Laurentian Forestry Center (LFC)

Priority Repairs to Envelope

1055, rue du PEPs,
Quebec

ARCHITECTURE AND STRUCTURE

PWGSC File R.087493.610

Tender documents
August 8, 2022

STEP CONTROL

For:	Tender documents
Completed By:	L.H.
Date of verification:	2022, August 8

STRUCTURE :

DIVISION 02	**EXISTING CONDITIONS**
02 42 00	Concrete Cleaning and Stripping
DIVISION 03	**CONCRETE**
03 10 00	Concrete Forming and Accessories
03 20 00	Concrete Reinforcing
03 30 00	Cast-in-Place Concrete
DIVISION 04	**MASONRY**
04 05 19	Masonry Anchorage and Reinforcing
DIVISION 05	**METALS**
05 12 23	Structural Steel for Buildings

2022-07-19

STEP CONTROL

For:	For tender
Verified by:	Philippe Bernard
Date of verification:	2022, August 8

END OF SECTION

PAGES

DRAWINGS :

Architecture

A01 IMPLEMENTATION PLAN AND LEVEL 1 – INTERVENTIONS
A02 PLANS AND ELEVATIONS OF SECTOR 1 ENTRANCES DEMOLITION / CONSTRUCTION
A03 PLANS AND ELEVATIONS OF SECTOR 1 ENTRANCES DEMOLITION / CONSTRUCTION
A04 SECTOR ENTRY DETAILS 1 – DEMOLITION / CONSTRUCTION
A05 ELEVATIONS OF BUILDING INTERVENTIONS TO SECTOR 2
A06 ELEVATIONS OF INTERVENTIONS IN SECTOR 3
A07 TYPICAL WALL CUTS - DEMOLITION / CONSTRUCTION
A08 DETAILS AND TYPICAL PARTIAL ELEVATIONS DEMOLITION / CONSTRUCTION
A09 TYPICAL DETAILS AND PARTIAL ELEVATIONS DEMOLITION / CONSTRUCTION

Structure

S01 STRUCTURE – GENERAL PLAN VIEW
S02 STRUCTURE – ELEVATIONS
S03 STRUCTURE – ELEVATION
S04 STRUCTURE – SECTIONS AND DETAILS

END OF SECTION

PARTIE 1. GENERAL

1.1 GENERAL INFORMATION OF WORK

The work covered by this contract consists of the partial repair of the limestone envelope and the replacement of the set of doors and frames for the "Laurentian Forestry Centre", as described in the tender documents.

1.2 CODES AND STANDARDS

.1 The construction standards included in the Regulation respecting safety in public buildings, the 2010 edition of the Quebec Construction Code published by the Associated Committee of the National Building Code, National Research Council of Canada, Ottawa, apply to the work described in these Specifications and indicated on the drawings.

.2 All works must comply at least with the applicable requirements of the CGSB, BNQ, ASTM, CSA and other standards and codes indicated herein.

.3 With reference to a standard specified in the quote, always use the latest edition or revision of it.

1.3 ORGANIZATION OF WORK

.1 The Contractor must visit the site and become familiar with the existing conditions. The Contractor will note that the work on this project is adjacent to occupied and operating spaces and must remain so for the duration of the work.

.2 It must provide all the manpower, tools, equipment and materials necessary for the organization of the site, including the circulation of personnel working on the site, the entry of materials, the evacuation of waste, the measures for the protection of workers, personnel and users, adjacent spaces during the work, the places where these people must work and circulate inside and outside the building and certain contingencies that the Contractor must take into account during its work.

.3 Arrange work schedules and construction activities in such a way as to limit the nuisance caused to occupants by noise. All noisy work must be coordinated and accepted by the Client.

.1 Unless expressly and exceptionally authorized by the Client, the work must be carried out after 7:30 a.m. and before 4:30 p.m.

.2 Noise work must be announced, planned and coordinated with the Client.

.3 Obtain the authorization of the Client before proceeding with work outside the authorized period.

.4 In these cases, they must consult the temporary protection plans, before organizing the site, and present a plan for the restart of work for acceptance.

1.4 WORK EXECUTION ORDER

.1 Carry out the work in stages, so that users and the Client can use the premises continuously during the work.

.2 Coordinate the work progress schedule according to the occupancy of the premises.

.3 The Contractor must submit a schedule for the execution and phasing of the work in accordance with Section 01 32 16.19 - Construction Progress Schedule - Bar (Gantt) Chart.

.4 The Contractor must consider the following requirement:

.1 Maintain access for fire fighting purposes; also provide the means of fire fighting.

.2 Main entrance must be clear all the time through PEPS street.

.3 Coordinate the sequence of work at secondary entrances to leave at least 2 exits free for emergency evacuation, excluding the main entrance. Provide temporary signage for users.

.4 Site works installation zone (construction trailer, container, etc.) to validate at the beginning of site works with Department Representative

1.5 PROGRESS OF THE WORK

.1 The Contractor must commence work immediately following the award of the Contract.

.2 The Contractor must continue the work without interruption in accordance with the established plan and according to the schedule submitted and accepted for signature of the Contract.

.3 No delay will be granted to the Contractor due to poor coordination. The Contractor is therefore required to take the necessary steps to ensure that the schedules are fully respected. They will therefore be responsible, like their subcontractors, for coordinating the work.

1.6 CUTTING, DRILLING AND RESURFACING

.1 Authorization

.1 Submit a written request in advance for trimming or modification work that will affect:

.1 The structural integrity of an element of the project

.2 The integrity of elements exposed to bad weather or water-repellent elements

.3 The performance, maintenance or safety of an operating component

.4 The aesthetic qualities of the visible elements

.5 The works of the Client

.2 Inspection

.1 Check existing conditions, including items that may be damaged or moved during cutting and resurfacing.

.2 After uncovering structures, inspect the conditions that may hinder the execution of the work.

.3 Beginning of cutting or resurfacing means acceptance of existing conditions.

.3 Execution

.1 Carry out the cutting, adjustment and resurfacing work, to obtain a finished work without damaging adjacent surfaces. If necessary, repair adjacent surfaces affected by the work.

.2 Carry out the work in such a way as not to damage the other structures.

.3 Prepare the surfaces so that they are suitable for resurfacing and finishing.

.4 Cut the rigid materials using a masonry saw or hollow drill. It is forbidden to use pneumatic or percussion tools.

.5 Refurbish the structures with new products in accordance with the requirements of the contract documents.

.6 Adjust structures tightly around openings, pipes, sleeves, ducts, and other openings.

.7 Finish surfaces to ensure uniformity with adjacent finishes. In the case of continuous surfaces, finish to the nearest intersection; in the case of assembly, complete it.

1.7 MEETINGS

.1 The coordination and smooth running of the site will be ensured by site meetings which will take place bi-weekly or otherwise as decided by the Client.

.1 These meetings will bring together:

.1 Departmental Representatives

.2 The Contractor

.3 The Client

.2 The Departmental Representative will convene and chair the meetings.

.3 The Department Representative will make the minutes of the meetings and distribute them.

.4 These meetings will not serve as arbitration between the General Contractor and its Subcontractors, these disputes will be discussed in Contractor / Subcontractor meetings.

.5 All those present must take the notes that concern them and implement them in the following days in the case of weekly meetings, the minutes will be distributed by email and handed over at the next meeting. Corrections, if any, will appear in the next report.

.6 In the absence of one of the persons present at the previous meeting, the latter will confirm in writing its approval of the minutes.

.7 At this meeting, the Contractor must provide all the notes necessary for the analysis of the activities.

1.8 DOCUMENTS TO BE SUBMITTED

.1 Administrative Tasks

.1 Submit the required documents to the Departmental Representative for verification, within a reasonable time and in the appropriate order, so as not to delay the execution of the work.

.2 The work covered by the documents to be submitted must not be undertaken until all the documents have been verified.

.3 Review the documents to be submitted before handing them over to the Department Representative. This revision means that the necessary requirements have been identified and verified, or will be verified, and that each part submitted has been reviewed and meets the requirements of the work and contract documents.

.4 Check the proposed dimensions on site and ensure that work on adjacent structures is coordinated.

.2 Shop drawings, product descriptions and samples: see requirements of section 01 33 00 - SUBMITTAL PROCEDURES.

1.9 PROTECTION OF THE PUBLIC AND WORKERS

.1 All means of protection must comply with the safety codes in force.

.2 In the event of negligence on the part of the contractor to provide security, the Client and/or the Departmental Representative will be entitled, without prior notice, to carry out the security work required by the situation. The costs incurred by this work will be borne by the Contractor.

1.10 USE OF PREMISES BY THE CONTRACTOR

.1 The Contractor shall limit itself to the use of the premises provided for and delimited in the temporary protection plans for the entire duration of the work, for the reception of materials and the storage thereof. The Contractor will keep to the boundaries of this site. It will be forbidden to use any additional area without the prior approval of the representative of the Centre.

.2 Throughout the construction period, access roads, entrances to parts of the building and parking lots must be kept free of any material, equipment and other bulk, clean and usable, so as not to interfere with the normal use of the building and the various activities of its occupants and users.

1.11 COMMITTEE ON HEALTH AND SAFETY AT WORK

.1 The Contractor is the Project Manager for the C.N.E.S.S.T. and must provide all required notices and documents.

.2 They must also pay all the costs claimed by the CN.E.S.S.T. to himself and to the Client and keep the latter non liable.

1.12 SITE LAYOUT

.1 See Section 01 52 00 - Construction Facilities.

.2 Installation and removal of temporary structures:

.1 Provide and install the necessary construction equipment and temporary structures to enable the work to be carried out without delay.

.2 Once the work has been completed, evacuate all these temporary structures from the site.

.3 Cleanliness of the site:

.1 Maintain the site in good order and cleanliness and free of scrap materials and accumulated debris.

.2 Collect the waste materials and debris, place them in containers and evacuate them from the site at the end of each working day at the place designated by the Client.

.3 Fires, burning and burial of waste and scrap materials on site are prohibited.

.4 Establish cleaning schedules so that dust does not fall on freshly executed works and does not contaminate waste systems.

.5 The General Contractor shall have at its own expense all construction debris and equipment to be dismantled.

1.13 RELATIONSHIP BETWEEN CONTRACTUAL DOCUMENTS

.1 The Architectural plans, Specifications and Addenda complement each other and must be consulted and studied jointly to know what may affect the particular work of each trade. No additional amount will be paid to the Contractor for not forecasting the cost of all connection, drilling, relocation, and other such work that is required by the structure of the building or by apparatus, equipment, pipes or ducts, accessories or any other item or work indicated in the documents.

.2 Before proceeding with the execution of the work, carefully study and check all the measures indicated in the plans in order to be aware of the accuracy of the work to be executed.

.3 If there are obvious errors or omissions, or if there are contradictions between plans, specifications or other documents, notify the relevant Departmental Representative of such errors or omissions, and proceed with the work only after receiving instructions from them.

.4 Any work or material that is indicated on the drawings, without being specifically described in the specifications or vice versa, shall be executed or supplied by the Contractor, as the case may be, as if it were indicated on the drawings and described in the Specifications.

.5 The Contractor must therefore study all the plans, assess the extent of the minor finishing work in order to possibly execute them without additional remuneration.

.6 Responsibility for Subcontractors who are to supply items or materials to be incorporated into the work, or who are to perform a particular work, rests entirely with the Contractor. No supplement may be based on a difference in the interpretation of the Specification as to the trade which must supply or lay certain materials or carry out a particular work.

.7 In the Specifications, the omission of words or phrases, such as "the Contractor shall", "in accordance with the plans", "shall be", "as shown in the plans", "according to the plans", "one", "the", "all", is intentional. The words or phrases omitted must be implied just as they are when there is a note on the plans. The words "must be", "must meet the requirements of", must be implied where two dots (:) are used in the sentences.

1.14 LARGE-SCALE DETAIL

.1 When the Contractor requires refinements or detailed drawings, they will notify the Departmental Representative in writing in sufficient time for the later to have them prepared.

.2 These additional drawings will have the same meaning and scope as if they were included in the contractual Plans and Specifications.

1.15 CONTRACTOR'S PERSONNEL

.1 The Contractor must keep a foreman on site at all times to ensure the smooth running of the site and delivery of the building within the deadlines set out in the contract and all the labour necessary for the work.

.2 The foreman may not be replaced, unless he ceases to be employed by the contractor, without a document to that effect duly signed by the Contractor and accepted by the Client. However, the Client may request the replacement of the latter or any other employee of the site for reasons of incompetence or failure to fulfil their obligations.

.3 The project foreman is the Contractor's representative and any instructions given to him will be deemed to have been given to the Contractor.

1.16 LABOR

.1 The workforce will be specialized for each job and any incompetent worker will be expelled from the site.

.2 The Contractor shall give priority to hiring local labour for all specialties where available.

.3 The Contractor must provide sufficient quantities of all the labour to complete the work on time.

.4 The work will be done in accordance with the instructions of the Departmental Representative, using the most suitable equipment, and following the recommendations of recognized manufacturers and approved by the Departmental Representative.

1.17 DEPARTMENTAL REPRESENTATIVE AND CONTRACTOR

.1 The Departmental Representative has original jurisdiction to interpret the contract and to determine its performance. They must use their power arising from the contract to ensure its execution in all respects by one or other of the parties hereto.

.2 Any instructions to the Contractor can and must come only from the Departmental Representative. All communications from the Client or other Departmental Representatives must be transmitted through the Departmental Representative and the Contractor shall refer to the latter all instructions it has received, including those from the municipal and provincial authorities.

1.18 DECISIONS OF THE DEPARTMENTAL REPRESENTATIVE

.1 It is the Department's representative's responsibility to rule on disputes raised by the contract documents, either concerning the execution of the work or the interpretation of the specifications and plans.

.2 If, however, the contractor claims that these decisions are in contradiction with the contractual documents, or lead to modifications of the work already executed, installed or implemented, ordered or in the process of execution (which modifications exceed the contract, or were made by mistake, he must report them to the department's representative before putting them into execution).

.3 If the Departmental Representative and the Contractor cannot settle these disputes between themselves and if the Departmental Representative decides in agreement with the Owner that the work in question must be carried out, the Contractor must comply with this decision upon receipt of a written notice from the Employer to this effect and any question relating to the excess costs incurred by the said works may be decided by arbitration.

1.19 INSPECTION

.1 The Contractor shall have the categories of work requiring inspection by national, provincial, local or other authorities inspected and provide evidence and results before the final payment certificate is signed.

.2 The Contractor shall provide evidence that it has complied with the requirements of the laws and regulations governing the construction industry and the standards of all competent authorities.

1.20 RELATED WORK

.1 The paragraph entitled "Related Work" at the start of the Specifications does not delineate the responsibilities of the various trades and is not to be construed as dealing with excluded work; these paragraphs inform the Contractor as to the section numbers where work is prescribed that is relevant to the relevant section only.

1.21 GENRAL REQUIREMENTS

.1 It is the express intention of the quotations, drawings and any other document complementary to them, to require the Contractor to work completely and in accordance with the requirements of all these documents.

.2 Ensure that all trades that will be retained to perform specific work, meet the qualifications required in the Specifications, particularly in the sections that describe these specialized work.

.3 Inform all trades on the general conditions of the contract, and the additional general requirements.

.4 The requirements set out in the specifications and drawings are the responsibility of the Contractor who is responsible for the subcontracting of certain specialized and/or specific work, as described in the various sections of the Specifications.

.5 The Departmental Representative shall not at any time arbitrate or settle disputes arising from the Contractor's assistance in the work by a specialized contractor (subcontractor).

1.22 ASBESTOS

.1 Should asbestos be discovered in areas where work is covered by this contract, the analysis of the type of asbestos for removal, as well as proposals leading to the removal of the product in place, must be made by professionals recognized and credited in this field by the various government authorities concerned.

.2 The Contractor shall suggest three firms specialized and accredited in the removal of asbestos for bidding purposes for the removal of asbestos from this contract.

.3 The costs related to the removal of asbestos for this contract will be presented by the Contractor for invoicing to the Client in the form of an amendment to the contract.

1.23 PRE-APPROVAL INSPECTION WITH RESERVATION

.1 The General Contractor is primarily responsible for the quality of its work and that of subcontractors. Before notifying the Departmental Representatives of the date of the acceptance with reservation visit, the General Contractor must ensure that the work conforms to the Plans and Specifications by carrying out its own inspection visit, noting the deficiencies present and correcting them.

.2 A copy of its inspection report must be provided to Departmental Representatives prior to the date of provisional receipt.

1.24 DIMENSIONS ON PLANS

.1 Before proceeding with the work, carefully review and verify all measurements on the plans to determine the accuracy or omission of the measurements.

.2 Notify the Departmental Representative(s) before proceeding with the work, of any error or omission, and proceed with the work only after receiving their instructions.

.3 Do not measure any dimensions directly on the drawings or plans.

.4 All measurements must be checked on site before any order for finished products to be incorporated into the structure. In the event of an error in the measurements, the additional costs will be borne by the Contractor.

1.25 RESTRICTION ON THE USE OF TOBACCO

.1 Comply with the restrictions that apply to the use of tobacco in buildings and on the entire site of the Maison Paul Triquet.

END OF SECTION

1.1 DEFINITIONS

.1 Activity: Determined work performed as part of a project. An activity normally has an expected duration, cost and resource requirements. Activities can be subdivided into tasks.

.2 Bar (Gantt) Chart: A graphical representation of data related to the timeline of a project. In the usual bar graph, the activities or other project elements are presented from top to bottom, to the left of the graph while the dates are presented at the top, from left to right; the duration of each activity is indicated by horizontal segments placed between the dates. In general, the bar chart is generated from a commercially available computerized project management system.

.3 Baseline: Initial approved plan (for a project, work package or activity), taking into account approved changes to the scope of the project.

.4 Work Week: Five (5) day week, Monday to Friday, defining the working days for the submission of the bar (Gantt) chart).

.5 Duration: The required number of work periods (excluding holidays and other non-working periods) for the performance of an activity or other project element. The duration is usually expressed in working days or weeks of work.

.6 Overall Plan: A summary program outlining key activities and milestones.

.7 Milestone: Significant event in the delivery of the project, most often the completion of a significant output (deliverable).

.8 Timeframe: Timelines for completion of activities and achievement of milestones. A dynamic and detailed program of tasks or activities required to achieve the milestones of a project. The monitoring and control process is based on the timetable for the implementation and control of activities; it defines the decisions that will be taken throughout the duration of the project.

.9 Scheduling - Project Planning, Monitoring and Control: A comprehensive system managed by the Departmental Representative to monitor the execution of work against specific milestones or milestones.

1.2 RELATED REQUIREMENTS

.1 Sections of Division 01.

1.3 REQUIREMENTS

.1 Ensure that the overall plan and schedule are actionable and meet the contract's prescribed duration.

.2 The overall plan must provide for the completion of the work according to the prescribed milestones, within the agreed time frame.

.3 Limit the duration of activities to approximately ten (10) working days to allow for progress reporting.

.4 The award of the contract or the start date of the work, the rate of completion of the work, the issue of the provisional certificate of completion and the final certificate of completion are defined stages of the project and are essential conditions of the contract.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit the required documents and samples in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit to the Departmental Representative, no later than seven (7) working days after the award of the contract, a bar (Gantt) chart which will serve as an overall plan and will be used for the planning and monitoring of the work, and for the production of progress reports.

.3 Submit the implementation schedule to the Departmental Representative no later than five (5) working days after acceptance of the overall plan.

1.5 PROJECT MILESTONES

.1 The work must be completed no later than one hundred (100) working days after the date of contract award.

1.6 OVERALL PLAN

.1 Structuring the execution schedule to allow for the orderly planning, organization and execution of work according to the bar (Gantt) chart.

.2 The Departmental Representative shall review the schedule and deliver it to the Contractor no later than [five (5)] working days thereafter.

.3 If the schedule is determined to be inoperative, revise it and resubmit it no later than five (5) business days after receipt.

.4 The agreed revised schedule will become the overall plan, which will serve as a reference for updates.

1.7 SCHEDULE OF EXECUTION

.1 Develop a detailed implementation schedule based on the overall plan.

.2 The detailed implementation schedule shall include at least the following steps:

- .1 Contract award.
- .2 Shop drawings, samples.
- .3 Permit.
- .4 Mobilization.
- .5 Demolition
- .6 Carpentry
- .7 Insulation
- .8 Masonry
- .9 Demobilization

1.8 PROGRESS REPORTS

.1 Update the schedule once (1) a week to reflect changes in activities, completion of activities, and ongoing activities.

.2 Attach a narrative report to the schedule that outlines the status of work, compares progress against the baseline schedule, and outlines current forecasts, anticipated delays, impacts, and potential mitigation measures.

1.9 PROJECT MEETINGS

.1 Discuss the schedule at periodic site meetings; identify activities that are overdue and plan ways to catch up. Activities whose start date or end date exceeds the respective approved dates in the reference schedule are considered to be late.

.2 Discuss weather-related delays and negotiate measures to address them.

2 PRODUCTS

2.1 NOT APPLICABLE

.1 Not applicable.

3 EXECUTION

3.1 NOT APPLICABLE

.1 Not applicable.

END OF SECTION

PARTIE 1 - General

1.1 PRIORITY

.1 In the case of work carried out for the federal government, the sections of Division 1 have priority over the technical sections of the other divisions of the project specifications.

1.2 RELATED SECTIONS

.1 Section 01 78 00 - Closeout Submitals

1.3 ADMINISTRATIVE REQUIREMENTS

.1 Within a reasonable time and in a predetermined order so as not to delay the completion of the work, submit the required documents and samples for the approval of the Departmental Representative. A delay in this regard cannot be sufficient reason to obtain an extension of the time to complete the work and no request to do so will be accepted.

.2 Work for which the filing of documents and samples is required should not be undertaken until the verification of all submitted parts is fully completed.

.3 The characteristics indicated on shop drawings, product data, and product and structure samples must be expressed in metric units.

.4 When items are not produced or manufactured in metric units, or specifications are not given in SI units, converted values may be accepted.

.5 Notify the Departmental Representative in writing, when submitting documents and samples, of any deviations from the requirements of the Contract Documents, and explain the reasons for the deviations.

.6 Examine documents and samples before handing them over to the Departmental Representative. By this prior verification, the Contractor confirms that the requirements applicable to the work have been or will be determined and verified, and that each of the documents and samples submitted has been examined and found to comply with the requirements of the work and the Contract Documents. Documents and samples which are not stamped, signed, dated, and identified in connection with this specific project will be returned without being examined and will be considered rejected.

.7 Ensure the accuracy of measurements taken on site in relation to adjacent structures affected by the work.

.8 The fact that the documents and samples submitted are examined by the Departmental Representative in no way releases the Contractor from his responsibility to send complete and accurate documents.

.9 The fact that the documents and samples submitted are examined by the

Departmental Representative in no way relieves the Contractor from his responsibility to send documents that comply with the requirements of the contract documents.

.10 Keep a verified copy of each document submitted on site.

1.4 SHOP DRAWINGS AND PRODUCT DATA

.1 The expression "shop drawings" means the drawings, diagrams, illustrations, tables, performance graphs, brochures and other documentation that the Contractor must provide to show in detail a part of the structure concerned.

.2 The shop drawings must indicate the materials to be used as well as the methods of construction, fastening or anchoring to be employed, and they must contain assembly diagrams, details of connections, relevant explanatory notes, and any other necessary information for the execution of the work. When structures or elements are connected or connected to other structures or elements, indicate on the drawings that there has been coordination of the requirements, regardless of the section under which the adjacent structures or elements are to be supplied and installed. Make references to the specifications and to the preliminary design drawings.

.3 Allow fifteen (15) working days for the Departmental Representative to review each batch of documents submitted.

.4 Changes made to shop drawings by the Departmental Representative are not intended to change the Contract Price. If so, however, notify the Departmental Representative in writing before starting the work.

.5 Make changes to shop drawings as requested by the Departmental Representative, in accordance with the requirements of the contract documents. When resubmitting the drawings, notify the Departmental Representative in writing of any changes that have been made in addition to those required.

.6 The documents submitted must be accompanied by a cover letter, in duplicate, containing the following information:
- .1 The date
- .2 The name and number of the project
- .3 The name and address of the Contractor
- .4 The designation of each drawing, product data and sample as well as the number submitted
- .5 Any other relevant data

.7 The documents submitted must bear or indicate the following:
- .1 The date of preparation and the dates of revision
- .2 The name and number of the project
- .3 The name and address of the following persons:
  - .1 The subcontractor
  - .2 the supplier
  - .3 the manufacturer
- .4 Relevant details for the affected portions of the work:
  - .1 Materials and manufacturing details

.2 The arrangement or configuration, with dimensions, including those taken on site, as well as clearances
.3 Details regarding assembly and adjustment
.4 Characteristics such as power, flow or capacity
.5 Performance characteristics
.6 Reference standards
.7 The operational mass
.8 Wiring diagrams
.9 Single line diagrams and block diagrams
.10 Links with adjacent structures

.8 Submit 2 printed copies or one version.PDF of the shop drawings prescribed in the technical sections of the specifications.

.9 The Departmental Representative will return one (1) electronic copy. The contractor must then print seven (7) copies for distribution at the required locations.

.10 Distribute copies of the shop drawings and product date after the Departmental Representative has completed verification.

.11 Delete information that does not apply to the work.

.12 In addition to the current information, provide any additional details that apply to the work.

.13 When the shop drawings have been verified by the Departmental Representative and no errors or omissions have been detected or only minor corrections have been made, the printouts are returned, and fabrication and installation work can then be undertaken. If the shop drawings are rejected, the annotated copy(s) will be returned and the corrected shop drawings must be resubmitted as indicated above before any fabrication and installation work can be undertaken.

1.5 PRODUCT SAMPLES

.1 Submit two product samples for verification, as specified in the technical sections of the specifications. Label the samples with their origin and intended destination.

.2 Ship the samples on a postage paid basis to the Departmental Representative's business office.

.3 When submitting product samples, notify the Departmental Representative in writing of any deviations from the requirements of the contract documents.

.4 Where colour, pattern or texture is prescribed, submit the full range of samples required.

.5 Changes made to the samples by the Departmental Representative are not intended to change the Contract Price. If so, however, notify the Departmental Representative in writing before starting the work.

.6 Make any modifications to the samples that may be requested by the Departmental Representative while respecting the requirements of the contract documents.

.7 The examined and approved samples will become the benchmark against which the quality of materials and the quality of workmanship of finished and installed structures will be assessed.

END OF SECTION

ARCHITECTURE | DESIGN URBAIN

TRANSMITTAL SHEET
SHOP DRAWINGS

PROJECT #:	Q20-2730A
SPECIFICATIONS SECTION:	

STRUCTURE:
LAURENTIAN FORESTRY CENTRE (LFC)
PRIORITY REPAIRS TO ENVELOPE

PRODUCTS:

TITLE:	
DESCRIPTION:	
REVISION #	
NBR SHEETS TRANSMITTED:	
SUPPLIER:	
MANUFACTURER:	

☐ SUCH AS PLANS AND SPECIFICATIONS ☐ EQUIVALENCE

GENERAL CONTRACTOR

CONTRACTOR NAME:	
CONTRACTOR #	
ADDRESS:	
CITY:	
POSTAL CODE:	
PHONE:	
FAX:	
SPECIALTY:	

COMMENTS:

ISSUED BY CONTRACTOR:

DATE:	

ISSUED BY SUBCONTRACTOR:

DATE:	

PROFESSIONAL REVIEW:

RECEIVED FROM CONTRACTOR ON:	
REVIEWED BY:	
SIGNATURE:	
DATE OF EXAMINATION:	

☐ **EXAMINED**
☐ **REVIEWED WITH COMMENTS**
☐ **RESUBMIT**

Partie 1 General

GENERAL NOTE: in this section, the term “worksite” extends to all the installations located on the site where work takes place (the worksite itself, buildings, accesses, infrastructures, parking lots, docks, etc.).

1.1 RELATED REQUIREMENTS

.1 Division 1 Section.

1.2 REFERENCES

.1 Province of Quebec

.1 Act respecting occupational health and safety, RSQ, c S-2.1

.2 Safety code for the construction industry, LRQ, c. S-2.1, r.4

1.3 SUBMITTALS PROCEDURES

.1 Submit the required documents and samples in accordance with Section 01 33 00 - Submittal Procedures.

.2 Send the prevention program specific to the worksite, as described in the “GENERAL REQUIREMENTS” section, to the Departmental Representative and to the CNESST, at least 10 days before the start of the work.

.3 The Departmental Representative will examine the prevention program prepared by the Contractor for the worksite and will provide them with their observations within 10 working days of receipt of this document. If necessary, the Contractor will revise their prevention program and resubmit it to the Departmental Representative no later than 5 days after receiving the ministry representative's observations. The Departmental Representative reserves the right not to authorize the start of work on the site until the content of the prevention program is satisfactory. The Contractor must then update their prevention program and submit it to the Departmental Representative if the scope of the work changes, if the Contractor's working methods differ from their initial forecasts or for any other new applicable condition.

.4 The review by the Departmental Representative of the prevention program prepared by the Contractor for the worksite should not be interpreted as an approval of this program and in no way limits the Contractor's overall responsibility for health and safety during construction work.

.5 Submit to the Department Representative once every two (2) weeks the reports of health and safety inspections carried out on the worksite by the Contractor's authorized representative.

.6 Submit to the Departmental Representative, within 24 hours, a copy of any inspection report, correction notice or recommendation issued by federal, provincial and territorial government health and safety inspectors.

.7 Submit to the Departmental Representative, within 24 hours, an investigation report for any accident resulting in injury and for any incident that highlights a potential risk.

The investigation report must contain at least the following elements:

1. Date, time and place of the accident
2. Name of the subcontractor involved in the accident
3. Number of people involved and condition of injured
4. Identification of witnesses
5. Detailed description of the tasks performed at the time of the accident
6. Equipment used to perform the tasks performed at the time of the accident
7. Corrective actions taken immediately after the accident
8. Causes of the accident
9. Preventive measures put in place to avoid a similar accident

.8 Submit the WHMIS Material Safety Data Sheets to the Departmental Representative in accordance with Section 01 33 00. The Contractor must also keep a copy of these sheets on the site.

.9 Medical surveillance: Where required by law, regulation or safety program, submit, before starting work, certification of the medical surveillance of personnel working on the site. Provide the Departmental Representative with additional certification for any new employee working on the site.

.10 Submit an emergency response plan to the Departmental Representative at the same time as the prevention program. This emergency response plan must contain the elements listed in the “GENERAL REQUIREMENTS” section.

.11 Submit a copy of the worksite worker training certificates to the Departmental Representative, in particular for the following training (when applicable):

.1 First aid in the workplace and cardiopulmonary resuscitation

.2 Safe operation of forklifts (compulsory for all use of forklifts)

.3 Safe operation of elevated work platforms (mandatory for all use of elevating platforms)

.4 Any other training required by regulation or by the prevention program

In addition, certificates for the *General Health and Safety Course for construction sites* must be available on request on site.

.12 Engineer's plans and certificates of compliance: the Contractor must send a copy signed and sealed by an engineer to the Departmental Representative and to the *Commission des normes, de l'énergie, de la santé et de la sécurité du travail* (CNESST) of all plans required under the *Safety Code for the construction industry* (S-2.1, r.4), and any other law or regulation, or any clause of the specifications or contract. The Contractor must also send a certificate of conformity signed by an engineer once the installation for which these plans were designed has been completed and before a person uses this installation. A copy of these documents must be available at all times on the work site.

1.4 PRODUCTION OF WORKSITE OPENING NOTICE

.1 Before the start of work, send the worksite opening notice to the CNESST. Send a copy of the notice of opening and the acknowledgment of receipt sent by the CNESST to the Departmental Representative.

Upon completion of all work, the closure notice must be sent to the CNESST, with a copy to the Departmental Representative.

.2 The Contractor must assume the role of the Principal Contractor at all times within the limits of the worksite and anywhere else where he must carry out work within the framework of this project. The Contractor must recognize the responsibility of the project manager and identify himself in the notice of opening of the worksite that he sends to the CNESST.

.3 The Contractor must agree to divide and identify the worksite adequately, in order to define the time and space at all times during the duration of the project.

1.5 RISK / HAZARD ASSESSMENT

.1 Make an assessment of the safety risks / dangers present on this worksite with regard to the execution of the work.

1.6 MEETINGS

.1 Organize a health and safety meeting with the Departmental Representative before the start of the work, and assure the direction of it.

.2 A decision-making representative of the contractor must attend all meetings concerning health and safety on the site.

.3 If it is expected that there will be 25 or more workers on the site, at any time during the work, the contractor must set up a worksite committee and hold meetings as required by the *Safety Code for construction work* (S-2.1, r. 4). A copy of the minutes of the worksite committee meetings must be sent to the Department Representative within 5 days of the date of the committee meeting.

1.7 REGULATORY REQUIREMENTS

.1 Comply with all laws, regulations and standards that are applicable to the performance of the work.

.2 Observe the prescribed standards and regulations in order to guarantee the normal progress of work on sites contaminated by dangerous or toxic materials.

.3 Always use the most recent version of the standards cited in the *Safety Code for the construction industry* (S-2.1, r.4)*,* notwithstanding the date indicated in this *Code.*

1.8 COMPLIANCE REQUIREMENTS

.1 Comply with the *Act respecting occupational health and safety* (RSQ, c. S-2.1) and the *Safety Code for the construction industry (S-2.1* , r. 4.) in addition to respecting all the requirements of the this quote.

1.9 RESPONSIBILITIES

.1 The Contractor must accept and assume all the tasks and obligations normally devolved on the project manager under the Act respecting occupational health and safety (LRQ, chapter S-2.1) and the *Safety Code for construction work. construction (*S-2.1, r.4).

.2 The Contractor must assume responsibility for the health and safety of people on the site, as well as the protection of property located on the site, and assume also, in areas adjacent to the site, the protection of people and the environment insofar as they are affected by the work.

.3 Regardless of the size and location of the site, the Contractor must clearly delimit the boundaries of the site by physical means; it must also comply with the specific requirements of the regulations on this subject. The means chosen to delimit the site must be submitted to the representative of the Ministry.

.4 Comply with, and enforce by employees, the safety requirements set out in contract documents, ordinances, applicable local, territorial, provincial and federal laws and regulations, as well as in the prevention program prepared for the worksite.

1.10 WORK CARRIED OUT BY EXTERNAL CONTRACTORS

.1 On this worksite, it is expected that the following work will be carried out by an external contractor not hired by the Contractor:

.2 The Contractor must take the necessary measures to protect the health and safety of external contractors who are not in contractual relation with them but who are mandated by the departmental representative to carry out certain work. In return, these external contractors have the obligation to submit to the authority of the Contractor (project manager). A subordination agreement must be signed by the Contractor and by each external contractor for this purpose and submitted to the departmental representative before the start of the work of each external contractor (see the wording in the article OHS SUBORDINATION AGREEMENT).

1.11 GENERAL REQUIREMENTS

.1 Before starting the work, draw up a prevention program specific to the site, based on the prior assessment of risks / dangers in accordance with the article "RISK / DANGER ASSESSMENT" and with the article "RISKS INHERENT AT WORKSITE" of this section. Apply this program and ensure it is respected at all points until the

demobilization of all site personnel. The prevention program must take into account the specifics of the project and must cover all the work carried out on the worksite.

The prevention program must include at least the following elements:

.1 Company health and safety policy

.2 Description of the stages of the work

.3 Total cost of the work, schedule and expected staffing curve

.4 Organizational chart of health and safety responsibilities

.5 Physical and material organization of the site

.6 Identification of risks for each stage of the work, corresponding preventive measures and methods of implementation

.7 Identification of preventive measures related to the specific risks inherent in the workplace indicated in the article "RISKS INHERENT AT THE WORKSITE"

.8 Identification of preventive measures for the health and safety of employees and / or the public of the work site as indicated in the article "SPECIFIC REQUIREMENTS FOR THE HEALTH AND SAFETY OF OCCUPANTS AND THE PUBLIC"

.9 Training required

.10 Accident / injury procedure

.11 Written commitment from all stakeholders to respect this prevention program

.12 Worksite inspection grid based on preventive measures

.13 Emergency response plan, which must contain at least the following elements:

.1 Site evacuation procedure

.2 Identification of resources (police, firefighters, ambulances, etc.);

.3 Identification of the responsible persons on the site

.4 Identification of first aid workers

.5 Communication organization chart (including site manager and ministry representative)

.6 Training required for those responsible for its application

.7 Any other necessary information, taking into account the characteristics of the site

The departmental representative will give the Contractor the site evacuation procedure, if applicable; the latter will then have to align the site procedure with that of the site and forward it to the representative of the Ministry.

.2 The Departmental Representative may provide written comments if the prevention program contains anomalies or raises concerns, and may require the submission of a revised program that will correct or eliminate those concerns.

.3 In addition to the prevention program, during the work the Contractor must develop and send to the representative of the Ministry a specific written procedure for any work presenting a high risk of accidents (example: demolition procedure, special installation procedure, plan lifting, procedure for entering confined spaces, electrical cut-off procedures, etc.) or at the request of the representative of the Ministry.

