistant bituminous paint.

2.2 Window Type and Classification

.1 Types:

.1 Kawneer Series 526 Isoport window complete with framed vents. Glazing to be installed using a wet/dry gasket system, using an exterior preformed butyl tape with integral neoprene skim rod (minimum thickness 1/8", 3mm), with a full perimeter silicone seal cap bead and an interior glazing spline (E.P.D.M. composition) properly sized to suit the glazed unit.

.2 Operable vent units shall be hinged at the top and open outward. Each vent shall be equipped with a pair of Andenburg hinges and a pair of cam handle locks. Provide limiters to restrict operation.

.2 Cam handles mounted on upper units shall have a hole to accept the hook on a pole. Provide a surface mount angle on upper vent units, to be used for pushing the vent unit closed. Provide one pole with hook to fit cam handles, per room with upper awning windows.

.3 Provide exterior mounted screen, with screw fastened clips for each vent unit.

.4 Aluminum flashing shall be formed from 0.051 inch (1.2mm) thick aluminum sheet, with #28, Medium Bronze finish.

.5 Interior/exterior elastomeric glazing gasket system as recommended by the manufacturer.

.6 Exterior poly shim glazing tape: POLY Shim II Tape by Tremco or approved equal.

.7 Cap Bead Silicon: (metal to glass) Spectrum 2 by Tremco, or Dow Corning 795, or approved equal

.8 Interior Glazing Spline (compression gasket): E.P.D.M. composition or as recommended by framing manufacturer.

.9 Provided neoprene 100mm long x 6mm high, Shore A hardness, edge setting blocks as required.

.10 Joint fillers shall be oversized 30 to 50 %, compatible with primer or sealants made from closed cell extruded shore A hardness 20.

.11 Sealants shall be:

.1 Vertical or horizontal joint at metal to metal or metal to masonry.

.1 Vulcum 116

.2 Dymeric

.3 Dymonic

.4 Dow Corning 795

2.3 Fabrication

.1 Fabricate in accordance with CSA-A440/A440.1 supplemented as follows:

.2 Fabricate units square and true with maximum tolerance of plus or minus 1.5 mm for units with a diagonal measurement of 1800 mm or less and plus or minus 3 mm for units with a diagonal measurement over 1800 mm.

.3 Face dimensions detailed are maximum permissible sizes.

.4 Brace frames to maintain squareness and rigidity during shipment and installation.

.5 Finish steel clips and reinforcement with 380 g/sqm zinc coating to CAN/CSA-G164.

2.4 Aluminum Finishes

.1 Finish exposed surfaces of aluminum components in accordance with Aluminum Association Designation System for Aluminum Finishes.

.1 Clear anodized.

2.5 Isolation Coating

.1 Isolate aluminum from following components, by means of isolation coating:

.1 Dissimilar metals except stainless steel, zinc, or white bronze of small area.

.2 Concrete, mortar and masonry.

.3 Wood.

2.6 Glazing

.1 Glaze windows in accordance with CSA-A440/A440.1. Insulating glazing units with argon gas.

.1 All glazing shall have Solar Grey coating.

.2 All insulated Glazing Units shall be triple glazed.

2.7 Air Barrier and Vapour Retarder

.1 Equip window frames with site installed air and vapour retarder material for sealing to building air and vapour retarder as follows:

.1 Material: identical to, or compatible with, building air barrier and vapour retarder materials to provide required air tightness and vapour diffusion control throughout exterior envelope assembly.

.2 Material width: adequate to provide required air tightness and vapour diffusion control to building air and vapour retarder from interior.

PART 3 – EXECUTION

3.1 Window Installation

.1 Install in accordance with CSA-A440/A440.1.

.2 Arrange components to prevent abrupt variation in colour.

.3 All work shall be completed by skilled workers with minimum 4 years experience with the installation of aluminum windows in a similar building type to this project. Installation shall be in a proper manner following manufacturer's assembly/installation instructions. Exterior caulking is to be carried out by the window installers. Install joint filler prior to caulking.

.4 Prior to commencing assembly of the window framing, the contractor shall provide the Architect with an up-to-date copy of the manufacturer's assembly/installation instructions.

.5 Joints between framing members are to be sealed in order to prevent water that enters the glazing cavity from leaking into the rough opening. All screw fasteners between the framing and blocking are to be sealed with adhesive.

.6 Prior to installation of the first glazing unit, the glazing installers to satisfactorily demonstrate to the Owner's Representative and Architect the methods of surface preparation and installation of the shim tapes, compression gaskets, cap bead sealants as identified in the approved assembly/installation instructions.

.7 Upon completion of the installation, the Architect may randomly select up to three windows for testing. If requested, the Contractor shall remove the glazing units from the selected windows to allow inspection and testing of the joint sealant and drainage channels.

3.2 Sill Installation

.1 Install metal sills with uniform wash to exterior, level in length, straight in alignment with plumb upstands and faces. Use one piece mm lengths at each location.

.2 Cut sills to fit window opening.

.3 Secure sills in place with anchoring devices located at ends, joints of continuous sills and evenly spaced 600 mm on centre in between.

.4 Fasten expansion joint cover plates and drip deflectors with self tapping stainless steel screws.

.5 Maintain 6 to 9 mm space between butt ends of continuous sills. For sills over 1200 mm in length, maintain 3 to 6 mm space at each end.

3.3 Caulking

.1 Seal joints between windows and windowsills with sealant. Bed sill expansion joint cover plates and drip deflectors in bedding compound. Caulk between sill upstand and window-frame. Caulk butt joints in continuous sills.

.2 Conceal sealant within window units except where exposed use is permitted by Consultant.

PART 1 – GENERAL

1.1 References

.1 American National Standards Institute (ANSI).

.1 ANSI/ASTM E330-02, Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.

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

.1 ASTM C 542-94(1999), Specification for Lock-Strip Gaskets.

.2 ASTM D 790-02, Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.

.3 ASTM D 2240-02b, Test Method for Rubber Property - Durometer Hardness.

.3 Canadian General Standards Board (CGSB).

.1 CAN/CGSB-12.1-M90, Tempered or Laminated Safety Glass.

.2 CAN/CGSB-12.2-M91, Flat, Clear Sheet Glass.

.3 CAN/CGSB-12.3-M91, Flat, Clear Float Glass.

.4 CAN/CGSB-12.4-M91, Heat Absorbing Glass.

.5 CAN/CGSB-12.5-M86, Mirrors, Silvered.

.6 CAN/CGSB-12.8-97, Insulating Glass Units.

.7 CAN/CGSB-12.10-M76, Glass, Light and Heat Reflecting.

.8 CAN/CGSB-12.12-M90, Plastic Safety Glazing.

.4 Canadian Standards Association (CSA International).

.1 CSA A440.2-98, Energy Performance Evaluation of Windows and Sliding Glass Doors.

.2 CSA Certification Program for Windows and Doors 2000.

.5 Laminators Safety Glass Association (LSGA).

.1 LSGA Laminated Glass Design Guide 2000.

1.2 System Description

.1 Performance Requirements:

.1 Provide continuity of building enclosure vapour and air barrier using glass and glazing materials as follows:

.1 Utilize inner light of multiple light sealed units for continuity of air and vapour seal.

.2 Limit glass deflection to 1/200 flexural limit of glass with full recovery of glazing materials.

1.3 Submittals

.1 Product Data:

.1 Submit manufacturer's printed product literature, specifications and data sheet.

.2 Manufacturer's Instructions:

.1 Submit manufacturer's installation instructions.

.3 Closeout Submittals:

.1 Provide maintenance data including cleaning instructions.

1.4 Site Conditions

.1 Environmental Requirements:

.1 Install glazing when ambient temperature is 10 degrees C minimum. Maintain ventilated environment for 24 hours after application.

.2 Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

PART 2 – PRODUCTS

2.1 Materials: Flat Glass

.1 Safety glass: to CAN/CGSB-12.1, fire-rated ceramic safety glass, 6 mm thick…

.2 Silvered mirror glass: to CAN/CGSB-12.5, 6 mm thick.

.1 Type 1A-Float glass for normal use.

2.2 Materials: Sealed Insulating Glass

.1 Insulating glass units: to CAN/CGSB-12.8, triple unit, 38-44 mm overall thickness.

.1 Glass: to CAN/CGSB-12.8-M.

.2 Glass thickness: 6 mm each light.

.3 Inter-cavity space thickness: 13 mm between inner and outer lights with low conductivity spacers.

.4 Glass coating:

.1 Low "E" on interior float of all window units.

.5 Inert gas fill: argon.

2.3 Accessories

.1 Setting blocks: Neoprene, 80-90 Shore A durometer hardness to ASTM D 2240, to suit glazing method, glass light weight and area.

.2 Spacer shims: Neoprene, 50-60 Shore A durometer hardness to ASTM D 2240, 75 mm long x one half height of glazing stop x thickness to suit application. Self adhesive on one face.

.3 Glazing tape:

.1 Closed cell polyvinyl chloride foam, coiled on release paper over adhesive on two sides, maximum water absorption by volume 2 %, designed for compression of 25%, to effect an air and vapour seal.

.4 Mirror attachment accessories:

.1 Stainless steel clips.

.2 Mirror frames: Steel channel (refer to 10 28 10, Toilet and Bath Accessories).

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 Examination

.1 Verify that openings for glazing are correctly sized and within tolerance.

.2 Verify that surfaces of glazing channels or recesses are clean, free of obstructions, and ready to receive glazing.

3.3 Preparation

.1 Clean contact surfaces with solvent and wipe dry.

.2 Seal porous glazing channels or recesses with substrate compatible primer or sealer.

.3 Prime surfaces scheduled to receive sealant.

3.4 Installation

.1 Perform work in accordance with FGMA Glazing Manual IGMAC and Laminators Safety Glass Association - Standards Manual for glazing installation methods.

.2 Cut glazing tape to length and set against permanent stops, 6 mm below sight line. Seal corners by butting tape and dabbing with sealant.

.3 Apply heel bead of sealant along intersection of permanent stop with frame ensuring full perimeter seal between glass and frame to complete continuity of air and vapour seal.

.4 Place setting blocks at 1/4 points, with edge block maximum 150 mm from corners.

.5 Rest glazing on setting blocks and push against tape and heel head of sealant with sufficient pressure to attain full contact at perimeter of light or glass unit.

.6 Install removable stops with spacer strips inserted between glazing and applied stops 6 mm below sight line.

.7 Fill gap between glazing and stop with sealant to depth equal to bite of frame on glazing, maximum 9 mm below sight line.

.8 Apply cap head of sealant along void between stop and glazing, to uniform line, flush with sight line. Tool or wipe sealant surface smooth.

3.5 Installation: Mirrors

.1 Set mirrors with clips. Anchor rigidly to wall construction.