.4 The Contractor must plan and organize the work in such a way as to promote the elimination at the source of the dangers or collective protection and thus reduce to a minimum the use of personal protective equipment.

.5 Equipment, tools or means of protection which cannot be installed or used without compromising the health and safety of workers or the public is deemed to be inadequate for the work to be performed.

.6 All mechanical equipment (examples: devices for lifting people or materials, mechanical shovels, concrete pumps, concrete saws, but not limited to) must be inspected before delivery to the worksite. The Contractor must obtain an inspection certificate signed by a mechanic and dated less than a week before the arrival of each equipment on the site, and keep it on the site. The certificate is to be presented upon request to the Departmental Representative.

.7 Ensure that all inspections (daily, periodic, annual, etc.) of equipment for lifting people or materials required by the standards in force are carried out and be able to provide a copy of the inspection certificates upon request of the representative of the ministry.

.8 The departmental representative may at any time, if he suspects a defect or a risk of accident, order the immediate shutdown of any equipment and require an inspection by a specialist of their choice.

.9 The departmental representative must be consulted on the location of gas cylinders and tanks on the worksite.

1.12 RISKS INHERENT AT THE WORKSITE

.1 In addition to the risks related to the tasks to be performed, the personnel responsible for the work on the site will be exposed to the following risks, inherent in the place where the work will be carried out.

In the place where the work will take place, there is in particular the presence of:

.1 Laboratories

.2 Trees and landscaping to conserve and protect

The Contractor must carry out a site risk assessment to validate this information and see if other risks are present on the worksite. It must include in its prevention program all the risks that have been identified

1.13 UNINTENDED RISKS / DANGERS

.1 When a source of danger not specified in the contract documents and not identifiable during the preliminary inspection of the site appears by the fact or during the execution of the work, the Contractor must immediately stop the work, notify the person responsible for the site health and safety, put in place temporary protective measures for workers and the public and notify the ministry representative verbally and in writing. The Contractor must then make the necessary modifications to the

prevention program and put in place the necessary safety measures so that work can resume.

1.14 PERSON RESPONSIBLE FOR HEALTH AND SAFETY

.1 If the site meets the criteria of article 2.5.3 of the *Safety Code for the construction industry* (S-2.1, r.4), the Contractor must hire a competent and authorized person as a safety officer, and assign them full-time from the start of the work. The tasks of this person must be dedicated exclusively to the management of health and safety on the site. The security guard must meet the following criteria:

- .1 Hold a security guard certificate issued by the CNESST
- .2 Have practical experience of at least five (5) years on a site where associated activities similar to those of the project are carried out
- .3 Have a working knowledge of workplace health and safety regulations
- .4 Assume responsibility for the Contractor's training sessions in occupational health and safety, and verify that only people who have successfully completed the required training have access to the site to perform the work
- .5 Take responsibility for the implementation, respect in minute detail and monitoring of the health and safety plan prepared for the site by the Contractor
- .6 Be present at all times on the site during the execution of the work
- .7 Inspect the work and ensure compliance with all regulatory requirements and those indicated in the contractual documents or the prevention program
- .8 Keep a daily log of their interventions and send a copy to the departmental representative at least once a week.

The security guard's certificate must be sent to the departmental representative before the start of the work.

.2 When the hiring of a security guard is not required or that this guard is hired by the representative of the department, the Contractor must appoint a competent person as supervisor and responsible for health and safety regardless of the size of the site or the number of workers present. This person must be present at all times on the worksite and must be able to take all necessary measures to ensure the health and safety of people and property on the job and in the immediate environment of the site that could be affected by the progress of the work. The Contractor must send the name of this person to the representative of the Department before the start of the work.

1.15 DISPLAY OF DOCUMENTS

.1 Ensure that relevant documents, articles, ordinances and notices are posted in a conspicuous place on the job site in accordance with provincial laws and regulations and in consultation with the ministry representative.

.2 As a minimum, the following information and documents should be posted in a location easily accessible to workers:

- .1 Notice of opening of the site

.2 Identification of the Principal Contractor
.3 Company policy on OSH
.4 Prevention program specific to the worksite
.5 Emergency plan
.6 Minutes of worksite committee meetings
.7 Names of representatives on the worksite committee
.8 Name of first responders
.9 Intervention and correction reports issued by the CNESST.

1.16 INSPECTIONS AND CORRECTIONS FOR NON-COMPLIANCE

.1 Inspect the workplaces, complete the worksite inspection grid and submit it to the departmental representative in accordance with the article "SUBMITTAL PROCEDURES" in this section.

.2 Immediately take the necessary measures to correct the situations deemed non-compliant observed during the inspections mentioned in the previous paragraph or noted by the competent authority or by the representative of the ministry or their agent.

.3 Provide the Departmental Representative with a written report of the action taken to correct the situation in the event of a health and safety non-compliance**.**

.4 The Contractor must grant the security guard or, when there is no safety officer, the person mandated to take care of health and safety, all the authority necessary to order stopping and resuming work when it deems it necessary or desirable for health and safety reasons. He must ensure that the health and safety of the public and site personnel as well as the protection of the environment always take precedence over issues related to the cost and schedule of the work.

.5 The representative of the Ministry or their agent may order the work to be stopped if the Contractor does not take the necessary corrective measures regarding the conditions deemed non-compliant in terms of health and safety. Without limiting the scope of the preceding articles, he may also at any time order the work to be stopped if, according to their perception, there is a danger or risk to the health or safety of site personnel, the public, or the environment.

1.17 PREVENTION OF VIOLENCE

.1 Health and safety management on Public Works and Government Services Canada sites includes the implementation of measures to protect the psychological health of all persons who access the site where the work is taking place. Physical violence, verbal abuse, intimidation and harassment in all possible forms will not be tolerated on the site. Anyone who demonstrates such gestures or behaviors will receive a warning and / or could be permanently expelled from the worksite by the ministry representative.

1.18 CARTRIDGE DEVICES

.1 Use cartridge devices only with written permission from the Departmental Representative.

.2 Anyone who uses a nail gun must hold a training certificate and meet all the requirements of section 7 of the *Safety Code for the construction industry* (S-2.1, r. 4).

.3 Any other cartridge device must be used according to the manufacturer's instructions and according to the applicable standards and regulations.

1.19 USE OF PUBLIC ROADS

.1 When it is necessary to encroach on the public highway for operational reasons or to ensure the safety of workers, occupants or the public (e.g. use of scaffolding, cranes, excavation work, etc.), the Contractor must obtain at its own expense all authorizations and permits required by the competent authority.

.2 The Contractor must install at their own expense all signage, barricades and other devices required by regulations to ensure the safety of the public and their own installations.

1.20 EXPOSURE TO SILICA

For any interior or exterior work generating silica dust, the Contractor must comply with the requirements below, in addition to respecting those of the Safety Code for the construction industry S-2.1, r.4.

1. Work in a humid environment or use tools with water supply in order to reduce dust accumulation, otherwise capture the dust at the source and retain it in a high-efficiency filter so as not to propagate it in the environment.

2. Clean surfaces and tools with water, never with compressed air.

3. Sand and etch surfaces using an abrasive containing less than 1% silica (also called amorphous silica).

4. Install screens or partitions to prevent the migration of dust outside the work area and thus protect other workers and the public.

5. Wear respiratory protection and eye protection equipment during all operations likely to produce silica dust in accordance with the requirements of the *Safety Code for the construction industry, S-2.1, r.4.*

6. Wear protective suit to prevent contamination off site.

7. Do not eat, drink or smoke in a dusty area.

8. Wash hands and face before drinking, eating or smoking

1.21 RESPIRATORY PROTECTION

1. The Contractor must ensure that all workers who must wear a respiratory protection device as part of their tasks have received training for this purpose as well as the adjustment tests of their breathing apparatus, in accordance with the CSA Z94.4 *Selection, Use, and Care of Respirators.* The fit test certificates must be given to the Departmental Representative upon request.

1.22 PREVENTION OF FALL RISKS

1. The Contractor must plan and organize the work in such a way as to promote the elimination at the source of the dangers or collective protection and thus reduce to a minimum the use of personal protective equipment. When personal fall protection is required, workers must use a safety harness in accordance with CAN/CSA- Z-259.10 - M90. Seat belts should not be used for fall protection.

2. All persons using a lifting platform (scissors, telescopic mast, articulated mast, rotating mast, etc.) must have received training for this purpose.

3. Wearing a safety harness is compulsory in all lifting platforms with telescopic, articulated or rotating mast.

4. Mark out a danger zone around each lifting platform.

5. Any opening in a floor or in a roof must be surrounded by a guardrail or covered with a cover fixed to the floor and resistant to the loads to which it may be subjected, regardless of the dimensions of this opening and the height of the fall it represents.

6. Anyone who works within two meters of a place presenting a risk of falling of 3 meters or more must use a safety harness in accordance with the requirements of the regulations, unless there is a guardrail or other element offering equivalent security.

7. Despite the requirements of the regulations, the representative of the Ministry may require the installation of guardrails or the use of safety harnesses for certain specific situations presenting a risk of fall of less than 3 meters.

1.23 SCAFFOLDING

In addition to the requirements of the *Safety Code for the construction industry*, the Contractor who uses scaffolding must comply with the following requirements:

Foundation

1. Scaffolding must be installed on solid foundations so that it cannot slip or tip over.
2. If the Contractor wants to install scaffolding on a roof, a roof overhang, a canopy, or an attic, they must submit load calculations and plans signed and sealed by an engineer to the representative of the Department and obtain their authorization before start of installation

Assembly, bracing and anchoring

1. All scaffolding must be assembled, braced and anchored in accordance with the manufacturer's instructions and *the provisions of the Safety Code for the construction industry*.
2. For any situation where it is necessary to remove certain elements of the scaffolding (eg: braces), the Contractor must submit to the Department representative, before assembling the scaffolding, a signed and sealed assembly procedure by an engineer certifying that the scaffolding thus assembled will allow the work to be carried out in a safe manner, taking into account the loads that will be applied to it.
3. For any scaffolding whose span between two supports is greater than 3 meters, the Contractor must provide the departmental representative, before assembling the scaffolding, with an assembly plan signed and sealed by an engineer.

Fall protection during assembly

1. At all times, during assembly and disassembly, all workers must be protected against falls if they are exposed to a risk of falling more than trois (3) meters.

Floors

1. Scaffolding floors must be designed and installed in accordance with the provisions of the *Safety Code for the construction industry*.
2. If planks are used, they must be approved and stamped, in accordance with the provisions of article 3.9.8 of the *Safety Code for the construction industry*.
3. Scaffolds of 4 sections and more (or 6 meters) in height must have a solid floor covering the entire surface at every 3 meters of height or fraction of 3 meters and the elements of these floors must not be moved at any time. to create intermediate landings.

Railing

1. A guardrail must be installed at all working landings.
2. Bracings should not be considered as guardrails.
3. If the floors are not solid, the guardrails should be installed just above the edge of the floor, so that there is no empty horizontal space between the floor and the guardrail.

4. In the case of scaffolds of 4 sections (or 6 meters) and more in height where solid floors are required, the guardrails must be installed at each of these landings at the start of the work and remain in place until the end of the work.

Means of access

1. The Contractor must ensure that the means of access to the scaffolding do not compromise the safety of workers.
2. When scaffolding floors are made of planks, ladders must be installed so that the protruding planks do not interfere with ascent or descent.
3. Notwithstanding the provisions of the *Safety Code for the construction industry*, stairs must be installed on all scaffolding with 6 rows or more of uprights and 6 sections or more (or 9 meters) in height.

Protection of the public and occupants

1. When the scaffolding is installed in an area accessible to the public, the Contractor must take measures to prevent the public from accessing the scaffolding and, if applicable, the work or storage area located near the scaffolding.
2. The Contractor must install covered walkways, nets or other similar devices to protect workers, the public and occupants against falling objects. The chosen means of protection must be approved by the representative of the ministry.

Engineer plans

1. In addition to those required by the *Safety Code for the construction industry,* the ministry representative reserves the right to require engineer's plans for other types or configurations of scaffolding.
2. A plan signed and sealed by an engineer is required for any scaffolding to which canvases, tarpaulins or other items giving resistance to wind will be fixed.
3. A certificate of conformity signed by an engineer is required for all cases where an engineer plan is required and this, before a person uses the installation covered by this plan. A copy of these documents must be available at all times on the work site.

1.24 LIFTING LOADS USING A CRANE OR CRANE TRUCK

1. Unless otherwise specified, the Contractor must prepare a lifting plan and send it to the Departmental representative for any lifting operation carried out using a crane or truck crane, at least 5 days before the start of the lifting operations covered by this plan. This lifting plan must contain at least the information listed at the end of this section.

2. The lifting plan must be signed and sealed by an engineer for the following lifting operations:
    a. Lifting of concrete panels
    b. Lifting of mechanical / electrical equipment on a roof or on floors of a building
    c. Lifting of loads that encroach on a public road
    d. Lifting of large loads or heavy weights
    e. Any other lifting operation, according to the Departmental Representative's requirements.

3. In addition to the above requirements, the Contractor must plan lifting operations to prevent loads from passing over occupied areas on a site. When it is impossible to do otherwise, the lifting plan must be signed and sealed by an engineer and must guarantee the safety of the occupants of this area; this plan must be approved by the representative of the ministry. The departmental representative may, if he deems it necessary, impose evening and weekend work.

4. As soon as work on the site begins, the Contractor must send the departmental representative the list of the lifting plans planned for the entire duration of the site. This list should be updated as needed if changes are made during work.

5. In addition to the mechanical inspection certificate, all cranes or crane trucks must have the annual inspection certificate and the crane logbook in the cabin.

6. The entire lifting area must be demarcated in such a way as to prevent any unauthorized person from entering it.

7. The Contractor must carefully inspect all slings and lifting accessories to ensure that those in poor condition are destroyed and discarded.

8. The lifting of compressed gas cylinders must be done using a basket specially designed for this purpose.

MINIMUM CONTENT OF A LIFTING PLAN

- Sketch showing as a minimum the location of the crane, the surrounding installations, the area covered by lifting operations, the paths for pedestrian and vehicle traffic, the safety perimeter, etc.
- Weight of loads
- Load dimensions
- List of lifting accessories and weights of each
- Total weight lifted
- Maximum height of obstacles to overcome
- Lifting height of loads in relation to the roof surface (in the case of lifting loads to be placed on roofs)
- Use of guide cables
- Type of crane used
- Crane capacity
- Boom length
- Boom angle

- Crane working radius
- Deployment of stabilizers
- Percentage of crane capacity utilization
- Lifting equipment verification confirmation
- Identification of the crane operator and the lifting operations manager with signatures and date

1.25 HOT WORK

Hot work means all work using open flames or capable of producing heat or sparks, such as the following: riveting, welding, cutting, brazing, grinding, burning, heating, etc.

1. At the start of each shift and for each sector, the Contractor must obtain a "Hot Work Permit" issued by the site manager.
2. A functional portable extinguisher, and adequate for the fire hazard, must be available and easily accessible within 5 m of any flame and source of sparks or intense heat.
3. The Contractor must designate a person to continuously monitor fire hazards for a minimum period of one (1) hour after the end of each hot work. This person must sign the section of the permit to this effect and return it to the site manager after the one hour deadline.
4. When hot work is carried out in areas where there are combustible materials or where the walls, ceilings or floors are made or lined with combustible materials, a final inspection of the work area must be scheduled four (4) hours after the end of work. Unless the Department's representative advises otherwise, the Contractor must designate a person to carry out this monitoring.

Welding and cutting

In addition to the requirements set out in the previous paragraphs, the Contractor must comply with the following requirements:

1. Welding and cutting work must be carried out in accordance with the requirements of the *Safety Code for the construction industry, S-2.1, r.4* and of *CSAW117.2 Safety in Welding, Cutting and Allied Processes.*
2. Use an air extraction system equipped with filters for any welding or cutting work done indoors.
3. Stop any activity that produces flammable or combustible gases, vapors or dust near welding or cutting work.
4. Store compressed gas cylinders on a fireproof surface and make sure the room is well ventilated.

5. Store all oxygen cylinders at a minimum distance of 6 meters from cylinders of flammable gas (e.g. acetylene) or combustible material such as oil or grease, unless they are separated by a partition made of non-combustible material as specified in article 3.13.4. of the *Safety Code for the construction industry, S-2.1, r.4.*
6. Store the bottles away from all sources of heat.
7. Do not store bottles near stairs, exits, corridors and elevators.
8. Do not put acetylene in contact with metals with metals such as silver, mercury, copper and brass alloys with more than 65% copper, in order to avoid the risk of an explosive reaction.
9. Check that electric arc welding equipment has the required voltage and that it is earthed.
10. Make sure that the lead wires of the electric welding device are not damaged.
11. Place the welding equipment on flat ground sheltered from the elements
12. Install fireproof cloths when welding work is done on top of each other and where there is a risk of falling sparks.
13. Keep away or protect flammable or combustible materials within 15 meters of welding work.
14. Never weld or cut on a closed container.
15. Do not perform any cutting, welding or any work with an open flame on containers, tanks, pipes or other containers that have contained a substance or residues of flammable or explosive products unless:
    a. They have been cleaned and that air samples have been taken indicating the absence of explosive vapors and
    b. Arrangements have been made to ensure the safety of workers

1.26 ROOF WORK

Protection against falls from a height

1. The installation of guardrails is mandatory at all times; however, the installation of a warning line is permitted to delimit work zones provided that all the requirements of articles 2.9.4.0 and 2.9.4.1 of the *Safety Code for the construction industry* are met.
2. Guardrails must remain in place until the very end of the project. The Departmental Representative will authorize their dismantling upon confirmation that all work, inspections and required corrections have been carried out.
3. Wearing a safety harness is compulsory for the installation of guardrails.
4. Wearing a safety harness is compulsory for the installation and modification of parapets or flashings, if it is necessary to temporarily move the guardrails.
5. Wearing a safety harness is compulsory for receiving equipment and signals to the crane at the edge.
6. Wearing a safety harness is compulsory for all work on the edge of a void where collective protection does not provide adequate safety.
7. The Contractor must provide an attachment method and emergency cable system in accordance with section 2.10.12 of the *Safety Code for the construction industry (LRQ, S-2.1, r.4)* for each sector or workplace. different.

Lifting materials

1. For any winch installation, the contractor must provide the Departmental representative with the installation procedure recommended by the manufacturer or, failing that, an installation procedure signed and sealed by an engineer. The installation process must take into account

the maximum allowable loads, the number, weight and location of the counterweights and any other detail that may affect the capacity and stability of the device.

2. The Contractor must carefully inspect all slings and lifting accessories to ensure that those in poor condition are destroyed and discarded.
3. The lifting of compressed gas cylinders must be done using a basket specially designed for this purpose.
4. For any use of a crane or truck crane, the Contractor must comply with the requirements of the paragraph "Lifting loads using a crane or crane truck" of this section.

Protection against burns

1. Those assigned to hot water bottles must wear long sleeves and safety glasses and a face shield for loading the hot water bottle.
2. Those affected working with bitumen or other hot liquids should wear gloves, long sleeves and safety glasses.

Fire protection

1. The storage and use of propane cylinders must comply with the *CAN/CSA-B149.2 Code on the storage and handling of propane*. Cylinders must be stored outdoors, in a secure place, away from any unauthorized handling, in a place where there is no movement of vehicles or equipment unless they are protected by barriers or equivalent means of protection.

2. The quantity of propane cylinders on the roof must not exceed that necessary for a working day and the cylinders must at all times be tied up upright or held vertically in a cart designed for this purpose.

3. All hot work (burning, heating, riveting, welding, cutting, grinding, etc.) must be carried out in accordance with the "Hot Work" paragraph of this section.

Materials and waste management

1. On the roof, lightweight materials and sheet materials should be kept in containers or securely tied. In the event of an exemption, the representative of the ministry may prohibit the storage of materials on the roof.
2. The waste must be evacuated as it goes through a waste chute or in appropriate containers. The Contractor must put in place means to prevent the waste from blowing in the wind.
3. All waste must be removed from the roof at the end of each shift.
4. Unless specifically authorized by the ministry representative, any dumpster must be placed at least 3m from any structure or building.

Protection of occupants and the public

1. The Contractor must install covered walkways, nets or other devices to protect workers, the public and occupants against falling objects near the building entrances and exits. The chosen means of protection must be approved by the representative of the ministry.
2. A ground safety perimeter must be set up under the work area to protect workers, the public and occupants.
3. The ground work area, the material handling area and the area where the hot water bottle is installed must be clearly barricaded, so that occupants and the public cannot access it.
4. Before installing any device likely to emit gases or vapours, the Contractor must obtain the authorization of the site manager. The latter will ensure that there is no risk of infiltration into the building's ventilation systems.

1.27 TEMPORARY HEATING

1. In addition to complying with section 3.11 of the *Safety Code for the construction industry* (S-2.1, r.4), the Contractor must comply with the requirements set out in the following paragraphs.
2. A portable fire extinguisher must be available at all times near heating devices, regardless of the type of heating used.

3. The devices should always be used according to the manufacturer's specifications.
4. If applicable, the cloths and tarpaulins used near heating appliances must be securely fastened so that they cannot be thrown on these appliances, on piping connected to these appliances or on any other heat source.
5. Gas cylinders must be installed in such a way that they are protected from the traffic of vehicles and other equipment.
6. For any use of heating devices other than electric, the Contractor must install a carbon monoxide detector in the work area, near the devices and / or workers, throughout the heating period. The Contractor must immediately make the necessary corrections to the heating installations if the detector alarm sounds.
7. The Contractor must ensure minimal monitoring of heating devices outside of working hours (evenings and weekends). He must present a monitoring plan to the departmental representative before using the heaters.

END OF SECTION

PARTIE 1. **GENERAL**

1.1 INSPECTION

.1 The Departmental Representative must have access to the work. If part of the work is carried out outside the site, access to this place must also be ensured throughout the duration of this work.

.2 In the event that works are to be subject to special inspections, approvals or tests ordered by the Departmental Representative or required under local site by-laws, apply within a reasonable period of time.

.3 If the Contractor has covered or has allowed to cover a work before it has been subjected to the required inspections, approvals or special tests, it must uncover the work in question, see to the execution of the required inspections or tests to the satisfaction of the competent authorities, and then return the work to its original condition.

.4 The Departmental Representative may order the inspection of any part of the work whose conformity with the contractual documents is in doubt. If, after examination, the work in question is found not to comply with the requirements of the contractual documents, the Contractor must take the necessary measures to bring the work into compliance with the specified requirements, and bear the costs of inspection and repair. If the work in question is found to comply with the requirements of the contract documents, the Departmental Representative will bear the costs of inspection and restoration thus incurred.

1.2 INDEPENDENT TESTING AND INSPECTION ORGANIZATIONS

.1 The Departmental Representative will engage the services of independent testing and inspection organizations. The cost of these services will be borne by the Departmental Representative.

.2 Provide the equipment required by the designated organizations for the conduct of tests and inspections.

.3 The use of testing and inspection organizations in no way relieves the Contractor of its responsibility for the performance of the work in accordance with the requirements of the contractual documents.

.4 If defects are identified during testing and/or inspection, the Designated Organization will require further inspection and/or testing to accurately define the nature and extent of these defects. The Contractor shall correct defects and imperfections as directed by the Departmental Representative, at no additional cost to the Departmental Representative, and shall bear the cost of the tests and inspections to be carried out after such corrections.

1.3 ACCESS TO THE SITE

.1 Allow testing and inspection organizations access to the site as well as to manufacturing and shaping workshops located outside the site.

.2 Collaborate with these organizations and take all reasonable measures to ensure that they have the necessary means of access.

1.4 PROCEDURE

.1 Advise the appropriate agency and the Departmental Representative in advance when testing is required so that all parties involved can be present.

.2 Submit the samples and/or materials necessary for the tests according to the specifications, within a reasonable time and in a predetermined order so as not to delay the execution of the work.

.3 Provide labor and facilities to collect and handle samples and materials on site. Also provide space for storage and curing of samples.

1.5 REJECTED WORKS OR STRUCTURES

.1 Remove the defective elements deemed not to conform with the contractual documents and rejected by the Departmental Representative, either because they have not been executed according to standards of practice or because they have been made with defective materials or products, even if they have already been incorporated into the structure. Replace or redo the elements in question according to the requirements of the contractual documents.

.2 If necessary, repair without delay the works of other contractors that have been damaged during the aforementioned repair or replacement work.

.3 If, in the opinion of the Representative of the Ministry, it is not expedient to repair the defective works or those deemed not to conform to the contractual documents, the Client shall deduct from the contractual price the difference in value between the work executed and that prescribed in the contractual documents, the amount of this difference being determined by the Departmental Representative.

1.6 REPORTING

.1 Provide three (3) copies of the test and inspection reports to the Departmental Representative.

1.7 WORK SAMPLES

.1 Prepare the samples of work specifically required in the Specifications. The requirements of this section apply to all sections of the Specifications in which samples of works are requested.

.2 Construct samples of works at the various locations approved by the Departmental Representative designated in the relevant section.

.3 Prepare samples of works for approval by the Departmental Representative within a reasonable time and in a predetermined order, so as not to delay the execution of the work.

.4 A delay in the preparation of work samples cannot constitute a sufficient reason for obtaining an extension for the execution of the works and no request in this direction will be accepted.

.5 If necessary, the Departmental Representative will assist the Contractor in establishing a schedule for the preparation of samples of work.

.6 Each section of the Specifications that refers to samples of works specifies whether or not they may be part of the finished work and when they will be removed, if any.

1.8 FACTORY TESTS

.1 Submit the certificates of the factory tests that are required in the different sections of the Specifications.

1.9 MATERIALS, APPARATUS AND SYSTEMS

.1 Submit adjustment and balancing reports for mechanical, electrical and other building systems.

PARTIE 2. PRODUCTS

2.1 NOT APPLICABLE

.1 Not applicable.

PARTIE 3. EXECUTION

3.1 NOT APPLICABLE

.1 Not applicable.

END OF SECTION

PARTIE 1 General

1.1 REFERENCES

.1 Canadian Standards Association (CSA) CSA Group

.1 CSA-A23.1F19/A23.2-F19, Concrete materials and methods of concrete construction/Test methods and standard practices for concrete.

.2 CSA 0121-17, Douglas Fir Plywood.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit the required documents and samples in accordance with Section 01 33 00 - Submittal Procedures.

1.3 EXAMINATION OF THE PREMISES

.1 At the time of bidding and prior to commencing the work described in this section, conduct a site review to fully appreciate the difficulties involved.

.2 Obtain within the time required for the issuance of addenda, all the necessary details on these conditions of the premises as no complaint will be accepted on this subject.

1.4 INSTALLATION AND REMOVAL OF EQUIPMENT

.1 As no storage space is available at the site, the Contractor must provide temporary facilities to store its tools and materials.

.2 Prepare a site plan indicating the location of the workers' parking lot and the waste containers.

.3 The situation plan must be approved by the Client before its implementation.

.4 Provide, install or fit out the necessary construction facilities to allow the execution of the work as soon as possible.

.5 Dismantle material and equipment from the construction facilities and evacuate them from the site when no longer required.

1.5 CONTAINER

.1 Provide waste containers and/or trucks in sufficient quantity to store debris; they will be emptied out of the site daily. Ensure that waste containers are located within the construction perimeter.

.2 The Contractor shall install their container at the place designated by the client

.3 The Contractor shall be responsible for the costs, if applicable, required by the Client for

the use of the site.

.4 The Contractor remains responsible for ensuring the security of the perimeter of the container and for limiting access or contact by a third party not involved in the site. Any unsecured container must be located 10 metres from any façade of the building under construction.

.5 Provide a container that can be secured at the end of each working day.

1.6 SITE TRAILER/MEETING ROOM

.1 Set up on site an office heated to a suitable temperature (± 22°C) with good lighting (± 750 lux) and good ventilation. The office must be of sufficient size to allow access to plans and other documents and to allow site meetings to be held.

.2 Provide a complete and identified first aid kit, and store it in an easily accessible location.

.3 The Contractor must provide the systems of fire detectors, battery, and fire protection (fire extinguisher) inside the trailer. These systems will need to be checked regularly to ensure their proper functioning.

.4 Keep places clean at all times.

.5 The position of the site trailer will be determined during the first site meeting.

.6 If the Contractor places the trailer and/or container on the turf, the Contractor shall repair the turf to the satisfaction of the Departmental Representative.

1.7 TELECOMMUNICATION

.1 A cellular telephone, the cost of which will be paid by the Contractor, must be provided to the foreman so that it can be reached at all times on the site.

.2 The Contractor must provide on site the IT equipment required for the needs of the project. The client will provide internet access for the reception of emails and site documents.

1.8 SANITARY FACILITIES

.1 The Contractor must maintain in operation on the site, throughout the duration of the work, chemical plastic toilets and ensure the costs of rental and maintenance. The installation must comply with current regulations

.2 Post advisories and take precautions as prescribed by local public health authorities. Ensure the health of the premises and premises at all times.

1.9 FACILITY AREA

.1 The Contractor may use only the area of land determined by the client for the installations indicated.

.2 Parking areas will be made available to the Contractor.

1.10 STORAGE OF MATERIALS, MATERIALS AND TOOLS

.1 If necessary, provide and install a weatherproof, lockable shelter with raised floor to store equipment, materials and tools that may be damaged by the weather. Follow the Manufacturer's instructions for the protection of materials and products.

.2 The shelter must be kept clean and in order. The location will be determined by the Client.

.3 Keep materials and equipment on site that do not need to be protected from the weather, but ensure that they interfere as little as possible with the progress of the work.

.4 The different storage areas will be determined at the first site meeting.

1.11 TEMPORARY ELECTRICITY

.1 Contractors and Subcontractors will be able to draw on the services of the existing building throughout the duration of the works.

1.12 SITE SIGNAGE

.1 Apart from the warning signs, no other signs or signs may be installed on the site. Only signs and posters used to protect people or to give instructions are allowed on the site.

.2 Keep signs, placards, posters, signs and approved notices in good condition and in place throughout the duration of the work and evacuate them from the site after the work has been completed, or before if the client so requests.

1.13 SCAFFOLDING

.1 Provide the scaffolding necessary for the execution of the work, and ensure its maintenance.

.2 Temporary duty equipment must comply with CNESST's laws and regulations regarding the presentation of work accidents and comply with CSA S269.2 - Scaffolding.

.3 Protect any scaffolding, stepladder and ladder from unauthorized access.

1.14 PROJECT CLEANLINESS

.1 Maintain the site in good order and cleanliness and free of scrap materials and accumulated debris.

.2 Collect the waste materials and debris, place them in containers and evacuate them from

the site at the end of each working day at the place designated by the Client.

.3 Fires, burning and burial of waste and scrap materials on site are prohibited.

.4 Establish cleaning schedules so that dust does not fall on freshly executed works and does not contaminate waste systems.

.5 The Contractor shall have at its own expense all construction debris and equipment to be dismantled.

1.15 CLEANING

.1 Evacuate debris, waste and packaging materials from the construction site on a daily basis.

.2 Remove dust and mud from paved pavements.

.3 Store materials/materials recovered during demolition work.

.4 Do not store new materials/equipment or recovered materials/equipment in the construction facilities.

END OF SECTION

PARTIE 1 - General

1.1 PRIORITY

.1 In the case of work carried out for the federal government, the sections of Division 1 have priority over the technical sections of the other divisions of the project specifications.

1.2 RELATED SECTIONS

.1 Section 01 73 03 - Execution requirements

1.3 REFERENCE STANDARDS

.1 References to relevant standards can be made in each section of the specifications.

.2 Comply with the standards indicated above, in whole or in part, according to the specifications.

.3 In cases where there is any doubt as to the conformity of certain products with the relevant standards, the Departmental Representative reserves the right to verify it by tests.

.4 If the products or systems comply with the contract documents, the costs incurred by these tests will be borne by Her Majesty, otherwise they will be borne by the Contractor.

.5 If no specific date or edition is mentioned, comply with the most recent standards in force at the time of submission of the tender.

1.4 QUALITY

.1 The products, materials, equipment, devices, and parts (referred to as "products" in the specifications) used for the execution of the work must be new, in perfect condition, and of the best quality (in accordance with the terms of the specifications) for the purposes for which they are intended. If necessary, provide proof establishing the nature, origin and quality of the products supplied.

.2 Products found to be defective before the end of the work will be refused, regardless of the conclusions of previous inspections. The purpose of the inspections is not to relieve the Contractor of his responsibilities, but simply to reduce the risk of omission or error. The Contractor will ensure the removal and replacement of defective products at his own expense, and he will be responsible for any delays and costs arising as a consequence.

.3 In the event of a dispute as to the quality or suitability of the products, only the Departmental Representative may decide the issue based on the requirements of the contract documents.

.4 Unless otherwise indicated in the specifications, promote a certain uniformity by ensuring that the materials or elements of the same type come from the same manufacturer.

.5 Labels, trademarks and permanent nameplates affixed prominently to products used are not acceptable unless they give operating instructions or are affixed to equipment installed in mechanical or electrical installation rooms.

1.5 EASE OF OBTAINING THE PRODUCTS

.1 As soon as possible, find out the requirements for product delivery and plan for any delays. If delays in the delivery of the products are foreseeable, notify the Departmental Representative so that measures can be taken to replace them with replacement products or to make the necessary corrections, and this, sufficiently in advance not to delay the work.

.2 If the Departmental Representative has not been notified of foreseeable delivery delays at the start of the work, and if it seems probable that the execution of the work will be delayed, the Departmental Representative reserves the right to substitute the planned products with other comparable products which can be delivered more quickly without additional cost.

1.6 PRODUCT STORAGE, HANDLING AND PROTECTION

.1 Handle and store products without damaging, altering, or dirtying them, and following the manufacturer's instructions, if applicable.

.2 Store products grouped or in batches in their original packaging; leave the packaging, label, and manufacturer's seal intact. Do not unwrap or untie the products until it is time to incorporate them into a structure.

.3 Products liable to be damaged by the elements must be stored in a weatherproof enclosure.

.4 Hydraulic binders must not be placed directly on the ground or on a concrete floor, nor be in contact with the walls.

.5 Sand intended for incorporation into mortars and grouts must be kept dry and clean. Store it on wooden platforms and cover it with waterproof tarpaulins in bad weather.

.6 Place construction lumber and sheet or panel material on rigid, flat supports so that they do not rest directly on the ground. Give a low slope in order to favor the flow of the condensed water.

.7 Store and mix paint products in a heated and well-ventilated room. Daily, remove oily rags and other flammable waste from work areas. Take all the necessary precautions to avoid the risk of spontaneous combustion.

.8 Replace damaged products at no additional cost to the satisfaction of the Departmental Representative.

.9 Touch up damaged factory finished surfaces to the satisfaction of the Departmental Representative. Use products identical to those used for the original finish for touch-ups. It is forbidden to apply a finishing or touch-up product to the nameplates.

1.7 TRANSPORTATION

.1 Pay the transport costs of the products required for the execution of the work.

1.8 MANUFACTURER'S INSTRUCTIONS

.1 Unless otherwise specified in the estimate, install or implement the products according to the manufacturer's instructions. Do not rely on the indications written on the labels and containers supplied with the products. Obtain a copy of its written instructions directly from the manufacturer.

.2 Notify Departmental Representative in writing of any discrepancy between specification requirements and manufacturer's instructions, so that appropriate action can be taken.

.3 If the manufacturer's instructions have not been followed, the Departmental Representative may require, without increasing the contract price, the removal and reinstallation of products that have been fitted or installed incorrectly.

1.9 QUALITY OF WORK EXECUTION

.1 Implementation must be of the best possible quality, and the work must be carried out by trades workers, qualified in their respective disciplines. Notify the Departmental Representative if the work to be performed is such as to make it unlikely that the expected results will be obtained.

.2 Do not hire people who are unqualified or do not have the necessary dispositions to perform the work assigned to them. The Departmental Representative reserves the right to demand the dismissal of any person deemed incompetent, negligent, insubordinate, or whose presence cannot be tolerated on the site.

.3 Only the Departmental Representative can settle disputes concerning the quality of execution of the work and the skills of the workforce, and their decision is irrevocable.

1.10 COORDINATION

.1 Make sure that the workers collaborate with each other in carrying out the work. Exercise close and constant supervision of their work.

.2 It is the responsibility of the Contractor to ensure the coordination of the work and the installation of the crossings, sleeves, and accessories.

1.11 ELEMENTS TO CONCEAL

.1 Unless otherwise specified, conceal pipes, conduits, and electrical wires in floors, walls, and ceilings in rooms and finished areas.

.2 Before hiding items, inform the Departmental Representative of any abnormal situation. Install as directed by the Departmental Representative.

1.12 REMEDIAL WORK

.1 Perform remedial work required to repair or replace parts or elements of the

work found to be defective or unacceptable. Coordinate adjacent affected work as required.

.2 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of the work.

1.13 LOCATION OF FIXTURES

.1 Consider the location of fixtures, outlets, and mechanical and electrical items indicated as approximate, unless otherwise indicated on the plans.

.2 Inform the Departmental Representative of conflicting installation. Install as directed.

.3 Collaborate with the Departmental Representative in establishing work schedules in order to reduce conflicts and facilitate the use of the premises by the users.

1.14 FASTENINGS - GENERAL

.1 Provide metal fastenings and accessories in same texture, colour, and finish as adjacent materials, unless indicated otherwise.

.2 Prevent electrolytic action between dissimilar metals and materials.

.3 Use non-corrosive hot dip galvanized steel fasteners and anchors for securing exterior work, unless stainless steel or other material is specifically requested in affected specifications Section.

.4 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wood, or any other organic material plugs are not acceptable.

.5 Keep exposed fastenings to a minimum, space evenly and install neatly.

.6 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

1.15 FASTENINGS - EQUIPMENT

.1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.

.2 Use heavy hexagon heads, semi-finished unless otherwise specified. Use No. 304 stainless steel for exterior areas.

.3 Bolts may not project more than one diameter beyond nuts.

.4 Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur. Use stainless steel washers for stainless steel elements.

1.16 PROTECTION OF WORKS IN PROGRESS

.1 Prevent overloading of parts of building. Do not cut, drill, or sleeve load bearing structural member, unless specifically indicated without written approval of the Departmental Representative.

1.17 EXISTING UTILITIES

.1 When breaking into or connecting to existing services or utilities, execute work at times directed by local governing authorities, with minimum of disturbance to the work and/or to the occupants of the building and the movement of pedestrians and vehicles.

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

END OF SECTION

PARTIE 1 - General

1.1 PRIORITY

.1 In the case of work carried out for the federal government, the sections of Division 1 have priority over the technical sections of the other divisions of the project specifications.

1.2 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures

.2 The relevant technical sections of the specifications, with regard to the cutting and leveling work relating to the work concerned. It is important to warn the other trades concerned in advance.

1.3 REQUEST FOR EXECUTION OF CUTTING AND PATCHING WORK

.1 Submit a written request before proceeding with any cutting and patching work that may affect the following:
- .1 The structural integrity of any element of the work
- .2 The integrity of elements exposed to bad weather or water-repellent elements
- .3 The efficiency, maintenance or safety of any functional element
- .4 The aesthetic qualities of the visible elements

.2 The request must specify or include the following:
- .1 The name of the project
- .2 The location and description of the affected items
- .3 A statement explaining why it is necessary to perform the cutting and patching work requested
- .4 A description of the proposed work and the products that will be used
- .5 Alternatives to cutting and patching work
- .6 Written permission from the Contractor concerned
- .7 The date and time when the work will be performed

1.4 MATERIALS

.1 Materials allowing an identical installation.

.2 Any modification concerning the materials must be the subject of a substitution request in accordance with the prescriptions of section 01 33 00 - Submittal Procedures.

1.5 PREPARATION

.1 Inspect existing conditions, including elements subject to damage or movement during cutting and patching.

.2 After uncovering, inspect conditions affecting performance of the work.

.3 Beginning of cutting or patching means acceptance of existing conditions.

.4 Provide supports to assure structural integrity of surroundings. Provide

devices and methods to protect other portions of the structure from damage.

.5 Provide protection from elements for areas which are to be exposed by uncovering work; maintain excavations free of water.

1.6 EXECUTION

.1 Execute cutting, fitting, and patching required to complete the work.

.2 Fit several parts together, to integrate with other the work.

.3 Uncover structures to complete work that was, for one reason or another, ill-timed.

.4 Remove and replace defective and non-conforming elements.

.5 Provide openings in non-structural elements of Work for penetrations of mechanical and electrical work.

.6 Execute work by methods to avoid damage to other work, and which will provide proper surfaces to receive patching and finishing.

.7 Employ original installer to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.

.8 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed on masonry work without prior approval.

.9 Restore work with new products in accordance with requirements of Contract Documents.

.10 Fit work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

.11 When passing through walls, ceilings or fire-rated floors, completely seal the voids around the openings with a fire-resistant material, over the entire thickness of the element crossed.

.12 Refinish surfaces to match adjacent finishes. Refinish continuous surfaces to the nearest intersection. Refinish assemblies by refinishing the entire unit.

.13 Conceal pipes, ducts and wiring in floor, wall and ceiling construction of finished areas except where indicated otherwise.

END OF SECTION

PARTIE 1 - General

1.1 PRIORITY

.1 In the case of work carried out for the federal government, the sections of Division 1 have priority over the technical sections of the other divisions of the project specifications.

1.2 PROJECT CLEANLINESS

.1 Maintain work site in tidy condition, free from accumulation of waste products and debris.

.2 Remove waste materials from site at daily regularly scheduled times or dispose of as directed by the Departmental Representative.

.3 Clear snow and ice from access to building. Bank/pile snow in designated areas only.

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

.5 Provide on site, closed containers for the collection of debris and waste materials.

.6 Provide and use marked separate bins for recycling.

.7 Evacuate debris and waste materials off the work site and place them in waste containers at the end of each working day.

.8 Clean interior areas prior to start of finishing work, and maintain areas free of dust and other contaminants during finishing operations.

.9 Store volatile waste in covered metal containers, and remove from premises at end of each working day.

.10 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.

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

.12 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

1.3 FINAL CLEANING

.1 Remove waste products and debris and leave area clean and suitable for occupancy.

.2 Prior to final inspection remove surplus products, tools, construction machinery and equipment.

.3 Clean and polish glass, mirrors, hardware, wall tile, stainless steel, chrome, porcelain enamel, baked enamel, plastic laminate, and mechanical and electrical fixtures. Replace broken, scratched or disfigured glass.

.4 Remove dust, stains, marks and scratches found on decorative work, mechanical and electrical appliances, furniture, walls, and floors.

.5 Clean lighting reflectors, lenses, and other lighting surfaces.

.6 Vacuum clean and dust building interiors, behind grilles, louvres, and screens.

.7 Wax, seal, shampoo or prepare floor finishes, as recommended by manufacturer.

.8 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.

.9 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.

.10 Remove dirt and other disfiguration from exterior surfaces.

.11 Clean and sweep roofs and gutters.

.12 Sweep and clean hard coated surfaces.

.13 Thoroughly clean equipment and devices and clean filters of mechanical systems.

.14 Clean roofs, downspouts, and drainage systems.

.15 Remove debris and surplus materials from crawl areas and other accessible concealed spaces.

.16 Remove snow and ice from access to building.

END OF SECTION

PARTIE 1 - General

1.1 PRIORITY

.1 In the case of work carried out for the federal government, the sections of Division 1 have priority over the technical sections of the other divisions of the project specifications.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

.1 The instructions must be prepared by competent persons having the required knowledge in the operation and maintenance of the products described.

.2 The submitted copies will be returned after the final inspection of the work, along with the comments of the Departmental Representative.

.3 If necessary, review the content of documents before resubmitting them.

.4 Two weeks before the substantial completion of the work, submit to the Departmental Representative two (2) final copies of the operation and maintenance manuals, in French.

.5 Provide spare parts, maintenance materials and special tools of same quality and manufacture as products provided used for the work.

.6 Provide evidence, if requested, for type, source and quality of products supplied.

.7 Defective products will be rejected, even if they have been previously inspected, and must be replaced at no additional cost.

.8 Bear the cost of transporting these products.

1.3 FORMAT

.1 Organize data as instructional manual.

.2 Binders: vinyl, hard covered, 3 'D' ring, loose leaf [219 x 279] mm with spine and face pockets.

.3 When multiple binders are used correlate data into related consistent groupings. Identify contents of each binder on spine.

.4 Cover: identify each binder with type or printed title 'Project Record Documents'. List title of project and identify subject matter of contents.

.5 Arrange content by systems under Section numbers and sequence of Table of Contents.

.6 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.

.7 Text: manufacturer's printed data, or typewritten data.

.8 Drawings: provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

1.4 CONTENTS OF EACH VOLUME

.1 Table of contents: indicate the name of the project.

.1 The name, address and telephone number of the Departmental Representative and the Contractor as well as the names of their representatives.
.2 A list of products and systems, indexed according to the contents of the volume.

.2 For each product or system:
.1 List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.

.3 Product Data: mark each sheet to identify specific products and component parts, and data applicable to installation; delete inapplicable information.

.4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.

.5 Typewritten text: as required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

1.5 AS-BUILT DOCUMENTS AND SAMPLES

.1 In addition to the documents mentioned in the General Conditions, keep on site, for the Departmental Representative, a copy or a set of the following documents:
.1 Contract Drawings
.2 Specifications
.3 Addenda
.4 Notice of proposed changes and authorization of changes
.5 Reviewed shop drawings, product data, and samples
.6 Field test records
.7 Inspection certificates
.8 Manufacturer's certificates

.2 Store record documents and samples in field office apart from documents used for construction. Provide files, racks, and secure storage.

.3 Label record documents and file in accordance with Section number listings in List of Contents of the project file. Label each document "PROJECT RECORD" in neat, large, printed letters.

.4 Maintain record documents in clean, dry and legible condition. Do not use record documents for construction purposes.

.5 Keep record documents and samples available for inspection by the Departmental Representative.

1.6 RECORDING INFORMATION ON FIELD CONDITIONS

.1 Record information on two (2) sets of opaque drawings and retain one copy in the project file.

.2 Record information using red felt tip markers.

.3 Record information concurrently with work progress. Do not conceal work until required information is recorded.

.4 Contract Drawings and shop drawings: mark each item to record actual

construction, including:

.1 Changes made on site with regard to the dimensions and details of the structures.
.2 Changes made by change orders.
.3 Details not on original Contract Drawings.
.4 Referenced Standards to related shop drawings and modifications.

1.7 HARDWARE AND SYSTEMS

.1 For each item of equipment and each system include description of unit or system, and component parts. Give function, normal operation characteristics and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.

.2 Panel board circuit directories: provide electrical service characteristics, controls, and communications.

.3 Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.

.4 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

.5 Provide servicing and lubrication schedule, and list of lubricants required.

.6 Include manufacturer's printed operation and maintenance instructions.

.7 Include sequence of operation by controls manufacturer.

.8 Provide installed control diagrams by controls manufacturer.

.9 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.

.10 Additional requirements: according to the requirements of the various technical sections of the estimate.

1.8 MATERIALS AND FINISHES

.1 Building products, applied materials, and finishes: include product data, with catalogue number, size, composition, and colour and texture designations. Provide information for re-ordering special products as needed.

.2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

.3 Additional requirements: according to the requirements of the various technical sections of the estimate.

.4 Collaborate with the Departmental Representative in establishing work schedules in order to reduce conflicts and facilitate the use of the premises.

1.9 STORAGE, HANDLING AND PROTECTION

.1 Store equipment in a manner that prevents damage or deterioration.

.2 Store in original and undamaged condition with manufacturer's seal and labels intact.

.3 Store items subject to damaged from weather in weatherproof enclosures.

.4 Store paints and freezable materials in a heated and ventilated room.

.5 Remove and replace damaged products at own expense and for review by the Departmental Representative.

1.10 WARRANTIES

.1 Separate each warranty with index tab sheets keyed to Table of Contents listing. All guarantees must be found in the Maintenance and Operations Manual.

.2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

.3 Except for items put into use with Departmental Representative's permission, leave date of beginning of time of warranty until Date of Substantial Completion is determined.

.4 Make sure that the documents are in good order and contain all the necessary information.

END OF SECTION

Partie 1 General

1.1 REFERENCE STANDARDS

.1 American National Standards Institute (ANSI)
- .1 ANSI A10.8 2011, Safety Requirements for Scaffolding

.2 Canada Green Building Council (CBDCa)
- .1 LEED Reference Guide for Building Design and Construction, Version 4

.3 CSA Group (CSA)
- .1 CSA S350-M1980 (R2003), Code of Practice for Safety in Demolition of Structures.

.4 National Research Council Canada (NRC)
- .1 National Building Code - Canada [2015] (NBC).

.5 Department of Justice Canada (Jus)
- .1 Canadian Environmental Assessment Act (CEAA), 2012
- .2 Canadian Environmental Protection Act (CEPA), 2012
  - .1 On-Road Vehicle and Engine Emission Regulations, SOR/2003-2
  - .2 Regulations Amending the On-Road Vehicle and Engine Emission Regulations, SOR/2006-268
  - .3 Transportation of Dangerous Goods Act, 1992 (TDGA), c. 34
  - .4 Motor Vehicle Safety Act (1993, c. 16)
  - .5 Hazardous Materials Information Review Act (R.S.C., 1985, c. 24 (3rd Supp.), Part III)

.6 National Fire Protection Association (NFPA)
- .1 NFPA 241 13, Standard for Safeguarding Construction, Alteration, and Demolition Operations

1.2 DEFINITIONS

.1 Demolish: Dismantle elements that are part of the existing structure and dispose of them off-site in accordance with regulations, unless it is appropriate to remove and retrieve them or remove and reinstall them.

.2 Removal and Recovery: Dismantle items and deliver them to the Departmental Representative ready for reuse

.3 Remove and Re-install: Disassemble items, prepare for reuse and reinstall where indicated.

.4 Retention of Existing Elements: Existing construction elements that are retained unless it is appropriate to remove, remove and retrieve them or remove and reinstall them.

.5 Hazardous substances: substances, goods, goods and products that may include, but are not limited to, asbestos, mercury and lead, PCBs, poisons, corrosive agents, flammable materials, radioactive substances and all other materials that, if misused, may have an adverse effect on human health or well-being, or the environment, as defined in the federal Hazardous Products Act, 1985, including its latest amendments.

1.3 GENERAL INFORMATION OF WORK

.1 The Contractor will provide the labor, tools and equipment necessary to complete demolition work as part of the project.

.2 This section generally applies to the demolition of non-load bearing structures, as indicated on the plans. These include, but are not limited to:

- .1 Dismantling of aluminum doors and frames as well as perimeter sealing, aluminum mouldings and thresholds
- .2 Demolition of gypsum blowing on metal uprights
- .3 Demolition of rigid insulation
- .4 Dismantling of stone and mortar joint
- .5 Terrazzo flooring cup
- .6 Any other elements indicated in the drawings or necessary for the construction work or installation of new equipment.

.3 Coordination: Coordinate the selective demolition work so that the work covered by this section adheres to the aesthetic criteria established in the Drawings as well as to the dimensions prescribed for all the elements in the plan in addition to maintaining their relationship with all the other elements of the building; dimensions according to the drawings.

.4 Coordination: The requirements of this section shall be coordinated with the Departmental Representative with respect to the ownership of materials as follows:

- .1 Except for items or materials intended to be reused, recovered, reinstalled or which remain the property of the Departmental Representative, the materials resulting from the demolition shall become the property of the Contractor and shall be removed from the Project Site.

.5 Pre-Demolition Meeting: Convene a pre-demolition meeting on site to confirm the amount of materials recovered and materials demolished and to review the demolition plan prepared for the Contractor by a Ministerial Representative.

1.4 SUBMITTALS PROCEDURES

.1 Documents and samples to be submitted for approval: Submit the following documents and samples before commencing work under this section.

.2 Schedule of selective demolition activities shall include the following information:

- .1 Detailed scheduling of the selective demolition and removal work, including the start and completion dates of each activity.
- .2 Coordinate day-to-day activities on site with the Departmental Representative and limit the number of interruptions during business hours.
- .3 Interruption of public services
- .4 Coordination of interruption of power supply, disconnection, shut-off and maintenance of utilities
- .5 Use of elevators and stairs

.6 Location of temporary partitions and means of evacuation; this requirement also applies to other users affected by selective demolition activities.

.7 Coordination with the ongoing occupation of parts of the existing building by the Departmental Representative.

.3 Demolition Plan: Submit a plan of the demolition area indicating temporary facilities and stays, methods of removal and demolition; the plan, which will be prepared by a Ministerial Representative in accordance with the requirements of the competent authority, will include the following:

.1 Proposed Dust Removal and Noise Control Measures: Submit a statement or drawing indicating the proposed measures for use, proposed locations and proposed timing of operation. The Departmental Representative reserves the right to make changes when the proposed methods interfere with day-to-day operations.

.2 Make a list of the items removed and recovered after the selective demolition is completed.

.3 Evidence of Landfill: Indicate the date on which a certified landfill site accepted the hazardous waste.

.4 Pre-Demolition Photographs: Submit photographs of the condition of adjacent structures and developments prior to commencement of work. Document the finishing of surfaces to prevent existing damage from being attributed to selective demolition activities.

1.5 QUALITY ASSURANCE

.1 Regulatory Requirements: Carry out the work in accordance with the requirements and regulations of the Competent Authority with respect to environmental type notices prior to commencing selective demolition work. Transport and disposal must comply with the regulations of the competent authority as well as the requirements of the CNESST.

1.6 SITE CONDITIONS

.1 The Departmental Representative will occupy portions of the building directly adjacent to the selective demolition area.

.1 Carry out selective demolition work so that activities are not hindered.

.2 Provide at least 72 hours notice to the Departmental Representative for activities that will affect the activities of building occupants.

.2 Maintain access to pedestrian walkways, corridors and adjacent facilities that are occupied or used, in accordance with the following:

.1 .1 Do not block or obstruct pedestrian walkways, corridors or other facilities that are occupied or used without the written permission of the Competent Authority.

.3 The Departmental Representative assumes no responsibility for the condition of the areas targeted by the selective demolition.

.1 The conditions present during the inspection performed for the purpose of bidding will be maintained by the Departmental Representative to the extent possible.

.4 Hazardous Materials Discovery - notify the Departmental Representative immediately if materials are suspected of containing hazardous materials.

Partie 2 Materials

.1 Temporary Support Structures: Use a recognized or licensed engineer in the province where the work takes place to design the temporary support structures required for the demolition work, underpinning and other foundation supports required for the project.

.2 Laminating materials: Use laminating materials identical to existing materials.

.1 In the absence of identical materials or materials for exposed surfaces, use materials that visually blend with adjacent surfaces as much as possible.

.2 Use a material with a service life after installation equal to or greater than that of the existing material.

.3 Meet the material and installation requirements provided in various sections.

Partie 3 Execution

3.1 INSPECTION

.1 Confirm that utilities have been disconnected and shut down.

.2 Check the existing conditions and coordinate with the indicated requirements in order to establish the area of the structure to be selectively demolished.

.3 Establish an inventory of items to be removed and reinstalled as well as items to be removed and recovered.

.4 Notify the Departmental Representative when existing mechanical, electrical or structural elements conflict with the intended function or concept.

.5 Entrust the building inspection to a Ministerial Representative when the removal of elements is likely to cause a structural deficiency or a collapse of part of the adjacent structure or structures during the selective demolition work.

.6 Carry out inspections as work progresses to detect risks arising from selective demolition activities.

3.2 PREPERATION

.1 Selectively demolish and remove debris to minimize interference with occupied and used traffic lanes, walkways and adjacent facilities:

.1 Obtain the permission of the Departmental Representative and the Competent Authorities before blocking or obstructing streets, walkways or other facilities that are occupied or used. Provide alternative routes around blocked or obstructed traffic lanes if required by regulation.

.2 Erect temporary protective devices such as walkways, fences, railings, canopies and covered passageways where required by the competent authorities.

.3 Protect the land, facilities and landscaping that are to be conserved.

.4 Erect a visible fence at the edge of the foliage of each tree or at the edge of the foliage of a group of trees to be preserved.

.2 Provide temporary enclosures to protect the existing building and construction site from weather, other construction activities and similar activities during and after completion of the work.

.1 Temporarily install waterproof enclosures for the exterior of the building.

.2 Temporarily install insulated enclosures when heating or air conditioning is required before the building is closed.

.3 Coordinate the layout of the enclosures with the ventilation and drying requirements of the materials in order to avoid any dangerous conditions.

.3 Erect and maintain dust-tight bulkheads and temporary enclosures to limit the migration of dust and dirt and to insulate areas from vapours and noise.

3.3 SELECTIVE DEMOLITION

.1 Demolish and remove only the existing elements required to make room for the construction of the prescribed new elements. Use the methods required to complete the work within the limits prescribed by the regulations in force. Proceed as follows:

.1 Perform selective demolition work in a systematic manner, starting at the top level and ending at the bottom level. Complete the selective demolition work above each floor or landing before moving the support elements to the next lower level.

.2 Make clean openings and drill plumb, level and dimension holes. Use cutting methods that are unlikely to damage the items to be preserved or adjacent items. Use hand tools or small power tools designed to saw or grind, not to pick and cut, to minimize disturbance to adjacent surfaces. Temporarily cover the openings that need to be kept.

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

.4 Do not use a cutting torch as long as the work area contains flammable materials. Check the condition and contents of items that contain construction voids such as ducts and pipes, before starting the oxy-gas cutting work. Provide [fire safety officers and] portable fire extinguishing appliances during oxy-gas cutting work.

.5 Maintain adequate ventilation when using a cutting torch.

.6 Remove rotten, vermin-infested, unsafe or inappropriate materials and dispose of them promptly by off-site transport.

.7 Remove structural elements and place them on the ground in a manner that prevents them from falling freely to strike the ground with force or to lift dust.

.8 Place the selective demolition equipment and remove debris and materials so as to avoid imposing excessive loads on load-bearing walls, floors or framing.

.9 Dispose of the items and materials produced by the demolition work without delay.

.10 Restore the building elements and surfaces that must be kept in the same condition as they were before the start of the demolition work.

.2 Elements removed and reinstalled:

.1 Clean and repair the items to return them to their intended purpose. Paint the material in the same color as the new material.

.2 Pack the items or pack them in crates after cleaning and repairing them.

.3 Indicate the contents on each container.

.4 Protect items from damage during transport and storage.

.5 Reinstall items where indicated.

.6 Comply with installation requirements for new equipment.

.7 Provide the connectors, brackets and various items required to return the items to their intended purpose.

.3 Existing elements that must remain in place:

.1 Protect building elements that must remain in place from damage or soiling during selective demolition.

.2 During selective demolition, items must be transported to a safe and appropriate warehouse. They must be cleaned and reinstalled at their original location after selective demolition work is completed.

3.4 ACTIVITY RELATED TO THE COMPLETION OF WORK

.1 Repair and repair: Repair without delay the damage caused to the adjacent construction by the selective demolition work. Proceed as follows:

.1 Aggregate existing surfaces to be repaired to prepare them for receiving new material.

.2 Completely fill holes and depressions in existing masonry walls with masonry plastering material applied according to the manufacturer's written recommendations.

.3 Restore exposed finish coatings from the ragged areas and extend restoration to adjacent elements to remove traces of ragging and remediation.

.2 Disposal of demolition waste: Dispose of waste in accordance with local regulations. Transport demolition materials to an approved provincial landfill or alternative disposal site (recycling facility). Proceed as follows:

.1 Dispose of demolition materials without delay.

.2 Prevent any accumulation of demolition materials on the site.

.3 Prohibit the burning of demolition materials.

END OF SECTION

PART 1 GENERAL

1.1 RELATED WORKS

.1 Section 03 10 00 – Concrete Forming and Accessories

.2 Section 03 20 00 – Concrete Reinforcing

.3 Section 03 30 00 – Cast-in-Place Concrete

1.2 GENERAL REQUIREMENTS

.1 To have visited the site of the work beforehand and to have taken note of the current conditions of the site.

.2 Be aware of and comply strictly with all laws, regulations, decrees and safety codes pertaining to the work covered by this section of the specification.

.3 Meet the Departmental Representative's requirements regarding the timing of the work to minimize disruption to the occupants of the building.

1.3 GENERAL INFORMATION OF WOK

.1 Demolish all spalled or deteriorated concrete areas as directed or described in the plans and specifications.

.2 Clean all concrete surfaces and rebar to allow concreting to proceed.

.3 Remove demolition materials as work progresses.

1.4 COMPLETE WORKS

.1 The architectural and structural plans and specifications are part of a whole in order to complete the entire construction. They must be read in conjunction with each other in order to take into account all the implications of each of them.

.2 These implications include, in addition to the requirements prescribed in the contract documents, all demolition, drilling, connection and finishing work not specifically indicated but required to complete the works.

1.5 PROTECTION MEASURES

.1 Protect and add temporary supports required for pipework, lighting and electrical conduits in the work area.

.2 Limit the noise level to an acceptable level for the users of the building and adjacent buildings.

.3 Take care not to damage the preserved parts of the building and add all the necessary protective works before starting the work.

.4 Install all required signage around the work site.

.5 Provide measures to protect fresh air inlets, stale air outlets, mechanical, electrical and telephone rooms and stairwells in the vicinity of the work.

1.6 EQUIPMENT

.1 The concrete should be stripped with a jackhammer weighing no more than 7 kg. Then proceed to remove the chipped or cracked particles with a high-pressure water jet.

PART 2 PRODUCTS

2.1 MATERIALS

.1 Not applicable.

PART 3 EXECUTION

3.1 SAW MARKS

.1 Cut the perimeter of all surfaces to be repaired with a continuous saw cut approximately 13 mm deep, or as shown on the drawings, before proceeding with the demolition work.

.2 Care should be taken to avoid cutting rebar through the sawing wheel.

3.2 STRIPPING OF CONCRETE

.1 The concrete surfaces to be demolished will be determined jointly by the Departmental Representative and the Contractor.

.2 Install protective screens in areas deemed necessary to ensure the safety of the site.

.3 Clean the concrete of any delaminated and contaminated areas to obtain a sound concrete surface. Extend the concrete stripping as required to completely clear the rebar to at least 25 mm outside the bar perimeter.

.4 Extend the demolition perimeter as required so that the corrosion-affected rebars are completely clear. Existing bars should not have been affected by corrosion where they penetrate the existing concrete.

.5 The sound concrete surfaces reached at the site of the stripping work shall be cleaned of all debris and laitance by means of a water jet as the demolition work progresses. Care should be taken to clean all cavities thoroughly so that no improper substances affect the bond of the repair materials.

.6 Clean the reinforcing steel bars with a wet sandblast. The affected surface should be free of rust, grease, oil and other contaminants. Deficient surfaces should not exceed 5% of the exposed steel surfaces.

.7 Remove all debris from the site and leave the site in a clean condition acceptable to the Departmental Representative.

.8 Do not carry out demolition work with a jackhammer within 5 m of a freshly concreted surface (less than 21 days old).

3.3 SURFACE CONDITION

.1 The concrete surfaces exposed by the stripping work should be rough and level with sound concrete. The concrete must be saturated surface dry (SSD condition). All surfaces shall be of adequate quality so that the specified repair work can be carried out in accordance with the requirements of this specification.

.2 Reinforcing bars should be thoroughly cleaned. No bars affected by corrosion should penetrate the concrete in place around the periphery of the demolition work.

3.4 CLEANING

.1 Dampen dusty debris as demolition work proceeds and keep it damp to prevent the spread of dust outside the work site.

.2 Remove demolition materials from the site as the work progresses.

.3 At the end of the work, remove any debris that may have accumulated and clean the area.

END OF SECTION

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 REFERENCE STANDARDS

.1 Refer to the latest applicable editions of the following standards:

.1 CSA Group (CSA):

.1 CSA A23.1/A23.2, Concrete materials and methods of concrete construction/ Test methods and standard practices for concrete

.2 CSA S269.3, Concrete Formwork, National Standard of Canada.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Not applicable.

1.4 COMPLETE WORKS

.1 The architectural and structural plans and specifications are part of a whole in order to complete the entire construction. They must be read in conjunction with each other in order to take into account all the implications of each of them.

.2 These implications include, in addition to the requirements prescribed in the contract documents, all demolition, drilling, connection and finishing work not specifically indicated but required to complete the works.

1.5 DELIVERY, STORAGE AND HANDLING

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

.2 Storage and handling: store materials off ground and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

.3 Waste Management and Disposal

.1 Separate waste materials for recycling.
.2 Place materials defined as hazardous or toxic in designated containers.
.3 Divert wood materials from landfill to a recycling facility.
.4 Divert plastic materials from landfill to a recycling facility.
.5 Divert unused form release material from landfill to an official hazardous material collections site.

PART 2 PRODUCTS

2.1 MATERIALS

.1 Formwork materials: for exposed concrete, precast formwork systems are prohibited. Use high-density Douglas Fir plywood CSA O121. The plywood shall be new (first use).

.2 Form release agent: non-toxic, biodegradable, low VOC.

.3 Form stripping agent: colourless mineral oil, non-toxic, biodegradable, low VOC, free of kerosene, with viscosity between 15 to 24 mm²/s at 40 °C, flashpoint minimum 150 °C, open cup.

.4 Falsework materials: to CSA S269.1.

PART 3 EXECUTION

3.1 FABRICATION AND ERECTION

.1 Obtain Departmental Representative's approval before placing concrete in formwork.

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

.3 Align form joints and make watertight. Keep form joints to minimum.

.4 Build in anchors and other inserts required to accommodate Work specified. Ensure that anchors and embedded parts do not protrude onto surfaces that need to be finished (e.g. paint).

.5 Leave a continuous opening at the top of the formwork to allow concreting.

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

3.2 REMOVAL

.1 Leave formwork in place for minimum seven (7) days after placing concrete. This period of time does not relieve the Contractor of his responsibility to take into account the complexity and type of work as well as climatic conditions, and to ascertain prior to stripping that the concrete has attained sufficient strength to support its own weight and other loads applied.

3.3 CLEANING

.1 Clean site of all debris, timbers, nails, sawdust, etc. as work progresses.

END OF SECTION

PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 02 42 00 – Concrete Cleaning and Stripping

.2 Section 03 10 00 – Concrete Forming and Accessories

.3 Section 03 30 00 – Cast-in-Place Concrete

1.2 REFERENCE STANDARDS

.1 Refer to the latest applicable editions of the following standards:

.1 American Concrete Institute (ACI)

.1 SP-66, ACI Detailing Manual 2004.

.2 ASTM International Inc.

.1 ASTM A82/A82M, Standard Specification for Steel Wire, Plain, for Concrete Reinforcement.

.2 ASTM A143/A143M, Standard Practice for Safeguarding Against Embrittlement of Hot-Dip Galvanized Structural Steel Products and Procedure for Detecting Embrittlement.

.3 ASTM A185/A185M, Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete.

.4 ASTM A775/A775M, Standard Specification for Epoxy-Coated Reinforcing Steel Bars.

.3 CSA Group (CSA)

.1 CSA A23.1-F09/A23.2, Concrete materials and methods of concrete construction/Test methods and standard practices for concrete.

.2 CSA A23.3, Design of Concrete Structures.

.3 CSA G30.18, Carbon Steel Bars for Concrete Reinforcement.

.4 CSA G40.20/G40.21, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.

.5 CSA G164, Hot Dip Galvanizing of Irregularly Shaped Articles.

.6 CSA W186, Welding of Reinforcing Bars in Reinforced Concrete Construction.

.4 Reinforcing Steel Institute of Canada (RSIC)

.1 RSIC, Reinforcing Steel Manual of Standard Practice.

1.3 QUALITY ASSURANCE

.1 Upon request, submit in writing to Departmental Representative proposed source of reinforcement material to be supplied.

1.4 DELIVERY, STORAGE AND HANDLING

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

.2 Storage and Handling Requirements:

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

.2 Replace defective or damaged materials with new.

PART 2 PRODUCTS

2.1 MATERIALS

.1 Substitute different size bars only if permitted in writing by Departmental Representative.

.2 Reinforcing steel: billet steel, grade 400R, deformed bars to CSA G30.18, unless indicated otherwise.

.3 Weldable reinforcing steel: weldable low alloy steel, grade 400W, deformed bars to CSA G30.18.

.4 Welded wire mesh: compliant to CSA G30.5. Provide in flat sheets only.

.5 Cold-drawn annealed steel wire ties: to ASTM A82/A82M.

.6 Chairs, bolsters, bar supports, spacers: to CSA A23.1/A23.2.

.7 For exposed concrete surfaces: chairs, bolsters, bar supports and special spacers, plastic coated, stainless steel or as specified.

.8 Galvanizing of reinforcement: 610 g/m2, to CSA G164.

2.2 FABRICATION

.1 Fabricate reinforcing steel in accordance with CSA A23.1/A23.2, SP-66 and Reinforcing Steel Manual of Standard Practice by the Reinforcing Steel Institute of Canada (RSIC).

.2 Obtain Departmental Representative's written approval for locations of reinforcement splices other than those shown on placing drawings.

.3 Upon approval of Departmental Representative, weld reinforcement in accordance with CSA W186.

PART 3 EXECUTION

3.1 FIELD BENDING

.1 Do not field bend or field weld reinforcement except where indicated or authorized by Departmental Representative.

.2 When field bending is authorized, bend without heat, applying slow and steady pressure.

.3 Replace bars, which develop cracks or splits.

3.2 PLACING REINFORCEMENT

.1 Place reinforcing steel as indicated on placing drawings in accordance with CSA A23.1/A23.2.

.2 At least three (3) days prior to placing concrete, obtain Departmental Representative's approval of reinforcing material and placement.

.3 Ensure cover to reinforcement is maintained during concrete pour.

.4 Clean reinforcing bars prior to placing concrete.

3.3 CONCRETE COVERAGE

.1 Concrete poured directly on the ground: 75 mm.

.2 Concrete exposed to the ground or the weather:

.1 Bars 20 M and larger: 50 mm.
.2 Bars 15 M and smaller; 40 mm.

.3 Concrete not exposed to the ground and weather:

.1 Slabs, walls and girders: 20 mm.
.2 Beams and columns: 40 mm.

3.4 REPLACEMENT OR REINFORCING OF REINFORCEMENT BARS

.1 Replace or reinforce reinforcing bars damaged by rust using same diameter bars. Follow the direction of the Departmental Representative.

3.5 SPLICING

.1 Lap splices: The location of spliced bars not indicated on the drawings to be approved by the Departmental Representative. Such splices shall always be performed away from locations where tensile load is high in the bars. Unless otherwise indicated on the drawings, minimum splice lengths shall be as follows:

Bars (dia) (mm)	Minimum splicing lengths (mm)
10	440
15	630
20	765
25	1290
30	1810
35	2580

3.6 CLEANING

.1 Progress Cleaning: Leave Work area clean at end of each day.

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

.3 Waste Management: separate waste materials for recycling.

END OF SECTION

PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 02 42 00 – Concrete Cleaning and Stripping

.2 Section 03 10 00 – Concrete Forming and Accessories

.3 Section 03 20 00 – Concrete Reinforcing

1.2 REFERENCE STANDARDS

.1 Abbreviations and acronyms

.1 Portland Cement: hydraulic cement or blended hydraulic cement (where “b” denotes blended).

.1 Type GU: General use cement.

.2 Reference Standards

.1 Refer to the latest applicable editions of the following standards:

.1 ASTM International Inc:

.1 ASTM C260/C260M, Standard Specification for Air-Entraining Admixtures for Concrete.

.2 ASTM C309, Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.

.3 ASTM C494/C494M, Standard Specification for Chemical Admixtures for Concrete.

.4 ASTM C1017/C1017M, Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete.

.2 CSA Group (CSA):

.1 CSA A23.1.1/A23.2, Concrete materials and methods of concrete construction/Test methods and standard practices for concrete.

.2 CSA A283, Qualification Code for Concrete Testing Laboratories.

.3 CSA A3000, Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005).

.3

1.3 CONCRETE QUALITY CONTROL

.1 Submit the following to the Departmental Representative for approval:

.1 concrete mix proportioning;
.2 the type and make of admixtures;
.3 the analyses of the “alkali aggregate” reactivity.

.2 Provide the Departmental Representative minimum 24h notice prior to placing of concrete specifying date and time of every pour.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

.1 Product Data Sheets: Submit manufacturer's product data sheets and documentation for all products required to complete Work. The data sheets must provide product characteristics, performance criteria, physical size (dimensions), finish and limitations.

.2 Sample for repair Concrete:

.1 Prepare a 300x300 sample of repair concrete with the details, color, grade and finish, and deliver and place on site at the location indicated by the Departmental Representative for approval by the latter.
.2 Proceed with concreting after receiving written approval from Departmental Representative.
.3 Plan to make as many samples as necessary to achieve a result approved by the Departmental Representative.

PART 2 PRODUCTS

2.1 PERFORMANCE CRITERIA

.1 Ensure concrete supply meets performance criteria of concrete as established by Departmental Representative.

2.2 MATERIALS

.1 Portland Cement: to CSA A3001, Type GU.

.2 Water: to CSA A23.1.

.3 Aggregates: to CSA A23.1/A23.2.

.4 Color and composition: In order to ensure uniform coloring and composition of the mixture, the same product brands and the same source of supply must be used for the construction of entire work.

.5 Repair mortar for concrete repairs of horizontal, vertical and overhanging surfaces.

.1 Compressive strength to ASTM C109, 40 MPa at 28 days;
.2 Bond strength to ASTM C882, 11.5 MPa at 28 days;
.3 Minimum application thickness of 3 mm;
.4 Pigmented version to match existing substrate;
.5 Non-reactive aggregates of similar color and size.

.6 Bonding agent on reinforcing bars and concrete surfaces:

.1 Anti-corrosive, three-component, water-based coating and bonding agent;
.2 Bond strength on concrete to CSA A23.2, 2 to 3 MPa.