.2 Set in frame.

.3 Place plumb and level.

3.6 Cleaning

.1 Perform cleaning after installation to remove construction and accumulated environmental dirt.

.2 Remove traces of primer, caulking.

.3 Remove glazing materials from finish surfaces.

.4 Remove labels after work is complete.

.5 Clean glass and mirrors using approved non-abrasive cleaner in accordance with manufacture's instructions.

.6 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

3.7 Protection

.1 After installation, mark light with an "X" by using removable plastic tape or paste.

3.8 Schedule

.1 Mirrors (see Section 10 28 10): Stainless steel framed pre-fabricated mirror units:

.1 1 in each Unit Bathroom (10 in total).

.2 Insulated glazing unit (see 08 50 00, Windows):

.1 All Window units as shown.

.2 All Exterior doors with lites.

.3 Fire-rated safety glass:

.1 Type L and M door lites.

PART 1 – GENERAL

1.1 References

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

.1 ASTM C 36/C 36M-01, Specification for Gypsum Wallboard.

.2 ASTM C 79/C 79M-01, Standard Specification for Treated Core and Non-treated Core Gypsum Sheathing Board.

.3 ASTM C 442/C 442M-01, Specification for Gypsum Backing Board, Gypsum Coreboard, and Gypsum Shaftliner Board.

.4 ASTM C 475-01, Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.

.5 ASTM C 514-01, Specification for Nails for the Application of Gypsum Board.

.6 ASTM C 630/C 630M-01, Specification for Water-Resistant Gypsum Backing Board.

.7 ASTM C 840-01, Specification for Application and Finishing of Gypsum Board.

.8 ASTM C 954-00, Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs From 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness.

.9 ASTM C 1002-01, Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.

.10 ASTM C 1280-99, Specification for Application of Gypsum Sheathing Board.

.11 ASTM C 1177-01, Specification for Glass Mat Gypsum Substrate for Use as Sheathing.

.12 ASTM C 1178/C 1178M-01, Specification for Glass Mat Water-Resistant Gypsum Backing Board.

.2 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-51.34-M86(R1988), Vapour Barrier, Polyethylene Sheet for Use in Building Construction.

.2 CAN/CGSB-71.25-M88, Adhesive, for Bonding Drywall to Wood Framing and Metal Studs.

.3 Underwriters' Laboratories of Canada (ULC)

.1 CAN/ULC-S102-1988(R2000), Surface Burning Characteristics of Building Materials and Assemblies.

1.2 Delivery, Storage & Handling

.1 Deliver materials in original packages, containers or bundles bearing manufacturers brand name and identification.
.2 Store materials inside, level, under cover. Keep dry. Protect from weather, other elements and damage from construction operations and other causes.
.3 Handle gypsum boards to prevent damage to edges, ends or surfaces. Protect metal accessories and trim from being bent or damaged.

1.3 Site Environmental Requirements

.1 Maintain temperature minimum 10 degrees C, maximum 21 degrees C for 48 hours prior to and during application of gypsum boards and joint treatment, and for at least 48 hours after completion of joint treatment.
.2 Apply board and joint treatment to dry, frost free surfaces.
.3 Ventilation: Ventilate building spaces as required to remove excess moisture that would prevent drying of joint treatment material immediately after its application.

PART 2 – PRODUCTS

2.1 Materials

.1 Standard board: to ASTM C 36/C 36M regular, 15.9 mm thick and Type X, 15.9 mm thick, 1200 mm wide x maximum practical length, ends square cut, edges squared.
.2 Water-resistant board: to ASTM C 630/C 630M regular, 15.9 mm thick, 1200 mm wide x maximum practical length.
.3 Fire rated board: to CSA A82.27-M1977, 15.9 mm thick Type X, 1200 mm wide x maximum practical length.
.4 Glass mat water-resistant gypsum backing board: to ASTM C 1178/C 1178M, 15.9 mm thick, 1200 mm wide x maximum practical length.
.5 Glass mat gypsum substrate sheathing: to ASTM C 1177/C 1177M, 12.7 mm thick, 1200 mm wide x maximum practical length.
.6 Metal furring runners, hangers, tie wires, inserts, anchors.
.7 Drywall furring channels: 0.5 mm core thickness galvanized steel channels for screw attachment of gypsum board.
.8 Nails: to ASTM C 514.
.9 Steel drill screws: to ASTM C 1002.
.10 Casing beads, corner beads, control joints and edge trim: to ASTM C 1047, metal, zinc-coated by hot-dip process, 0.5 mm base thickness, perforated flanges, one piece length per location.
.11 Sealants: in accordance with Section 07 92 00 - Joint Sealing.
.12 Acoustic sealant.
.13 Polyethylene: to CAN/CGSB-51.34, Type 2.
.14 Joint compound: to ASTM C 475, asbestos-free.

2.2 Finishes

.1 Texture finish: asbestos-free standard white texture coating and primer-sealer, recommended by gypsum board manufacturer.

PART 3 – EXECUTION

3.1 Erection

.1 Do application and finishing of gypsum board in accordance with ASTM C 840 except where specified otherwise.

.2 Do application of gypsum sheathing in accordance with ASTM C 1280.

.3 Erect hangers and runner channels for suspended gypsum board ceilings in accordance with ASTM C 840 except where specified otherwise.

.4 Support light fixtures by providing additional ceiling suspension hangers within 150 mm of each corner and at maximum 600 mm around perimeter of fixture.

.5 Install work level to tolerance of 1:1200.

.6 Frame with furring channels, perimeter of openings for access panels, light fixtures, diffusers, grilles.

.7 Install 19 x 64 mm furring channels parallel to, and at exact locations of stud partition header track.

.8 Furr for gypsum board faced vertical bulkheads within and at termination of ceilings.

.9 Furr above suspended ceilings for gypsum board fire and sound stops and to form plenum areas as indicated.

.10 Furr openings and around built-in equipment, cabinets, access panels. Extend furring into reveals. Check clearances with equipment suppliers.

.11 Furr duct shafts, beams, columns, pipes and exposed services where indicated.

3.2 Application

.1 Do not apply gypsum board until bucks, anchors, blocking, sound attenuation, electrical and mechanical work are approved.

.2 Apply single layer gypsum board to metal furring or framing using screw fasteners. Maximum spacing of screws 300 mm on centre.

.1 Single-Layer Application:

.1 Apply gypsum board on ceilings prior to application of walls in accordance with ASTM C 840.

.2 Apply gypsum board vertically or horizontally, providing sheet lengths that will minimize end joints.

.3 Apply water-resistant gypsum board adjacent to Laundry Room and all Bathrooms. Apply water-resistant sealant to edges, ends, cut-outs which expose gypsum core and to fastener heads.

.4 Apply 12 mm diameter bead of acoustic sealant continuously around periphery of each face of partitioning to seal gypsum board/structure junction where partitions abut

fixed building components. Seal full perimeter of cut-outs around electrical boxes, ducts, in partitions where perimeter sealed with acoustic sealant.

.5 Install ceiling boards in direction that will minimize number of end-butt joints. Stagger end joints at least 250 mm.

.6 Install gypsum board on walls vertically to avoid end-butt joints. At high walls, install boards horizontally with end joints staggered over studs, except where local codes or fire-rated assemblies require vertical application.

.7 Install gypsum board with face side out.

.8 Do not install damaged or damp boards.

.9 Locate edge or end joints over supports. Stagger vertical joints over different studs on opposite sides of wall.

3.3 Installation

.1 Erect accessories straight, plumb or level, rigid and at proper plane. Use full length pieces where practical. Make joints tight, accurately aligned and rigidly secured. Mitre and fit corners accurately, free from rough edges. Secure at 150 mm on centre.

.2 Install casing beads around perimeter of suspended ceilings.

.3 Install casing beads where gypsum board butts against surfaces having no trim concealing junction and where indicated. Seal joints with sealant.

.4 Install insulating strips continuously at edges of gypsum board and casing beads abutting metal window and exterior door frames, to provide thermal break.

.5 Install shadow mould at gypsum board/ceiling juncture. Minimize joints; use corner pieces and splicers.

.6 Construct control joints of preformed units set in gypsum board facing and supported independently on both sides of joint.

.7 Provide continuous polyethylene dust barrier behind and across control joints.

.8 Construct expansion joints, at building expansion and construction joints. Provide continuous dust barrier.

.9 Install expansion joint straight and true.

.10 Splice corners and intersections together and secure to each member with 3 screws.

.11 Install access doors to electrical and mechanical fixtures specified in respective sections.

.1 Rigidly secure frames to furring or framing systems.

.12 Finish face panel joints and internal angles with joint system consisting of joint compound, joint tape and taping compound installed according to manufacturer's directions and feathered out onto panel faces.

.13 Gypsum Board Finish: finish gypsum board walls and ceilings to following levels in accordance with Association of the Wall and Ceiling Industries (AWCI) International Recommended Specification on Levels of Gypsum Board Finish:

.1 Levels of finish:

.1 Level 1 (Concealed areas, above finish ceilings): Embed tape for joints and interior angles in joint compound. Surfaces to be free of excess joint compound; tool marks and ridges are acceptable.

.2 Level 5 (All finished areas, below finish ceilings): Embed tape for joints and interior angles in joint compound and apply three separate coats of joint compound over joints, angles, fastener heads and accessories; apply a thin skim coat of joint compound to entire surface; surfaces smooth and free of tool marks and ridges.

.14 Finish corner beads, control joints and trim as required with two coats of joint compound and one coat of taping compound, feathered out onto panel faces.

.15 Fill screw head depressions with joint and taping compounds to bring flush with adjacent surface of gypsum board so as to be invisible after surface finish is completed.

.16 Sand lightly to remove burred edges and other imperfections. Avoid sanding adjacent surface of board.

.17 Completed installation to be smooth, level or plumb, free from waves and other defects and ready for surface finish.

.18 Apply one coat of white primer sealer over surface to be textured. When dry apply textured finish in accordance with manufacturer's instructions.

.19 Mix joint compound slightly thinner than for joint taping.

.20 Apply thin coat to entire surface using trowel or drywall broadknife to fill surface texture differences, variations or tool marks.

.21 Allow skim coat to dry completely.

.22 Remove ridges by light sanding or wiping with damp cloth.

.23 Provide protection that ensures gypsum drywall work will remain without damage or deterioration at time of substantial completion.

3.3 Schedule

.1 Construct fire rated assemblies where indicated.

.1 1 hour fire rated partition assembly:

.1 Interior walls defining Each Unit, Salt Room, Mechanical Room, Electrical Room, Janitor Room, Laundry and Common Room as shown on plans.

.2 1 hour fire rated ceiling assembly:

.1 Ceiling throughout.