2.3 ADMIXTURES

.1 The use of admixtures will only be permitted to correct a specific defect in the mix or to meet the requirements of placement following recommendations by the testing laboratory and with the approval of the Departmental Representative.

.2 Permission to use an admixture will be withdrawn if, during the construction period, the behaviour of the concrete appears unsatisfactory.

.3 In cold weather, accelerators can be used with the required approval. In such a case, the use of accelerators must meet the requirements of CSA A23.1 on cold weather concreting. The use of calcium chloride is prohibited.

.4 In warm weather, set-retarding admixtures can be used to provide a better finish, subject to the required approval.

2.4 STORAGE AND HANDLING

.1 Deliver materials in original factory packaging, with the manufacturer's stamp.

.2 Follow manufacturer's instructions regarding storage conditions for materials, to avoid any damage that could affect their properties.

PART 3 EXECUTION

3.1 PREPARATION

.1 Take a representative sample from each surface to be reproduced. Provide samples to the repair mortar supplier for analysis and mix development, along with the methodology to be used for the repairs.

.2 Submit mortar and concrete mix designs and surface finish samples to the Departmental Representative for review prior to commencement of work. Do not proceed with concrete reconstruction without written authorization from the Departmental Representative.

.3 Obtain Departmental Representative's written approval before placing concrete, mortar and bonding agent. Provide 24 hours minimum notice prior to placing of concrete.

.4 Place reinforcement in accordance with Section 03 20 00 (Concrete Reinforcement).

.5 Concreting shall not be permitted until materials and mix design are approved.

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

.7 Ensure reinforcement and embedded parts are not displaced during concrete placement.

.8 Protect previous Work from staining.

3.2 CONCRETE MANUFACTURING AND DELIVERY

.1 Take appropriate steps to ensure that concrete poured is carried out within ambient air temperature limits stated in Table 16 of CSA-A23.1.

.2 Organise and schedule concrete deliveries/production to ensure that each concreting operation is conducted without interruption.

.3 Where superplasticizer is required to improve concreting, proceed to addition of superplasticizer on site after all other ingredients are thoroughly mixed. Add superplasticizer in such way that the properties of concrete are maintained during unloading, placement and compacting. Comply with the requirements and methods recommended by the manufacturer. Proportion the superplasticizer to obtain concrete slump between 100 mm and 150 mm.

3.3 INSTALLATION/APPLICATION

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

.2 Internal vibrators in adequate quantity shall be of an approved type and design.

.3 Assign experienced operators to handle the vibrators.

.4 For thin repairs with polymer mortar, the finish shall be similar enough to the adjacent surfaces that it cannot be seen from 5 m away.

3.4 CURE AND PROTECTION

.1 All tools required for the curing and protection of concrete must be at hand and ready to be used before starting the placement of concrete.

.2 When the concrete has set sufficiently, the exposed surfaces shall be kept wet continually for at least seven (7) consecutive days after placing. The water used for curing shall be clean and free of any material likely to stain or discolour the concrete.

.3 During exceptional weather conditions such as when temperature is hot, winds high and relative humidity low, take special measures throughout concrete hardening period. Wall and column formwork shall then be kept thoroughly damp.

.4 Freshly placed concrete shall be protected against direct sunlight, dry winds, frost, excessive heat and running water using adequate tarps or other membrane or sheeting to cover or fully enclose all freshly finished surfaces during entire concrete hardening period.

3.5 SURFACE FINISH

.1 Repairs shall be finished to match existing concrete conditions.

.2 Smooth finish shall be achieved at pour with smooth coated forms.

.3 Exposed aggregate finish shall be achieved by applying set retarder to the inside face of forms and early stripping. Coarse aggregate is exposed by washing and brushing the paste over the concrete surface. The use of a manual chisel completes the work.

3.6 COLD WEATHER CONCRETING

.1 Where ambient temperature is 5 °C or lower, or when it is likely that temperature will drop below this limit during placement or hardening, the requirements of this subsection concerning cold weather concreting shall apply.

.2 Where concrete must be placed in cold weather conditions, all that is necessary to execute the Work must be readily available. The tools and materials at hand shall maintain the required temperatures during concrete placement and hardening. Heating systems shall not be detrimental to concrete quality or adversely affect in any way the finishing materials. Heating devices that release carbon monoxide shall not be permitted.

.3 Concrete shall not be laid on or against formwork, on grade or on any surface displaying a temperature lower than 5 °C.

.4 The temperature of fresh concrete at time of placement shall read between 15 °C and 30 °C. Where the ambient temperature is relatively low, concrete temperature should come close to the 30 °C upper limit.

.5 Implement efficient measures to maintain all concrete surfaces at 20 °C minimum during three (3) days or at 10 °C minimum during five (5) days after placement. Where dry heat is used, moisten the air in the enclosure and maintain both concrete and formwork continuously moist.

.6 Concrete shall be kept at a temperature above freezing for a 7-day period; avoid alternating freeze-thaw cycles for a minimum of fourteen (14) days after concrete placement.

.7 Protection methods:

.1 The above protection specifications may be complemented using adequate insulation and covering concrete surfaces with raised tarps (sheeting in contact with the concrete is absolutely counter-productive) or by fully enclosing the concrete and providing an opening for the introduction of heat in the enclosure as needed.

Note: Adequate protection depends on outside temperature, wind velocity and massivity of concrete.

.2 Where the outside temperature is likely to drop below -12 °C during placement or during the above mentioned protection period, fully enclose the concrete structure and provide supplementary heating source.

.3 Where the ambient temperature is likely to drop below -4 ºC but not lower than -12 ºC during placement or during the above mentioned protection period, cover all concrete surfaces using adequate raised tarps or insulating blankets in addition to supplementary heating source.

.4 Where the ambient temperature is likely to drop to -4 ºC during placement or during the above mentioned protection period, cover all concrete surfaces using adequate raised tarps or insulating blankets and supplementary heating should be available.

.5 At the end of the specified protection period, withdraw protection and heating gradually such that air temperature around concrete does not drop by more than 10 ºC per day until ambient temperature is reached.

.6 Do not use salt or other so-called chemical freezing-point reducers unless written authorization is obtained from the Departmental Representative.

3.7 DEFECTIVE CONCRETE

.1 Concrete that does not conform to the requirements of the plans and specifications or whose exposed surface is not accepted by the Departmental Representative will be considered defective.

.2 Do not repair exposed concrete surfaces until the Departmental Representative has acknowledged the defect.

.3 Defects that adversely affect structural adequacy such as concrete that does not meet the structural requirements of concrete, and concrete displaying honeycomb or imperfections that impair structural performance shall be demolished and rebuilt at no cost to Departmental Representative.

.4 Repair of exposed surfaces are subject to Departmental Representative's approval. The latter may require the repair of typical defects to ensure uniformity and consistency of surface as well as the concealment of joints. Where repairs are rejected due to unsatisfactory appearance, rebuild defective concrete to Departmental Representative's satisfaction.

.5 Drippings, streaks and other irregularities on tied surfaces (stripped surfaces) shall be eliminated within 24 hours after stripping.

3.8 CLEAN-UP

.1 Perform clean-up work at the completion of the work.

.2 Waste Management: separate waste materials for recycling.

.1 Divert unused concrete materials from landfill to local facility after receipt of written approval from Departmental Representative.

.2 Divert unused admixtures and additive materials (pigments, fibres) from landfill to official hazardous material collections site as approved by Departmental Representative.

.3 Do not dispose of unused admixtures and additive materials into sewer systems, into lakes, streams, onto ground or in other location where it will pose health or environmental hazard.

.4 Prevent admixtures and additive materials from entering drinking water supplies or streams.

.5 Using appropriate safety precautions, collect liquid or solidify liquid with inert, non-combustible material and remove for disposal.

.6 Dispose of waste in accordance with applicable local, Provincial/Territorial and National regulations.

END OF SECTION

PARTIE 1 General

1.1 RELATED REQUIREMENTS

.1 Section 04 05 00 Common Work Results for Masonry

.2 Section 04 05 12 Masonry Mortaring and Grouting

1.2 REFERENCES (MOST RECENT EDITIONS)

.1 ASTM International

.1 ASTM C207-79, Specification for Hydrated Lime for Masonry.

.2 Canadian Standards Association (CSA):

.1 CAN/CSA A371-14, Masonry Construction for Buildings
.2 CSA-A179-14, Mortar and Grout for Unit Masonry
.3 CAN/CSA-A5-M88 - Portland Cement

1.3 GENERAL INFORMATION OF WORK

.1 Provide the materials, labor, equipment and tools for the recessing and rejoining of joints between existing stones as indicated in the drawings.

1.4 DEFINITIONS

.1 Stripping Joints: Removing mortar from joints.

.2 Repointing: Filling of the joints, after they have been stripped.

.3 Profile of the finished joints slightly concave and flush with the edges of the masonry.

.4 Joint Finish: Slightly granular.

1.5 ACTION AND INFORMATIONAL SUBMITTALS

.1 Section 04 05 12 - Masonry Mortaring and Grouting

1.6 WORK SAMPLES

.1 At the locations indicated on site by the Departmental Representative, perform two (2) 1 linear metre joint recess and rejoinder samples each that take into account variations in masonry patterns, colors of existing adjacent joints, adjacent surfaces between stones, and joint thicknesses after recessing. The Departmental Representative will have to validate the recess samples before making the repointing samples.

.2 Once accepted, the samples will serve as references for the appearance and quality of the joints to be made and the tools to be used. They may be incorporated into the work if they are accepted by the Departmental Representative.

.3 The samples of the previous joints are to be included in the bid price.

1.7 EXISTING CONDITIONS

.1 Examine patterns and colours of joints and ways to reproduce them and submit samples for approval by the Departmental Representative prior to commencing jointing.

.2 Examine the vertical and horizontal joints to determine which were executed first, and if they are the same models.

.3 Also take into account other execution details that define the authenticity of the original work.

1.8 SITE CONDITIONS

.1 Comply with the requirements of Section 04 05 00 - Common Work Results for Masonry.

PARTIE 2 Products

2.1 PRODUCTS

.1 Mortar: See Section 04 05 12 - Masonry Mortaring and Grouting

PARTIE 3 Execution

3.1 GENERAL

.1 Strip joints using an electric mortar chisel (such as Arbortech or equivalent approved by the Departmental Representative) if the hardness of the joints permits. If the tests verified by the Departmental Representative show otherwise, remove the mortar using a small rotary chisel or cutter operated by electricity or compressed air.

.2 Circular wheels or saws may not be used without the approval of the Departmental Representative. The use of standard circular saws will not be tolerated. The use of

grinding machines with blades up to 100 mm in diameter may be authorized subject to on-site testing and approval by the Departmental Representative. This authorization may be withdrawn at any time by the Departmental Representative if he finds that the edges of the stones are damaged due to improper use of this equipment.

.3 Final cleaning of joints should be done using a manual chisel in order to remove residual mortar on the edges of the stones. No impact tools will be tolerated on the cleaning work of the joints of the brickwork.

.4 A test must be carried out using the tools proposed to hollow out the joints. The test must be approved by the Departmental Representative and will serve as a quality control standard for the removal of other stones.

.5 The tools used must not damage the edges of adjacent stones. Particular attention should be paid to the obviousness of standing joints.

.6 Stone replacement work must be carried out before repointing in order to allow the new joints to adhere properly.

3.2 STRIPPING OF JOINTS

.1 Flush the joints to a minimum depth of 35mm or to a depth equal to twice the width of the joint. The greater of these two dimensions must be used as the minimum depth of recessing of the joints.

.2 In all cases, the hollowing must be carried out until a clean mortar is obtained. All deteriorated mortar, which crumbles or is detached from the facing stones, must be removed from the facing joints.

.3 Do not remove wooden, stone, or metal shims that are healthy.

.4 If it is necessary to remove them, replace damp wooden shims.

.5 Remove dust and mortar debris with a jet of compressed air, an industrial vacuum cleaner and a mason's scraper.

3.3 REPOINTING

.1 Moisten the joints, fill them completely with mortar, then compact the mortar firmly, removing all voids.

.2 Keep the mortar moist during the rejoinement.

.3 Fill the bottom joints in successive layers of up to 25 mm using tongue iron.

.4 Ensure that the mortar is evenly distributed in the seating joints and vertical and horizontal upright joints so as to avoid leaving hollow joints or discontinuities.

.5 Once the bottom joint is installed, apply the finishing joint using a flat iron to obtain a flush joint with the outer face of the stones.

.6 The profile of the finished joints must be slightly concave and flush with the edges of the nearby stones unless otherwise prescribed following installation tests approved by the Departmental Representative.

.7 Remove mortar burrs from the exposed surface of the masonry before they dry.

3.4 CURE OF INSTALLED MORTARS

.1 Keep the mortar wet for seven (7) days to ensure curing

.1 First 72 hours:

.1 Install wet canvas on masonry, covered with a plastic membrane.

.2 The burlap must not be in contact with the masonry to avoid mortar stains on it.

.3 Regularly moisten the burlap before it dries.

.4 Avoid the presence of water directly on the fresh mortar so as not to leach the lime from the fresh mortar.

.2 Four (4) days thereafter:

.1 Remove the canvas covered with a plastic membrane.

.2 Protect the masonry from wind and rain using ventilated canvas.

.3 Avoid overly rapid drying of the mortar by spraying the mortar surfaces at regular intervals or by maintaining a high relative humidity if the work is carried out inside enclosures.

3.5 PROTECTION OF MORTARS

.1 As described in the mortar curing procedure, protect the mortar from rain, hot sun and joints for a minimum of seven (7) days.

.2 At the end of each day's work, cover completely or partially completed wall sections that are not protected with tarpaulin.

.3 Stretch the tarpaulin over the wall by 0.5 m on each side and secure it securely.

.4 Prevent finished joints from drying too quickly and getting wet in rain.

3.6 CLEANING

.1 As work progresses, remove mortar burrs, stains and any other soiling from the surfaces resulting from the work in this section.

.2 Carry out the other cleaning work once the mortar has set and hardened well. Use only clean water and natural straight bristle brushes to perform this work.

END OF SECTION

PART 1 General

1.1 RELATED SECTIONS

.1 Section 04 05 12 - Masonry Mortaring and Grouting

.3 Section 04 05 23 - Masonry Accessories

.5 Section 04 21 20 – Stone Masonry

.8 Section 07 62 00 - Sheet Metal Flashing and Trim

.9 Section 07 92 00 - Joint Sealants

1.2 REFERENCE STANDARDS

.1 Canadian Standards Association (CSA)/CSA International
- .1 CSA A179-04, Mortar and Grout for Unit Masonry
- .2 CAN/CSA A371-04, Masonry Construction for Buildings

.2 National Building Code (NBC)
- .1 Section 9.20 Masonry Above Ground Level.

.3 Documents of the Institut de la masonerie du Québec (IMQ)
- .1 Technical Bulletins.

1.3 QUALITY CONTROL AT SOURCE

.1 Submit laboratory test reports to the Departmental Representative certifying that the masonry and mortar ingredients meet the requirements.

.2 In the case of baked clay elements, complete the requirements of CSA (CSA) and ASTM by specifying the initial rate of absorption of the proposed elements.

1.5 DEFINITIONS

.1 Stripping: removal of loose or deteriorated mortar up to sound mortar layer.

.2 Repointing: Filling and finishing of masonry joints where the mortar has been removed.

.3 Forming joints: Finishing masonry joints with appropriate tools to give them their final shape.

1.6 DOCUMENTS AND SAMPLES

.1 Submit documents and samples in accordance with the requirements of section 01 33 00 - Submittal Procedures

.2 Submit the following samples:

.1 one (1) sample of each type of prescribed masonry elements

.2 one (1) sample of each type of prescribed masonry fixture.

.3 The Mason Contractor shall erect a 1000x1000 mm section of masonry prior to the commencement of masonry work. This sample can be part of the finished structure and will serve as a reference for the assembly, jointing and color of mortar for the entire project. Notify the Departmental Representative 48 hours in advance. Obtain the approval of the Departmental Representative prior to the completion of all work.

.4 Manufacturer's instruction: Submit the manufacturer's instructions for implementation, including storage and handling of materials, equipment, safety and cleaning.

1.7 QUALITY ASSURANCE

.1 Test reports

.1 Submit test reports certifying that products, materials and equipment meet the physical and performance requirements.

.2 Submit the reports of the tests carried out in the laboratory.

.3 Submit the reports of the tests carried out in the laboratory, certifying that the masonry elements comply with the requirements.

.2 On-site testing

.1 Perform an on-site pull-out test for each specified type of anchorage to validate compliance with CSA A370-14 in situ.

.3 Sample Books

.1 Construct samples of the required work in accordance with Section 01 45 00 - Quality Control and the different Sections of Division 04.

.2 Execute a masonry wall sample showing the technique of removing and replacing the bricks, as well as the colors, textures, of the repointing mortar.

.3 Work samples must be implemented at the location indicated by the Departmental Representative.

.4 Prior to commencing work, allow 24 hours for the Departmental Representative to inspect samples of the work.

.5 Once accepted, the sample of the work will be the minimum standard for the work covered by this section. The sample can be part of the finished work.

1.8 DELIVERY, STORAGE AND HANDLING

.1 Transport, store and handle materials and equipment in accordance with Section 01 61 00 - Common Product Requirements.

.2 Deliver dry materials to the site and keep them until they are used.

.3 Deliver materials in original packaging that is unopened and undamaged and clearly marked with the name and mark of the manufacturer.

.4 Store materials away from the weather, on pallets or platforms on planks or plank ends, so that they do not rest directly on the ground.

1.9 WARRANTY

.1 Provide a warranty on all work in Division 04. The warranty must cover the materials, labor and overhead costs necessary for the execution of the patches during the warranty period. The start of the guarantee is laid down in the additional general conditions, 01 00 10.

.2 For work in this section 04 05 00, the warranty period of 12 months is extended to 60 months

1.10 IMPLEMENTATION CONDITIONS

.1 Work performed in hot or cold weather: in accordance with CAN/CSA-A371 and the recommendations in this section.

.2 For all masonry rehabilitation work, cold weather implementation must comply with the requirements of these Specifications, the relevant standards and the product manufacturers' requirements applicable to masonry work, as to temperature requirements as well as for heating and protection.

.3 It is forbidden to use antifreeze, or salts to lower the freezing point of the mortar. It is also prohibited to use calcium chloride or other accelerating agents.

.4 Ensure during cold weather masonry installation that the insulation provided in the substrate frame is in place to create a barrier to maintain the prescribed temperature in the shelter. If for any reason beyond its control the insulation of the framework is not carried out in time, the Masonry Contractor will take the necessary steps to maintain the prescribed temperature as soon as the mortar sets.

.5 Implementation in cold weather:

.1 Add the following requirements to the requirements of CSA-A371.

.2 Protect the site against wind chill.

.3 Perform the work when the temperature of the existing masonry (walls or constructions affected by the masonry work) and the ambient temperature are above 5°C.

.4 Provide the temporary enclosures and heating systems necessary to maintain the prescribed temperature.

.5 No frozen material should be used or installed in the structure.

.6 When the ambient temperature is below 10°C, the pre-mixed mortar and water must be heated to between 20 and 30°C.

.7 When the mortar is used, its temperature must be at least 15°C and not more than 30°C.

.6 Heating and protection requirements:

.1 Add the following requirements to the requirements of CSA-A371.

.2 From 5°C to -4°C the structures must be covered with an insulating tarpaulin protecting the new masonry from cold and bad weather, and allowing the temperature of the facing to be kept above 5°C for a minimum of 3 days (laying mortar) and above 0°C for the following 4 days.

.3 For temperatures of -4°C and below, construct heated enclosures.

.4 Preheat the enclosures at least 72 hours prior to mortar application.

.5 The interior of the enclosures must be kept at the prescribed temperature for a minimum period of curing of 72 hours after use.

.6 Prevent the mortar from drying out during the cure period by maintaining a high relative humidity level inside the enclosures.

.7 Keep the temperature inside the enclosures above the freezing point for an additional 4 days after 72 hours of treatment.

.8 Heating should not be projected directly onto the masonry, so as not to prematurely dry the mortar.

.9 The heated enclosure must be monitored continuously (24 hours a day, 7 days a week).

.7 Implementation in hot weather

.1 Cover freshly made masonry works with a non-staining waterproof tarpaulin, so that they do not dry too quickly.

.2 Spray mortar surfaces at regular intervals to keep them moist for at least three (3) days after application.

1.11 PROTECTION OF STRUCTURES

.1 Masonry works shall be sheathed in waterproof, stain-proof sheeting, covering the walls and extending sufficiently on each side to protect them from wind-driven rain, until they are completed or protected by flashing or other permanent construction.

.2 Protect masonry and adjacent works from scratches and other damage. Protect a finished structure from mortar splashes using tarpaulins that do not stain.

.3 Temporarily support any masonry work until the lateral and permanent support structures are in place.

Part 2 Products

2.1 MATERIALS

.1 Masonry materials are prescribed in the relevant sections mentioned in 1.1.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Comply with the manufacturer's written requirements, recommendations, and specifications, including any available technical bulletins, instructions for handling, storing, and installing products, and data sheets indications.

3.2 QUALITY OF EXECUTION

.1 Unless otherwise specified, perform masonry work in accordance with CSA-A371.

.2 Carry out masonry work plumb, level and aligned with the joints of the adjacent stones that were preserved.

.3 Arrange and bond the seats at appropriate heights so as to ensure the continuity of the apparatus above and below the bays, with minimum cutting.

.4 Work on the installation and assembly of masonry structures must be carried out by competent and experienced masons.

3.3 IMPLEMENTATION OF THE MASONRY

.1 Exposed masonry structures

.1 Remove chipped, cracked or otherwise damaged units from exposed structures and replace with units in good condition.

.2 Recess: Recess the elements to be incorporated in the masonry structures.

.3 Prevent embedded elements from moving during construction. As work progresses, frequently the elements remain plumb, in alignment and in the correct position.

.2 Implementation of the mortar: Carry out the work according to the requirements of section 04 05 13 Masonry Mortaring and Grouting.

3.4 TOLERANCES

.1 The tolerances given in the notes to section 5.3 of CSA-A371 apply.

.2 Assume full responsibility for the accuracy of the dimensions, plumbness and levelling of the work in question and carry out constant checks by means of a graduated rod.

3.5 EXPOSED MASONRY

.1 Replace chipped, cracked or otherwise damaged parts of exposed masonry works in accordance with CAN/CSA-A165 and replace with parts in good condition.

3.7 CUTTING

.1 Carry out cutting work with care where switches, sockets or other flush fittings are to be installed.

.2 Make square openings, clean and free of uneven edges.

3.8 CURING OF INSTALLED MORTARS

.1 Keep exposed mortar of the facings wet for seven (7) days to ensure curing for the first 72 hours. The treatment can be carried out by installing damp jute cloths on the masonry, covered with a plastic membrane, humidified regularly or by an alternative method accepted by the Representative of the Ministry.

3.9 PROTECTION OF MORTARS

.1 Protect joint mortar from rain and strong sun for a minimum of seven (7) days.

.2 .At the end of each day's work, cover completely or partially completed wall sections that are not protected with tarpaulin.

.3 Stretch the tarpaulin over the wall by 0.5 m on each side and secure it securely.

.4 Prevent finished joints from drying too quickly and getting wet in rain.

3.10 CLEANING

.1 Once installation is complete, remove surplus materials and equipement, waste materials, tools and safety barriers from the work site.

.2 Clean all areas affected by masonry work and all facades. The cleaning will be of the "Water Brushing" type of all masonry surfaces according to the recommendations of bulletin #20 of the IMQ.

.3 For the duration of cleaning, protect adjacent structures with tarpaulins, cloths or any effective system.

END OF SECTION

PARTIE 1 General

1.1 RELATED REQUIREMENTS

.1 Section 04 05 00 Common Work Results for Masonry

.2 Section 04 05 23 Masonry Accessories

.3 Section 04 43 00 Stone Masonry

1.2 REFERENCES (MOST RECENT EDITIONS)

.1 Canadian Standards Association (CSA):

.1 CAN/CSA A371-14, Masonry Construction for Buildings
.2 CSA-A179-14, Mortar and Grout for Unit Masonry
.3 CAN/CSA-A5-M88 - Portland Cement

1.3 DELIVERY, STORAGE AND HANDLING

.1 Store materials in a dry place, so that they do not rest on the floor.

.2 Handle materials carefully.

.3 Unless otherwise specified by the manufacturer, ensure that materials are stored at a temperature between 5°C and 28°C.

1.4 SITE CONDITIONS

.1 Comply with the requirements of Section 04 05 00 - Common Work Results for Masonry.

PARTIE 2 Products

2.1 MATERIALS

.1 Water: Drinking water, clear and free of contaminants.

2.2 MIXTURES FOR MORTAR

.1 Repointing Mortar: Type "O", factory premixed in proportions of 1 cement, 2 hydrated lime type "S" and 6 to 9 sands, mixed according to the manufacturer's specifications:

.1 Compliant with CAN/CSA-A179-F04
.2 Tensile adhesion on limestone, according to CSA 23.2-6B (28 days): 0.2 MPa minimum
.3 Flexural strength, ASTM C-348 (28 days): 1.2 MPa minimum
.4 Freeze/Thaw Resistance, ASTM C-666M: 25 cycles minimum
.5 Tinted to match the color of the mortar on existing siding adjacent to the areas affected by the work The colour must be approved by the Departmental Representative, provide one (1) colour.

PARTIE 3 Execution

3.1 MANUFACTURE OF MORTAR

.1 Proportions:

.1 Measure each portion of the mixtures according to the manufacturer's instructions (by volume), if by weight, give the equivalents by volume.

.2 MIXING

.1 Mix only the amount of mortar that can be used within 1½ hours if the ambient temperature is equal to or greater than 25°C, and less than 2 ½ hours after mixing if the temperature is less than 25°C.

3.2 BLENDING

.1 Blend in the electric mixer so as to obtain a uniform performance during each preparation.

.2 Operate the mixer mechanically at full load for a period of not less than 5 minutes and not more than 10 minutes.

.3 Add enough water to give it a wet but firm consistency.

.4 Determine the amount of water required for each mixture during each preparation. Do not use the mortar after more than 40 minutes and do not change the proportions of the mixture by adding a volume of water greater than that already established.

.5 Blend until the mixture has the consistency of soft sludge.

.6 Mortars that have begun to set within the time specified in section 3.1.2 due to evaporation of moisture may be mixed with water to achieve the desired consistency.

3.3 APPLICATION

.1 Unless otherwise indicated, implement the mortar in accordance with CSA A179 and as indicated in the sections of Division 04 of these Specifications.

.2 Apply the mortar according to the manufacturer's recommendations and according to standards of practice.

.3 Fill and compact the joints well. Make sure that the vertical joints are filled to the bottom and have the same compaction as the horizontal joints.

.4 The Departmental Representative may ask the Contractor to take back joints that are not properly adhered to the masonry or that do not appear to be sufficiently compacted.

.5 Dimension Joints: Comply with CSA A371-14 for the thickness of mortar joints, as well as the requirements of the sections of division 04 of these Specifications.

3.4 ON-SITE QUALITY CONTROL

.1 A materials control laboratory may take mortar samples according to a sequence under its jurisdiction at the Client's expense.

.2 Collaborate with technicians and professionals in the assigned laboratory for the collection of samples.

3.5 MORTAR PROTECTION

.1 Comply with the requirements of Section 04 05 00 - Common Work Results for Masonry.

3.6 CURE OF INSTALLED MORTARS

.1 Comply with the requirements of Section 04 05 00 - Common Work Results for Masonry (Application Conditions) and Section 04 03 07 - Masonry Repointing for Mortar Cure.

.2 The treatment must be carried out in such a way as to ensure the adhesion of the mortar to the masonry units.

END OF SECTION

PART 1 GENERAL

1.1 REFERENCE STANDARDS

.1 ASTM International Inc.

.1 ASTM A36/A36M - Standard Specification for Carbon Structural Steel
.2 ASTM A82/A82M - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement
.3 ASTM A167- Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip
.4 ASTM A307, Standard Specification for Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength
.5 ASTM A580/A580M - Standard Specification for Stainless Steel Wire
.6 ASTM A641/A641M - Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire
.7 ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar

.2 CSA Group (CSA):

.1 CSA A370 - Connectors for Masonry
.2 CSA A371 - Masonry Construction for Buildings
.3 CSA G30.18 - Carbon Steel Bars for Concrete Reinforcement
.4 CSA S304.1 - Design of Masonry Structures
.5 CSA W186 - Welding of Reinforcing Bars in Reinforced Concrete Construction

.3 National Research Council of Canada (NRC)

.1 National Building Code – Canada 2015 (NBC)

.4 Reinforcing Steel Institute of Canada (RSIC)

.1 RSIC, reinforcing steel, Manual of Standard Practice

1.2 GENERAL INFORMATION

.1 Provide all the materials, tools, equipment, work force and services required to perform all the work described in this section and/or shown in the drawings that perfectly meets relevant requirements in every aspect.

.2 Included are all the accessories and work that are required to complete the work, even if not specifically described or identified in the drawings, in accordance with the standards referenced in this section or recognized as part of the industry's good practices.

.3 Include all drilling, cutting and recessing in brick, stone and concrete to allow for embedment of anchors and rebar.

1.3 DOCUMENTS/SAMPLES TO SUBMIT FOR APPROVAL/INFORMATION

.1 Product Data Sheets: Submit manufacturer's printed product literature and data sheets for reinforcements, connectors and anchors. The data sheets must provide product characteristics, performance criteria, physical sizes, finish and limitations.

.2 Shop Drawings:

.1 Shop drawings submitted must bear the stamp and signature of a professional engineer entitled to exercise in the Province of Quebec.

.2 Drawings submitted must include reinforcement bar bending and anchorage details, specifications and component placement drawings.
.3 Placement drawings must identify the quantities of reinforcement components and connectors required, along with their sizes, spacing and location.

.3 Submit manufacturer's installation instructions.

.4 Submit a written description and one (1) sample of each type of proposed anchorage part, including:

.1 The type of proposed stainless steel;
.2 The type of anchorage part;
.3 The total length (check lengths on site);
.4 The type of end (standard or not).

1.4 CONDITIONS

.1 All general contract conditions apply to the work in this section.

.2 Examine work sites on which depends the work involved in this section. Check sizes in the drawings by comparing them with the current structure sizes. Notify in writing the Departmental Representative about any discrepancy.

.3 Examine site conditions before starting the work and notify the Departmental Representative about any anomaly. Failure to do so means acceptance of current conditions and implies waiver of any claims or requests for additional payments, regardless of the quality and quantity of work involved in this section.

.4 Provide full support to all the other building tradespeople, supply all the items to embed or integrate into the work, and notify all the other tradespeople about any groundwork to perform for the appropriate attachment or fastening involved in any part of the work in this section or related sections.

1.5 SITE MEASUREMENTS

.1 Make site measurements needed to ensure appropriate fit of installed components.

.2 Make the surveys needed to install the masonry anchors from inside the building following drawing indications, particularly when they have to be installed through an element that must stay in place.

.3 Do not place the anchors before the Departmental Representative approves the procedure allowing the validation of their location.

1.6 DELIVERY, STORAGE AND HANDLING

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

.2 Delivery and Acceptance: Deliver the materials to the site in their original factory packaging labelled with the manufacturer's name and address.

.3 Storage and Handling:

.1 Store materials in a clean, dry and well-ventilated location, in accordance with the manufacturer's recommendations.
.2 Store and protect reinforcements, connectors and anchors from nicks, scratches or blemishes.
.3 Replace damaged materials with new materials.

PART 2 PRODUCTS

2.1 MATERIALS

.1 All the ferrous metal anchorage parts must be made in type AISI 316 stainless steel, unless otherwise specified.

.2 Steel Reinforcing Bars: 400W grade, in accordance with the CSA-A371 and CSA G30.18 Standards

.3 Connectors: In compliance with the CSA A370 and CSA S304.1 Standards

.4 Corrosion Protection: In accordance with the CSA S304.1 Standard; galvanization in accordance with the CSA S304.1 and CSA A370 Standards

.5 Concrete and Solid masonry Anchor Adhesive: Two-component hybrid injectable adhesive. ICC-ES approved for cracked concrete and seismic applications.

.6 Anchors: Stainless steel threaded rods conforming to ASTM F593 (AISI 316). Unless otherwise specified on the drawings, sleeves, nuts and washers attached to the threaded rods shall conform to ASTM F593 (AISI 316).

2.2 FABRICATION

.1 The reinforcements must be made in compliance with the requirements of the CSA A23.1/A23.2 Standard and the Reinforcing Steel Manual of Standard Practice published by the Reinforcing Steel Institute of Canada.

.2 The connectors and anchors must be made in compliance with the CSA A370 Standard.

.3 The location of joints between reinforcements, other than joint locations shown in placement drawings, must be approved by the Departmental Representative.

.4 Before shipping, the reinforcements, connectors and anchors must be clearly identified according to drawing indications.

2.3 SITE QUALITY CONTROL

.1 Upon request, inform the Departmental Representative about the proposed source of supply for the materials.

PART 3 EXECUTION

3.1 INSPECTION

.1 Verification of Conditions: Before proceeding with the installation of reinforcements, connectors and anchors, make sure that the surfaces/supports previously installed under other sections or contracts are in acceptable condition and allow the planned work in accordance with the manufacturer’s written instructions.

.1 Visually inspect the surfaces/supports with the Departmental Representative in attendance.

.2 Immediately inform the Departmental Representative about any unacceptable condition detected.

.3 Start installation work only after unacceptable conditions have been corrected and the Departmental Representative has given approval.

3.2 PLACEMENT

.1 Unless otherwise specified, provide and install the reinforcements, connectors and anchors in accordance with CSA A370, CSA A371, CSA A23.1/A23.2 and CSA S304.1 Standard requirements.

.2 Obtain the Departmental Representative’s approval on the location of the reinforcements, connectors and anchors before placing the grout or adhesive.

.3 Comply with manufacturer's installation instructions.

3.3 SITE BENDING

.1 Do not curve or bend reinforcement bars, connectors and anchors on site except where specifically indicated or expressly authorized by the Departmental Representative.

.2 When site bending is authorized, bend without heat input, applying a slow and steady pressure.

.3 Replace reinforcement bars, connectors and anchors which develop cracks or splits.

3.4 SITE TOUCH-UPS

.1 Touch up the cut or damaged end of the galvanized or epoxy-coated reinforcements, connectors and anchors with a compatible finishing product to ensure continuous protection coating.

3.5 CLEANING

.1 Progress Cleaning: Leave work area clean at the end of each work day.

.2 Final Cleaning: Upon completion of work, remove from site surplus materials, rubbish, tools and equipment in accordance with local, provincial/territorial and federal regulations.

END OF SECTION

PART 1 General

1.1 RELATED SECTIONS

.1 Section 04 05 00 - Common Work Results for Masonry

.2 Section 04 05 13 - Masonry Mortaring and Grouting

.3 Section 04 43 00 - Stone Masonry

1.2 REFERENCES

.1 Canadian Standards Association (CSA)/CSA International

.1 Can/CSA A371-14, Masonry Construction for Buildings

1.3 SUBMITTALS PROCEDURES

.1 Submit the required documents and samples for approval in accordance with Section 01 33 00 - Submittal Procedures.

.2 Data sheets

.1 Submit the required data sheets as well as the manufacturer's specifications and documentation. The data sheets must indicate product characteristics, performance criteria, and limits.

.3 Samples

.1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.

.4 Certificates: submit documents signed by the manufacturer, certifying that the products, materials and equipment meet the requirements for physical characteristics and performance criteria.

1.4 QUALITY ASSURANCE

.1 Test reports: Submit certified test reports showing compliance of products, materials and equipment with specified physical properties and performance criteria.

.2 Certificates: submit documents signed by the manufacturer, certifying that the products, materials and equipment meet the requirements for physical characteristics and performance criteria.

.3 Pre-implementation meeting: Hold a meeting at which the requirements of the work, the manufacturer's instructions for the installation and the terms of the warranty offered by the manufacturer will be discussed. Comply with Section 04 05 00 - Common Work Results for Masonry

1.5 ON-SITE MEASUREMENT

.1 Take the necessary measures on site to ensure an appropriate adjustment of the elements implemented.

1.6 TRANSPORT, STORAGE AND HANDLING

.1 Carry, store and handle masonry fittings in accordance with the requirements of Section 01 61 00 - Common Product Requirements and those listed below.

.1 Keep back-up material and adhesives dry and protect them from moisture and frost.

.2 Store materials so that they do not rest directly on the floor and in accordance with the manufacturer's written instructions.

.3 Deliver the reinforcements, connectors and anchors identified on the shop drawings and installation drawings.