.3 Trade Contractor to provide Fire Wall Identification as follows:

.1 Provide identification of all rated walls (including smoke separations).

.2 Using stencils cut out to read "1-Hour Fire Rated” or "Smoke Separation".

.3 Using stencil and spray paint to transfer the information to the appropriate walls above the ceiling level at 3000 mm on Corridor side of the applicable wall between Unit and Corridor.

.2 Glass matt water resistant gypsum backing:

.1 To walls in Laundry.
.2 To walls in Salt Room.
.3 To walls in all Bathrooms.

PART 1 – GENERAL

1.1 References

.1 American National Standards Institute (ANSI)/Ceramic Tile Institute (CTI)

.1 ANSI A108.1-99, Specification for the Installation of Ceramic Tile (Includes ANSI A108.1A-C, 108.4-.13, A118.1-.10, ANSI A136.1).

.2 CTI A118.4-92, Specification for Latex Cement Mortar (included in ANSI A108.1).

.3 CTI A118.6-92, Specification for Ceramic Tile Grouts (included in ANSI A108.1).

.2 Canadian General Standards Board (CGSB)

.1 CGSB 71-GP-22M-78(AMEND.), Adhesive, Organic, for Installation of Ceramic Wall Tile.

.2 CAN/CGSB-75.1-M88, Tile, Ceramic.

.3 CAN/CGSB-25.20-95, Surface Sealer for Floors.

1.2 Submittals

.1 Provide submittals and product data as required by the project.

.2 Product data:

.1 Include manufacturer's information on:

.1 Ceramic tile, marked to show each type, size, and shape required.

.2 Chemical resistant mortar and grout (Epoxy and Furan).

.3 Cementitious backer unit.

.4 Dry-set cement mortar and grout.

.5 Divider strip.

.6 Elastomeric membrane and bond coat.

.7 Reinforcing tape.

.8 Levelling compound.

.9 Latex cement mortar and grout.

.10 Commercial cement grout.

.11 Organic adhesive.

.12 Slip resistant tile.

.13 Waterproofing isolation membrane.

.14 Fasteners.

.3 Provide samples:

.1 Base tile: submit sample panels of each colour, texture, size, and pattern of tile.

.2 Floor tile: submit sample panels of each colour, texture, size, and pattern of tile.

1.3 Quality Assurance

.1 Quality Assurance Submittals:

.1 Manufacturer's Instructions: manufacturer's installation instructions.

1.5 Delivery, Storage, and Handling:

.1 Packing, shipping, handling and unloading:

.1 Deliver, store and handle materials as required by project and manufacturer's instructions.

.2 Waste Management and Disposal:

.1 Separate waste materials for reuse and recycling in accordance with provincial Waste Watch.

1.4 Ambient Conditions

.1 Maintain air temperature and structural base temperature at ceramic tile installation area above 12 degrees C for 48 hours before, during, and 48 hours after, installation.

.2 Do not install tiles at temperatures less than 12 degrees C or above 38 degrees C.

.3 Do not apply epoxy mortar and grouts at temperatures below 15 degrees C or above 25 degrees C.

1.5 Maintenance

.1 Extra Materials:

.1 Provide maintenance materials as required by the project.

.2 Provide minimum 2% of each type and colour of tile required for project for maintenance use. Store where directed.

.3 Maintenance material same production run as installed material.

PART 2 – PRODUCTS

2.1 Floor Tile

.1 Porcelain tile: to CAN/CGSB-75.1, 300 mm x 300 mm x 10 mm size, edges, slip resistant surface, regular grid pattern, colour as selected by Consultant. Matching square base, 100 mm high.

.2 Acceptable product shall be Basaltina Matte Mid Grey by Centura MG30, 30 x 30, BST3008.

2.2 Mortar & Adhesive Materials

.1 Cement: to CSA-A5, type 10.

.2 Sand: to ASTM C 144, passing 16 mesh.

.3 Hydrated lime: to ASTM C 207, Type N.

.4 Latex additive: formulated for use in cement mortar and thin set bond coat.

.5 Water: potable and free of minerals and chemicals which are detrimental to mortar and grout mixes.

2.3 Grout

.1 Colouring Pigments:

.1 Pure mineral pigments, lime-proof and nonfading, complying with ASTM C 979.

.2 Colouring pigments to be added to grout by manufacturer.

.3 Job coloured grout are not acceptable.

.4 Use in Commercial Cement Grout, Dry-Set Grout, and Latex Cement Grout.

.2 Cement Grout: to ANSI A108.1.

.1 Use one part white cement to one part white sand passing a number 30 screen.

.3 Commercial Cement Grout: to CTI A118.6.

.4 Dry-Set Grout: to CTI A118.6.

.5 Latex Cement Grout: to ANSI A108.1, fast curing, high early strength, polymer-modified, stain resistant, sanded mix for floors, unsanded mix for floors with polished tiles commercial tile grout.

2.4 Cleaning Compounds

.1 Specifically designed for cleaning masonry and concrete and which will not prevent bond of subsequent tile setting materials including patching and leveling compounds and elastomeric waterproofing membrane and coat.

.2 Materials containing acid or caustic material are not acceptable.

PART 3 – EXECUTION

3.1 Manufacturer’s Instructions

.1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.2 Workmanship

.1 Do tile work in accordance with TTMAC Tile Installation Manual 2006/2007, "Ceramic Tile", except where specified otherwise.

.2 Apply tile to clean and sound surfaces.

.3 Fit tile around corners, fitments, fixtures, drains and other built-in objects. Maintain uniform joint appearance. Cut edges smooth and even. Do not split tiles.

.4 Maximum surface tolerance 1:800.

.5 Make joints between tile uniform and approximately 1.5 mm wide, plumb, straight, true, even and flush with adjacent tile. Ensure sheet layout not visible after installation. Align patterns.

.6 Lay out tiles so perimeter tiles are minimum 1/2 size.

.7 Sound tiles after setting and replace hollow-sounding units to obtain full bond.

.8 Install divider strips at junction of tile flooring and dissimilar materials.

.9 Allow minimum 24 hours after installation of tiles, before grouting.

.10 Clean installed tile surfaces after installation and grouting cured.

3.5 Floor Tile

.1 Install in accordance with TTMAC.

.1 Entry 100

3.6 Base Tile

.1 Install in accordance with TTMAC.

.1 Entry 100

3.7 Floor Sealer & Protective Coating

.1 Apply in accordance with manufacturer's instructions.

3.8 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.

3.9 Cleaning

.1 Clean and protect floors streak-free upon completion..

PART 1 - GENERAL

1.1 SUMMARY

.1 Section Includes:
.1 Materials and application of acoustical units for direct application or for application and installation within a suspended ceiling.

1.2 REFERENCES

.1 American Society for Testing and Materials International (ASTM)
.1 ASTM C 423-02a, Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method
.2 ASTM E 1264-98, Standard Classification for Acoustical Ceiling Products.

.2 Canadian General Standards Board (CGSB)
.1 CAN/CGSB-92.1-M89, Sound Absorptive Prefabricated Acoustical Units.

.3 Department of Justice Canada (Jus)
.1 Canadian Environmental Protection Act (CEPA), 1999, c. 33.
.2 Transportation of Dangerous Goods Act (TDGA), 1992, c. 34.

.4 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
.1 Material Safety Data Sheets (MSDS).

.5 Underwriter's Laboratories of Canada (ULC)
.1 CAN/ULC-S102-2003, Surface Burning Characteristics of Building Materials and Assemblies.

1.3 DELIVERY, STORAGE AND HANDLING

.1 Protect on site stored or installed absorptive material from moisture damage.

.2 Store extra materials required for maintenance, where directed by Consultant.

.3 Waste Management and Disposal:
.1 Separate waste materials for reuse and recycling.
.2 Remove from site and dispose of packaging materials at appropriate recycling facilities.

1.3 DELIVERY, STORAGE AND HANDLING (Cont'd)

.3 (Cont'd)
.3 Collect and separate for disposal paper plastic polystyrene corrugated cardboard packaging material in appropriate on-site bins for recycling in accordance with Waste Management Plan (WMP).
.4 Place materials defined as hazardous or toxic in designated container.
.5 Handle and dispose of hazardous materials in accordance with Regional and Municipal, regulations.
.6 Ensure emptied containers are sealed and stored safely.
.7 Fold up metal and plastic banding, flatten and place in designated area for recycling.

1.4 ENVIRONMENTAL REQUIREMENTS

.1 Permit wet work to dry before beginning to install.

.2 Maintain uniform minimum temperature of 15 degrees C and humidity of 20 -40 % before and during installation.

.3 Store materials in work area 48 hours prior to installation.

1.5 EXTRA MATERIALS

.1 Provide acoustical units amounting to 2 % of gross ceiling area for each pattern and type required for project.

.2 Ensure extra materials are from same production run as installed materials.

.3 Clearly identify each type of acoustic unit, including colour and texture.

.4 Deliver to Owner, upon completion of the work of this section.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Type 1 Acoustic units for non-fire-rated suspended ceiling systems: to CAN/CGSB-92.1.
.1 Type III.
.2 Class A.
.3 Ceiling Attenuation Class (CAC) rating 35, in accordance with ASTM E 1264; NRC rating of 0.70.
.4 Light Reflectance (LR) range of 0.83 to ASTM E 1477.

2.1 MATERIALS (Cont'd)

.1 (Cont'd)

.5 Edge type square trim.

.6 Colour white.

.7 Size: 600 x 1200 x 19 mm thick).

.8 Shape flat.

.9 Mold resistant.

.10 Sag resistant.

.11 Low VOC certified.

.12 Acceptable product: #PFFS - 197 Performa 'School Board' by Certainteed OR Radar Clima Plus Performance by CGC OR Schoolzone Fine Fissured High NRC by Armstrong or approved equal.

.2 Staples, nails and screws: to CSA B111 non-corrosive finish as recommended by acoustic unit manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

.1 Do not install acoustical panels and tiles until work above ceiling has been inspected by Consultant.

3.2 INSTALLATION

.1 Install acoustical panels and tiles in ceiling suspension system.

3.3 APPLICATION

.1 Install acoustic units to clean, dry and firm substrate.

.2 Install acoustical units parallel to building lines with edge unit not less than 50% of unit width with directional pattern running in same direction.

.3 Scribe acoustic units to fit adjacent work. Butt joints tight, terminate edges with moulding.

3.4 INTERFACE WITH OTHER WORK

.1 Co-ordinate ceiling work to accommodate components of other sections, such as light fixtures, diffusers, speakers, sprinkler heads, to be built into acoustical ceiling components.

3.5 SCHEDULE

.1 Type 1: All rooms indicated on Finish Schedule as having Type 1 suspended acoustic ceiling tile.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 Section 09 51 13, Acoustical Panel Ceilings.