Part 2 Products

2.1 MATERIALS

.1 Weephole:

.1 Allowing the aeration and evacuation of water and moisture while blocking access to insects and other debris

.2 Made of polypropylene

.3 Dimensions: 10mm X 64mm X 85mm

.2 Adjustment wedge :

.1 Color coded "U" shaped, plastic made from polypropylene, high impact polystyrene and ABS

.2 Compression test result: 12,000lb and more

2.2 FLASHING

.1 Membrane flashing: High-temperature self-adhesive membrane composed of bitumen modified with thermoplastic polymers and a high-density polyethylene film, having the following characteristics

.1 Thickness: 1.6 mm

.2 Width: As indicated

.3 Air permeability (CNB): < 0.0003 l/s·m²

.4 Water vapour permeance (ASTM E96): 1,8 ng/Pa●s●m²

.5 Primer: Membrane-compatible asphalt

Part 3 Execution

3.1 APPLICATION

.1 Manufacturer's instructions: Comply with manufacturer's written requirements, including any available technical bulletins, instructions for handling, storing, and installations, and data sheet instructions.

3.2 INSTALLATION OF HUMIDITY CONTROL DEVICES

.1 Make singles in the vertical and horizontal joints of the outer wall of the stone walls, immediately above the flashing.

.2 Refer to drawings for position and quantity.

3.3 INSTALLATION OF MASONRY FLASHING

.1 Install the self-adhesive flashing and primer in accordance with CAN3-A371 standard and the manufacturer's written requirements and as shown in the drawings.

.2 Apply the primer using a brush or roller at a rate of approximately 7.2 m²/l depending on the porosity and texture of the substrate and allow to dry for at least thirty (30) minutes before laying the masonry flashing. Make sure to lay the flashing on the same day, otherwise a new primer application must be carried out.

.3 Install flashing beneath the first base of the exterior masonry wall on the foundation walls, slabs, support angles and steel angles above the bays.

.4 In the facing walls, install the flashings so that they pass through the outer wall from the outer face of the wall, and raise the inner part at least 150 mm above the drainage system.

.5 Overlap joints 150 mm and seal with adhesive.

.6 Seal the upper and front edges of the masonry flashing with the sealant to prevent rainwater from entering behind the flashing.

3.4 ON-SITE QUALITY CONTROL

.1 Carry out on-site inspections in accordance with Section 04 05 00 - Common Work Results for Masonry.

.2 Have the location of the anchors approved by the Departmental Representative prior to installation of the masonry.

3.5 ON-SITE TOUCH-UPS

.1 Touch up the cut or damaged ends of galvanized reinforcements, studs and anchors with a compatible finishing product to ensure the continuity of their protective coating.

3.6 CLEANING

.1 Clean according to section 01 74 11 - Cleaning.

.1 Allow the mortar splashes to partially dry, then remove them with a trowel; then lightly rub the surfaces with a small piece of concrete block and finally with a brush.

.2 Evacuate surplus materials, waste, tools and equipment from the site.

END OF SECTION

PART 1 General

1.1 RELATED SECTIONS

.1 Section 04 05 00 - Masonry – General Requirements

.2 Section 04 05 12 - Masonry Mortaring and Grouting

.3 Section 04 05 23 - Masonry Accessories

.4 Section 07 92 00 - Joint Sealants

1.2 REFERENCE STANDARDS

.1 Canadian Standards Association (CSA)/CSA International
- .1 CAN/CSA A179-F04(C2009), Mortar and Grout for Unit Masonry
- .2 CAN/CSAA-370-F04 (C2009), Masonry Connectors, and
- .3 can/CSA A-371-F04(C2009), Masonry Construction for Buildings

1.3 GENERAL INFORMATION FOR WORK

.1 Replacement of limestone as shown in the drawings.

.2 Removal, modification and reinstallation of existing limestone.

.3 Installation of new granite stones.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit the required documents and samples in accordance with Section 01 33 00 - Submittal Procedures.

.2 Technical sheets
- .1 Submit the required data sheets and the manufacturer's specifications and documentation for the products in accordance with Section 01 33 00 - Submittal Procedures.

.3 Manufacturer's instructions
- .1 Submit the implementation instructions provided by the manufacturer in accordance with 04 05 00 - Common Work Results for Masonry.

.4 Samples
- .1 Submit the required samples in accordance with Section 01 33 00 - Submittal Procedures.
- .2 The Departmental Representative shall have access to the source of supply of stones.

.3 Provide a minimum of two stone samples. The Departmental Representative may request that these samples be cut and prepared according to the needs of the work.

.4 The samples shall be representative of the full range of colours, conspicuous marks and finish for the designated locations and uses. Indicate the quarry bed or bedding orientation on the samples.

.5 All details of the shaping or profiling work shall be submitted on the full-scale real size samples.

.6 The cut stones of the external facings shall conform to the samples, and be suitable for each function and type of finish. They will be subject to the prior approval of the E before being installed.

.5 Shop Drawings:

.1 Provide shop drawings of each stone for review and approval by the Departmental Representative.

.2 Drawings shall show production details and dimensions with sufficient precision for machining stone units. Details should be submitted on a scale of 1:5 minimum.

.3 Present the cross-sectional, plan and elevational details of each new stone unit.

.4 The drawings shall show the finishes of the different sections of stone, as well as the direction of the stone bed of each unit.

.5 The drawings shall indicate the arrangement of the joints, details of the apparatus, and details of the anchors, fasteners, studs and snaps and their method of installation.

.6 Test report:

.1 Provide test reports according to the criteria specified for each stone.

.2 Test reports must have been completed within the 36 months preceding the award of the contract and must be signed by a geologist Departmental Representative or a geologist who is a member of its professional order.

1.5 QUALITY CONTROL

.1 Cutting and finishing of the cut stone shall be carried out by a skilled stone-cutting labour. The contractor must provide the proposed method for the size, finish or sculpture of the elements requested in the drawings for acceptance by the Departmental Representative.

.2 The Contractor shall file a letter confirming that the processing plant and quarry can provide the stones within the prescribed time.

.3 The Contractor shall confirm in writing to the Client that it has signed a supply agreement with the processing plant and stone quarry.

1.6 SITE CONDITIONS

.1 As per the requirements of Section 04 05 00 Common Work Results for Masonry.

Part 2 Products

2.1 MATERIALS

.1 St-Marc-des-Carrières Limestone:

.1 Formation: from Deschambault, lower part of the Trenton Group;

.2 Pure calcite, cut into quarry blocks and cut at the factory into dimensions allowing installation at the site for the purpose of replacing the existing stones to be replaced.

.3 Complies with ASTM C568 Class III and the following additional requirements:

.1 Absorption by weight (ASTM C97, 24 hours in cold water): 0.11%.

.2 Compression (ASTM C170, dry cure, perpendicular to the bed): 109.4 MPa.

.3 Density (ASTM C97): 2,687 kg/m^3.

.4 Breaking modulus (ASTM C99): 12.6 MPa.

.5 Dimensions: 55 mm thick x width and height shown in the drawings.

.2 St-Henri granite stone, conforming to ASTM C615, colour and finish as existing. Meets the following additional requirements:

1 Absorption by weight (ASTM C97, 24 hours in cold water): 0.11%

.2 Compressive strength (uniaxial, ASTM C170): 210 MPa

.3 Density (ASTM C97): 2867 kg/m3

.4 Breaking modulus (ASTM C99): 18 MPa

.5 Dimensions: 38 mm thick x width and height shown in the drawings.

.3 Sealant for vertical and horizontal flexible joints in external masonry structures:

.1 Sealant based on polyurethane, multi-component, self-levelling; colour chosen by the Ministry representative.

.2 One-component silicone sealant, very low modulus, self-leveling, neutral polymerisation, colour chosen by the Ministry representative.

.4 Adhesive: 100% moisture-curing polyurethane construction adhesive, VOC-free, ASTM D3498 compliant, water resistant.

2.3 ANCHORING OF LIMESTONE

.1 Refer to the structure documents.

2.4 CUTTING OF STONE

.1 Cut the stone in such a way as to obtain the exact dimensions and profile required of the plans and measured on the site.

.2 Cut the stones so that the new joints are of the required thickness, or so that the new joints are of the same thickness as the existing joints. Cut the stone at right angles to the facing, unless otherwise indicated.

.3 Cutting stone damaged in any way, or with open micro-cracks or natural veins, is not acceptable. The use of flipots or nightingales to repair the damage is not acceptable.

2.3 TOLERANCES

.1 The dimensional tolerances for the manufacture of cut stone shall not exceed:

.1 a deviation of ± 1,5 mm for all dimensions

.2 a squared deviation of ± 1,5 mm

.3 a planimetric deviation of ±1,0 mm for all exposed facings

2.4 FINISHING

.1 Finishing of exposed faces of limestone:

.1 The exposed faces of the stones shall be finished in burrs, such as the existing stones.

.2 Finishing of exposed faces of granite stones:

.1 The exposed faces of the stones shall be finished polished mast.

Part 3 Execution

3.1 PREPARATORY WORK

.1 Stone storage, handling and examination:

.1 Ensure that the stones cannot absorb moisture from the soil and protect them from any accumulation of water.

.2 Move and lift the stones by taking the necessary means to prevent damage.

.3 Have the stones inspected and approved by the Departmental Representative prior to installation.

.4 Do not drill holes or make recesses to accommodate wolves, snaps, retaining hooks or other lifting devices on the face or upper bed of stones.

.5 Remove rust stains and iron particles from bed and counterfacing faces that have been sawn.

.6 Shape the visible sharp edges well in alignment and soften them a little to prevent shoulder fractures.

.7 Drill holes in limestone pieces to insert anchors, snaps and studs. Drill lifting holes in parts that cannot be moved manually, never, however, in exposed facing faces.

3.2 CUT TO SIZE OF STONES

.1 Avoid the size of the units at the work site. If necessary, cut the non-visible faces of the stones so as to adapt them to the opening present in the existing wall to receive the new units. Never cut the visible face of stones without the approval of the Departmental Representative.

.2 Drill stones to accommodate anchors, studs and support systems.

.3 Use a caliper, a square and a level to measure the space to be adjusted.

.4 Provide for the installation of stones so as to produce seals of a thickness equal to that of adjacent seals and aligned with them, unless otherwise specified by the Departmental Representative.

3.3 REMOVAL OF EXISTING STONES TO BE DISPOSED OF

.1 To unseal existing units to be removed, use approved methods that do not cause damage to preserved items.

.2 Before removing a unit, hollow out the existing mortar joints around the stone.

.3 Use grinding wheels, circular saws or pneumatic scissors only with the authorization of the Departmental Representative. A test should be carried out using the proposed tools to remove the units. The test must be approved by the Departmental Representative and will serve as a quality control standard for the removal of other units.

.4 Make sure that these tools do not exert any pressure and are not in contact with the edges of the masonry units to be kept.

3.4 REMOVAL OF EXISTING STONES TO BE RECOVERED

.1 To unseal existing units to be removed, use approved methods that do not cause damage to preserved units.

.2 Before removing a unit, hollow out the existing mortar joints around the stone.

.3 Use grinding wheels, circular saws or pneumatic scissors only with the authorization of the Departmental Representative. A test should be carried out using the proposed tools to remove the units. The test must be approved by the

Departmental Representative and will serve as a quality control standard for the removal of other units.

.4 Make sure that these tools do not exert any pressure and are not in contact with the edges of the masonry units to be kept.

.5 Identify dismantled stones and place them on transport pallets.

.6 Transport dismantled stones to the mill for modification.

.7 Inspect the stones piece by piece for any metal parts or other existing fixings. Inspect the quality of the stone to ensure that it is free from cracks or other defects that could affect its durability.

.8 Modify the stones to thin them and flatten them to the thickness requested in the Plans and Specifications.

.9 Clean and restore the surface.

.10 Transport the stones to the site and protect them until they are reinstalled.

3.5 GRANITE STONE IMPLEMENTATION

.1 Dust and foreign matter shall be removed from the bed, facing and joint faces of the granite plates. Do not use wire brushes.

.2 Precisely install plumb plates and stick them to the backing panels.

.3 Execute uniform joints of the width indicated. The pattern of the exterior cladding must correspond to the design of the exterior cladding approved by the Departmental Representative. Use soft, stain-free gaskets to maintain the width of the gaskets, and place them back from the face at a distance approximately equal to the width of a gasket.

.4 Avoid soiling or damage to granite parts and ensure that their edges are not embossed. If necessary, remove the sealant stains and clean the parts.

3.6 LIMESTONE IMPLEMENTATION

.1 Dust and foreign matter shall be removed from the bed, facing and joint faces of limestones. Do not use wire brushes.

.2 Install plumb plates accurately and secure them with anchors.

.3 Existing modified stones will be reinstalled in the same location.

.4 Anchor the facing according to the details shown in the drawings. Drill holes for new anchors using diamond drills to drill masonry. The use of drilling methods that cause vibrations that can damage the masonry is not permitted.

.5 Execute uniform joints of the width indicated. The pattern of the rebuilt exterior cladding must correspond to the design of the exterior cladding approved by the Departmental Representative. Use soft, stain-free gaskets to maintain the width of the gaskets, and place them back from the face at a distance approximately equal to the width of a gasket.

.6 Avoid soiling or damage to granite parts and ensure that their edges are not embossed. If necessary, remove the sealant stains and clean the parts.

3.7 CLEANING

.1 Once the work is complete, wash the stones with powdered soap and clean water, then rub them with a soft bristle brush.

END OF SECTION

PART 1 GENERAL

1.1 REFERENCE STANDARDS

.1 Refer to the latest applicable editions of the following standards:

.1 ASTM International Inc.

.1 ASTM A36/A36M, Specification for Structural Steel.

.2 ASTM A193/A193M, Specification for Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature Service.

.3 ASTM A307, Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.

.4 ASTM A325, Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.

.5 ASTM A325M, Specification for High-Strength Bolts for Structural Steel Joints Metric.

.6 ASTM A490M, Specification for High-Strength Steel Bolts, Classes 10.9 and 10.9.3, for Structural Steel Joints (Metric).

.2 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-85.10, Protective Coatings for Metals.

.3 Canadian Institute of Steel Construction (CISC)/ Canadian Paint and Coatings Association (previously Canadian Paint Manufacturers Association - CPMA).

.1 ICCA/AFPC Standard 1-73b, Quick-Drying One-Coat Paint for use on Structural Steel

.2 CISC/CPMA Standard 2-75, Quick-Drying Primer for use on Structural Steel.

.4 CSA Group (CSA)

.1 CSA G40.20/G40.21, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.

.2 CSA G164, Hot Dip Galvanizing of Irregularly Shaped Articles.

.3 CSA S16, Limit States Design of Steel Structures.

.4 CSA S136, Cold-Formed Steel Structural Members.

.5 CSA S136.1, Commentary on CSA Standard S136.

.6 CSA W47.1, Certification of Companies for Fusion Welding of Steel.

.7 CSA W48, Filler Metals and Allied Materials for Metal Arc Welding.

.8 CSA W55.3, Resistance Welding Qualification Code for Fabricators of Structural Members Used in Buildings.

.9 CSA W59, Welded Steel Construction (Metal Arc Welding) (Metric).

.5 Master Painters Institute

.1 MPI-INT 5.1, Structural Steel and Metal Fabrications.

.2 MPI-EXT 5.1, Structural Steel and Metal Fabrications.

.6 The Society for Protective Coatings (SSPC)

.1 SSPC SP-6/NACE No. 3, Commercial Blast Cleaning.

1.2 QUALIFICATIONS

.1 Steel structure manufacturers to be certified under Division 1 or 2.1 of CSA-W47.1 for shop fabrication and under Division 2.1 for on-site erection.

1.3 COORDINATION

.1 Review architectural and structural drawings and specifications for all work that may interfere with or affect parts of the steel structure.

.2 On site, check all dimensions and levels that correspond to the anchor points on the steel structure.

.3 Ensure that steel structure elements allow reinstallation of wall finishes in their original placement and do not obstruct heating units.

1.4 ADDITIONAL STRUCTURAL STEEL MEMBERS

.1 Supply and install the reinforcements, frames, bracing elements and other steel pieces not indicated in drawings and specifications, necessary to complete Work.

1.5 ACTION AND INFORMATIONAL SUBMITTALS

.1 Product Data: Submit manufacturer's instructions, printed product literature and data sheets for structural steel and include product characteristics, performance criteria, physical size, finish and limitations.

.2 Shop Drawings:

.1 Submit required shop drawings, including fabrication and erection documents, as well as the materials list.

.2 Erection Drawings: indicate all details and information necessary for assembly and erection purposes including:

.1 Description of methods.

.2 Sequence of erection.

.3 Type of equipment used in erection.

.3 Ensure drawings showing designed assemblies, components and connections are stamped and signed by qualified professional engineer licensed in the Province of Quebec.

.4 Prepare shop drawings taking adjacent work into account. Coordinate work to avoid conflict.

.5 Provide a list of modifications made to steel structural drawings with shop drawings to facilitate assembly or erection of structure or those required to coordinate Work with that completed by other subcontractors. Describe each modification precisely and indicate its reason.

.6 Verify all dimensions corresponding to other work with the shop drawings of this work or on site.

.7 Verify all dimensions corresponding to existing structures on site.

.8 No technical document in DWG format will be provided to Contractor and/or subcontractor by the Departmental Representative. Shop drawings shall be executed based on information provided in paper documents produced for Work and on inventory of existing conditions by Contractor for exact dimensions, as well as the location of stones and obstacles, etc.

1.6 WASTE MANAGEMENT AND DISPOSAL

.1 Remove from site and dispose of packaging materials at appropriate recycling facilities.

.2 Collect and separate paper, plastic, polystyrene and corrugated cardboard packaging for recycling.

.3 Divert unused paint material from landfill to official approved hazardous material collections site.

.4 Do not dispose of unused paint products into sewer systems, into lakes, streams, onto ground or in other location where it will pose health or environmental hazard.

1.7 HANDLING

.1 When delivering and storing materials on site, prevent damage to materials from other trades or the new structure.

.2 When handling steel members, prevent permanent warping.

.3 Carefully handle exposed steel members or steel members with a special plant finish to avoid surface damage.

1.8 COMPLETE WORK

.1 The architectural and structural drawings and specifications make up a set, which together produce the complete Work. Read them together and separately in order to take all implications into account.

.2 In addition to requirements in contractual documents, implications include all demolition, drilling, connecting, finishing work and added pieces which are not specifically indicated, but which are required to complete Work.

1.9 CNESST REQUIREMENTS DURING STEEL STRUCTURAL MEMBER WORK

.1 Hire an engineer who meets the requirements of the *Commission des normes, de l'équité, de la santé et de la sécurité du travail* (CNESST) for steel structure work.

PART 2 PRODUCTS

2.1 MATERIALS

.1 Structural steel:

.1 W, WWF and S shapes: to CSA G40.21 (350W), ASTM 199Z or ASTM A572 (Grade 50).
.2 Tubular sections: to ASTM A500 (Grade C).
.3 C and L shapes, plates and bars: to CSA G40.21 (300W).

.2 Anchor bolts: to ASTM A193/A193M (Grade B7).

.3 Adhesive for anchors in concrete: two component epoxy resin.

.1 Compressive strength to ASTM D695-10: 82.7 MPa.
.2 Elongation at break to ASTM D638-14: 1.1 %.
.3 Absorption to ASTM D570-98: 0.18 %.

.4 Bolts, nuts and washers: to ASTM A325M and ASTM A490/A490M.

.5 Welding materials: to CSA W48 and CSA W59, and certified by Canadian Welding Bureau.

.6 Two component zinc-rich epoxy primer for shop application: to SSPC Paint 20.

.7 Hot dip galvanizing: galvanize steel, where indicated, to CSA G164, minimum zinc coating of 600 g/m^2.

.8 Touch-up paint for hot-dip galvanized surfaces: zinc-rich primer to CGSB 1-GP-181a.

.9 Zinc (Z) or Zinc Iron (ZF) alloy coated sheet steel: ASTM A653/A653M grade 230 structural steel sheet with ZF75 or Z275 zinc plating, unpainted.

2.2 FABRICATION

.1 Fabricate structural steel in accordance with CSA S16 and in accordance with approved shop drawings.

.2 Continuously seal members by continuous welds where indicated. Grind smooth.

.3 Hot dipped galvanized or urethane injected tubular sections shall contain openings required to allow galvanization or injection within pieces and drainage.

.4 Tubular sections installed outside shall contain openings to allow water and condensation to escape.

2.3 BENDING

.1 Steel plates used for cylindrical hollow sections may be bent parallel to rolling direction. Any other bending shall be perpendicular to rolling direction.

.2 When a killed steel plate is bent parallel to rolling direction, the inside bending radius shall be four times the thickness of the sheet. Set hot bending or cold bending limitations and use the appropriate thermal treatment to avoid weakening steel.

2.4 SHOP PAINTING

.1 Clean, prepare surfaces and shop prime structural steel to minimum dry film thickness of 75 microns in accordance with CSA S16 except where members to be encased in concrete. Use a paint in accordance with SSPC Paint 20.

.2 Clean members, remove loose mill scale, rust, oil, dirt and foreign matter. Prepare surface according to SSPC-SP-6.

.3 Apply paint under cover, on dry surfaces when surface and air temperatures are above 5 °C.

.4 Maintain dry condition and 5 °C minimum temperature until paint is thoroughly dry.

PART 3 EXECUTION

3.1 GENERAL

.1 Structural steel work: in accordance with CSA S16 and CSA S136.

.2 Welding: in accordance with CSA W59.

.3 Companies to be certified under Division 2.1 of CSA W47.1 for fusion welding of steel structures and/or CSA W55.3 for resistance welding of structural components.

.4 Perform steel decking work in accordance with CSA S136, CSSBI 10M and CSSBI 12M.

3.2 CONNECTION TO EXISTING WORK

.1 Verify dimensions and condition of existing work, report discrepancies and potential problem areas to Departmental Representative for direction before commencing fabrication.

3.3 MARKING

.1 Mark materials in accordance with CSA G40.20/G40.21. Do not use die stamping. When steel is to be left in unpainted condition, place marking at locations not visible from exterior after erection.

.2 Match marking: shop mark bearing assemblies and splices for fit and match.

3.4 ERECTION

.1 Erect structural steel, as indicated and in accordance with CSA S16 and in accordance with approved erection drawings.

.2 Field cutting or altering structural members: to approval of Departmental Representative.

.3 Clean with mechanical brush and touch up shop primer to bolts, rivets, welds and burned or scratched surfaces at completion of erection.

.4 Continuously seal members by continuous welds where indicated. Grind smooth.

.5 When required, place mechanical or chemical anchors according to manufacturer's recommendations. In congested reinforcing steel areas in existing concrete, bore required holes with a rotating device equipped with a diamond drill bit to follow the template. Obtain Departmental Representative's authorization before proceeding.

.6 Remove rough sections from concrete surfaces in locations connection plates will be placed. Shim plates in a layer of non-shrink mortar to ensure uniform contact on concrete wall. Do not bolt down steel plates directly on hardened concrete.

.7 Exposed connection welds carried out on site shall be continuous and milled to produce smooth, uniform surfaces.

.8 Inform Departmental Representative of any difficulty in completing connections and follow the Representative's directions for modifications.

.9 Obtain the Departmental Representative's authorization prior to cutting or modifying framing members on site.

.10 No opening shall be made in any framing member on site without the authorization of the Departmental Representative.

3.5 MECHANICAL (OR CHEMICAL) ANCHOR INSTALLATION

.1 Prior to Work, locate reinforcing bars in concrete Work where anchors must be attached using a detection device designed for this purpose.

.2 Do not move anchors to prevent obstructing reinforcing bars without authorization of Departmental Representative. Depending on conditions, the Departmental Representative may require use of a rotating drill with diamond bit, to place anchors in indicated ares. Follow Departmental Representative's directions.

.3 Following manufacturer's recommendations to ensure anchors securely support loads specified in technical documentation.

3.6 FIELD PAINTING

.1 After frame erection, touch up bolts, welds and damaged surfaces with shop paint. Apply paint in accordance with MPI *Architectural Painting Specification Manual*.

3.7 FINAL CLEANING

.1 Upon completion and prior to final acceptance, remove all scaffolding, rubbish and temporary structures used.

.2 Remove slag, spatter, scales and other stains on exposed steel pieces.

.3 Do not use acid to clean surfaces.

END OF SECTION

PARTIE 1 General

1.1 GENERAL INFORMATION FOR WORK

.1 Before submitting a proposal, carefully review all documents to determine the scope of work in this section and any contract material that may require non-structural carpentry intervention and thus become part of this section. No additional fees can be claimed for failing in this examination of documents.

1.2 RELATED WORK

.1 Section Division 4.

.2 Section 07 21 13 - Panel Insulation

.3 Section 07 21 16 - Blanket Insulation

.4 Section 07 21 29 - Sprayed Insulation - Polyurethane Foam

.5 Section 07 62 00 - Sheet Metal Flashings and Trim

.6 Section 08 44 13 - Glazed Aluminum Curtain Walls

.7 Section 09 21 16 - Gypsum Board Assemblies

1.3 REFERENCES

.1 Canadian Standards Association (CSA)/CSA International
- .1 CSA B111-1974 (R2003), Wire Nails, Spikes and Staples
- .2 CSA O112-M Series-M1977 (R2006), CSA Standards for Wood Adhesives.
- .3 CSAO121-F08- (C2013), Douglas-fir plywood.
- .4 CSA O141-F05 (2014), Softwood lumber.
- .5 CSA O151-F09 (C2014), Canadian Softwood Plywood.

.2 Forest Stewardship Council (FSC)
- .1 FSC-STD-01-001-[2004], FSC Principle and Criteria for Forest Stewardship.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit the required documents and samples in accordance with Section 01 33 00 - Submittal Procedures.

1.5 QUALITY ASSURANCE

.1 Wood Marking: Grade stamp by an organization recognized by the Canadian Lumber Standards Accreditation Board.

.2 Plywood Marking: Grade stamp in accordance with relevant CSA standards.

1.6 COMPATIBILITY

.1 Members in contact with elastomeric membranes must not be pressure treated.

1.7 TRANSPORT, STORAGE AND HANDLING

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

.2 Storage and handling

.1 Store materials and equipment so that they do not sit on the ground in a clean, dry, well-ventilated area, as recommended by the manufacturer.

.2 Replace damaged materials and equipment with new materials and equipment.

PARTIE 2 Products

2.1 CONSTRUCTION LUMBER

.1 Construction Lumber: Unless otherwise specified, must be softwood, with an S4S finish (bleached on 4 sides), with a moisture content not exceeding 19%, and in compliant with the following standards:

.1 CAN/CSA-O141

.2 NLGA (Standard Grading Rules for Canadian Lumber), 1987 edition

.2 Planks: Softwood lumber, compliant with CSA 0141 and the requirements of the National Lumber Grades Authority, with a maximum moisture content of 6% for indoor work, 12% for outdoor work, sawmill wood of choice for a painted finish, or natural pine, compliant with the "special" category of AWMAC.

.3 Hardwood: Complies with National Hard Wood Lumber Association (NHLA) requirements of up to 6% moisture content for indoor work, gasoline complying with AWMAC's category of choice.

.4 Furring, spacers, nailing strips, nailing grounds, subframes, battens.

.1 S2S finish materials are acceptable.

.2 Timber of size: classification "light framework", "standard" class or higher.

.3 Boards: "standard" grade or higher.

.5 Mechanically graded lumber is acceptable for all work.

.6 Finger-joined units are not acceptable.

2.2 PANELS

.1 Panels must be of the type, grade and thickness indicated, complying with the following standards:

.1 Douglas fir plywood beautiful on one side: Compliant with CSA 0121

.2 Canadian Softwood Plywood: Compliant with CSA 0151

.2 Fibreboard panels:

.1 Paraffin-impregnated recycled and recyclable wood fibre cardboard, natural,

.2 Density of 232 kg/m³

.3 Compliant with can/CSA A247

.4 Factor R/25mm: 0.41 m2.k/w (3.10)

.5 Water absorption: max 7%

.6 Thickness: 11 mm

2.3 SELF-ADHESIVE MEMBRANES

.1 Membrane Flashing: Self-adhesive membrane composed of bitumen modified with thermoplastic polymers and a high-density polyethylene film, having the following characteristics

.1 Thickness: 1.6 mm

.2 Width: As indicated

.3 Air permeability (CNB): < 0.0003 l/s·m²

.4 Water vapour permeance (ASTM E96): 1,8 ng/Pa●s●m²

.5 Primer: Membrane-compatible asphalt

.2 Type of primer recommended by the manufacturer, depending on the type of susbstrate where the membrane will be applied.

2.4 FASTENING AND ACCESSORIES

.1 Nails, spikes and staples: in accordance with CSA B111.

.2 Stainless steel wood screws for exterior application, in accordance with CSA B35.4, of type and size suitable for the purpose.

.3 Bolts: With nuts and washers and, as indicated in the drawings.

.4 Proprietary fastening devices: toggle bolts, expansion shields and lag bolts, screws and lead or inorganic fibre plugs, explosive actuated fastening devices, recommended for purpose by manufacturer.

.5 Galvanized fastening devices: Galvanizing in accordance with CSA Standard G164 for outdoor structures, interior works in very humid areas.

.6 Cellular Neoprene Adjustment Shim: At the locations shown in the drawings.

2.5 SOLID LAMINATE SHELF

.1 Compact laminated plastic (solid laminate):

.1 Plastic integral compact laminate by factory heat melting process in a single step, covered on both sides with a decorative laminate with a black edge conforming to the ANSI/NEMA LD3-2005 standard

.2 Thickness: Indicated in the drawings

.3 Colours: Choice of the Departmental Representative

.4 No lamination, hybrid material, glued or laminated material will be accepted.

2.6 USES OF PANELS

.1 Exposed external use (other than plywood specified in structure):

.1 Spruce plywood, grade treated, thickness shown in detail, with squared edges

.2 Internal use and protected use in envelopes: nailing bottoms and fastening and support strips:

.1 Spruce plywood, standard coating, of the thickness indicated on the plans.

PARTIE 3 Execution

3.1 INSTALLATION OF CARPENTRY

.1 Proceed in accordance with the requirements of Part 9 of the Code de Construction de Québec Chapitre 1 Bâtiment and National Building Code Canada 2010 (amended) and in accordance with the following requirements.

.2 Drawing and trimming elements to properly fit adjacent surfaces and walls, recesses and picking, as well as pipes, columns, electrical appliances, power outlets, and any other protruding, penetrating or penetrating objects.

.3 Install elements square and plumb, true to line, levels and elevations.

.4 Construct the continuous members from pieces of longest practical length.

.5 Carefully choose the carpentry units that will be left visible. Install lumber elements and panels so that grade marks and other marks of deterioration are concealed or are removed by sanding where materials or left exposed.

.6 Install the furring channels and shims incorporated into the wall and roof envelope compositions and those necessary to remove from the wall and support the cabinetry, curbs, soffits, mounting panels for electrical equipment and other prescribed works.

.7 Install subframes, nailing strips and linings around bays to support the frames and other works.

.8 Install furring and blocking plumb and true. The maximum permissible deviation is 1: 600.

.9 Scribe and cut members so that they fit perfectly.

.10 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.

.11 Countersink bolts as indicated in the drawgins so that bolt heads do not protrude.

.12 Install the panels so that the end joints are on solid supports.

.13 Install the nailing strips to secure and support the wood siding, hardware and other required locations.

3.2 INSTALLATION OF SELF-ADHESIVE MEMBRANE

.1 Place the membrane from the bottom of all slopes and roll out by pulling on the non-stick film.

.2 Continue with the subsequent rollers, aligning them with the line of overlap of the previous belt, ensuring an overlap of 100 mm. Offset the end seals and ensure an overlap of 150 mm.

.3 Immediately after installing the membrane, ensure continuous adhesion by rolling it with a hand-held roller.

.4 At the intersection of the vertical parts, install the membrane on all vertical surfaces and ensure an overlap with the horizontal parts of 150 mm.

.5 Make the overlaps so as to facilitate the flow of water.

.6 Flat surfaces shall not exhibit any visible deformation, undulation, twisting, warping or other defect.

3.3 INSTALLATION OF WINDOW SHELVES

.1 Install the solid laminate window shelves where indicated on the drawings. Install the square shelves, install shims if necessary. No apparent fastenings.

3.4 CLEANING

.1 Nettoyage en cours de travaux: effectuer les travaux de nettoyage conformément à la section 01 74 11 - Nettoyage. Leave work site clean at the end of each day.

3.5 PROTECTION

.1 Protect equipment and installed elements from damage during work.

.2 Repair any damage caused by carpentry work to adjacent materials and carpentry units.

END OF SECTION

PARTIE 1 General

1.1 RELATED WORK

.1 Section 06 10 00 - Rough Carpentry

.2 Section 07 21 16 - Blanket Insulation

.3 Section 07 62 00 - Sheet Metal Flashings and Trim

.4 Section 09 21 16 - Gypsum Board Assemblies

.5 Section 09 22 16 - Non-Structural Metal Framing

1.2 REFERENCES

.1 Underwriters Laboratories of Canada (ULC)

.1 CAN/ULC-S701-05: Standard for Thermal Insulation, Polystyrene Boards

.2 CAN / ULC-S702-97, Standard for Mineral Fibre Thermal Insulation for Buildings.

1.3 INFORMATIONAL SUBMITTALS

.1 Submit the data sheets in accordance with Section 01 33 00 Submittal Procedures.

.2 Submit a laboratory report of adhesion compatibility between the different products used.

.3 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.

.1 The shop drawings must bear the seal and signature of a competent Departmental Representative recognized or entitled to practice in Canada in order to establish the type of anchorage and the quantity for the installation of semi-rigid mineral fibre insulation.

.4 Manufacturer's instructions

.1 Submit installation instructions provided by the manufacturer.

1.4 TRANSPORT, STORAGE AND HANDLING

.1 Transport, store and handle materials and equipment in accordance with Section 01 61 00 - Common Product Requirements and the manufacturer's written instructions.

.2 Delivery and acceptance: deliver materials and materials to the work site in their original packaging, which must be labeled with the name and address of the manufacturer.

.3 Storage and handling

.1 Store materials and equipment so that they do not sit on the ground in a clean, dry, well-ventilated interior area, as recommended by the manufacturer.

.2 Store prescribed materials and materials in a manner that protects them from marks, and scratches.

.3 Replace damaged materials and equipment with new materials and equipment.

1.5 SITE CONDITIONS

.1 Perform the work of this section when the temperature and relative humidity of the ambient air are within the requirements of the manufacturer's technical bulletin.

PARTIE 2 Products

2.1 MATERIALS

.1 Polyisocyanurate insulation with aluminium foil conforming to ASTM C-1289, type 1 class 1 and CAN/ULC S:

- .1 Aluminium foil with 0.05 perm of vapour permeance
- .2 Thermal resistance according to ASTM C1289 : 1.06 m2 ºC/W/ 25mm
- .3 Thickness: Indicated in the drawings

.2 Extruded polystyrene insulation: Compliant with CAN/ULC- S701, Type 4, rigid, closed-cell, with high density.

- .1 Panel dimensions: 600 x 2400 mm, thickness indicated in the drawings
- .2 Compressive strength: 210 KPa
- .3 Thermal resistance according to ASTM C-177 or ASTM C 518: 0.88 m2 ºC/W/25 mm
- .4 Border: Rebated

.3 Seal tape: 60 mm wide, single-pressure, airtight adhesive tape.

.4 Fasteners: through type, 50 mm side, cold rolled and perforated carbon steel 0.8 mm thick, with adhesive-coated underside; annealed steel rod 2.5 mm in diameter and of a length appropriate to the thickness of the insulation; self-locking washers 25 mm in diameter.

PARTIE 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Comply with the manufacturer's requirements, recommendations and specifications, including technical bulletins and installation instructions specified in the product catalogs and packaging cartons, and specifications in the data sheets.

3.2 QUALITY OF WORK EXECUTION

.1 Install the insulation to provide continuous thermal protection to the elements and open spaces of the building.

.2 Carefully adjust the insulation around ducts and other protrusions.

.3 Carefully cut and trim insulation so that it fully occupies the free spaces. Make tight joints and stagger vertical joints. Use only insulation boards with edges that are not chipped or broken. Use the largest panels possible to minimize the number of joints.

.4 Do not cover the insulation before the installation work has been verified by the Ministry representative. Following the Ministry representative's acceptance, begin installing the vapour barrier according to the recommendations of the estimate and the manufacturer.

3.3 SUPPORT CHECK

.1 Check the substrate on which the insulation will be placed and immediately inform the Ministry representative of any detected defect.

.2 Before starting work, make sure that the substrate is solid, straight, smooth and dry, and that it is free of snow, ice, frost, dust and debris.

3.4 INSULATION ON EXTERIOR WALLS

.1 Fasten insulation panels by means of fasteners according to the manufacturer's recommendations. Execute the tight joints between the panels.

3.5 INSTALLATION OF THE RIGID INNER INSULATION

.1 Install the rigid polyisocyanurate insulation on the inside, where indicated in the drawings, with the aluminum foil on the inside, horizontally and minimizing the number of joints with mechanical fasteners according to the manufacturer's recommendations.

.2 Seal all the joints between the sheets of insulation with a vapour barrier tape, at the perimeter of the openings, at the junctions with the floor slabs and at the meeting of the existing walls. Also seal the corners to ensure the continuity of the vapour barrier.

3.6 CLEANING

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

END OF SECTION

PARTIE 1 General

1.1 RELATED SECTIONS

.1 Section 06 10 10 - Rough Carpentry

.2 Section 07 21 13 - Panel Insulation

.3 Section 07 92 00 - Joint Sealants

.4 Section 09 21 16 - Gypsum Board Assemblies

.5 Section 09 22 16 - Non-Structural Metal Framing

1.2 REFERENCES

.1 Underwriters Laboratories of Canada (ULC)

.1 CAN/ULC-S702-97, Type 1, Standard for Mineral Fibre Thermal Insulation for Buildings

.2 CAN/ULC-S102.2 -M88, Standard Method of Test For Surface Burning Characteristics of Flooring, Floor Coverings, and Miscellaneous Materials and Assemblies

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

.1 ASTM C553-02, Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications

.2 ASTM C665-01e1, Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.

.3 ASTM C 1320-10 (2009), Standard Practice for Installation of Mineral Fiber Batt and Blanket Thermal Insulation for Light Frame Construction

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit the required data sheets in accordance with the requirements of Section 01 33 00 Submittal Procedures.

.2 Where materials or products are prescribed by their trade-mark, refer to "Instructions to Bidders" for instructions on how to apply for approval of materials or substitutes.

1.4 SITE-SPECIFIC CONDITIONS

.1 Perform the work of this section when the temperature and relative humidity of the ambient air are within the requirements of the manufacturer's technical bulletin.

1.5 TRANSPORT, STORAGE AND HANDLING

.1 Deliver and store all materials in their original packaging, bearing the name of the manufacturer, the product, the expiry date, the weight, the standards and approvals relating thereto and any other appropriate technical indication or reference.

.2 Deliver and store all materials within the temperatures prescribed by the manufacturer.

PARTIE 2 Products

2.1 INSULATING MATERIALS

.1 Thermal insulation of fibreglass mattress, for metal-frame exterior walls, having the following characteristics:

.1 Complies with CAN/ULC-S702, Thermal Insulation of Mineral Fibres, for Type 1 buildings

.2 Thermal resistance (m² K/W): 4.2 / 152 mm thickness

.3 Non-combustible: Compliant with CAN/ULC-S114

.4 Mold Resistance: Compliant with ASTM C1338.

.5 Reference products: Fiberglas from EcoTouch from Owens corning, Fiberglass Insulation Unfaced from Johns Manville, Sustainable Insulation from CertainTeed or a replacement product approved by addendum in accordance with instructions to bidders.

PARTIE 3 Execution

3.1 MANUFACTURER'S INSTRUCTION

.1 Comply with the manufacturer's written requirements, recommendations and specifications, including technical bulletins, and installation instructions specified in the product catalogs and packaging cartons, and the specifications in the data sheets.

3.2 INSULATION INSTALLATION

.1 Install insulation in accordance with the manufacturer's written recommendations.

.2 Install insulation to provide continuous thermal protection to building elements and voids and in accordance with ASTM C1320.

.3 Walls: Choose the appropriate stud spacing to insert batt insulation and hold it in place by friction between the steel studs.

.4 Carefully adjust insulation on the items to be covered as well as around the electrical boxes, pipes, air ducts and frames that pass through it.

.5 Do not compress the insulation to fit the spaces to be insulated.

.6 Leave a clearance of at least 75 mm between the insulator and any heat emitting element, e.g. recessed lighting fixtures

.7 Do not cover the insulation prior to inspection and receipt of written approval from the Departmental Representative.

3.3 CLEANING

.1 Once installation is complete, remove surplus materials and equipement, waste materials, tools from the work site.

END OF SECTION

1 GENERAL

1.01 RELATED SECTIONS

.1 Section 06 10 00 - Rough Carpentry

.2 Section 07 62 00 - Sheet Metal Flashings and Trim

.3 Structural documents for stone fasteners

1.02 REFERENCES

.1 Canadian Urethane Foam Contractors' Association (CUFCA)/Association of Canadian Polyurethane Foam Contractors.

.1 “Installer's Manual, Spray Polyurethane Foam Application”.

.2 Underwriters Laboratories of Canada (ULC)

.1 CAN/ULC-S102:2018, Standard Method of Test for Surface Burning Characteristics of building Materials and Assemblies.

.2 CAN/ULC-S705.1-15, Standard for Thermal Insulation - Spray Applied Rigid Polyutherane Foam, Medium Density.

.3 CAN/ULC-S705.2-05 R2016, Standard for Thermal Insulation - Spray Applied Rigid Polyutherane Foam, Medium Density - Application.

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

.1 ASTM D1622-14, Standard Test Method for Apparent Density of Rigid Cellular Plastics.

.2 ASTM D1621-16 Standard Test Method for Compressive Properties of Rigid Cellular Plastics

.3 ASTM E2178-13 Standard Test Method for Determining Air Leakage Rate and Calculation of Air Permeance of Building Materials

.4 Canadian Construction Materials Centre.

.1 CCMC 14078-L Spray Applied Polyurethane Foam.

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

.1 WHMIS Safety Data Sheets (SDS)

1.03 DOCUMENTS AND DATA SHEETS

.1 Submit, in accordance with the requirements of section 01 33 00 - Submittal Procedures for all products used, the technical data sheets and samples, results and numbers of tests attesting the conformity of the product with the physical properties and standards specified in this document.

.2 Submit a laboratory report of compatibility and adhesion between the different products used: polyurethane, coatings, membranes, all other substrates.

.3 At the request of the Departmental Representative, provide a copy of the CONTRACTOR'S certification licence to the recognized third party: C.U.F.C.A., the names of the polyurethane applicators as well as a copy of their accreditation to the C.U.F.C.A.

.4 Submit an attestation by the manufacturer that the polyurethane foam system complies with the Quebec Construction Code Chapter 1 Building - and National Building Code - Canada 2010 (amended).

.5 Submit the results of an independent NRC-recognized laboratory of ASTM E96 water vapour permeance tests for three samples of each of the assemblies used.

.6 Provide a letter of certification (signed) from the manufacturer for all environmental requirements required in section 2.1 of this document.

1.04 QUALITY ASSURANCE

.1 Workers responsible for the implementation of insulating foam must meet the requirements of the CUFCA/CWC quality assurance program.

.2 The contractor performing the work under this section must hold a licence in good standing from the quality assurance program of CUFCA (Canadian Association of Polyurethane Foam Contractors Inc.).

.3 At the request of the Departmental Representative, provide a copy of the daily quality control reports as required under CAN/ULC S705.2.

.4 Manufacturer's field reports: Submit manufacturer's written reports within three (3) days of review, verifying compliance of work, as described in the FIELD QUALITY CONTROL subsection of PART 3.

1.05 TRANSPORT, STORAGE AND HANDLING

.1 Deliver and store all materials in their original packaging, bearing the name of the manufacturer, the product, the expiry date, the weight, the standards and approvals relating thereto and any other appropriate technical indication or reference.

.2 Deliver and store all materials within the temperatures prescribed by the manufacturer.

.3 Dispose of empty isocyanate and resin containers as prescribed in can/ULC S705.2.

1.06 CONDITIONS FOR IMPLEMENTATION

.1 At the beginning of the work and at all times during its execution, allow access to the site to the Representative or to other persons designated by the Departmental Representative, so that they can provide any technical assistance required.

.2 Perform the work of this section when the surface temperature and ambient air temperature are included within the requirements of the manufacturer's technical bulletin.

.3 Perform the work in this section when the relative humidity of the ambient air is less than 80%.

.4 Prepare surfaces in accordance with CAN/ULC S705.2 and manufacturer's recommendations.

1.07 PROTECTIVE MEASURES

.1 Ensure adequate ventilation of the area in which the insulation will be applied, in order to ensure a safe working environment.

.2 Ensure the protection of workers in accordance with local regulations, manufacturer's standards and recommendations.

.3 Protect adjacent surfaces and equipment from damage likely to be caused by projection beyond the intended limits.

2 PRODUCTS

2.01 ENVIRONMENTAL REQUIREMENTS

.1 The product must not contain any CFCs and HCFCs and Ozone Layer Depleting Substances, ZERO ODS.

.2 The product must comply with the GREENGUARD certification requirements.

2.02 MATERIALS

.1 Insulation: Spray polyurethane foam, conforming to CAN/ULC-S705.1 (including Amendments 1 and 2), meeting the following requirements.

.1 Density:35.49 Kg/m³ (ASTM D1622-14).

.2 Long term thermal resistance: 1.94/50MM RSI (CAN/ULC S770-09).

.3 Compressive strength:192 Kpa (ASTM D1621).

.4 Airtightness at 75 Pa: 0.00021 L/s/m² (ASTM E283).

.5 Absorption percentage: 1.36%.

.6 Water Vapour Permeance 50 mm: 13ng/Pa.s.m^2.

.7 Flame Propagation Index: 240 according to CAN/ULC S102-18

.8 Thickness: as shown in the drawings

.9 Reference Product:

.1 AIRMETIC SOYBEAN HFO from Huntsman Solutions Bâtiments inc.
Or:

.2 Genyk ELITE NATURE BOREAL or approved equivalent, or

.3 Walltite Eco from BASF Canada

.2 Primer: Compliant with insulation manufacturer's recommendations, considering the nature and condition of the surfaces of the structures to be insulated.

.3 Oily metal surface primer: according to the manufacturer's recommendations.

.4 Membrane Primer: As recommended by the membrane manufacturer.

3 EXECUTION

3.01 APPLICATION

.1 Apply the insulation to clean surfaces in accordance with the requirements of CAN/ULC S705.2 and the manufacturer's written instructions. Also apply a primer to the areas recommended by the Manufacturer.

.2 Apply the insulation where indicated in the details of the plans to ensure uniform thermal insulation of the building elements.

3.02 VERIFICATION

.1 Check whether the work already carried out is in a condition to receive the works described in this section. Report any discrepancies or discrepancies. Do not start work until corrective measures have been taken.

.2 In accordance with the requirements of CAN/ULC S705.2 and the following requirements verify these conditions:

.1 Surfaces to be covered with foamed thermal insulation shall be free from excess moisture, gel, oil, rust and any other foreign matter that may adversely affect the adhesion of the product. In case of doubt apply a primer.

.2 Ensure complete curing of substrates: concrete, mortar, coatings, membranes, primers or any other potential surfaces, before spraying the foam.

.3 Ensure that the adhesion of the membranes and coatings to the various substrates is adequate, taking into account the climatic conditions of application of the membranes, coatings and the spray applied insulation.

.3 Respect the acceptable humidity levels for the different materials

.4 In the case of special conditions, report the situation in writing and follow the manufacturer's recommendations.

.5 Make sure that all the works to be carried out before the installation of the projected insulation are done.

3.03 INSTALLATION

.1 Follow CAN/ULC S705.2 recommendations when using a primer.

.2 Apply insulation to clean, dry surfaces and when climatic conditions meet the requirements of CAN/ULC S705.2 and the manufacturer's instructions.

.3 Project the insulation in successive layers at least 15 mm thick each so as to obtain a minimum total thickness indicated in the drawings.

.4 Do not project insulation within 75 mm (3 in.) of chimneys, steam ducts, recessed luminaires, and other heat sources

3.04 TOLERANCE

.1 Apply the product in order to have an average total thickness (9 readings on a surface of 1 m2) of ±6 mm according to the indications in the drawings. Perform a minimum of 1 check every 150 m2 of sprayed area.

.2 Apply the insulation so that the insulation value is uniform over the entire surface, as stipulated in CNB 1995 section 9.25.2.3. 1)

3.05 ON-SITE QUALITY CONTROL

.1 At the request of the consultant, a quality control report on the site will be carried out by the Manufacturer.

3.06 CLEANING

.1 Nettoyage en cours de travaux: effectuer les travaux de nettoyage conformément à la section 01 74 11 - Nettoyage.

.1 Leave work site clean at the end of each day.

.2 Final Cleaning: Remove surplus materials, rubbish, tools and equipment from site as per section 01 74 11 - Cleaning.

.1 Remove the insulating materials that have overflowed or fallen on the ground during the implementation, and let the structure ready to receive the coating materials.

END OF SECTION

PARTIE 1 General

1.1 RELATED SECTIONS

.1 Section 06 10 00 - Rough Carpentry

.2 Section 07 21 16 - Blanket Insulation

.3 Section 07 92 00 - Joint Sealants

.4 Section 09 21 16 - Gypsum Board Assemblies

1.2 REFERENCES

.1 ASTM E96-96M-16, Standard Test Methods for Water Vapor Transmission of Materials

1.3 INFORMATIONAL SUBMITTALS

.1 Submit required data sheet indicating product characteristics and performance criteria.

.2 Submit work samples in accordance with Section 01 33 00 - Submittal Procedures.

PARTIE 2 Products

2.1 SHEET VAPOUR BARRIER

.1 Polyethylene film: Compliant with ASTM E96/96M, type 1, 0.15 mm (6 mil) thick for walls.

2.2 ACCESSORIES

.1 Seal tape: 60 mm wide, single-pressure, airtight adhesive tape.

.2 Staples: With legs at least 6 mm long.

.3 Sealants: In accordance with the requirements of section 07 90 00 - Joint Sealants.

.4 Box-shaped moulded vapour barrier elements: Factory moulded polyethylene boxes for use in the case of flush-mounted switches and output boxes.

PARTIE 3 Execution

3.1 INSTALLATION

.1 Ensure that the installation of the insulation is completed.

.2 Before installing the gypsum panels, install the sheet vapour barrier on the warm side of the exterior walls to form a continuous barrier.

.3 To minimize the number of joints, use the largest sheets possible.

.4 Make sure the leaves form a continuous protective barrier. If necessary, repair the perforations and tears with a piece 150mm longer than the perforations and seal.

3.2 OPENINGS IN EXTERIOR WALLS

.1 Cut the vapour barrier in ‘‘X’’ at the openings, fold it over the frame and overlap it with another strip of vapour barrier by sealing the joints with a sealing tape. Extend around openings (windows and doors) by overlapping the vapour barrier with a strip of self-adhesive membrane to join the outer air barrier (panel insulation).

.2 Ensure continuity of water vapour tightness with the exterior air barrier by following the self-adhesive membrane installation procedures described in section 3.6 of section 07 21 13 - Board Insulation. Apply a low-expansion urethane sealant where the elements pass through the membrane.

3.3 PERIPHERAL JOINTS

.1 Seal the perimeter of the vapour barrier as follows:

.1 Apply a continuous bead of sealant to the backing, facing the perimeter of the sheet

.2 Place the ends of the sheet on the sealing bead and press firmly

.3 Fix sheet to wood support using clips placed on lap joints, opposite the sealing bead

.4 Make sure the sealing bead is continuous. Flatten the folds and undulations present on the sheet with respect to the sealant.

3.4 LAP JOINTS

.1 Seal lap joints as follows:

.1 Attach the first sheet to the support

.2 Apply a continuous bead of sealant on a solid support, at the location of the joint

.3 Overlap the neighboring sheet over a width of at least 150 mm and press it firmly against the sealing bead

.4 Fix sheet to wood support using clips placed on lap joints, opposite the sealing bead

.5 Make sure the sealing bead is continuous. Smooth out any folds and ripples that form on the sheet where it overlaps the sealant. Apply sealing tape.

3.5 ELECTRICAL BOXES

.1 Seal the joints around the switch boxes and outlet boxes that pass through the vapour barrier as follows.

.1 In the case of sheet vapour barriers, wrap boxes of polyethylene foil large enough to ensure at least 300 mm of overlap on the main vapour barrier, all around the box.

.2 Apply sealant the joints between the overlapping parts and the main vapour barrier, and seal the places where the wiring enters or leaves the boxes.

3.6 CLEANING

.1 After completion of installation and performance monitoring, remove surplus materials and equipment, waste, tools and equipment from the work site.

END OF SECTION

PARTIE 1. General

1.1 ADDITIONAL STRUCTURES

.1 Section 04 03 42 - Stone Masonry

.2 Section 06 10 10 - Rough Carpentry

.3 Section 07 21 13 - Panel Insulation

.4 Section 07 92 00 - Joint Sealants

.5 Section 08 44 13 - Glazed Aluminum Curtain Walls

1.2 GENERAL INFORMATION OF WORK

.1 The work of this section consists primarily, but not limited to, the provision and installation of:

.1 Pre-painted aluminium flashing and staples at the perimeter of the openings and above the new stones

.2 New galvanized steel sheet

.3 Any other flashing and metal trim required to complete work

1.3 REFERENCES STANDARDS

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

.1 ASTM A653/A653M-07, Standard Specification for Steel Sheet, Zinc-Coated (Galvanised) or Zinc-Iron Alloy-Coated (Galvanealed) by the Hot-Dip Process.

.2 Canadian Standards Association (CSA / CSA International)

.1 ACNOR B111-1974 (R2005) – Wire Nails, Spikes and Staples.

1.4 DOCUMENTS AND SAMPLES

.1 Submit the required documents and samples in accordance with Section 01 33 00 - Submittal Procedures.

.2 Shop Drawings

.1 Submit shop drawings for each type of flashing used in the project.

.3 Samples

.1 Submit two (2) 50mm x 50mm samples of each color, finish and type of sheet available.

.2 Quality Assurance: submit the required documents and samples in accordance with Section 01 45 00 - Quality Control.

.3 Manufacturer's Instructions: provide manufacturer-supplied installation instructions, including any indication of special handling, installation and cleaning procedures.

1.5 COMPATIBILITY OF MATERIALS

.1 The materials must be protected against damaging chemical and electrolytic reactions.

1.6 TRANSPORT, STORAGE AND HANDLING

.1 Transport, store and handle materials and equipment in accordance with Section 01 61 00 - Common Product Requirements.

.2 Materials should be stored so as to prevent wrinkling, twisting, scratching and other damage.

PARTIE 2. Products

2.1 MATERIALS

.1 Aluminium sheet: commercial grade, registered trademark, plain finish, at least 0.8 mm or 1.2 mm thick (robust quality) as shown in the drawings, with a factory applied finish coating, compliant with CAN/CGSB-93.1.

.1 The prescribed thickness for pre-finished sheets is that same as for the bare metal.

.2 Finish: Anodized in the same color as the curtain walls.

.2 Galvanized steel sheet: hot-dip galvanized steel, commercial grade, in accordance with ASTM A526, zinc-plated Z275, 22 gauge and above or as indicated on drawings.

.1 Location: See drawings.

2.2 ACCESSORIES

.1 Protective coating: Alkali-resistant bituminous paint.

.2 Plastic Putty: Compliant with CAN/CGSB-37.5.

.3 Nailing tabs and staples: same material and same hardening as used sheet, minimum width of 100mm of 24 gauge.

.4 Fasteneres: Of the same material as the sheet metal used, conforming to CSA standard B111; nails with cover, flat head and corrugated shank, of appropriate length and thickness: metal screws of stainless steel.

.5 Washers: Same material as sheet metal used, 1 mm thick with rubber linings.

.6 Touch-up paint: As recommended by pre-finished materials manufacturer.

2.3 RECOVERY

.1 After taking all necessary measures of the elements to be covered, perform the overlaps as indicated.

.2 Machine parts of a single length, square, level and accurately to the intended dimensions so that they are free from deformation or other defects that could affect their appearance or effectiveness.

2.4 FABRICATION

.1 Fabricate metal flashings and other sheet metal elements in accordance with the details of the drawings of the Association canadienne des entrepreneurs en couverture (ACEC) and specifications.

.2 Form members in 2400 mm maximum lengths.

.1 It is important to provide, at the joints, the clearance necessary for the expansion of the elements.

.3 Hem exposed edges on underside 12 mm.

.1 Mitre and seal corners with sealant.

.4 Shape the angle elements, level and accurately, to the required dimensions, so that they are free from any deformation or any other defect likely to affect their appearance or effectiveness.

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

.6 Assembly Joints: "S" lock, filled with sealant during installation.

PARTIE 3. Execution

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: Comply with the manufacturer's written recommendations, including any available technical bulletins, instructions for handling, storage, and installation, and data sheet instructions.

3.2 INSTALLATION

.1 Flashings and Metal Trim

.1 Install the sheet metal structures according to the details in the plans.

.2 Conceal fasteners and staples, except where the Departmental Representative has agreed to leave them visible. Install them at a maximum distance of 400 mm center-to-center.

.3 Secure and execute 100 mm overlapping joints.

.5 Lock end joints and caulk with sealant.

.6 Make the necessary connections and adjustments to the flashings and moldings with permanent elements.

.7 Insert the metallic flashing under the capping flashing to form a seal.

.8 Caulk flashings at meeting point with crowning flashings and around the elements of this section, with sealant. Apply sealant in accordance with CGSB Standard 93-GP-5M and latest revision.

.9 Coordinate flashing installation with exterior cladding and new openings.

.2 Sealants

.1 Provide and install required sealants around structures in this section.

.2 Apply sealant in accordance with Section 07 92 00 - Joint Sealants.

.3 Sealing must be carried out with the utmost care and in a continuous manner so that no infiltration takes place at the perimeter of the openings. All necessary corrections, even after the completion of the work, will have to be performed at the expense of the Contractor.

3.3 CLEANING

.1 Clean according to section 01 74 11 - Cleaning.

.2 If finished surfaces are soiled as a result of the work in this section, contact the manufacturer of the affected area for cleaning directions.

.3 Repair or replace finished surfaces that have been altered or otherwise damaged as a result of the work covered by this section.

.4 After completion of implementation and performance monitoring, remove surplus materials and equipment, waste, tools and equipment from the work site.

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

END OF SECTION

PARTIE 1 General

1.1 DESCRIPTION

.1 This section applies to sealants and caulking products not specified in other sections.

.2 Refer to the relevant sections for additional sealing and caulking requirements.

.3 When caulking with sealants is shown in section or detail, it is agreed that the joint (s) must be sealed throughout the perimeter and / or length of the elements to be sealed.

1.2 REFERENCE STANDARDS (MOST RECENT EDITIONS)

.1 Canadian General Standards Board (CAN/CGSB)

.1 CAN2-19.13-M82, Sealing Compound, One Component, Elastomeric, Chemical Curing

.2 Can/CGSB 19-GP-17M, Sealing Compound, One Component, Acrylic Emulsion Base

.2 ASTM: American Society for Testing and Materials International

.1 ASTM C719 – 14, Standard Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cyclic Movement (Hockman Cycle)

.2 ASTM C 794, Standard Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants

.3 ASTM C834-18, Standard Specification for Latex Sealants

.4 ASTM C920, 18, Standard Specification for Elastomeric Joint Sealant

.5 ASTM C 1248, Standard Test Method for Staining of Porous Substrate by Joint Sealants

.3 Sealant Weatherproofing & Restoration Institute (SWRI):

1.3 COMPATIBILITY

.1 Sealants and their primers will be supplied by the same manufacturer.

1.4 GENERAL INFORMATION OF WORK

.1 In general, but not limited to, this section deals with the following work:

.1 Sealing the periphery of all new openings.

.2 Carry out the other sealing work required or necessary for the project as described in the drawings.

1.5 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit the required data sheets and samples in accordance with the requirements of Section 01 33 00 - Submittal Procedures.

.2 Submit two samples of each colour chosen and type of material used.

1.6 SAMPLES OF WORKS & TESTS

.1 Carry out samples of structures in accordance with section 01 45 00 - Quality Control

.2 Once the preliminary colour choices have been made, a 1-metre work site sample should be taken for each substrate for final approval by the Ministry representative.

.3 A pull-out test must be carried out according to the manufacturer's requirements on a sample of work carried out for each of the substrates present in the project, in the presence of the Manufacturer's Representative and the Departmental Representative.The necessary preparation of the substrates for the application of the seals will be determined subsequently.

.4 Wait for the approval of the structural samples before starting the installation of all sealing products. Allow seventy-two (72) hours for the Departmental Representative and the Manufacturer's Representative to review the samples.

.5 Once accepted, the sample work will be the minimum standard for the work in this section and may form part of the finished work.

1.7 DELIVERY, HANDLING AND STORAGE

.1 Deliver and store materials in original containers and packaging bearing the manufacturer's intact seal.

.2 The materials will be adequately protected and permanently stored in a dry, ventilated shelter, protected from open flames and welding sparks, protected from the weather and any harmful substances.

.3 Store water-based sealants at temperatures of 5°C or higher. Store solvent-based sealants at a temperature high enough to provide the malleability required for their application.

1.8 GUARANTEE

.1 Provide a written document, signed and issued on behalf of the Client by the sealant installation contractor, stating that the implementation of the external seals of this section are guaranteed against leakage, cracking, crumbling, loss of adhesion, contraction, loss of consistency and tarnishing of adjacent surfaces, from the date established in the Additional General Conditions, 01 00 10.

.2 Provide a limited warranty, in writing, signed and issued on behalf of the Departmental Representative by the Manufacturer, in accordance with the requirements of the terms and conditions of these Specifications, With respect to the work of this section 07 92 00, the 12-month warranty period is extended to 60 months, according to the durations indicated for each product in this Specifications section, and stating that :

.1 All sealants prescribed in this section shall be free from loss of sealing, cohesion and adhesion, cracking, crumbling, contraction, run-off and shall not cause fouling of substrates and adjacent surfaces

.3 Guarantees must not be degressive. They must cover the entire value of the work over the specified period.

.4 The guarantee must take effect from the date indicated in the Additional General Conditions, 01 00 10.

1.9 SITE-SPECIFIC CONDITIONS

.1 Environment

.1 Do not proceed with the implementation of sealants under the following conditions:

.1 When the ambient temperature and the temperature of the substrate are outside the limits established by the Manufacturer of the products or when they are less than 4.4°C, unless specifically approved by the Departmental Representative.

.2 When the substrate is wet.

.2 Joint Width Conditions

.1 Do not proceed with installation of sealants when joint width is less than recommended by the Manufacturer of the product for the specified applications.

.3 Joint-Substrate Conditions

.1 Do not proceed with application of sealants until all contaminants capable of interfering with adhesion of the products have been cleared from the substrate.

.2 Ventilate work areas using approved portable blowers and extractors.

.3 Carry out all installation work on sealants including waste management and disposal according to the provisions of local regulations as well as those of the Quebec Ministère de l'Environnement.

PARTIE 2 Products

2.1 SEALANTS AND LOCATION

.1 Sealants selected for this project must be listed on the CGSB Sealant Certification Board's list of registered products. Where sealants are qualified with primers use only these primers.

.2 The requirements of this clause may be modified in the drawings or in other sections of these specifications. The Contractor and its subcontractors are required to check all the contractual documents in order to ensure the use of the right sealant in the right place. In case of conflict between sections of the specifications or between the specifications and the drawings, inform the Departmental Representative before the start of work.

.3 Type "**1**" sealant:

.1 Location:

.1 Seals around windows and doors with aluminium or pre-painted steel framing (other than white).

.2 Seals requiring good adhesion to the glass.

.2 Products:

.1 One-component sealant based on sylil-terminated polyether; colour chosen by the Ministry representative.

.2 One-component silicone sealant, with high efficiency and medium colour modulus at the choice of the Ministry representative.

.3 Single-component silicone sealant, medium modulus, neutral polymerisation, colour chosen by the Ministry representative.

.4 One-component silicone sealant, medium modulus, with neutral polymerization, not soiling on porous substrates and low adhesion of dirt according to ASTM-C1248, colour chosen by the Ministry representative.

.4 Type "**2**" sealant:

.1 Location:

.1 Vertical control joints in masonry works, between prefabricated concrete or reinforced concrete elements.

.2 Dynamic vertical outer joints.

.3 Gaskets having a degree of fire resistance.

.2 Products:

.1 Multi-component polyurethane sealant ; Ministry representative's choice of colour.

.2 Sealing silicone sealant of low modulus, colour chosen by the Ministry representative.

.3 Sealant, single-component, low modulus, non-collapsing, neutral polymerisation, Ministry representative's choice of colour, such as:

.4 Silicone sealant, one-component, medium modulus, neutral polymerisation, non-fouling on porous substrates and low dirt adhesion according to ASTM-C1248, Ministry representative's choice of colour.

.5 Type "**3**" sealant:

.1 Location:

.1 Non-dynamic interior gaskets not requiring a degree of fire resistance (perimeter of interior doors and windows).

.2 Products:

.1 Acrylic latex sealant; Ministry representative's choice of colour.

.2 One-component, high-yielding silicone sealant of medium colour modulus at the choice of the Ministry representative, such as:

.6 Primer: type recommended by the sealant manufacturer.

.7 Sealant colours at the choice of the departmental representative in the manufacturer's wide range to coordinate with the colour of the materials to which they are adjacent.

2.2 BACKUP MATERIAL

.1 Polyethylene, urethane, neoprene or vinyl foams.

.1 Extruded foam gasket base.

.2 Elements oversized from 30 to 50%.

.2 Butyl or neoprene rubber

.1 Solid, rounded shaft, 70 Shore A hardness.

.3 High-density foam

.1 Extruded closed cell neoprene or polyvinyl chloride (PVC) backing foam.

.4 Anti-stick product

.1 Polyethylene non-stick tape that does not stick to sealant.

2.3 JOINT CLEANERS

.1 Non-corrosive, soiling-free cleaner, compatible with sealant and sealant materials, and recommended by the sealant manufacturer.

PARTIE 3 Execution

3.1 SITE PROTECTION

.1 Protect adjacent structures so as not to damage, soil or contaminate them.

3.2 MANUFACTURER'S INSTRUCTIONS

.1 Comply with the manufacturer's written requirements, recommendations, and specifications, including any available technical bulletins, instructions for handling, storing, and installing products, and data sheets indications.

.2 The Manufacturer's Representative will have to conduct an on-site inspection of the samples of structures and pull-out tests with the Departmental Representative. The Contractor must await the approval of the Departemental Representative before starting the sealing work.

3.3 SURFACE PREPARATION

.1 Remove any unwanted material, including dust, rust, oil, grease, and other foreign matter, from the surfaces of the joint that may interfere with the performance or effectiveness of the work.

.2 Use a wire brush, grinding wheel or sandblast, to remove rust, mill scale and coatings from ferrous metal surfaces. Remove oil, grease stains and other coatings from non-ferrous metal surfaces with joint cleaner.

.3 Do not apply sealants to gasket surfaces treated with a filler, drying mixture, water repellent or other coating unless prior testing has confirmed the compatibility of these materials. Remove preexisting surface coatings as needed.

.4 Check that the joint surfaces are well dried and are not frozen.

.5 Prepare concrete, masonry, glazed and vitreous surfaces in accordance with the sealant manufacturer's instructions.

.6 Check size of joint and make the necessary corrections so that its depth is equal to half its width, with minimum depth and width of 6 mm, and a maximum width of 13 mm.

.7 Prepare surfaces in accordance with manufacturer's directions.

.8 Beginning the waterproofing works constitutes acceptance of the underlying surfaces and no claim can be later made in this regard.

3.4 PRIMER

.1 Before applying primer and caulking compound, mask adjacent surfaces as needed to prevent soiling.

.2 Prime sides of joints in accordance with sealant manufacturer's instructions immediately prior to caulking.

3.5 BACKUP MATERIAL

.1 Install bond-breaker tape where required, in accordance with the manufacturer's instructions.

.2 Install support material to obtain the appropriate depth and joint profile.

3.6 PREPARATION OF SEALANTS

.1 Mix materials in strict accordance with sealant manufacturer's instructions.

3.7 APPLICATION

.1 Sealant

.1 Apply sealant in accordance with manufacturer's directions.

.2 Apply the product by forming a continuous sealing bead.

.3 Apply the sealant using a spray gun fitted with a nozzle of appropriate dimensions.

.4 Use a sufficiently high supply pressure to fill the voids and perfectly seal the surface of the seals.

.5 Form surface of sealant with full bead, smooth, free from ridges, wrinkles, sags, air pockets, embedded impurities. Jointing by a simple bead forming a skin is prohibited.

.6 Shape the joint with a suitable tool or knife immediately after application to ensure full contact with the adhering surfaces and to give them a slightly concave profile before the skin forms.

.7 In corner joints, give the sealant a slightly concave surface. Ensure good adhesion on both sides of the seal by leaving an air gap in the center of the seal under the sealant.

.8 In flat gaskets, give the sealant a slightly concave surface by completely sealing the gasket.

.9 The seal finish must be smooth, free of dents or dents, and form a continuous surface with adjacent surfaces. The Departmental Representative may reject any joint whose appearance is not satisfactory.

.10 Remove excess sealant promptly as work progresses and upon completion.

.11 Half-leaf the joints of the exterior facing with the door frames and around the perimeter of the new openings as well as at any place indicated on the drawings. Do not caulk exterior cladding joints at the head of door frames and window frames that are fitted with weather boards.

.12 Caulk the perimeter of frames, interior doors and windows, as well as openings or objects passing through soundproofed partitions and fire separations.

3.8 CURING

.1 Cure sealants in accordance with sealant manufacturer's instructions.

.2 Do not cover sealants until proper curing has taken place.

.3 Protect sealants from weather and dirt for a 24-hour period.

3.9 CLEANING

.1 Clean adjacent surfaces without delay and leave the structure clean and in perfect condition.

.2 As work progresses, remove excess and burrs of sealant overflowing onto adjacent surfaces using the recommended cleaning product.

.3 Remove masking tape after the initial sealant setting period.

.4 Cleaning

.1 Clean adjacent surfaces without delay and leave the structure clean and in perfect condition.

.2 Remove excess and droppings, using recommended cleaners as work progresses.

.3 Remove masking tape after the initial joint setting period.

END OF SECTION

PARTIE 1 General

1.1 RELATED SECTIONS

.1 Section 08 44 13 - Glazed Aluminum Curtain Walls

.2 Section 08 71 10 - Door Hardware

.3 Section 08 80 50 - Glazing

1.2 REFERENCES

.1 Aluminum Association Designation System For Aluminum Finishes (AA).

.2 ACNOR-G164, Hot Dip Galvanizing of Irregularly Shaped articles.

.3 ASTM E330-02 (2010), Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.

.4 AAMA/WDMA/CSA 101/I.S.2/A440, "North American Window Standard (NASF)/Specification for Windows, Doors and Lanterns".

.5 CSA A440S1, "Canadian Supplement to AAMA/WDMA/CSA 101/I.S.2/A440 – North American Standard for WINDOWS (NAFS)/ Specification for Windows, Doors and Lanterns".

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Data sheets

.1 Submit the required data sheets as well as the manufacturer's instructions and documentation related to the proposed doors. Data sheets must indicate product characteristics, performance criteria, size, limitations and finish.

.2 SHOP DRAWINGS

.1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.

.2 The drawings must indicate the nature of the materials and the profile of the elements and show full details of the components of each type of door; the arrangement of the reinforcing parts for the production of the joints and the mounting of the hardware elements; The arrangement of the hardware elements and the required clearances.

.3 The drawings must show each type of door proposed, show the extruded profiles, the method of assembling the door and glazing, the details of the reinforcement parts of the sections and hardware elements, the finish, as well as the location of the visible fixings and the manufacturer's nameplate.

.4 The contractor must take note of the following and indicate it in the shop drawings in a very specific way: the position of the steel reinforcements, in elevation and in section, wherever the hardware elements must be fixed by means of mechanical screws. These drawings must be part of the complete set of shop drawings and provided at the same time as all other details

shown in the shop drawings.

.5 It is the responsibility of the door manufacturer and it is his responsibility to obtain from hardware suppliers all the templates and all the components to be installed at the aluminum doors to know the position of all the steel reinforcements to be installed.

.6 Submit details from manufacturers' catalogues illustrating the cuts, dimensions and method of assembly for each proposed door type.

1.4 ACCEPTABLE PRODUCTS

.1 Acceptable materials and products: Where materials or products are prescribed by their brand, refer to the "Instructions to Bidders" for instructions on how to apply for approval of materials or substitutes.

.2 Aluminium doors must come from the same manufacturer as the curtain walls.

1.5 MAINTENANCE DATA

.1 Provide the necessary instructions for the cleaning and maintenance of finished aluminium surfaces, and attach them to the manual mentioned in Section 01 78 00 - Closeout Submittals.

1.6 QUALITY ASSURANCE

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

1.7 TRANSPORT, STORAGE AND HANDLING

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

.2 Delivery and Acceptance: Deliver materials and equipment to the work site in their original packaging, which must be labeled with the name and address of the manufacturer.

.1 Cover the finished surfaces with a temporary protective coating. The chosen material must be removed perfectly well and it must not leave any residue.

.2 Leave the protective coating in place until final cleaning of the building.

.3 Storage and handling

.1 Store materials and equipment so that they do not sit on the ground in a clean, dry, well-ventilated area, as recommended by the manufacturer.

.2 Store aluminum doors to protect them from marks and scratches.

.3 Replace damaged materials and equipment with new materials and equipment.

1.8 GUARANTEE

.1 Provide a written document, signed and issued in the name of the Owner, stipulating that the aluminum doors are guaranteed against any loss of tightness and defect under normal conditions of use for a period of 12 months from the date established in the additional general conditions, 01 00 10.

.2 With respect to the work of this section 08 11 16, the 12-month warranty period is extended to 60 months for interior and exterior finishes, stipulating that the materials and their finishes will not be excessively altered.