1.2 REFERENCES

.1 American Society for Testing and Materials International (ASTM)
.1 ASTM C 635-04, Standard Specifications for the Manufacture, Performance and Testing of Metal Suspension Systems for Acoustical Tile and Lay-In Panel Ceilings.
.2 ASTM C 636/C 636M-06, Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels.

.2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
.1 Material Safety Data Sheets (MSDS).

1.3 DESIGN REQUIREMENTS

.1 Maximum deflection: 1/360th of span to ASTM C 635 deflection test.

1.4 SUBMITTALS

.1 Submit shop drawings:
.1 Submit reflected ceiling plans for special grid patterns as indicated.
.2 Indicate lay-out, insert and hanger spacing and fastening details, splicing method for main and cross runners, location of access splines change in level details, access door dimensions, and locations and acoustical unit support at ceiling fixture lateral bracing and accessories.

.2 Provide samples:
.1 Submit one representative model of each type ceiling suspension system.
.2 Ceiling system to show basic construction and assembly, treatment at walls, recessed fixtures, splicing, interlocking, finishes, acoustical unit installation.

1.5 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials as required by the project.

.2 Waste Management and Disposal:
.1 Separate waste materials for reuse and recycling.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Intermediate duty system to ASTM C 635.

.2 Basic materials for suspension system: commercial quality cold rolled steel.

.3 Type 1 Suspension system: non fire rated, made up as follows:
.1 Two directional exposed tee bar grid.
.2 24 mm grid width.
.3 Colour white.
.4 Acceptable product: Classic Hook System by CertainTeed OR Prelude XL by Armstrong OR DX/DXL by CGC or approved equal.

.4 Exposed tee bar grid components: white colour. Components die cut. Main tee with double web, rectangular bulb and 24 mm rolled cap on exposed face. Cross tee with rectangular bulb; web extended to form positive interlock with main tee webs; lower flange extended and offset to provide flush intersection.

.5 Hanger wire: galvanized soft annealed steel wire:
.1 3.6 mm diameter for access tile ceilings.

.6 Hanger inserts: purpose made.

.7 Accessories: splices, clips, wire ties, retainers and wall moulding flush reveal, to complement suspension system components, as recommended by system manufacturer.

PART 3 - EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.2 INSTALLATION

.1 Installation: in accordance with ASTM C 636 except where specified otherwise.

.2 Install suspension system to manufacturer's instructions.

.3 Do not erect ceiling suspension system until work above ceiling has been inspected by Consultant.

.4 Secure hangers to overhead structure using attachment methods as indicated.

.5 Install hangers spaced at maximum 1200 mm centres and within 150 mm from ends of main tees.

.6 Lay out centre line of ceiling both ways, to provide balanced borders at room perimeter.

.7 Ensure suspension system is co-ordinated with location of related components.

.8 Install wall moulding to provide correct ceiling height.

.9 Completed suspension system to support super-imposed loads, such as lighting fixtures, diffusers, grilles, TV suspension panels and speakers.

.10 Support at light fixtures, diffusers and TV suspension panels with additional ceiling suspension hangers within 150 mm of each corner and at maximum 600 mm around perimeter of fixture.

.11 Interlock cross member to main runner to provide rigid assembly.

.12 Frame at openings for light fixtures, air diffusers, speakers and at changes in ceiling heights.

.13 Install access splines to provide 25 percent ceiling access.

.14 Finished ceiling system to be square with adjoining walls and level within 1:1000.

.15 Expansion joints:

.1 Erect two main runners parallel, 50 mm apart, on building expansion joint line. Lay in strip of acoustic tile/board, painted black, 25% narrower than space between 2 'T' bars.

3.2 INSTALLATION (Cont'd)

.15 (Cont'd)

.2 Supply and install "Z" shaped metal trim pieces at each side of expansion joint. Design to accommodate plus or minus 25 mm movement and maintain visual closure. Finish metal components to match adjacent exposed metal trim. Provide backing plates behind butt joints.

3.3 CLEANING

.1 Touch up scratches, abrasions, voids and other defects in painted surfaces.

END OF SECTION

PART 1 – GENERAL

1.1 References

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

.1 ASTM F 1303-04, Standard Specification for Sheet Vinyl Floor Covering with Backing.

.2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)

.1 Material Safety Data Sheets (MSDS).

1.2 Submittals

.1 Provide submittals and product data as required by the project.

.3 Provide samples:

.1 Submit 300 x 300 mm sample pieces of sheet material, treads, edge strips.

.4 Closeout Submittals:

.1 Provide maintenance data for resilient flooring.

1.3 Delivery, Storage, and Handling:

.1 Deliver, store and handle materials as required by the project.

.2 Waste Management and Disposal:

.1 Separate waste materials for reuse and recycling in accordance with provincial Waste Watch.

1.3 Ambient Conditions

.1 Maintain air temperature and structural base temperature at flooring installation area above 20 degrees for 48 hours before, during and 48 hours after installation.

1.4 Maintenance

.1 Extra Materials:

.1 Provide extra materials of resilient sheet flooring and adhesives.

.2 Provide 2% of each colour, pattern and type flooring material required for project for maintenance use.

.3 Extra materials one piece and from same production run as installed materials.

.4 Identify each roll of sheet flooring and each container of adhesive.

.5 Deliver to Consultant, upon completion of the work of this section.

.6 Store where directed by Consultant.

PART 2 – PRODUCTS

2.1 Materials

.1 Type 1 luxury vinyl tile with backing: to ASTM F 1303, commercial.
- .1 Type B
- .2 Class: III.
- .3 Backing: 4-ply fused commercial backing.
- .4 Pattern: embossed.
- .5 Texture: hi-resolution printed to simulate wood grain.
- .6 Thickness: 2.5 mm overall.
- .7 Wear layer: .70 mm.
- .8 Acceptable product: Creation 70 by Gerflor or approved equal.
  - .1 Colour: #0260, "Classic Oak".

.2 Type 1 Resilient base: continuous, top set, complete with premoulded end stops and external corners:
- .1 Type: rubber.
- .2 Style: premium profile.
- .3 Thickness: 6 mm.
- .4 Height: 114 mm.
- .5 Lengths: cut lengths minimum 2400 mm.
- .6 Colour: selected by Consultant.
- .7 Acceptable product: #85 'fashion' Pinnacle Plus PVC rubber wall base by Roppe or approved equal.

.3 Primers and adhesives: of types recommended by resilient flooring manufacturer for specific material on applicable substrate, above, on or below grade.
- .1 Rubber floor adhesives:
- .2 Cove base adhesives:

.4 Metal edge strips:
- .1 Aluminum extruded, smooth, mill finish polished stainless steel with lip to extend under floor finish, shoulder flush with top of adjacent floor finish.

.5 External corner protectors: stainless steel, type recommended by flooring manufacturer.

.6 Edging to floor penetrations: stainless steel aluminum, type recommended by flooring manufacturer.

.7 Sealer and wax: type recommended by resilient flooring material manufacturer for material type and location.

PART 3 – EXECUTION

3.1 Manufacturer’s Instructions

.1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.2 Site Verification of Conditions

.1 Ensure concrete floors are clean and dry by using test methods recommended by flooring manufacturer.

3.2 Preparation

.1 Clean floor and apply filler; trowel and float to leave smooth, flat hard surface. Prohibit traffic until filler cured and dry.

.2 Remove sub-floor ridges and bumps. Fill low spots, cracks, joints, holes and other defects with sub-floor filler.

.3 Prime concrete slab to resilient flooring manufacturer's printed instructions.

3.2 Application: Flooring

.1 Provide high ventilation rate, with maximum outside air, during installation, and for 48 to 72 hours after installation. If possible, vent directly to outside. Do not let contaminated air recirculate through district or whole building air distribution system. Maintain extra ventilation for at least one month following building occupation.

.2 Apply adhesive uniformly using recommended trowel. Do not spread more adhesive than can be covered by flooring before initial set takes place.

.3 Lay flooring with seams parallel to building lines to produce a minimum number of seams. Border widths minimum 1/3 width of full material.

.4 Run sheets in direction of traffic. Double cut sheet joints and continuously seal or heat weld according to manufacturer's printed instructions.

.5 As installation progresses, and after installation roll flooring with 45 kg minimum roller to ensure full adhesion.

.6 Cut flooring around fixed objects.

.7 Install flooring in pan type floor access covers. Maintain floor pattern.

.8 Continue flooring over areas which will be under built-in furniture.

.9 Continue flooring through areas to receive movable type partitions without interrupting floor pattern.

.10 Terminate flooring at centreline of door in openings where adjacent floor finish or colour is dissimilar.

.11 Install metal edge strips at unprotected or exposed edges where flooring terminates.

3.3 Application: Base

.1 Lay out base to keep number of joints at minimum.

.2 Clean substrate and prime with one coat of adhesive.

.3 Apply adhesive to back of base.

.4 Set base against wall and floor surfaces tightly by using 3 kg hand roller.

.5 Install straight and level to variation of 1:1000.

.6 Scribe and fit to door frames and other obstructions. Use pre-moulded end pieces at flush door frames.

.7 Cope internal corners. Use pre-moulded corner units for right angle external corners. Use formed straight base material for external corners of other angles.

.8 Use cove type base.
.9 Install toeless type base before installation of carpet on floors.
.10 Heat weld base in accordance with manufacturer's printed instructions.

3.4 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.

3.5 Cleaning

.1 Remove excess adhesive from floor, base and wall surfaces without damage.
.2 Clean, seal and wax floor and base surface to flooring manufacturer's printed instructions.

3.6 Protection

.1 Protect new floors from time of final set of adhesive until final inspection.
.2 Prohibit traffic on floor for 48 hours after installation.

3.3 Schedule

.1 All floors within each of the 10 Units except for the Bathrooms.
.2 All Corridor 101.
.3 Laundry 114.
.4 Storage 115.
.5 Common Room 116.
.6 Kitchen 117.

PART 1 - GENERAL

1.1 SUMMARY

.1 Section Includes:
.1 Material and installation of site applied paint finishes to new interior surfaces, including site painting of shop primed surfaces.

1.2 REFERENCES

.1 Department of Justice Canada (Jus)
.1 Canadian Environmental Protection Act (CEPA), 1999, c. 33

.2 Environmental Protection Agency (EPA)
.1 EPA Test Method for Measuring Total Volatile Organic Compound Content of Consumer Products, Method 24 - 1995, (for Surface Coatings).

.3 Health Canada / Workplace Hazardous Materials Information System (WHMIS)
.1 Material Safety Data Sheets (MSDS).

.4 Master Painters Institute (MPI)
.1 MPI Architectural Painting Specifications Manual, 2004.