1.9 CONTRACTOR QUALIFICATION

.1 Only a skilled workers recognized by the manufacturer will be able to carry out this work.

PARTIE 2 Products

2.1 DESIGN CRITERIA

.1 Design criteria for doors in exterior walls
- .1 Door components shall be able to expand and contract freely at operating temperatures ranging from -40 to +35 degrees Celsius.
- .2 The maximum deflection of the mullions shall not exceed 1/175 of the clear span when tested in accordance with ASTM E 330 under a wind load of 2.6 kPa (class C-4); submit the certificates of the tests carried out.
- .3 Doors must allow movement between their component parts and the frame of the bay or the support.

.2 Glass thickness and glazing dimensions shall not exceed the limit values given in CAN/CGSB-12.20.

.3 Doors shall be fitted with an air and water vapour tightness system, mainly arranged in alignment with the glazing and the inner sealing bead.

.4 Doors must come from the same manufacturer as the frames in which they will be installed.

.5 All exposed aluminium surfaces must be treated with the same finish, colour chosen by the Ministry Representative.

2.2 MATERIALS

.1 Extruded aluminium profiles: AA 6063 -T5 alloy, quality to be anodised, according to the Aluminum Association.

.2 Aluminum sheet: AA 1100 - H14 alloy of quality to be anodized, according to the Aluminum Association.

.3 Steel Reinforcing Parts: Complies with CSA G40.20/G40.21, 300W Grade.

.4 Steel surface primer: according to CGSB 1-GP-40M.

.5 Fasteners: Made of aluminium, cadmium-plated steel, stainless steel, with a finish corresponding to that of the element to be fixed.

.6 Cut-off device: such as door manufacturer's standard if not specifically indicated.

.7 Door bumpers: black neoprene.

.8 Door weather strip: With anodised aluminium profile frame and vinyl sealing strip if not specifically indicated

.9 Oxidization-reduction protective coating: Alkali-resistant bituminous paint. Protect all adjacent elements (concrete, steel, etc.) in contact with aluminium so as to avoid any reaction that could lead to premature deterioration of the product.

.10 Glass: tempered glass conforming to CAN/CGSB-12.1, type 1, class A.

.11 Glazing materials: complies with the requirements of section 08 80 50.

.12 Hardware: Such as manufacturer's standards and as indicated. Refer to hardware groups in 08 71 00 - Door Hardware.

.13 Sealants: Complies with the requirements of section 07 92 00, colour at the choice of the Departmental Representative.

2.3 STEEL REINFORCEMENT AND FINISHES OF STEEL PARTS

.1 Provide and install reinforcement parts in the doorposts wherever mechanical fasteners are provided for the installation of hardware.

.2 Steel staples and reinforcements shall be covered with a steel primer conforming to CGSB 1-GP-40 and for exterior doors with zinc plating conforming to CSA G164.

2.4 ALUMINIUM SWING DOORS

.1 Extra wide insulated swing door

- .1 Interior of the door covered with an aluminium cladding mechanically retained in a rigid vinyl thermal partition.
- .2 The corners will have reinforcement plates, extruded anti-twist guides with mortise seals and 9.5 mm plated steel tension bars along the entire length.
- .3 Dimensions:
  - .1 Door thickness: 51 mm
  - .2 Side uprights: For continuous hinge, 122 mm wide
  - .3 Top crossbar: 127mm
  - .4 Intermediate sleeper: 127 mm

.5 Bottom transom: 254 mm

.4 Glazing mouldings: snap-in type for double sealed unit 25.4 mm thick, which cannot be removed from the outside. A neoprene extrusion will be inserted into the glazing molding to allow dry glazing.

.5 Product from the following manufacturers or a substitute product approved by addendum in accordance with the Instructions to Submitters:

.1 Alumico Architectural Inc. 5020 Series Door

.2 A & D Prévost Inc 2750 Series Door

.3 Kawneer Insulclad 360 door

2.5 FINISH

.1 Anodized finishes: conforms to the finishes designated by the Aluminum Association DAF-45 as Class 1 architectural finishes, or as protective or decorative finishes.

.1 Anodized finish colored by electrodeposition: Class 1 designation AA-M10C21A44, minimum thickness 0.7 mm. Color: Black

.2 The preparation and pretreatment of surfaces and the application of the finishing complex shall be carried out in accordance with the manufacturer's instructions.

.3 Protect the finished aluminium with a protective film designed for this purpose until it's removal is authorized.

2.6 HARDWARE

.1 Exterior doors

.1 One (1) door weather strip: Made of finished aluminium such as the door, with polyethylene fibre weather strip and water discharge.

.2 Insulated aluminum thresholds with full-width aluminum thermal break for door and frame assemblies (12 mm high threshold, 6 mm thermal break). Depth to be checked on site.

.2 Refer to section 08 71 00 - Door Hardware, for other hardware items to be installed. Hardware provided by section 08 71 00 will be installed by this section.

2.7 FABRICATION

.1 Doors must be from the same manufacturer. The complete manufacture of the doors and the installation of all the steel reinforcements required for the hardware must be done by the Manufacturer in his factory. Workshop drawings must be prepared by the latter.

.2 The doors must be equipped with structural steel reinforcement parts for each of the hardware parts (the latter must be installed using machine screws) to receive the hardware. These reinforcement parts will be installed by the Manufacturer of the doors and frames.

.3 Doors and frames must be manufactured according to the maximum frontal dimensions and the indicated profiles. In the case of insulating glazing, the rabbet shall be at least 25.5 mm wide.

.4 Where required, doors shall be fitted with structural steel reinforcing parts.

.5 The elements will be assembled by means of connecting parts (mechanical joints). Fasteners must be concealed.

.6 In order to receive hardware, doors and reinforcements must be mortised, reinforced, drilled and tapped at the required locations, using the templates prescribed in section 08 71 10 - Door Hardware.

.7 Install all strikes to a height as prescribed by the manufacturer's recommendations on all doors.

.8 Refer to section 08 71 10 for hardware.

.9 The seals will be assembled with precision. The cuts will be straight and free of burrs.

2.8 PROTECTIVE COATING

.1 Isolate aluminum elements from the following elements with a protective coating.

.1 Elements of different metals, except small elements of stainless steel, zinc or tin bronze.

.2 Concrete, mortar and masonry elements.

.3 Wood elements.

2.9 Glazing

.1 See section 08 80 50 for specifications.

PARTIE 3 Execution

3.1 EXAMINATION

.1 Verification of conditions: Ensure that the conditions of surfaces / substrates implemented under other sections or contracts are acceptable for aluminum door installation in accordance with the manufacturer's written instructions, prior to installation of products.

3.2 INSTALLATION

.1 Manufacturer's instructions: Comply with the manufacturer's written requirements, recommendations and specifications, including the technical bulletins and installation instructions specified in the product catalogs and on the packing cartons, as well data sheets specifications.

.2 Install doors and hardware into aluminum frames as per the templates and manufacturer's instructions.

.3 Adjust moving parts so that doors operate smoothly.

.4 Install the thresholds in a bed of sealant. Secure both sides of the threshold.

.5 Leave the necessary clearances for the deformation of the framework to avoid that its loads are transmitted to the frames.

.6 Install the glazing in accordance with the requirements of section 08 80 50 - Glazing and standard AAMA/WDMA/CSA 101/I.S.2/A440. .

3.3 CLEANING

.1 Cleaning: Clean according to section 01 74 11 - Cleaning.

.1 Clean aluminum surfaces with a damp cloth and approved non-abrasive cleaner.

.2 Remove all traces of primer, caulking and sealant, epoxy resin and filler. Clean the doors.

.3 Clean glass surfaces with an approved non-abrasive cleaner.

3.4 PROTECTION

.1 Protect equipment and installed elements from damage during work.

.2 Repair damage to adjacent materials and equipment caused by the installation of aluminum doors and frames.

END OF SECTION

PARTIE 1 General

1.1 RELATED SECTIONS

.1 Section 06 10 10 - Rough Carpentry

.2 Section 07 21 16 - Blanket Insulation

.3 Section 07 62 00 - Sheet Metal Flashings and Accessories

.4 Section 07 92 00 - Joint Sealants

.5 Section 08 11 16 - Aluminum Doors and Frames

.6 Section 08 80 50 - Glazing

.7 Section 09 21 16 - Gypsum Board Assemblies

1.2 REFERENCES

.1 Aluminum Association Designation System For Aluminum Finishes (AA)-1997.

.1 DAF 45, Designation System For Aluminum Finishes.

.2 AAMA 607.1, Specification and Inspection Methods for Clear Anodic Finishes for Architectural Aluminum.

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

.1 ASTM B209M, Specification for Aluminum and Aluminum Alloy Sheet and Plate.

.2 ASTM B221M-92a, Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

.3 ASTM E283 (1999), Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.

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

.5 ASTM E331-00, Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.

.6 ASTM E1105-00, Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform or Cyclic Static Air Pressure Difference.

.4 Canadian General Standards Board (CGSB)

.1 CAN / CGSB-12.20-M89, Structural Design of Glass for Buildings

.5 Canadian Standards Association (CSA)

.1 CSA G40.20 / G40.21-98 (R2003), General Requirements for Rolled or Welded Structural Quality Steel / Structural Quality Steel.

.2 CAN / CSA G164-M92(R2003), Hot Dip Galvanizing of Irregularly Shaped Articles

.3 CAN / CSA-S136-01, Cold Formed Steel Structural Members

.4 CAN / CSA-S157-M83(R2002), Strength Design in Aluminum

.5 CSAW59.2-2018, Welded Aluminium Construction

.6 CSA A440-00, Condensation Resistance

.6 Design and Installation Guide (published by the Quebec Building Envelope Council (CEBQ)).

1.3 DESCRIPTION OF SYSTEM

.1 Prefabricated curtain wall according to the rain screen principle, factory pre-finished in factory, and including the following elements.

.1 A frame of aluminum tubular sections consisting of self-supporting mullions (reinforced where indicated) with thermal break.

.2 Drainage and pressure equalization / ventilation holes to be made directly in pressure plates, decorative covers and top of the cavity of spandrels, to allow, as appropriate, free circulation of air or evacuation of rain or condensation water.

.3 Low-emissivity double-sealed glass vision panels, held in place by pressure plates covered with decorative covers.

.4 Fastening systems consisting of pressure plates with decorative covers.

.5 Sealants, air / vapor barrier membranes, dry or wet glazing splines to ensure complete seal of all curtain wall elements with the building envelope.

.6 Aluminum finishes

.7 Where curtain wall and elements of the envelope meet; aluminum flashings.

.8 Assembled system to permit re-glazing of individual glass units from without requiring removal of structural mullion sections.

1.4 PERFORMANCE REQUIREMENTS

.1 Calculate components and determine their size so that they withstand dead loads and live loads caused by wind pressure and suction forces, acting perpendicular to the plane of the structure as calculated in accordance with the National Code of building (CNB).

.2 Calculate components and determine their size so that they are resistant to seismic live loads and sway displacement, as calculated in accordance with the National Building Code (NBC). Reinforce if required.

.3 The maximum deflection of the mullions is L / 175 of span or 19 mm max, without alteration of the physical properties of the glass materials.

.4 The size of glass panels and window glass to be based on CAN /CGSB-12.20.

.5 Curtain walls must be designed to accept the following stresses, without damaging components or damaging seals and splines:

.1 movement of the various elements constituting the curtain wall;

.2 movement between curtain wall elements and peripheral frame components;

.3 dynamic overloads (application and removal);

.4 deflection of structural support framing;

.5 Mid-span slab edge deflection of

.6 Limit air infiltration through curtain wall to 0.01L / sec * m^2 of wall area, measure at a reference differential pressure across wall of 360 Pa in accordance with ASTM E283.

.7 Vapour seal to be free from defects at a temperature of 22º C, interior pressure (static pressure) being at 25 mm sp and relative humidity at 40%.

.8 Drain water entering joints, condensation occurring in glazing channels, or migrating moisture occurring within system, to exterior by weep drainage network.

.9 Resistance to water infiltration (ASTM E331 and E547): no water infiltration (0.000 L / sec ** m^2) with a static pressure difference of 720Pa.

.10 Resistance to condensation (CAN A440): minimum curtain wall temperature index I = 72.9.

1.5 SHOP DRAWINGS AND DATA SHEETS

.1 Submit shop drawings and data sheets in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submitted data sheets must describe the elements of the curtain wall, the anchoring and fixing devices of the system, the vision panels, the details of the internal water evacuation and pressure equalization devices. The size of each component must also be specified.

.3 Submitted shop drawings must bear the seal and signature of a competent engineer qualified to practise in Quebec.

.4 Shop drawings must indicate system size, framed opening requirements and tolerances, adjacent construction, anchor details, anticipated deflection under load, affected related work, weep drainage network, expansion and contraction joint location and details, and field welding required.

1.6 PRODUCT SAMPLES

.1 Submit samples of required products in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit a 300 mm x 300 mm sample showing pre-finished aluminum surfaces, edges and angles of glass elements, prefabricated glass panels of the specified type and insulated filler panels.

1.7 CALCULATION DATA

.1 Submit the required calculation data in accordance with Section 01 33 00 - Submittal Procedures.

.2 Specify the physical and structural properties of structural elements, and submit calculations as well as size constraints and special requirements for assembly.

1.8 TESTING REPORTS

.1 Submit the required test reports in accordance with Section 01 33 00 - Submittal Procedures.

1.9 CLOSEOUT SUBMITTALS

.1 Submit the required documents / elements in accordance with Section 01 78 00 - Closeout Submittals.

1.10 TRANSPORT, STORAGE AND HANDLING

.1 Equipment and materials must be transported, stored and handled in accordance with Section 01 61 00 - General Product Requirements.

.2 Delivery and Acceptance: Deliver materials and equipment to the work site in their original packaging, which must be labeled with the name and address of the manufacturer.

.3 Perform the work covered in this section in accordance with AAMA CW-10.

.4 Store materials and materials indoors, in a clean, dry and well-ventilated place, in accordance with the manufacturer's recommendations.

.5 Protect surfaces of prefinished aluminum elements with protective packagings or peelable films. Do not use adhesive papers or spray coats, which are very difficult to remove after exposure the sun or bad weather.

.6 Replace defective or damaged materials and equipment with new materials and equipment.

1.11 SITE-SPECIFIC CONDITIONS

.1 Do not install sealants if ambient temperature and surface temperature are below 5º C.

.2 Maintain minimum prescribed temperature during and after the installation of sealants.

1.12 ACCEPTABLE PRODUCTS

.1 Acceptable materials and products: Where materials or products are prescribed by their brand, refer to the "Instructions to Bidders" for instructions on how to apply for approval of materials or substitutes.

1.13 GUARANTEE

.1 The Contractor hereby certifies that the aluminum framed glazed curtain walls will remain in place and maintain their water tightness in accordance with the General Conditions. The 12 month warranty period is extended to 60 months from the date set out in the supplemental general conditions, 01 00 10 and that this will include protection against any major failure of the work.

.2 With respect to the work of this section 08 44 13, the 12-month warranty period is extended to 60 months for interior and exterior finishes, stipulating that the materials and their finishes will not be excessively altered.

PARTIE 2 Products

2.1 MATERIALS AND COMPONENTS

.1 Extruded aluminium, tubular profiles, pressure plates, decorative covers: extruded aluminium, 6063 T5 alloy, conforms to ASTM B221M standard; thicknesses of parts conform to design loads. The alloy and quenching must be chosen by the manufacturer to meet the performance requirements.

.2 Steel sheet (air/ vapour barrier trays): according to can/CSA-S136,
ASTM A 653/A 653M, 300W hot-dip galvanized steel with zinc coating of at least 385 g/m.ca., 22 gauge minimum thickness.

.3 Reinforcements of mullions and anchors to foundations, concrete slabs and other structural members:

- .1 Steel profiles and plates: in accordance with CSA G40.20/G40.21, ASTM A 36/A 36M, ASTM A 167, stainless steel grade 304 and type 300W hot-dip galvanized steel.
- .2 Standard-compliant steel tubing; Grade 350W Class H steel; hot-dip galvanizing steel, with 600 g/m.ca zinc layer. can/CSA-G164-M compliant.
- .3 Devices adjustable on three (3) axes.

.4 Bolts, screws, nuts, washers and other fasteners:

- .1 Stainless steel austenitic type, 300 series.
- .2 HVA chemical dowels by Hilti or equivalent approved for external anchorages of items located in unheated or weather exposed areas (wind, water, excessive humidity, etc.).
- .3 Made of aluminium with the same finish as the curtain wall for aesthetic assemblies on the inside or according to the manufacturer's recommendations.

.5 Thermal breaks: dimensions adapted to aluminium profiles, according to the manufacturer's standards. For mullions with pressure plate glazing: sized to fit aluminum profiles, or other locations where required; materials compatible with structural sealants for glass/glass and glass /anodized aluminum bonding; minimum tensile strength of 13.8 MPA (2000 pounds per square inch) and a hardness of 60 to A urometer. Thermal breaks must be continuous and sealed at all intersections.

.6 Insulating Coating: Bituminous paint according to MPI #35, type 1, not containing solvent or solution based on epoxy resins, resistant to alkalis.

.7 Ferrous primer paint: complies with can/CGSB-1.40-97.

.8 Bearing Joing Sealing Putty: silicone based, type A; resistant to ultraviolet radiation. Compliant with ASTM C719, ASTM D624 and ASTM C1135.
- .1 Product for installation on site
- .2 Back-up material and primers as recommended by the manufacturer of sealant products for load-bearing joints
- .3 Colours as chosen by the Departmental Representative.

.9 Connection to the building's air-tightness system and vapour barrier
- .1 Material: Identical to or compatible with the building's air-tightness and vapour barrier membrane, and designed to provide the required air-tightness and water vapour migration characteristics to the building envelope.
- .2 Width of material: Sufficient to provide the air-tight membrane and vapour barrier of the building with the required characteristics of air-tightness and migration of water vapour from the interior of the building to the exterior.

.10 Sealants:
- .1 Visible Sealant on Outer Side: according to section 07 92 00 - Joint Sealants.
- .2 Visisble Sealant on Inner Side to be Painted: according to section 07 92 00 - Joint Sealants.
- .3 Blue skin SA air sealant: One-component polyurethane sealant.
- .4 Concealed Sealant for Non-Movement Gaskets: One-component butyl rubber sealant conforming to CGSB Standard 19-GP-14M.
- .5 Sealant for sealing gaskets: according to the manufacturer's standards and compatible with the materials of the gaskets.
- .6 Primers, seal bottoms and cleaning products: according to the manufacturer's requirements and section 07 92 00 - Joint Sealants.
- .7 Colours as chosen by the Departmental Representative.

.11 Secondary sealant: Two-component product with a high modulus of elasticity, based on elastomeric silicone.

.12 Perimeter insulation: As shown in the drawings.

.13 Glass panels and sealed units: see section 08 80 50 - Glazing.

.14 The materials used for the work in this section shall be resistant to rodents, vermin,

mould and fungi.

.15 Air/vapour barrier connection membrane:

.1 Membrane Flashing: Self-adhesive membrane composed of bitumen modified with thermoplastic polymers and a high-density polyethylene film, having the following characteristics

.1 Thickness: 1.6 mm

.2 Width: As indicated

.3 Air permeability (CNB): < 0.0003 l/s·m²

.4 Water vapour permeance (ASTM E96): 1,8 ng/Pa●s●m²

.5 Primer: Membrane-compatible asphalt

.2 Type of primer recommended by the manufacturer, depending on the type of susbstrate where the membrane will be applied.

.16 Thermal insulation: Refer to section 07 21 16 - Blanket Insulation

.17 Rigid Insulation: extruded polystyrene insulation, type 3, RSI 0.88/25mm. Thickness required.

2.2 COMPONENTS

.1 Mullions:

.1 The dimensions of the vertical and horizontal elements shall be calculated by the curtain wall manufacturer to meet the design and performance requirements set out in PART 1 of this section. Bidders are required to inform the Departmental Representative of any anomalies or adjustments required in the dimensions of the mullions during the bidding period, failing which, the cost of adjusting the dimensions of the mullion sections or adding steel reinforcements in the mullion sections will be borne by the contractor who has obtained the mandate to supply and install the work covered by this section.

.1 Dimensions:

.1 +/- 65 x101.6 mm.

.2 Pressure Plate:

.1 Suitable for pressure lids

.3 +/-22mm door adapter

.4 Thermal barrier

.5 Extruded glazing gasket and cold barrier.

.6 Door stop with cover

.2 All external profiles shall be thermally bridge-breaking with internal profiles insulated from the external attachments; with glazing beads permanently fixed, of sufficient size and strength to ensure adequate grip on the glazing and filler panels before and during the installation of the glazing; water discharge openings, deflectors and internal flashing adapting to the water discharge

network; integrated baffles suppressing the "draught effect" created by the movement of air in the internal voids.

.1 HP (High Thermal Performance) Curtain Wall:

.1 from the following manufacturers or a replacement product approved by addendum in accordance with the Instructions to Bidders:

.1 Alumico 6800 HP Series.

.2 Lessard 2000HP Series;

.3 Kawneer 7525 Series;

.4 Series 3400 HP from A & D Prévost;

.3 Reinforced mullions: with extruded aluminium cladding, with an inner surface reinforced by shaped steel supporting profiles. Reinforcements shall be included as required for the arrangement shown in the drawings and calculated by the manufacturer prior to bid closing.

.2 Glass: Double glazing units sealed in accordance with section 08 80 50 Glazing.

.3 Flashing: Made of 1.2 mm thick aluminum, with a finish matching that of the profiles constituting the exposed mullions of the curtain wall and secured by means of concealed fasteners.

2.3 FABRICATION

.1 Fabricate system components with minimum clearances and shim spacing around perimeter of assembly, yet enabling installation and dynamic movement of perimeter seal.

.2 Joints and corners of the elements must be precisely fit and securely fastened. Joints must be tight and flush, and must be weatherproof.

.3 Elements must be prepared to receive anchoring devices before they are put in place.

.4 Ensure fasteners and accessories are concealed from view.

.5 The components of the systems must be ready to receive the exterior doors and hardware parts, in accordance with the reference sections.

.6 If required to meet the design requirements, reinforce the frames and assemblies with concealed reinforcements meeting the specified design requirements and the installation shown. The reinforcements shall be of hot-rolled mild steel securely anchored to the horizontal and vertical chords by means of approved mechanical fasteners.

.7 Install the framework and connections to accommodate deflections of the framework and the exterior skin.

.8 Manufacturers' labels must not be visible once work is completed.

2.4 ASSEMBLY OF CURTAIN WALLS WITH GLAZING

.1 Install the panels and their joints in such a way as to ensure an instantaneous pressure balance between the cavities and the outside, and to ensure the effective discharge to the outside of the condensation water which forms inside the cavities and of the rainwater which penetrates through the joints, according to the principle of the rain screen. To this end, design the compartmentalization necessary for this instantaneous pressure equilibrium with the outside, as well as the number, dimensions and optimal location of the openings in order to achieve this equilibrium.

.2 Ensure the continued presence of a representative of the sealant manufacturer during the assembly of these structures, and carry out the work in strict accordance with his recommendations; in particular, ensure that the consistency and adhesion of the sealants are maintained within the limits prescribed by the manufacturer at all times, using the methods recommended by the manufacturer.

.3 Assemble the components in such a way as to maintain the pressure equalization cavity and the open water flow network effectively at all times.
- .1 To this end, select glazing linings whose configuration allows efficient flow of water;
- .2 Profiling the sealant on the upper edge of the glazing panels so that it slopes outwards.

.4 Position and dimension the shims of the glazing panels so as to provide sufficient space for the continuous application of the sealant at the depth recommended by the manufacturer.

.5 Install window glazing in accordance with CAN / CSA-A440.

2.5 ALUMINUM SURFACE FINISH

.1 Anodized Finish: conforms to the finishes by the Aluminium Association DAF-45 as class 1 architectural finishes, or as protective or decorative finishes.
- .1 Anodized finish colored by electrodeposition: Class 1 designation AA-M10C21A44, minimum thickness 0.7 mm. Colour: Black

.2 The preparation and pretreatment of surfaces and the application of the finishing complex shall be carried out in accordance with the manufacturer's instructions.

.3 Protect the finished aluminium with a protective film designed for this purpose until it's removal is authorized.

2.6 CONSTRUCTION

.1 Construct the aluminum curtain walls as directed and in accordance with the requirements of CSA-A440-00.

.2 Build curtain walls accurately and squarely, respecting a maximum tolerance of 1.5 mm, plus or minus for curtain walls measuring 1 800 mm diagonally, and 3 mm, plus or minus, for curtain walls measuring more than 1 800 mm.

.3 Specified frontal dimensions are the maximum permitted dimensions.

.4 Brace frames to maintain rigidity and maintain angles during transportation and installation.

.5 Clips and steel reinforcements must be coated with a factory-applied primer coat in accordance with CAN / CGSB-1.40.

2.7 PROTECTIVE COATING

.1 Isolate aluminum elements from the following elements with a protective coating.

.1 Elements of different metals, except small elements of stainless steel, zinc or tin bronze.

.2 Concrete, mortar and masonry elements.

.3 Wood elements.

2.8 AIR AND VAPOUR BARRIERS

.1 Provide curtain wall frames with factory installed air and vapour barrier materials and ensure continuous seal with building air and vapour barriers in the following way.

.1 Materials: Identical or compatible with the building's air and vapour barrier materials, and designed to provide the building's outer envelope with the necessary degrees of airtightness and vapour diffusion.

.2 Material width: sufficient to provide the building's air and vapour barriers with the necessary degrees of airtightness and vapour diffusion, from the building's interior.

2.9 QUALITY CONTROL AT SOURCE

.1 The structural elements shall be calculated in accordance with CAN/CSA-S157, under the direct supervision of a structural engineer recognized in the Province of Quebec and having experience in the calculation of this type of structure.

.2 Welding work must be performed in accordance with CSA W59.2.

PARTIE 3 Execution

3.1 PREPERATION

.1 Level, square and plumb all curtain wall elements.

.1 Provide anchors for the curtain wall to be incorporated into framing.

.2 Check the dimensions, tolerances and the manner of fastening to other structures.

.3 Verify that the openings in the walls and the adjacent air and vapour barriers are ready to receive the items covered by this section.

3.2 IMPLEMENTATION

.1 Carry out the installation of curtain walls in accordance with the manufacturers' instructions.

.2 Attach to the framework so as to allow the necessary adjustments so that it can accept the construction tolerances and other deviations noted.

.3 Provide and use alignment attachments and shims to permanently fasten the systems to the building structure. Clean weld surfaces; apply protective primer to field welds and adjacent surfaces.

.4 Erect assemblies plumb and level, free from twisting and warping. Preserve dimensional tolerances of assemblies and align them to adjacent structures.

.5 Bolt mullions or sleepers to anchors in accordance with movements of thermal, seismic or structural origin (creep, dead or live loads); screw them together with mechanical fasteners.

.6 Provide and install thermal insulators where components pass through or break the continuity of the building insulation.

.7 Install flashing and any other metal trim as shown in the drawings.

.8 Isolate aluminum elements from the following elements with an insulating coating.
- .1 Elements of different metals, except small elements of stainless steel, zinc or tin bronze.
- .2 Concrete Units
- .3 Wood Units.

.9 Coordinate the installation of peripheral air/vapour barrier accessory parts and sealing membranes.

.10 Install the glass panels according to the requirements of section 08 80 50 - Glazing.

.11 Apply sealants according to the requirements of section 07 92 00 - Joint Sealants.

3.3 TOLERANCES FOR FIELD ASSEMBLY

.1 Maximum deviation from the vertical: the lesser of the following values, a non-cumulative difference of 1.5 mm per meter or 12 mm per 30 meters.

.2 Maximum alignment gap between two headed elements in the same plane: 0.8 mm.

.3 Maximum width of shim space to be filled with sealant between the curtain wall and the adjacent structure: 16 mm.

3.4 CLEANING

.1 Remove protective coatings from pre-finished aluminum surfaces.

.2 Wash surfaces with a solution of mild detergent and warm water, using clean, non-rough cloths. Take care to remove accumulated dirt in the corners, then wipe the surfaces well.

.3 Remove excess sealant by moderate use of mineral spirits or other solvent acceptable to sealant manufacturer.

3.5 PROTECTION

.1 Protect the finished structure from any damage.

END OF SECTION

PARTIE 1 General

1.1 RELATED SECTIONS

.1 Section 06 10 10 - Rough Carpentry

.2 Section 08 11 16 - Aluminum Doors and Frames

.3 Section 08 44 13 - Glazed Aluminum Curtain Walls

1.2 REFERENCE STANDARDS

.1 National Building Code – Canada 2010

.2 Builders Hardware Manufacturers Association

.1 ANSI/BHMA, Series A156

1.3 REGULATORY REQUIREMENTS

.1 Exit door hardware must be certified by a Canadian certification body accredited by the Standards Council of Canada.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit the required documents and samples in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit the required product data sheets, as well as the manufacturer's instructions and documentation for the door hardware. Data sheets must indicate product characteristics, performance criteria, size, limitations and finish.

.3 Submit a sample of each type of hardware item for review and acceptance. The samples will be given back to the Contractor, and must be incorporated into the work.

.4 Place a label on each sample indicating the corresponding paragraph in the specifications, the identification number and brand name, the finish and the batch number of the hardware.

.5 Test Reports: Submit test reports certifying that products and materials comply with physical properties and performance criteria requirements.

.6 Manufacturer's Instructions: Submit installation instructions provided by the manufacturer.

1.5 LIST OF HARDWARE ITEMS

.1 Submit contract hardware list of door hardware using numbering system established by Ministry representative. Provide data sheets and illustrations for all hardware parts.

.2 The hardware schedule must include all door and frame details.

.3 List required hardware items, indicating the make, model, material, function and finish, as well as any other relevant information.

1.6 CLOSEOUT SUBMITTALS

.1 Provide the necessary records for the operation and maintenance of door closers, locks, door retention devices and emergency exit accessories, and incorporate them in the manual prescribed in Section 01 78 00 - Closeout Submittals

.2 Inform maintenance personnel of the proper way to maintain and clean hardware items.

.3 Replace the hardware voucher "as built".

1.7 MATERIALS / REPLACEMENT MATERIALS

.1 Provide the materials/equipment for maintenance/replacement as per section 01 78 00 - Closeout Submittals.

.2 Provide two sets of tools necessary for the maintenance of door closers, locks, and accessories for emergency exits.

1.8 QUALITY ASSURANCE

.1 Regulatory Requirements

.1 Outdoor Exit Door Hardware (Exit Doors) must be certified by a Canadian certification body accredited by the Standards Council of Canada.

.2 Certificates: Submit documents signed by the manufacturer, certifying that the products and materials comply with the requirements for physical properties and performance criteria.

1.9 TRANSPORT, STORAGE AND HANDLING

.1 Transport, store and handle materials and equipment in accordance with Section 01 61 00 - General Product Requirements and the manufacturer's written instructions.

.2 Delivery and Acceptance: Deliver materials and equipment to the work site in their original packaging, which must be labeled with the name and address of the manufacturer.

.3 Storage and handling
- .1 Store materials and equipment so that they do not sit on the ground in a clean, dry, well-ventilated area, as recommended by the manufacturer.
- .2 Store door hardware so as to protect it from marks and scratches.
- .3 Protect finished surfaces.
- .4 Replace damaged materials and equipment with new materials and equipment.

.4 Pack hardware, including fasteners, separately or in groups of similar items, and label each package according to the nature and purpose of the items.

1.10 INSPECTION

.1 The shop drawings, hardware voucher and installation work will be subject to full inspections by a hardware consultant to be determined by the Departmental Representative.

.2 An inspection will take place at the end of this work, before the work is accepted. The Contractor must notify the project owner in writing of the start of the installation work as well as of the end of this work.

.3 Following the site visit, the Hardware Consultant will issue a full Hardware Parts Report for the entire project.

.4 The deficiencies indicated in this report must be corrected for doors, frames and hardware, to the satisfaction of the Consultant and the Client.

1.11 COMPLEMENTARITY

.1 The plans and the table of doors, frames and hardware complement each other and any contradictions or items missing from any of the documents will not be added to the contract unless they have been reported to the Departmental Representative before the bids are entered.

PARTIE 2 Products

2.1 GENERAL

.1 Hardware must be certified by a Canadian certification body accredited by the Standards Council of Canada.

.2 All items of the same type must come from the same manufacturer.

2.2 FASTENERS

.1 Provide screws, bolts, expansion shields and other fasteners necessary for satisfactory fastening and proper operation of hardware.

.2 Exposed fasteners must have the same finish as hardware items.

.3 Where there is a pull handle on one side and a push plate on the other side of a door, provide the necessary fasteners and install them so that the handle is secured on both sides. Install push plate to cover fasteners.

.4 Use fasteners made of materials compatible with material through which they pass.

.5 Use the fasteners provided or recommended by the manufacturer of the hardware item.

.6 Do not use bolts that pass through the doors, such as "Thru-bolts", "Sex-bolts" or any other type, unless expressly approved by the Client.

2.3 KEYS

.1 The keyway will be Dominion lock type 91 E

.2 Provide two (2) cylinder cut keys.

.3 All cylinders and cut keys are part of this project and are to be supplied by the distributor. Coordinate the cylinder model with the hardware provided in the hardware group.

.4 The information on the size of the keys will be provided by the Client.

.5 New cylinders will be subject to the Client's existing key system.

.6 Stamp the lock code numbers on the keys in accordance with the instructions of the Client. (AA1, AA2)

PARTIE 3 Execution

3.1 INSTALLATION INSTRUCTIONS

.1 Provide manufacturers of metal doors and frames with installation templates and complete instructions so as to allow them to prepare their products to receive the hardware items prescribed in this section.

.2 Provide installation instructions developed by the manufacturer for each hardware item.

.3 Install the hardware items in accordance with the manufacturers' instructions and according to the standards in force.

.4 If the door stop would touch the handle, install the door stop at the bottom the door instead.

3.2 INSTALLATION

.1 Install the hardware items in accordance with the manufacturers' instructions and according to the standards in force.

.2 The planned hardware must be securely fastened and fixed to the elements that are to receive them.

.3 The hardware provided must be installed level or plumb.

.4 The planned hardware parts must work perfectly and smoothly.

.5 Commercial hardware parts must be installed according to standards of practice, by specialized employees.

.6 Use only machine screws when installing hardware on steel frames.

.7 Only a skilled labourer in the installation of hardware items, employed by a company possessing the appropriate equipment and necessary for such work, will be able to carry out such work.

3.3 SETTINGS

.1 Adjust hardware, operating and control devices, and door closers to ensure smooth operation, safety, and tightness of closing.

.2 Lubricate hardware, operating and control devices and all moving parts.

.3 Adjust door hardware to ensure proper door-to-door contact.

3.4 CLEANING

.1 Nettoyage en cours de travaux: effectuer les travaux de nettoyage conformément à la section 01 74 11 - Nettoyage.

.1 Leave work site clean at the end of each day.

.2 Clean hardware with damp cloth and non-abrasive cleaner and polish according to manufacturer's instructions.

.3 Remove protective film covering hardware, if applicable.

3.5 PROTECTION

.1 Protect equipment and installed elements from damage during work.

.2 Repair damage to adjacent materials and equipment caused by the installation of door hardware.

3.6 HARDWARE GROUPS

.1 The hardware groups below are not restrictive and therefore do not constitute quantity lists. These groups are given as a guide to establish the type, function, quality and finish of the required items. Check these groups in conjunction with the drawings and the table of doors and frames and provide any additional hardware items not included in these groups but required to complete the work according to the intent of the documents.

.2 Hardware groups:

Group 1 (door P001)

2 Continuous Hinges	SL11HD x H.R.	Black	Select
2 Panics	9847NL-OP x	ins- 626	V-Duprin
2 CBH pull handle 7416-1-98/99-CYL		630	CBH
2 Rim Cylinders	Keyway 91E	626	D/L
2 Door Closers	4040XP EDA	689	LCN
2 Stop Arms	100S	630	G-J

Note: Threshold, weather barrier, water discharge and joint cover provided by the manufacturer of aluminum doors and frames.

GROUP 2 (DOORS P002 AND P003)

2 Continuous Hinges	SL11HD x H.R.	Black	Select
1 Panic	98NL-OP	626	V-D
1 Rim Cylinder	Keyway 91E	626	D/L
2 Door Closers	4040XP EDA	689	LCN
1 Stop Arm	100S	630	

Note: Threshold, weather barrier, and water discharge provided by the manufacturer of aluminum doors and frames.

END OF SECTION

PARTIE 1 General

1.1 RELATED SECTIONS

.1 Section 07 92 00 - Joint Sealants

.2 Section 08 11 16 - Aluminum Doors and Frames

.3 Section 08 44 13 - Glazed Aluminum Curtain Walls

1.2 REFERENCES

.1 ASTM International
- .1 ASTM F1233-08 (2019), Standard Test Method for Security Glazing Materials and Systems.