.5 National Fire Code of Canada - 1995

.6 Society for Protective Coatings (SSPC)
.1 SSPC Painting Manual, Volume Two, 8th Edition, Systems and Specifications Manual.

.7 Transport Canada (TC)
.1 Transportation of Dangerous Goods Act (TDGA), 1992, c. 34 .

1.3 QUALITY ASSURANCE

.1 Qualifications:
.1 Contractor: minimum of five years proven satisfactory experience. Provide list of last three comparable jobs including, job name and location, specifying authority, and project manager.
.2 Journeymen: qualified journeymen who have "Tradesman Qualification Certificate of Proficiency" engaged in painting work.

1.3 QUALITY ASSURANCE (Cont'd)

.1 (Cont'd)

.3 Apprentices: working under direct supervision of qualified trades person in accordance with trade regulations.

.2 Mock-Ups:.

.1 Provide 3000 mm x 2800 mm mock-up. Prepare and paint designated surface, (in each colour scheme) to specified requirements, with specified paint or coating showing selected colours, gloss/sheen, textures.

.2 Mock-up will be used:

.1 To judge workmanship, substrate preparation, operation of equipment and material application and workmanship to MPI Architectural Painting Specification Manual standards.

.3 Locate where directed

.4 Allow 24 hours for inspection of mock-up before proceeding with work.

.5 When accepted, mock-up will demonstrate minimum standard of quality required for this work. Approved mock-up may remain as part of finished work.

.3 Pre-Installation Meeting:

.1 Convene pre-installation meeting one week prior to beginning work of this Section and on-site installations:

.1 Verify project requirements.

.2 Review installation and substrate conditions.

.3 Coordination with other building subtrades.

.4 Review manufacturer's installation instructions and warranty requirements.

.4 Health and Safety:

.1 Do construction occupational health and safety as required by the project.

1.4 SCHEDULING

.1 Submit work schedule for various stages of painting to Consultant for review. Submit schedule minimum of 48 hours in advance of proposed operations.

.2 Obtain written authorization from Consultant for changes in work schedule.

.3 Schedule painting operations to prevent disruption of occupants.

1.5 SUBMITTALS

.1 Product Data:

.1 Submit product data and instructions for each paint and coating product to be used.

.2 Submit product data for the use and application of paint thinner.

.3 Submit two copies of Workplace Hazardous Materials Information System (WHMIS) Material Safety Data Sheets (MSDS. Indicate VOCs during application and curing.

.2 Samples:

.1 Submit full range colour sample chips to indicate where colour availability is restricted.

.2 Submit 200 x 300 mm sample panels of each paint with specified paint or coating in colours, gloss/sheen and textures required to MPI Architectural Painting Specification Manual standards submitted on following substrate materials:

.1 13 mm gypsum board for finishes over gypsum board and other smooth surfaces.

.3 Retain reviewed samples on-site to demonstrate acceptable standard of quality for appropriate on-site surface.

.4 Test reports: submit certified test reports for paint from approved independent testing laboratories, indicating compliance with specifications for specified performance characteristics and physical properties.

.1 Lead, cadmium and chromium: presence of and amounts.

.2 Mercury: presence of and amounts.

.3 Organochlorines and PCBs: presence of and amounts.

.5 Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.

.6 Manufacturer's Instructions:

.1 Submit manufacturer's installation and application instructions.

.7 Closeout Submittals: submit maintenance data to include the following:

.1 Product name, type and use.

.2 Manufacturer's product number.

.3 Colour numbers.

.4 MPI Environmentally Friendly classification system rating.

1.6 MAINTENANCE

.1 Extra Materials:

.1 Deliver to extra materials from same production run as products installed. Package products with protective covering and identify with descriptive labels.

1.6 MAINTENANCE (Cont'd)

.1 (Cont'd)
.2 Quantity: provide one - four litre can of each type and colour of finish coating. Identify colour and paint type in relation to established colour schedule and finish system.
.3 Delivery, storage and protection: comply with Consultant requirements for delivery and storage of extra materials.

1.7 DELIVERY, STORAGE AND HANDLING

.1 Packing, Shipping, Handling and Unloading:
.1 Pack, ship, handle and unload materials in accordance with manufacturer's written instructions.

.2 Acceptance at Site:
.1 Identify products and materials with labels indicating:
.1 Manufacturer's name and address.
.2 Type of paint or coating.
.3 Compliance with applicable standard.
.4 Colour number in accordance with established colour schedule.

.3 Remove damaged, opened and rejected materials from site.

.4 Storage and Protection:
.1 Provide and maintain dry, temperature controlled, secure storage.
.2 Store materials and supplies away from heat generating devices.
.3 Store materials and equipment in well ventilated area with temperature range 7 degrees C to 30 degrees C.

.5 Store temperature sensitive products above minimum temperature as recommended by manufacturer.

.6 Keep areas used for storage, cleaning and preparation clean and orderly. After completion of operations, return areas to clean condition.

.7 Remove paint materials from storage only in quantities required for same day use.

.8 Fire Safety Requirements:
.1 Provide one 9 kg Type ABC dry chemical fire extinguisher adjacent to storage area.
.2 Store oily rags, waste products, empty containers and materials subject to spontaneous combustion in ULC approved, sealed containers and remove from site on a daily basis.

1.7 DELIVERY, STORAGE AND HANDLING (Cont'd)

.8 (Cont'd)

.3 Handle, store, use and dispose of flammable and combustible materials in accordance with National Fire Code of Canada requirements.

1.8 SITE CONDITIONS

.1 Heating, Ventilation and Lighting:

.1 Ventilate enclosed spaces.

.2 Provide heating facilities to maintain ambient air and substrate temperatures above 10 degrees C for 24 hours before, during and after paint application until paint has cured sufficiently.

.3 Provide continuous ventilation for seven days after completion of application of paint.

.4 Coordinate use of existing ventilation system with Consultant and ensure its operation during and after application of paint as required.

.5 Provide temporary ventilating and heating equipment where permanent facilities are not available or supplemental ventilating and heating equipment if ventilation and heating from existing system is inadequate to meet minimum requirements.

.6 Provide minimum lighting level of 323 Lux on surfaces to be painted.

.2 Temperature, Humidity and Substrate Moisture Content Levels:

.1 Unless pre-approved written approval by Consultant and product manufacturer, perform no painting when:

.1 Ambient air and substrate temperatures are below 10 degrees C.

.2 Substrate temperature is above 32 degrees C unless paint is specifically formulated for application at high temperatures.

.3 Substrate and ambient air temperatures are not expected to fall within MPI or paint manufacturer's prescribed limits.

.4 The relative humidity is under 85 % or when the dew point is more than 3 degrees C variance between the air/surface temperature. Paint should not be applied if the dew point is less than 3 degrees C below the ambient or surface temperature. Use sling psychrometer to establish the relative humidity before beginning paint work.

.5 Rain or snow are forecast to occur before paint has thoroughly cured or when it is foggy, misty, raining or snowing at site.

1.8 SITE CONDITIONS (Cont'd)

.2 (Cont'd)

.1 (Cont'd)

.6 Ensure that conditions are within specified limits during drying or curing process, until newly applied coating can itself withstand 'normal' adverse environmental factors.

.2 Perform painting work when maximum moisture content of the substrate is below:

.1 Allow new concrete and masonry to cure minimum of 28 days.

.2 15 % for wood.

.3 12 % for plaster and gypsum board.

.3 Test for moisture using calibrated electronic Moisture Meter. Test concrete floors for moisture using "cover patch test".

.4 Test concrete, masonry and plaster surfaces for alkalinity as required.

.3 Surface and Environmental Conditions:

.1 Apply paint finish in areas where dust is no longer being generated by related construction operations or when wind or ventilation conditions are such that airborne particles will not affect quality of finished surface.

.2 Apply paint to adequately prepared surfaces and to surfaces within moisture limits.

.3 Apply paint when previous coat of paint is dry or adequately cured.

.4 Additional interior application requirements:

.1 Apply paint finishes when temperature at location of installation can be satisfactorily maintained within manufacturer's recommendations.

.2 Apply paint in occupied facilities during silent hours only. Schedule operations to approval of Consultant such that painted surfaces will have dried and cured sufficiently before occupants are affected.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Provide paint materials for paint systems from single manufacturer.

.2 Only qualified products with E2 "Environmentally Friendly" rating are acceptable for use on this project.

2.1 MATERIALS (Cont'd)

.3 Conform to latest MPI requirements for interior painting work including preparation and priming.

.4 Materials (primers, paints, coatings, varnishes, stains, lacquers, fillers, thinners, solvents, etc.) in accordance with MPI Architectural Painting Specification Manual "Approved Product" listing.

.5 Linseed oil, shellac, and turpentine: highest quality product from approved manufacturer listed in MPI Architectural Painting Specification Manual, compatible with other coating materials as required.

.6 Provide paint products meeting MPI "Environmentally Friendly", E2 ratings based on VOC (EPA Method 24) content levels.

.7 Use MPI listed materials having minimum E2 rating where indoor air quality (odour) requirements exist.

.8 Paints, coatings, adhesives, solvents, cleaners, lubricants, and other fluids:
.1 Water-based Water soluble Water clean-up.
.2 non-flammable biodegradable.
.3 Manufactured without compounds which contribute to ozone depletion in the upper atmosphere.
.4 Manufactured without compounds which contribute to smog in the lower atmosphere.
.5 Do not contain methylene chloride, chlorinated hydrocarbons, toxic metal pigments.

.9 Formulate and manufacture water-borne surface coatings with no aromatic solvents, formaldehyde, halogenated solvents, mercury, lead, cadmium, hexavalent chromium or their compounds.

.10 Flash point: 61.0 degrees C or greater for water-borne surface coatings and recycled water-borne surface coatings.

.11 Ensure manufacture and process of both water-borne surface coatings and recycled water-borne surface coatings does not release:
.1 Matter in undiluted production plant effluent generating 'Biochemical Oxygen Demand' (BOD) in excess of 15 mg/L to natural watercourse or sewage treatment facility lacking secondary treatment.
.2 Total Suspended Solids (TSS) in undiluted production plant effluent in excess of 15 mg/L to natural watercourse or a sewage treatment facility lacking secondary treatment.

2.1 MATERIALS (Cont'd)

.12 Water-borne paints and stains, recycled water-borne surface coatings and water borne varnishes to meet minimum "Environmentally Friendly" E2 rating.

2.2 COLOURS

.1 Consultant will provide Colour Schedule after Contract award.

.2 Colour schedule will be based upon selection of three base colours and three accent colours. No more than six colours will be selected for entire project and no more than three colours will be selected in each area.

.3 Selection of colours from manufacturers full range of colours.