.2 Canadian Standards Association (CSA)/CSA International
- .1 CAN2-12.3, Flat, Clear Float Glass
- .2 CAN/CGSB 12.8-97, Insulating Glass Units.
- .3 CAN/CGSB - 19.18-M87, Sealing Compound, One Component, Silicone Base, Solvent Curing
- .4 CSA-A440-00 / A440.1-00, A440-00, Windows / Special Publication A440.1-00, User Selection Guide to CSA Standard A440-00, Windows

.3 Glass Association of North America (GANA)

.4 GANA Glazing Manual - 2008.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit product data sheets for all proposed products in accordance with Section 01 33 00 - Submittal Procedures.

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

.3 Submit required samples in accordance with Section 01 33 00 - Submittal Procedures.
- .1 Submit two (2) 305x305mm samples of the products.

.4 Manufacturer's instructions
- .1 Submit instructions provided by the manufacturer.

.5 Closeout Submittals
- .1 Provide maintenance data and glazing cleaning instructions, and attach them to the manual referred to in section 01 78 00 - Closeout Submittals

1.4 TRANSPORT, STORAGE AND HANDLING

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

.2 Delivery and Acceptance: Deliver materials and equipment to the work site in their original packaging, which must be labeled with the name and address of the manufacturer.

.3 Storage and handling
- .1 Store materials and materials indoors, in a clean, dry and well-ventilated place, in accordance with the manufacturer's recommendations.
- .2 Store glazings to protect them from marks and scratches.
- .3 Protect surfaces of prefinished aluminum elements with peelable films.
- .4 Replace damaged or defective materials and equipment with new materials and equipment.

1.5 CONDITIONS FOR IMPLEMENTATION

.1 Glazing sealants must be installed at an ambient temperature of at least 10°C. In addition, the area where the work is carried out must be ventilated for 24 hours after the installation of these sealants.

.2 Ensure that the prescribed minimum temperature is obtained prior to commencement of work, and maintain it during glazing sealant application and for a period of twenty-four (24) hours after completion of the work.

1.6 GUARANTEE

.1 Provide a written document, signed and issued on behalf of the Departmental Representative, stating that insulating glazing panels are warranted against any loss of airtightness in the enclosed air space and that all glass prescribed in this section is warranted against any defect that may impair vision, for a period of one (1) year from signing of the Certificate of Substantial Completion.

1.7 PERFORMANCE CHARACTERISTICS

.1 Comply with the following requirements relating to glazing and glass materials in order to ensure the continuity of the air and water vapor barrier system of the building envelope.

.2 The inner pane of multiple sealed glazings must ensure the continuity of the air and water vapor barrier system.

.3 Glass sized to withstand permanent loads, wind loads and wind pressure and suction forces overloads acting perpendicularly to the glazing plane, at nominal pressure in accordance with calculations performed according to AINSI / ASTM E330.

.4 Maximum inflection of glazing must not exceed 1/200, the limit of the bending strength of glass, without altering the physical properties of the glass materials.

PARTIE 2 Products

2.1 MATERIALS

.1 Polished or Float Glass: Complies with CAN/CGSB-12.3, glazing glass grade, 6 mm thick.

.2 Tempered Glass (VT): complies with CAN/CGSB-12.1, type 2 - tempered, 6 mm thick.

.3 Low Emissivity (Low E) Glass:

.1 Metallic coating: low-emissivity reflective applied by chemical deposition, vacuum or cured metallization, pyrolysis.

.1 Finish arranged to existing glazing.

.2 Used in double sealed glazing units, see compositions of insulating glazing panels.

2.2 SEALED INSULATING GLAZING

.1 Compliant with CAN/CGSB-12.8.

.2 Type V.D.S.T: Low-emissivity vision glazing unit (LowE), according to can/CGSB-12.8, with two (2) panes, with an overall thickness of 25 mm

.1 Clear tempered glass or clear thermal shock resistant glass, depending on location and to meet current local codes and standards.

.2 Category: A, float glass.

.3 Composition of vision units:

.1 Outer glass: clear tempered glass, 6 mm thick with Low-E coating applied in position 2.

.2 Thickness of Inert Gas Plate, argon: 13 mm between panes with low thermal conductivity interlayer;

.3 Interior Glass: clear tempered glass, 6 mm thick.

.4 Having the following characteristics:

.1 "U" factor: 0.45

.2 Visible light transmission: 28.7

.3 Solar transmission: 18.7

.4 Solar heat gain coefficient: 0.45

2.3 GLAZING AND SEALING MATERIALS

.1 Only products that are on the list of approved products published by the CGSB are acceptable for work covered by this section.

.2 Sealant: One-component, silicone solvent-based silicone caulk, in accordance with CAN/CGSB 19.18; color chosen by the Departmental Representative.

.3 Self adhesive glazing tape: Pre-formed closed-cell neoprene tape with detachable release paper, black color, 3 mm thick and 15 mm wide, regular, as manufactured by JACOBS & THOMPSON Inc., # 122 x or a replacement product approved by the Departmental Representative.

.4 Setting blocks and locating blocks: Neoprene according to requirements curtain walls manufacturer, and adapted to the nature of the glazing.

.5 Primer sealer and cleaning products: in accordance with the glass manufacturer's standards.

PARTIE 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Comply with the manufacturer's written requirements, recommendations and specifications, including technical bulletins and installation instructions specified in the product catalogs and packaging cartons, and specifications in the data sheets.

3.2 INSPECTION

.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 PREPARATORY WORK

.1 Clean the contact surfaces with solvent and dry with cloth.

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

.3 Prime surfaces scheduled to receive sealant.

.4 Install the crimp seal/crimp profile joint according to the manufacturer's instructions.

3.4 EXTERIOR GLAZING

.1 Mixed assemblies (adhesive tape/sealant)

.1 Perform work in accordance with GANA Glazing Manual specifications and GANA Laminated Glazing Reference Manual specifications for glazing assembly methods.

.2 Cut adhesive strips to the appropriate length and press them against the permanent glazing beads, so that they extend up to 6 mm above sight line. Seal the corners by abutting the strips and covering them with a sealant.

.3 Shape a bead of sealant at the base of the glazing, at the meeting point of the permanent glazing beads and the frame, so as to seal the air and water vapor between the frame and the glass on the perimeter of the glazing.

.4 Place setting blocks at intervals corresponding to one quarter the width of glazing, so that the end blocks are at most 150 mm from the corners of the latter.

.5 Rest glazing on setting blocks and push against tape and shaped sealant bead at the base of the glazing with sufficient pressure for full contact on entire perimeter of unit.

.6 Install removable glazing beads, with peripheral wedges between them and the glazing, at 6 mm below sight line.

.7 Fill void between glazing and the glazing beads with sealant to a depth equal to the glazing channel, but no more than 9 mm below sight line.

.8 Shape a bead of uniform sealant at the top of the glazing, along the gap between the glazing and the glazing beads, and flush with sight line. Smooth the surface of the sealing bead with a cloth or a suitable tool.

.2 Installation by crimped extruded joints.

.1 Unpack and spread seals on a flat, warm surface to let them regain their shape.

.2 Install seals by pressing them into the crimp profiles from corners to center.

.3 Discharge the condensed water vapour outwards through the holes in the support beam.

.4 Install the crimp seal / crimp profile joint according to the manufacturer's instructions.

3.5 CLEANING

.1 Upon completion, proceed with site cleanup to remove dirt and debris accumulated from work and the environment.

.2 Clean finished surfaces immediately, removing mastic smudges and drops of sealant. Once the work is complete, remove the labels.

.3 Clean glass using approved non-abrasive cleaner in accordance with manufacturer's instructions.

.4 Upon completion remove surplus materials, rubbish, tools, equipment and safety barriers, in accordance with section 01 74 11 - Cleaning.

3.6 **PROTECTION OF FINISHED WORKS**

.1 Protect equipment and installed elements from damage during work.

.2 Once the installation is complete, mark each glazing with an "X" using a removable plastic paste or tape.

.3 Do not mark reflective glass panels.

.4 Repair damage caused by glazing installation to adjacent materials and equipment.

END OF SECTION

PARTIE 1 General

1.1 RELATED WORK

.1 Section 06 10 10 - Rough Carpentry

.2 Section 07 21 13 - Panel Insulation

.3 Section 07 21 16 - Blanket Insulation

.4 Section 07 92 00 - Joint Sealants

.5 Section 09 22 16 - Non-Structural Metal Framing

.6 Section 09 91 23 - Interior Painting

1.2 REFERENCES

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

- .1 ASTM C475/C475M -17, Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
- .2 ASTM C 557-03(2017), Standard Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing.
- .3 ASTM A653/A653M-20, Standard specification for Steel Sheet, Zinc-coated (Galvanised) or zinc-alloyed –coated (galvannealed) by the Hot-Dip Process
- .4 ASTM C834-17, Standard Specification for Latex Sealants
- .5 ASTM C840-20, Specification for Application and Finishing of Gypsum Board
- .6 ASTM C954-18, 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
- .7 ASTM C1002-18, Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs
- .8 ASTM C1047-19, Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base
- .9 ASTM C1280-18, Specification for Application of Gypsum Sheathing Board
- .10 ASTM C1396/C1396M-17, Standard Specification for Gypsum Wallboard

.2 Underwriters Laboratories of Canada (ULC)

- .1 CAN/ULC-S102.2:2018, Standard Method of Test for Surface Burning Characteristics of building Materials and Assemblies

1.3 INFORMATIONAL SUBMITTALS

.1 Data sheets

.1 Submit required data sheets and manufacturer's instructions and documentation for gypsum board assemblies. Data sheets must indicate product characteristics, performance criteria, size, limitations and finish.

1.4 SITE-SPECIFIC CONDITIONS

.1 Maintain the ambient temperature at a minimum of 10ºC and a maximum of 21ºC for 48 hours before and during the laying and jointing of gypsum boards, and for a minimum of 48 hours after completion of joints.

.2 Lay gypsum boards and join on dry, non-glazed surfaces.

.3 Provide good ventilation in areas of the building lined with gypsum boards so as to remove excessive moisture that could prevent drying of joint products immediately after application.

1.5 TRANSPORT, STORAGE AND HANDLING

.1 Transport the materials without altering the original packaging, container or lot or obscuring the trademark and designation used by the Manufacturer.

.2 Delivery and Acceptance: Deliver materials and equipment to the work site in their original packaging, which must be labeled with the name and address of the Manufacturer.

.3 Store materials indoors, dry and level under a tarpaulin. Protect them from the weather, other materials and damage that may be inflicted on them during construction work and other activities. Store the gypsum liner flat above the floor.

.4 Handle gypsum boards in a manner that does not damage surface or perimeter. Also protect metal parts and fittings from damage or twisting that could damage them.

.5 Damaged or deteriorated materials must be removed from the premises.

PARTIE 2 Products

2.1 MATERIALS

.1 Standard plain gypsum board: Conforms to ASTM C1396/C1396M, standard type, of the thickness indicated in the drawings, 1200 mm wide and of maximum useful length, with rounded edges on the sides and squared at the ends.

.2 Exterior type gypsum plates: made of fiberglass, conforming to ASTM C473/C518, 13 mm thick, 1200 mm wide and of maximum useful length.

.3 Joint Compound: Complies with ASTM C475, asbestos-free, pre-mixed, all-purpose.

.4 Fibrocement composite panel composed of Portland cement, granules and fiberglass mesh:

.1 Smooth finish, natural cement grey color.

.2 13 mm thick.

2.2 FASTENERS AND ADHESIVES

.1 Steel Flared Head Screw: Complies with ASTM C1002.

.1 Gypsum on metal frame: Type S of 29mm for the first layer of gypsum and for the installation of resilient and type G bars of 41mm for the second layer of gypsum

.2 Gypsum on gypsum: Type G 38mm

.3 The screws must be long enough to allow a minimum insertion of 10 mm into the support.

.2 40 mm Corrosion Resistant Screw, Type S-12 for outdoor use.

.3 Seam Tape: Specially treated paper tape with tiny perforations.

.4 Adhesive: Asbestos-free.

2.3 ACCESSORIES

.1 Metal corner reinforcements with paper face, compliant with ASTM C1047, of minimum 26 gauge, with perforated wings, installed at a rate of one full length section per place.

.2 Flush mouldings and trim, corner reinforcements (fur type) made of steel sheet, commercial grade, 0.5 mm thick with G90 zinc plating, compliant with ASTMA-525-77, perforated flanges, one-piece

.3 Architectural Moulding: Protective, adjustable and detachable PVC "J" moulding. The moulding fits a 13 mm or 16 mm gypsum.

.4 Pre-mixed, ready-to-use, asbestos-free joint cement.

.5 Seam Tape: Specially treated paper tape with tiny perforations.

.6 Acoustic Sealant: Conforms to ASTM C834.

2.4 FINISH

.1 Apply an asbestos-free, pore stopper primer in accordance with the gypsum board manufacturer's recommendations.

PARTIE 3 Execution

3.1 GENERAL

.1 Coordinate the work of this section with the installation of structural work and with the installation of pipelines and other works of the various mechanical and electrical services.

3.2 INSTALLATION

.1 Unless otherwise specified, install and finish gypsum board in accordance with ASTM C 840.

.2 Install the plasterboard coating in accordance with ASTM C 1280.

.3 Install elements level, allowable gap 1: 1200.

.4 Frame the openings housing the inspection panels and other openings with fur profiles.

3.3 GYPSUM BOARD INSTALLATION

.1 Do not install gypsum boards until the false frames, anchors, wedges, and electrical and mechanical installations have been approved.

.2 Lay the gypsum board horizontally or vertically, whichever method produces the least number of end joints. Make sure that the end seals arrive on the support posts.

.3 Lay gypsum boards with the long edges parallel to the framing elements. The ends and abutment edges will be located on the edges of jambs. Use the gypsum board of a practical maximum length to reduce the number of end joints. Fit and alternate the end seals well. Arrange the joints on the opposite side of the partition, so as to arrive on different jambs. Do not allow these seals to be located in visible areas and in the central part of the ceiling.

.4 Carefully cut the gypsum board to fit around the electrical outlets and switches.

.5 Provide for recesses of the surface plate.

.6 The perimeter screws must be at least 9.5 mm and not more than 12.5 mm from the edges and ends and opposite the screws of the adjacent boards.

.7 Space screws on board edges by 200 mm center-to-center, and 300 mm center-to-center on the board faces. For ceilings, 200 mm from axis to axis. Screws must be driven by means of an electric gun, with the head slightly below the surface of the board.

.8 Attach one or two layers of plasterboard to the furs or timber or metal frame using screw anchors for the first layer, laminating adhesive and screw anchors for the second layer.

3.4 ACCESSORIES

.1 Install accessories square, plumb, level, and fastened securely on the appropriate plane. Use full length pieces where possible. Ensure joints are tight, aligned and securely fastened. Cut the miter corner joints and adjust them perfectly, leaving no rough edges. Fasten elements at 150 mm center-to-center with contact glue applied over entire length and screwed at 150 mm center-to-center.

.2 Place the flush mouldings on the perimeter of the suspended ceilings and the corner reinforcements on the external corners.

.3 Install flush mouldings at the meeting point of the gypsum boards with surfaces without joint covers, as well as at the indicated places. Seal joints with a sealant.

.4 Place continuous insulating strips at the edges of the gypsum boards and the flush mouldings, at their meeting point with the metal frames of the windows, in order to ensure a break in the heat conduction.

.5 Install the wall access hatches according to the mechanical drawings.

3.5 JOINT COMPOUND AND TAPE

.1 Treatment of gypsum board joints is required at all locations where the panels are visible.

.2 The work will be carried out only when the temperature of the building is uniformly maintained between 13º and 21ºC for an adequate period of time before, during and after the installation of the boards and compounds.

.3 Finish the joints between the panels and in the re-entrant corners using the following products: joint paste, joint tape and tape coating. Apply these products according to the manufacturer's recommendations and smooth by slimming everything to level with surface finish of the boards.

.4 Cover corner moldings, control joints and trims if necessary, with two coats of joint compound and one coat of tape coating smoothed and thinned to level with board surface finish.

.5 Fill the recesses in the screw heads with joint compound and tape coating until a uniform and flush surface is obtained with the adjacent surfaces of the gypsum boards, so that these recesses are invisible once the finishing coating has been applied.

.6 Lightly sand sharp edges and other imperfections. Avoid sanding adjacent surfaces that do not require sanding.

.7 Upon completion of installation, the structure must be smooth, level or plumb, free from wrinkling and other defects, and ready to be finished with a finish plaster.

3.6 PAINTING

.1 Unless otherwise specified, all exposed surfaces of gypsum board shall be painted as prescribed in Section 09 91 23 - Interior Painting.

END OF SECTION

PARTIE 1 General

1.1 RELATED SECTIONS

.1 Section 06 10 10 Carpentry

.2 Section 07 21 13 Board Insulation

.3 Section 07 21 16 Blanket Insulation

.4 Section 07 92 00 Joint Sealants

.5 Section 09 21 16 Gypsum Board Assemblies

1.2 REFERENCES (MOST RECENT EDITIONS)

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

- .1 ASTM C645, Standard Specification for Non-structural Steel Framing Members.
- .2 ASTM C754-20, Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.
- .3 ASTM A568/A568M-07a - Standard Specification for Steel, Sheet, Carbon, Structural, and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, General Requirements for.
- .4 ASTM A525, Specification for General Requirements for Steel Sheet, Zinc-coated (Galvanised) by the Hot-Dip Process

.2 Canadian Standards Association (CSA)/CSA International

- .1 CSA A123.3-98, Asphalt Saturated Organic Roofing Felt.
- .2 CAN/CSA S136-07, North American Specification for the Design of Cold-Formed Steel Structural.

1.3 SUBMITTALS PROCEDURES

.1 Submit required documents and samples in accordance with Section 01 33 00 - Submittal Procedures.

.2 Sealed Shop Drawings

- .1 The shop drawings must bear the seal and signature of a structural engineer, of recognized competence in the field of the external envelope, and member of the Ordre des ingénieurs du Québec.
- .2 This seal certifies that the design of the metal frame elements of the exterior walls meets the requirements of the contractual documents and the applicable codes of laws.

1.4 QUALITY ASSURANCE

.1 Test reports: Submit certified test reports showing compliance of products, materials and equipment with specified physical properties and performance criteria.

.2 Certificates: Submit documents signed by the manufacturer, certifying that the products, materials and equipment meet the requirements for physical characteristics and performance criteria.

.3 Tracing on the ground: Before proceeding with the installation of the metal studs, submit to the representative of the ministry, for approval, the positioning (tracing) of all the partitions for the purpose of checking certain critical areas and in order to be able to make the necessary corrections.

1.5 CALCULATION CRITERIA

.1 Exterior Walls: Although thicknesses are mentioned, all elements of the bulkheads shall be designed to withstand pressures for a uniform side load of 1.7 KPa with a maximum deflection of 1/360. This requirement is intended to ensure that the thicknesses indicated are minimal and cannot be reduced. If the calculation shows that the thicknesses indicated are insufficient, they must be increased accordingly.

.2 Exterior Walls: Although thicknesses are mentioned, all elements of the bulkheads shall be designed to withstand pressures for a uniform side load of 240 Pa with a maximum deflection of 1/240.

PARTIE 2 Products

2.1 MATERIALS

.1 Non-supporting framework in Metal Profiles: Posts conforming to ASTM C645, made of hot-dip galvanized rolled steel sheet, designed for screwing in gypsum boards and equipped with breakable pads arranged at a distance of 460 mm center-to-center for the passage of service pipes; dimensions and spacing of posts as indicated.

.1 External Walls: 20 gauge

.2 Inner Bulkheads: 25 gauge

.2 Sill and Pole Plates: Compliant with ASTM C645, of a width appropriate to the size of the posts and provided with 32 mm high wings.

.1 The heddles shall be of the same calibre as the jambs used.

.2 The pole plates shall be designed to allow the deflection of the structure above.

.3 Metallic Stiffeners (U-shaped): 13 mm x 38 mm cold-rolled steel profiles 1.2 mm thick, coated with anti-corrosion paint.

.4 Metallic Furring Channels (U-channels, suspension rods, fixing wires, inserts and anchors), galvanized.

.5 Sealant: Compliant with section 07 92 00 - Joint Sealants

.6 Insulating Strip Under Sill Plates: 3 mm thick polyethylene strip with open and closed cells for the internal partitions x the width and length of the latter.

.7 Fasteners for Concrete and Steel: Nails and bales suitable for mechanical fastening in concrete and steel.

.8 Screw: Self-tapping metal screw.

PARTIE 3 Execution

3.1 INSPECTION AND PREPARATORY WORK

.1 Verification of conditions: before proceeding with installation of nonstructural metal framing members, ensure that the condition of the surfaces/supports previously installed under other sections or contracts is acceptable and allows the work to be carried out in accordance with the written instructions of the Manufacturer.

.1 Inform the Departmental Representative of any unacceptable conditions immediately upon discovery.

.2 Do not proceed with work until unacceptable conditions have been corrected.

.2 Position the partitions by plotting their location on the ground and have the plot approved by the Departmental Representative.

3.2 MOUNTING THE PARTITIONS

.1 Place the sill plates on the floor and ceiling, aligning them precisely, then fix them at a maximum distance of 600 mm.

.2 Place a water-repellent membrane under the lower rails of the partitions resting on floor slabs.

.3 Place the posts vertically, according to the spacing indicated in the drawings and within 50 mm of the adjacent walls as well as on each side of the openings and corners. Attach the posts in the upper and lower rails. Bracing the steel posts, if necessary, to ensure the rigidity of the framework of any partition whose height is greater than 2400 mm using metal stiffeners at every 1200 mm of height in accordance with the manufacturer's instructions. The posts must be in one piece. No vertical metal uprights can be cut.

.4 Observe a maximum mounting gap of 1:1000 when installing metal posts.

.5 Secure the posts to the bottom and top rails with screws.

.6 Coordinate the mounting of the posts with the installation of the service lines. Lay the posts so that the openings in their core are well aligned.

.7 Coordinate the mounting of the posts with the installation of door and window frames and other supports or anchors for the structures prescribed in other sections.

.8 Double the posts, over the entire height of the room, on each side of the openings a width greater than the centre distance prescribed for the posts. Spacing the posts lined this way 50 mm apart and securing them to each other with approved snap fasteners or other fasteners, placed along the anchors of the framework.

.9 Mount the rails above the door and window bays and under the window and side panel bay supports so that the intermediate posts can be attached to them. Attach the rails to each end of the posts in accordance with the manufacturer's instructions. Lay the intermediate posts above and below the bays, in the same manner and at the same spacing as the posts forming the wall frame.

.10 Mount frames around the four faces of the building openings, built-in equipment, cabinets and access panels. Extend the frames in the boards. Check the required clearances with equipment suppliers.

.11 Install steel posts and furring profiles between the main posts for the purpose of securing junction boxes and other electrical installation equipment.

.12 Unless otherwise indicated in the drawings, construct full-height partitions.

.13 Leave a clearance under the beams so that the permanent loads cannot be transmitted to the posts. Make a control joint in the sill plates by doubling the profiles that compose them according to the indications.

.14 Install continuous insulating strips to separate the posts from the non-insulated surfaces.

.15 Install two continuous beads of soundproofing sealant under the posts and plates, along the perimeter of the soundproofing partitions.

3.3 CLEANING

.1 Cleaning during work: Clean according to section 01 74 11 - Cleaning.

.2 Upon completion of implementation or installation, remove surplus materials, waste, tools and barriers used to protect the equipment from the site.

END OF SECTION

PARTIE 1 General

1.1 GENERAL INFORMATION OF WORK

.1 Painting of new gypsum walls

.2 Painting of any other surface required to provide a complete structure.

1.2 RELATED SECTIONS

.1 Section 09 21 16 - Gypsum Board Assemblies

1.3 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 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, 1992 (TDGA), c. 34.

1.4 SCHEDULE OF WORK

.1 Submit the schedule of the various stages of the painting work to the Client for examination at least 48 hours before the start of the planned work.

.2 Obtain written authorization from the Client for any modification of the work schedule.

1.5 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit the required documents and samples in accordance with Section 01 33 00 - Submittal Procedures.

.2 Data sheets

.1 Submit the required data sheets and instructions for each type of paint product and coating.

.2 Submit the required data sheets for the application or use of paint thinner.

.3 Submit two (2) MSDSs required under the Workplace Hazardous Materials Information System (WHMIS), which must comply with this system, as per Section 01 33 00 - Submittal Procedures. The sheets must indicate the VOC emission rate of the products during application and curing.

.3 Samples

.1 Submit samples of all available colors if the products are manufactured in a restricted color range.

.2 Test reports: Submit test reports issued by recognized independent laboratories, certifying that the paint products and coatings meet the requirements for physical characteristics and performance criteria.

.3 Manufacturer's instructions

.1 Submit the application and implementation instructions provided by the manufacturer.

.4 Closeout Submitals: Submit the following information related to the maintenance work for inclusion in the manual specified in Section 01 78 00 - Closeout Submitals.

.1 The name, type and method of use of the product.

.2 Product number of the Manufacturer.

.3 Colour numbers.

.4 Product grade according to the MPI Environmental Choice program classification.

1.6 ADDITIONAL MATERIALS

.1 Replacement materials and products

.1 Provide replacement materials and products from the same production batches as those implemented. Cover with protective packaging, properly marked with appropriate labels and in accordance with Section 01 78 00 - Closeout Submittals.

.2 Quantity: Provide one (1) four (4) litre container of each colour and type of primer and fnish. Mark the paint and coating containers by associating each colour and type of product used with the nomenclature of paint and coatings accepted, specifying in addition the colours selected for the different products.

.3 Deliver maintenance/replacement material to the Client and store where indicated.

1.7 TRANSPORT, STORAGE AND HANDLING

.1 Transport, store and handle paint products and maintenance / replacement material

in accordance with Section 01 61 00 - General Product Requirements.

.2 Labels must indicate clearly:

.1 Name and address of the Manufacturer

.2 Type of paint or coating

.3 Compliance with relevant standards and requirements

.4 Colour number, according to the list of colours specified

.3 Remove damaged, opened or refused products and equipment from the site.

.4 Provide a safe storage area, kept dry and kept at a controlled temperature, and maintain it properly.

.5 Observe the manufacturer's recommendations for storage and handling.

.6 Store products and materials away from heat sources.

.7 Store products and equipment in a well-ventilated area with a temperature between 7°C and 30°C.

.8 The storage temperature of heat-sensitive products and equipment should never be lower than the minimum temperature recommended by the manufacturer.

.9 Keep areas used for storage, cleaning and preparation clean and tidy to the satisfaction of the Departmental Representative. Upon completion of operations, return these areas to their original condition, to the satisfaction of the Departmental Representative.

.10 Remove from the storage area only the quantities of products that will be used on the same day.

.11 Comply with WHMIS requirements for the use, storage, handling and disposal of hazardous materials.

.12 Fire safety requirements

.1 Place oily rags, waste materials, empty containers, and materials subject to spontaneous combustion in ULC-certified containers and remove these containers from the work site daily.

.2 Handle, store, use and dispose of flammable and combustible products and materials in accordance with the requirements of the National Fire Code of Canada.

.3 Provide one (1) 9 kg chemical powder fire extinguisher per storage area and place near storage area.

.13 Waste Management and Disposal

.1 Paints, stains, wood preservatives and other related products (thinners, solvents, etc.) must be treated as hazardous materials, the disposal of which is subject to various regulations. Information on relevant legislative provisions

can be obtained from provincial departments responsible for the environment and government agencies in the region.

.2 Products that cannot be reused should be treated as hazardous waste and disposed of properly.

.3 Place materials and products designated as hazardous or toxic, including used tubes and containers of adhesive and sealant, in areas or containers intended to receive hazardous waste.

.4 To reduce contamination of soil or waterways and sanitary and storm sewer systems, strictly adhere to the following guidelines:

.1 Store the water used for washing paints and other water-based products so as to allow the collection by filtration of deposited materials.

.2 Store cleaning products, thinners, solvents and excess paint in designated containers and dispose of them properly.

.3 Keep rags soaked in oil and solvent during painting for the recovery of contaminants and proper disposal or cleaning, as appropriate.

.4 Arrange for the disposal of contaminants in accordance with the regulations for hazardous waste.

.5 Allow empty paint containers to dry before disposal or recycling (in areas with suitable facilities).

.14 Where there is a paint recycling service, collect surplus paint, classify it by type of product and arrange for it to be sent to a collection or recycling facility.

.15 Set aside and protect excess and uncontaminated finishing products. Entrust the collection of these products to responsible persons or organisations who can reuse or reprocess them and report on the quantities recycled in this way. Provide appropriate means of transportation, if necessary.

1.8 CONDITIONS FOR IMPLEMENTATION

.1 The beginning of the work implies that the painter accepts the finish on which he applies the paint and is as responsible for it as the one who prepared it.

.2 Heating, ventilation and lighting

.1 Provide heating facilities to raise ambient air and substrate temperatures above 10°C at least 24 hours before the start of work, and to maintain these temperatures during and after work, until the surfaces have sufficiently dried and cured.

.2 Ensure continuous ventilation for seven (7) days following completion of the work.

.3 Coordinate the use of the existing ventilation system with the Client and, if necessary, make the necessary arrangements for its operation during and after the execution of the work.

.4 Supply and temporarily install the necessary heating and ventilation equipment if the permanent systems cannot be used; if the building's permanent systems do not meet the minimum requirements, supply and

install the additional equipment required to meet them.

.5 Provide the required lighting equipment and maintain a lighting level of at least 323 lux on the surfaces to be painted.

.3 Ambient temperature, relative humidity and moisture content of the substrate

.1 Unless prior written authorisation has been obtained from the Client and the manufacturer, do not proceed with the painting work under the conditions listed below:

.1 The temperature of the substrate and the ambient temperature must be at least 10°C but no more than 32°C. Relative humidity should not exceed 85%.

.2 Ambient air and substrate temperatures are not within the paint manufacturer's recommended range.

.3 It rains, it snows, there is fog or drizzle, or precipitation in the form of snow or rain is expected before the paint is completely dried.

.4 The ambient conditions during drying or cross-linking of the product or the applied coating comply with the specified ranges until the new coating used can withstand normal climatic conditions.

.2 Carry out the paint coating in such a way as to ensure compliance with the conditions and the maximum moisture content of the substrate listed below:

.1 Cure period of at least 28 days for new concrete or masonry surfaces

.2 Maximum moisture content of 15% for wood

.3 Maximum moisture content of 12% for gypsum boards and plasters

.3 Carry out tests to determine the moisture content of substrates using a properly calibrated electronic moisture meter. In the case of concrete floors, assess the moisture content by a simple "control of hiding power on reference surface".

.4 Carry out tests on plaster, concrete and masonry surfaces to determine their alkalinity.

.4 Condition of surfaces and conditions of use:

.1 Carry out painting work in areas where the ambient air is free from airborne particules generated by construction work or dust blown by wind or the ventilation system and, therefore, likely to alter the finished surfaces.

.2 Apply paint to properly prepared surfaces with moisture content within the range specified.

.3 Apply paint when the previous coat is dry or sufficiently hardened.

.4 Apply paint products when the expected weather conditions for the entire duration of the implementation are in accordance with the manufacturer's recommendations.

.5 Do not apply paint in the presence of the following conditions:

.1 A decrease in ambient temperature below 10 °C is expected before the paint is fully cured

.2 The ambient temperature and the temperature of the substrate are expected to drop below the limit recommended by the paint manufacturer

.3 The surfaces to be painted are wet, wet or frosted

.6 Provide shelter when paint is applied in cold or wet weather, and maintain it as required. Heat the substrates and the ambient air in order to respect the temperature and humidity conditions recommended by the manufacturer. Protect surfaces until paint is dry or weather conditions are adequate.

.7 Schedule painting work so that surfaces exposed to direct sunlight are fully painted early in the morning.

.8 Remove paint from surfaces that have been exposed to frost, excessive moisture, rain, snow or condensation. Prepare these surfaces again and resume painting work.

1.9 PROTECTION OF ADJACENT STRUCTURES

.1 Protect adjacent elements from stains and soiling with non-staining gummed paper, canvas and other appropriate types of protection.

PARTIE 2 Products

2.1 MATERIALS

.1 All products of the paint system must come from the same manufacturer.

.2 The paints, coatings, adhesives, solvents, cleaning products, lubricants and other products used must have the following characteristics:

.1 Water-based, water-soluble, water-washable products

.2 Non-flammable and biodegradable products

.3 Products made without any compounds contributing to the depletion of ozone in the upper atmosphere

.4 Products made without any compounds that promote smog formation in the lower atmosphere

.3 Water-based coating products must be manufactured and transported in such a way that all stages of the process, including the disposal of waste generated during the work, comply with the requirements of the relevant laws, orders and government regulations, including, in the case of facilities located in Canada, the Fisheries Act and the Canadian Environmental Protection Act (CEPA).

.4 Formulate and prepare water-based coatings containing no aromatic solvents, halogenated solvents, formaldehyde, mercury, lead, cadmium, hexavalent chromium or any of their derivatives.

.5 Cleaning agent:

.1 Liquid or powdered active oxygen cleaner having the following characteristics:

.1 Composition: Water-based diluent with active ingredient Alcohol ethoxy and hydrogen peroxide (liquid) or sodium carbonate and sodium carbonate peroxide (powder)

.2 Density: 1.03±0.05kg/L (liquid) or 1.66 ±0.05 kg/L (powder)
.3 Solid by volume: 100% (powder)
.4 VOC: ASTM D3960-05 : 0 g/L
.5 Non-flammable

.2 Non-abrasive degreaser having the following characteristics:
.1 Composition: Water-based diluent with mixture of terpene and nonionic surfactants
.2 pH: 7.5 to 8.5
.3 VOC: 20%
.4 Concentrated solution of trisodium phosphate (TSP) such as Polyprep 771-137.
.5 Phosphoric acid solution having the following characteristics:
.6 Composition: Phosphoric acid cleaner and ripper, water-based diluent
.7 Non-flammable

2.2 COLOURS

.1 The Departmental Representative will provide a colour list after contract award.

.2 The list of colours will be drawn up as follows:
.1 One (1) base color for wall gypsum painting.

.3 The colours will be chosen from the full range of colours and tints offered by the manufacturers.

.4 If particular products are offered in a limited range of colours, the colours of the products actually implemented will be selected from this restricted range.

.5 In three (3) coat paint systems, the second coat should be slightly lighter than the top coat to facilitate visual identification of each coat.

2.3 MIXING AND COLORING

.1 Perform colour tinting operations prior to delivery of paint to site. Obtain written approval from the Departmental Representative for tinting of painting materials.

.2 Mix paste, powder or catalyzed paint in accordance with the manufacturer's written instructions.

.3 A certain amount of diluent may, if necessary, be added to the paint, in accordance with the manufacturer's recommendations. Kerosene or any other similar organic solvent should not be used to thin water-based paints.

.4 Dilute the paint to be sprayed according to the 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 INTERIOR PAINT SYSTEMS

.1 System N° 1: For existing interior gypsum, walls

.1 Existing gypsum must be clean, dry and free of dirt, dust and any other foreign matter. Surface preparation in accordance with the recommendations set out in the MPI (Maintenance Repainting Manual).

.2 Apply one (1) coat of acrylic primer-sealer, compliant with ASTM D3273/3274 and MPI.

.3 Apply two (2) layers of acrylic latex, VOC <50 g/L, egg shell finish, conforming to MPI standard.

.2 System No. 2: For new interior gypsum, walls

.1 New gypsum must be clean, dry and free of dirt, dust and any other foreign matter. Surface preparation in accordance with the recommendations set out in the MPI (Maintenance Repainting Manual).

.2 Apply one (1) layer of acrylic primer-sealer, Zero VOC, conforming to the MPI standard.

.3 Apply two (2) layers of acrylic latex, VOC <50 g/L, egg shell finish, conforming to MPI standard.

PARTIE 3 Execution

3.1 MANUFACTURER 'S INSTRUCTIONS

.1 Compliance: Comply with the manufacturer's recommendations or written instructions, including product bulletins and data sheets, and instructions for handling, storing and implementing products.

3.2 GENERAL

.1 Prepare interior surfaces and paint according to the requirements of the MPI Architectural Painting Specifications Manual, unless otherwise specified.

.2 Apply paint products according to Manufacturer's written instructions.

.3 Apply staining products according to Manufacturer's written instructions.

3.3 INSPECTION

.1 Inspect existing substrates to see if their condition could compromise the proper preparation of surfaces to be coated with paint or plaster. Report to the Departmental Representative any damage, defect or unsatisfactory or unfavourable condition detected, before proceeding with work.

.2 Perform tests to verify the moisture content of surfaces to be painted using a properly

calibrated electronic moisture meter; however, the moisture content of concrete floors must be evaluated by covering power on reference surface. Do not begin work until the condition of the substrates is deemed acceptable, within the range of values recommended by the Manufacturer.

.3 Maximum permissible moisture content

.1 Plasterboard: 12%.

.2 Concrete: 12%.

.3 Concrete blocks: 12%

.4 Wood: 15%.

3.4 PREPARATORY WORK

.1 Protection

.1 Protect building surfaces and adjacent structures not to be coated with paint or