.4 Where specific products are available in restricted range of colours, selection based on limited range.

.5 Second coat in three coat system to be tinted slightly lighter colour than top coat to show visible difference between coats.

2.3 MIXING AND TINTING

.1 Perform colour tinting operations prior to delivery of paint to site.

.2 Mix paste, powder or catalyzed paint mixes inaccordance with manufacturer's written instructions.

.3 Use and add thinner in accordance with paint manufacturer's recommendations. Do not use kerosene or similar organic solvents to thin water-based paints.

.4 Thin paint for spraying in accordance with paint manufacturer's instructions.

.5 Re-mix paint in containers prior to and during application to ensure break-up of lumps, complete dispersion of settled pigment, and colour and gloss uniformity.

2.4 GLOSS/SHEEN RATINGS

.1 Paint gloss is defined as sheen rating of applied paint, in accordance with following values:

	Gloss @ 60 degrees	Sheen @ 85 degrees
Gloss Level 1 - Matte Finish (flat)	Max. 5	Max. 10
Gloss Level 2	Max.10	10 to 35

- Velvet-Like Finish		
Gloss Level 3	10 to 25	10 to 35
- Eggshell Finish		
Gloss Level 4	20 to 35	min. 35
- Satin-Like Finish		
Gloss Level 5	35 to 70	
- Traditional Semi-Gloss Finish		
Gloss Level 6	70 to 85	
- Traditional Gloss		
Gloss Level 7	More than 85	
- High Gloss Finish		

.2 Gloss level ratings of painted surfaces:
.1 Gloss Level 3 - Eggshell, Typical wall throughout.
.2 Gloss Level 4 - Satin, Typical painted ceiling.
.3 Gloss Level 5 - Semi-Gloss, Walls in treatment areas.

2.5 INTERIOR PAINTING SYSTEMS

.1 Structural steel and metal fabrications: columns, beams, joists:
.1 INT 5.1S - Institutional low odour/low VOC Gloss Level 4, Satin finish.

.2 Plaster and gypsum board: gypsum wallboard, drywall, "sheet rock type material", and textured finishes:
.1 INT 9.2A - Latex Gloss Level 3, Eggshell finish (over latex sealer).
.2 INT 9.2A - Latex Gloss Level 5, Semi-gloss finish (over latex sealer).

.3 Concrete masonry units:
.1 INT 4.2A - Latex gloss level 3, Eggshell finish (over latex block filler).
.2 INT 4.2F - Epoxy (tile-like) finish semi-gloss (over latex block filler).

.4 Backer panels for Div. 16: 19 mm plywood.
.1 Institutional low odour/low VOC Gloss Level 4 intumescent paint. Colour: white.

2.6 SOURCE QUALITY CONTROL

.1 Perform following tests on each batch of consolidated post-consumer material before surface coating is reformulated and canned. Testing by laboratory or facility which has been accredited by Standards Council of Canada.

2.6 SOURCE QUALITY CONTROL (Cont'd)

.1 (Cont'd)
.1 Lead, cadmium and chromium are to be determined using ICP-AES (Inductively Coupled Plasma - Atomic Emission Spectroscopy) technique no. 6010 as defined in EPA SW-846.
.2 Mercury is to be determined by Cold Vapour Atomic Absorption Spectroscopy using Technique no. 7471 as defined in EPA SW-846.
.3 Organochlorines and PCBs are to be determined by Gas Chromatography using Technique no. 8081 as defined in EPA SW-846.

PART 3 - EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and data sheet.

3.2 GENERAL

.1 Perform preparation and operations for interior painting in accordance with MPI Architectural Painting Specifications Manual except where specified otherwise.

.2 Apply paint materials in accordance with paint manufacturer's written application instructions.

3.3 EXAMINATION

.1 Investigate existing substrates for problems related to proper and complete preparation of surfaces to be painted. Report to Consultant damages, defects, unsatisfactory or unfavourable conditions before proceeding with work.

.2 Conduct moisture testing of surfaces to be painted using properly calibrated electronic moisture meter, except test concrete floors for moisture using simple "cover patch test". Do not proceed with work until conditions fall within acceptable range as recommended by manufacturer.

.3 Maximum moisture content as follows:
.1 Gypsum board: 12 %.
.2 Concrete block: 12%

3.4 PREPARATION

.1 Protection:

.1 Protect existing building surfaces and adjacent structures from paint spatters, markings and other damage by suitable non-staining covers or masking. If damaged, clean and restore surfaces as directed by Consultant.

.2 Protect items that are permanently attached such as Fire Labels on doors and frames.

.3 Protect factory finished products and equipment.

.4 Protect passing pedestrians, building occupants and general public in and about the building.

.2 Surface Preparation:

.1 Remove electrical cover plates, light fixtures, surface hardware on doors, bath accessories and other surface mounted equipment, fittings and fastenings prior to undertaking painting operations. Identify and store items in secure location and re-installed after painting is completed.

.2 Move and cover furniture and portable equipment as necessary to carry out painting operations. Replace as painting operations progress.

.3 Place "WET PAINT" signs in occupied areas as painting operations progress. Signs to approval of Consultant.

.3 Sand surface of oil-painted concrete block to remove gloss finish. Apply 100% acrylic bonding primer to all existing painted block.

.4 Clean and prepare surfaces in accordance with MPI Architectural Painting Specification Manual requirements. Refer to MPI Manual in regard to specific requirements and as follows:

.1 Remove dust, dirt, and other surface debris by vacuuming, wiping with dry, clean cloths or compressed air.

.2 Wash surfaces with a biodegradable detergent and bleach where applicable and clean warm water using a stiff bristle brush to remove dirt, oil and other surface contaminants.

.3 Rinse scrubbed surfaces with clean water until foreign matter is flushed from surface.

.4 Allow surfaces to drain completely and allow to dry thoroughly.

.5 Prepare surfaces for water-based painting, water-based cleaners should be used in place of organic solvents.

.6 Use trigger operated spray nozzles for water hoses.

.7 Many water-based paints cannot be removed with water once dried. Minimize use of mineral spirits or organic solvents to clean up water-based paints.

3.4 PREPARATION (Cont'd)

.5 Prevent contamination of cleaned surfaces by salts, acids, alkalis, other corrosive chemicals, grease, oil and solvents before prime coat is applied and between applications of remaining coats. Apply primer, paint, or pretreatment as soon as possible after cleaning and before deterioration occurs.

.6 Where possible, prime non-exposed surfaces of new wood surfaces before installation. Use same primers as specified for exposed surfaces.
.1 Apply vinyl sealer to MPI #36 over knots, pitch, sap and resinous areas.
.2 Apply wood filler to nail holes and cracks.
.3 Tint filler to match stains for stained woodwork.

.7 Sand and dust between coats as required to provide adequate adhesion for next coat and to remove defects visible from a distance up to 1000 mm.

.8 Clean metal surfaces to be painted by removing rust, loose mill scale, welding slag, dirt, oil, grease and other foreign substances in accordance with MPI requirements. Remove traces of blast products from surfaces, pockets and corners to be painted by brushing with clean brushes blowing with clean dry compressed air or vacuum cleaning.

.9 Touch up of shop primers with primer as specified.

.10 Do not apply paint until prepared surfaces have been accepted by Consultant .

3.5 APPLICATION

.1 Method of application to be as approved by Consultant. Apply paint by brush, roller and/or air sprayer. Conform to manufacturer's application instructions unless specified otherwise.

.2 Brush and Roller Application:
.1 Apply paint in uniform layer using brush and/or roller type suitable for application.
.2 Work paint into cracks, crevices and corners.
.3 Paint surfaces and corners not accessible to brush using spray, daubers and/or sheepskins. Paint surfaces and corners not accessible to roller using brush, daubers or sheepskins.
.4 Brush and/or roll out runs and sags, and over-lap marks. Rolled surfaces free of roller tracking and heavy stipple.

3.5 APPLICATION (Cont'd)

.2 (Cont'd)

.5 Remove runs, sags and brush marks from finished work and repaint.

.3 Spray application:

.1 Provide and maintain equipment that is suitable for intended purpose, capable of atomizing paint to be applied, and equipped with suitable pressure regulators and gauges.

.2 Keep paint ingredients properly mixed in containers during paint application either by continuous mechanical agitation or by intermittent agitation as frequently as necessary.

.3 Apply paint in uniform layer, with overlapping at edges of spray pattern. Back roll first coat application.

.4 Brush out immediately all runs and sags.

.5 Use brushes and rollers to work paint into cracks, crevices and places which are not adequately painted by spray.

.4 Use dipping, sheepskins or daubers only when no other method is practical in places of difficult access.

.5 Apply coats of paint continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.

.6 Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.

.7 Sand and dust between coats to remove visible defects.

.8 Finish surfaces both above and below sight lines as specified for surrounding surfaces, including such surfaces as tops of interior cupboards and cabinets and projecting ledges.

.9 Finish closets and alcoves as specified for adjoining rooms.

.10 Finish top, bottom, edges and cutouts of doors after fitting as specified for door surfaces.

3.6 MECHANICAL/ELECTRICAL EQUIPMENT

.1 Paint finished area exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment with colour and finish to match adjacent surfaces, except as indicated.

3.6 MECHANICAL/ELECTRICAL EQUIPMENT (Cont'd)

.2 Boiler room, mechanical and electrical rooms: paint exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment.

.3 Other unfinished areas: leave exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment in original finish and touch up scratches and marks.

.4 Touch up scratches and marks on factory painted finishes and equipment with paint as supplied by manufacturer of equipment.

.5 Do not paint over nameplates.

.6 Keep sprinkler heads free of paint.

.7 Paint inside of ductwork where visible behind grilles, registers and diffusers with primer and one coat of matt black paint.

.8 Paint fire protection piping red.

.9 Paint disconnect switches for fire alarm system and exit light systems in red enamel.

.10 Paint both sides and edges of backboards for telephone and electrical equipment before installation. Leave equipment in original finish except for touch-up as required, and paint conduits, mounting accessories and other unfinished items.

.11 Do not paint interior transformers and substation equipment.

3.7 IDENTIFICATION RATED WALL ASSEMBLIES

.1 Contractor to provide Fire Wall Identification as follows:
.1 Provide identification of all rated walls (including smoke separations).
.2 Using stencils cut out to read "2-Hour Fire Rated" or "Smoke Separation".
.3 Using stencil and spray paint to transfer the information to the appropriate walls above the ceiling level at 3000 mm on both sides of the applicable wall.
.4 Schedule: Apply "2-Hour Fire Rated" to Fire Wall, and Smoke Separation to all corridor walls.

3.8 SITE TOLERANCES

.1 Walls: no defects visible from a distance of 1000 mm at 90 degrees to surface.

3.8 SITE TOLERANCES (Cont'd)

.2 Ceilings: no defects visible from floor at 45 degrees to surface when viewed using final lighting source.

.3 Final coat to exhibit uniformity of colour and uniformity of sheen across full surface area.

3.9 FIELD QUALITY CONTROL

.1 Advise Consultant when surfaces and applied coating is ready for inspection. Do not proceed with subsequent coats until previous coat has been approved.

.2 Cooperate with inspection firm and provide access to areas of work.

.3 Retain purchase orders, invoices and other documents to prove conformance with noted MPI requirements when requested by Consultant.

3.10 RESTORATION

.1 Clean and re-install hardware items removed before undertaken painting operations.

.2 Remove protective coverings and warning signs as soon as practical after operations cease.

.3 Remove paint splashings on exposed surfaces that were not painted. Remove smears and spatter immediately as operations progress, using compatible solvent.

.4 Protect freshly completed surfaces from paint droppings and dust to approval of Consultant. Avoid scuffing newly applied paint.

.5 Restore areas used for storage, cleaning, mixing and handling of paint to clean condition as approved by Consultant.

END OF SECTION

PART 1 – GENERAL

1.1 Related Work

.1 This section specifies requirements for furnishing all materials, labour, tools and equipment and performing all operations necessary to complete excavation of all types of material encountered, placing of excavated material as backfill in trenches and embankments, disposal of unsuitable and surplus material and furnishing backfill material as specified below, all as shown on the drawings and as specified.

.2 The work generally includes, but is not necessarily limited to the following items:

.1 Trench excavation and backfilling for pipelines and appurtenances.

.2 Structure excavation and backfilling.

.3 Control of water by dewatering.

.4 Providing borrow material when required.

.5 Removal and disposal of surplus and/or unsuitable material.

.6 Sheeting, shoring trench box and bracing to support trench walls, sides of excavations, existing structures or utilities.

.7 Stripping, stockpiling and replacing topsoil.

1.2 Definitions

.1 Solid Rock:

.1 Material excavated from solid masses of igneous, sedimentary, or metamorphic rock which, prior to its removal, was integral with its parent mass.

.2 Boulders or rock fragments having individual volume in excess of 1 cubic metre.

.2 Common excavation: Materials of whatever nature, which are not included under the definition of solid rock, including dense tills, hardpan, frozen materials, and partially cemented materials which can be ripped and excavated with heavy construction equipment.

.3 Topsoil: Material capable of supporting good vegetative growth and suitable for use in top dressing, landscaping and seeding.

.4 Unsuitable materials:

.1 Weak and compressible materials under excavated areas.

.2 Frost susceptible materials under excavated areas.

.3 Frost susceptible materials: Fine grained soils with plasticity index less than 10 when tested to ASTM D4318, and graduation within limits specified when tested to ASTM D422 and ASTM C136 : Sieve sizes to CAN/CGSB-8.1.

1.3 Protection

.1 Existing buried utilities:

.1 Prior to commencing any excavation work, notify applicable utility authorities, establish location and state of use of buried services. Clearly mark such locations to prevent disturbance during work.

.2 Maintain and protect from damage water, sewer, gas, electric, telephone and other utilities encountered.

.3 Obtain direction of owner or utility and Engineer before moving or otherwise disturbing utility.

.4 Size, depth, and location of existing utilities as indicated are for guidance only; completeness and accuracy are not guaranteed.

.2 Existing surface features:

.1 Protect existing buildings, play structures, trees, and other plants, lawns, fencing, property pins, service poles, wires, rail tracks and paving located within right-of-way or adjoining properties from damage while work is in progress and repair damage resulting from work.

.2 Where excavation necessitates root or branch cutting do so only as approved by Engineer.

.3 Shoring and bracing:

.1 Whenever shoring, sheeting, timbering and bracing of excavations is required engage services of a professional engineer to design and assume responsibility for adequacy of shoring and bracing. Professional Engineer shall be registered in province or territory in which work is to be carried out.

.2 When requested submit for review drawings and calculations signed and stamped by Professional Engineer responsible for their preparation.

.3 Shoring and bracing shall be inspected by the Professional Engineer responsible for their preparation.

.4 Close sheeting, when required, shall be designed and constructed to prevent adjacent soil from entering excavation and to control water infiltration.

.4 Protect open excavation against flooding and damage from surface water run-off.

.5 Trenching, except rock excavation, and the backfilling specified shall not be measured as units for payment. Payment for these items shall be included in the price bid per metre for the pipe being installed.

PART 2 – PRODUCTS

2.1 Materials

.1 Select Borrow:

.1 Material shall be non-plastic and composed of clean, uncoated particles free from lumps of clay and other deleterious material with a maximum particle size of 100 mm, and a maximum of 30% of the material passing the 4.75 mm Sieve shall pass the 75 um Sieve.

.2 Common Borrow:

.1 Approved material selected from trench excavation or other source, unfrozen and free from cinders, ashes, sods, refuse, or other deleterious materials.

.3 Granular Class “A “:

.1 Clean, angular crusher run natural stone, free from shale, clay, friable materials, roots and vegetable matter and grade within the following limits. (Imported aggregate equivalent to PEI Dept. of Trans. & Public works Granular Class “A”).

Sieve Designation	% Passing
25.0 mm	95-100
12.5 mm	50-83
4.75 mm	30-60
1.18 mm	14-40
0.600 mm	10-32
0.300 mm	5-22
0.075 mm	3-9

.4 Sand

.1 Clean, washed coarse sand free from clay, shale and organic matter cleaned and graded to the following limits:

Sieve Designation	% Passing
10.0 mm	100
4.75 mm	90-100
2.36 mm	80-90
.600 mm	25-75
.300 mm	10-35
.150 mm	10-18
.075 mm	0-8

PART 3 – EXECUTION

3.1 Site Preparation

.1 Remove trees, shrubs, vegetation, fences, and other obstructions, ice and snow, from surfaces to be excavated within limits indicated.

.2 Strip topsoil from within limits of excavation and stockpile for respreading after backfilling, as directed.

3.2 Stockpiling

.1 Stockpile fill materials in areas designated by Consultant. Stockpile granular materials in manner to prevent segregation.

.2 Protect fill materials from contamination.

3.2 Dewatering

.1 Keep excavations free of water while work is in progress.

.2 Protect open excavations against flooding and damage due to surface run-off.

.3 Dispose of water in a manner not detrimental to public health, environment, public and private property, or any portion of work completed or under construction.

3.3 Excavation

.1 Excavate to lines, grades, elevations and dimensions as indicated or as directed by Consultant.

.2 Excavate unsuitable material for construction of project based on attached geotechnical report

.3 Excavation must not interfere with normal 45 degree splay of bearing from bottom of footing.

.4 Cut pavement or sidewalk neatly along limits of proposed excavation in order that surface may break evenly and cleanly.

.5 Notify Engineer when soil at proposed elevation of trench bottom appears unsuitable for foundation of installation.

.6 Remove unsuitable material from trench bottom to extent and depth as directed.

.7 Unless otherwise authorized by Engineer in writing, do not excavate more than 30m of trench in advance of installation operations and the trenching is to be closed at end of day's operation.

.8 Stockpile suitable excavated materials required for trench backfill in approved location.

.9 Dispose of surplus and unsuitable excavated material in approved location off site.

.10 Do not obstruct flow of surface drainage or natural watercourses.

.11 Where required due to unauthorized over-excavation, correct as follows:

.1 Fill under bearing surfaces and footing with concrete specified for footing.

.2 Fill under other areas with Structural fill compacted to minimum of 98% corrected maximum dry density.

.12 Hand trim, make firm and remove loose material and debris from excavations. Where material at bottom of excavation is disturbed, compact foundation soil to density at least equal to undisturbed soil. Clean out rock seams and fill with concrete mortar or grout to approval of Consultant.

.13 Obtain Consultant's approval of completed excavation.

3.4 Excavation and Backfilling Required for Other Trades

.1 Excavating and backfilling for mechanical and electrical work as well as any other trade requiring same within the Contract limits or as noted, is included in this section and shall be carried out in accordance with provisions specified herein and as indicated. This work is to be laid out and supervised by the trade concerned.

.2 Excavate trenches to lines and grades shown to a minimum of 150mm (6") below underside of pipe, conduit, cable, or duct. Provide recesses for bell and spigot pipe to ensure bearing will occur along barrel of pipe.

.3 Cut trenches 600mm (24") wide (or wider where indicated) than maximum pipe width. Trim and shape trench bottoms and leave free of irregularities, lumps, or projections.

.4 Boulders and rock shall be removed or excavated to provide a clearance of at least 150 mm below pipe

3.5 Fill Types and Compaction

.1 Use fill of types as indicated or specified. Compaction densities are percentages of maximum densities obtained from ASTM D698 ASTM D1557 corrected maximum dry density. Unless otherwise specified, compact to the following densities:

.1 Compact all fill types under all paved areas to 100% standard proctor.

.2 Compact all fill types along exterior side of perimeter walls in grassed areas to 95% standard proctor.

.3 Compact all fill types under concrete sidewalks and slabs to 100% standard proctor.

.4 Compact all fill types under landscaped areas to 95% standard proctor.

.5 Compact all fill types under foundations to 100% standard proctor.

.2 Excavate trenches to lines and grades shown to a minimum of 150mm (6") below underside of pipe, conduit, cable, or duct. Provide recesses for bell and spigot pipe to ensure bearing will occur along barrel of pipe.

3.6 Backfilling

.1 Use approved common or granular backfill material as indicated or directed.

.2 Do not proceed with backfilling operations until Consultant has inspected and approved installations.

.3 Areas to be backfilled to be free from debris, snow, ice, water or frozen ground.

.4 Backfilling around installations:

.1 Place bedding and surround material as specified in the respective section.

.2 Do not backfill around or over cast-in-place concrete within 24 hours after placing.

.3 Place layers simultaneously on both sides of installed work to equalize loading.

.4 Place material by hand under, around and over installations until 300 mm of cover is provided. Dumping material directly on installations will not be permitted.

.5 Shoring, sheeting and bracing:

.1 Unless otherwise indicated, or directed by Engineer, remove sheeting and shoring from trench during backfilling operations.

.2 Do not remove bracing until backfilling has reached level of bracing.

.3 Pull sheeting in 150 mm increments until clear of installations, simultaneously placing and compacting backfill to fill voids left by pulled sheeting.

.4 Pull sheeting thereafter in increments that will ensure backfill is maintained at an elevation at least 450 mm above toe of sheeting.

.5 Shoring Left In Place. The Engineer may order shoring to be permanently left in place. Shoring that has been ordered left in place shall be cut off and removed to a depth of 900 mm below the existing or future proposed grade whichever is the lower, or to an elevation designated by the Engineer.

.6 Place backfill material in uniform layers not exceeding 150 mm in thickness up to subgrade elevation. Compact each layer before placing succeeding layer. Thoroughly compact each layer before placing next layer. Carry out compaction tests to demonstrate the effectiveness of backfill thickness per lift versus the number of passes with the selected equipment to achieve the specified compaction.

.7 Compact using approved mechanical tamping devices, or by hand tamping to achieve specified compaction.

.8 Install drainage system in backfill as indicated or directed by consultant.

3.7 Backfilling Trenches

.1 Backfill trench from top of bedding to top of grades indicated using materials indicated or specified.

.2 Place backfill in 300 mm horizontal layers and compact to 95% Standard Proctor except to 100% Standard Proctor density under existing or proposed asphalt.

3.8 Restoration

.1 Implement erosion control measures immediately following excavation.

.2 Replace topsoil as indicated or directed by Consultant. Reseed grass or sod as indicated.

.3 Clean all paved surfaces of soil and debris at the end of each working day.

.4 Reinstate pavement and sidewalks to condition and elevation which existed before trenching and within two weeks of pipe completion.

.5 Reinstate all other areas which may have been disturbed by work.

PART 1 - GENERAL

1.1 REFERENCES

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

.1 ASTM D 698-00a, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600 kN-m/m^3)).

.2 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-1.5-M91(March 1999), Low Flash Petroleum Spirits Thinner (Reaffirmation of December 1991).

.2 CAN/CGSB-1.74-2001, Alkyd Traffic Paint.

1.2 WASTE MANAGEMENT AND DISPOSAL

.1 Separate and recycle waste materials.

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

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

.4 Place materials defined as hazardous or toxic in designated containers.

.5 Divert unused aggregate materials from landfill to quarry for reuse as approved by Consultant.

.6 Dispose of unused paint and paint thinner materials at official hazardous material collections site.

.7 Fold up metal banding, flatten and place in designated area for recycling.

.8 Do not dispose of unused paint and paint thinner material into sewer system, into streams, lakes, onto ground or in other location where it will pose health environmental hazard.

.9 Divert unused asphalt from landfill to facility capable of recycling materials.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 All materials to be according to Department of Transportation and Infrastructure Renewal General Provisions and Contract Specifications for Highway Construction, Current Edition.

.2 Hot mix asphaltic concrete, mix designations "A Base" and "C Seal" in accordance with Section #603.

.3 Class A, B and C Granular Material in accordance with Section #1101.

.4 Sandstone Base Course in accordance with Section #210 modified as follows: "In addition to the requirements of Section 210, that portion of sandstone base course material passing the 4.75 mm sieve shall have a maximum of 20% finer than 0.075 mm".

.5 Sandstone with no more than 15% passing the 75 mm sieve and with no material being retained on a 100 mm sieve.

PART 3 - EXECUTION

3.1 SUBGRADE SURFACE PREPARATION AND INSPECTION

.1 Verify grades of granular sub-base and base before placing asphalt.

.2 Finish base surface to be within 10 mm of specified grade, but not uniformly high or low.

3.2 ASPHALT CCONCRETE PAVING

.1 Supply and place Type 5 Fill to T.I.R. specifications as indicated on drawings, compacted to 98% standard proctor, with a minimum depth of 300 mm.

.2 Supply and place imported Class "A" granular material for the base course as indicated on drawings, compacted to 100% standard proctor, with a depth of 150 mm for Regular Duty Asphalt Paving.

.3 Fine grade and compact the gravel base course in accordance with Section #212 and Section #213.

3.2 ASPHALT CCONCRETE PAVING (Cont'd)

.4 Apply a prime coat of emulsified asphalt, then supply and place the asphaltic concrete. The thickness of the asphalt seal coat shall be 50 mm for Regular Duty Asphalt Paving.

.5 Obtain approval from Engineer Consultant before placing of tack coat base and primer asphalt mix.

.6 Place asphalt mix only when base or previous course is dry and air temperature is above 5°C.

.7 Place asphalt concrete in compacted layers to thicknesses as indicated on drawings.

.8 Minimum 135°C mix temperature required when spreading.

.9 Maximum 160°C mix temperature permitted at any time.

.10 Compact each course with roller as soon as it can support roller weight without undue cracking or displacement.

.11 Compact parking lot and driveway asphalt concrete to density not less than 95% of density obtained with Marshall specimens prepared in accordance with ASTM D1559 from samples of mix being used. Roll until roller marks are eliminated.

.12 Keep roller speed slow enough to avoid mix displacement and do not stop roller on fresh pavement.

.13 Moisten roller wheels with water to prevent pick up of material.

.14 Compact mix with hot tampers or other equipment approved by Consultant, in areas inaccessible to roller.

.15 The asphaltic concrete shall be finished to the following limits:
.1 Slope: Per finish contour lines and spot elevations +/- 25 mm.
.2 No irregularities greater than 3 mm in 3 m.
.3 Thickness: +/- 6 mm for the base course and +/- 3 mm for the surface course.

.16 Repair areas showing checking, rippling or segregation as directed by Engineer.

3.3 JOINTS

.1 Remove surplus material from surface of previously laid strip. Do not deposit on surface of freshly laid strip.

3.3 JOINTS (Cont'd)

.2 Paint contact surfaces of existing structures such as manholes, curbs or gutters with bituminous material prior to placing adjacent pavement.

.3 For cold joints, cut back to full depth vertical face and tack face with hot asphalt.

.4 For longitudinal joints, overlap previously laid strip with spreader by 25 to 50 mm.

3.4 WORKMANSHIP

.1 The work shall be completed to the satisfaction of the Owner's Engineer according to the above Specifications. Any areas which do not meet the Specification are to be cut out and replaced as directed.

3.5 CLEAN-UP

.1 Clean up and remove from the premises, rubbish and surplus materials resulting from the work of this Section.

3.6 TESTING

.1 Inspection and testing of asphalt pavement will be carried out by designated testing laboratory.

.2 Costs of tests will be paid by Owner.

3.7 PROTECTION

.1 Keep vehicular traffic off newly paved areas until paving surface temperature has cooled below 38°C. Do not permit stationary loads on pavement until 24 h after placement.

.2 Provide access to buildings as required. Arrange paving schedule so as not to interfere with other work.

3.8 SCHEDULE

.1 Continuation of walkways through construction area to entrances to addition.

.2 New parking lots on site as shown on plans.

.3 New and re-surfaced asphalt parking lots for buses and visitors as shown on plans.

END OF SECTION

PART 1 - GENERAL

1.1 PAYMENT PROCEDURES

.1 Testing of topsoil: Owner will pay for cost of tests.

1.2 REFERENCES

.1 Agriculture and Agri-Food Canada
- .1 The Canadian System of Soil Classification, Third Edition, 1998.

.2 Canadian Council of Ministers of the Environment
- .1 PN1340-2005, Guidelines for Compost Quality.

1.3 DEFINITIONS

.1 Compost:
- .1 Mixture of soil and decomposing organic matter used as fertilizer, mulch, or soil conditioner.
- .2 Compost is processed organic matter containing 40% or more organic matter as determined by Walkley-Black or Loss On Ignition (LOI) test.
- .3 Product must be sufficiently decomposed (i.e. stable) so that any further decomposition does not adversely affect plant growth and contain no toxic or growth inhibiting contaminates.
- .4 Composed bio-solids to: CCME Guidelines for Compost Quality, Category (A).

1.4 SUBMITTALS

.1 Provide submittals as per project requirements.

1.5 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse and recycling.

.2 Do not dispose of unused soil amendments into sewer systems, into lakes, streams, onto ground or in locations where it will pose health or environmental hazard.

PART 2 - PRODUCTS

2.1 TOPSOIL

.1 Topsoil: mixture of particulates, micro organisms and organic matter which provides suitable medium for supporting intended plant growth.

.1 Soil texture based on The Canadian System of Soil Classification.

.2 Contain no toxic elements or growth inhibiting materials.

.3 Finished surface free from:

.1 Debris and stones over 50 mm diameter.

.2 Course vegetative material, 10 mm diameter and 100 mm length, occupying more than 2% of soil volume.

.4 Consistence: friable when moist.

2.2 SOIL AMENDMENTS

.1 Fertilizer: industry accepted standard medium containing nitrogen, phosphorous, potassium and other micro-nutrients suitable to specific plant species or application or defined by soil test.

2.3 SOURCE QUALITY CONTROL

.1 Advise Consultant of sources of topsoil to be utilized with sufficient lead time for testing.

.2 Contractor is responsible for amendments to supply topsoil as specified.

PART 3 - EXECUTION

3.1 TOPSOIL STRIPPING

.1 Topsoil to be stripped and stockpiled.

.2 Stripped topsoil to be spread back on site by the Contractor as directed.

.3 All requirements for quality of topsoil shall remain as described in Paragraph 2.1 of this Section, free of contaminants, rocks and organics above the specified size.

3.2 PREPARATION OF EXISTING GRADE

.1 Verify that grades are correct.
.1 If discrepancies occur, notify Consultant and do not commence work until instructed by Consultant.

.2 Grade soil, eliminating uneven areas and low spots, ensuring positive drainage.

.3 Remove debris, roots, branches, stones in excess of 50 mm diameter and other deleterious materials.
.1 Remove soil contaminated with calcium chloride, toxic materials and petroleum products.
.2 Remove debris which protrudes more than 75 mm above surface.
.3 Dispose of removed material off site.

.4 Cultivate entire area which is to receive topsoil to minimum depth of 100 mm.
.1 Cross cultivate those areas where equipment used for hauling and spreading has compacted soil.

3.3 PLACING AND SPREADING OF TOPSOIL/PLANTING SOIL

.1 Place topsoil after Consultant has accepted subgrade.

.2 Spread topsoil in uniform layers not exceeding 150 mm.

.3 For sodded areas keep topsoil 15 mm below finished grade.

.4 Spread topsoil to following minimum depths after settlement.
.1 150 mm for seeded areas.
.2 135 mm for sodded areas.

.5 Manually spread topsoil/planting soil around trees, shrubs and obstacles.

3.4 FINISH GRADING

.1 Grade to eliminate rough spots and low areas and ensure positive drainage.
.1 Prepare loose friable bed by means of cultivation and subsequent raking.

.2 Consolidate topsoil to required bulk density using equipment approved by Consultant.
.1 Leave surfaces smooth, uniform and firm against deep footprinting.

3.5 ACCEPTANCE

.1 Consultant will review and test topsoil in place and determine acceptance of material, depth of topsoil and finish grading.

3.6 SURPLUS MATERIAL

.1 Dispose of materials except topsoil not required off site.

3.7 CLEANING

.1 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION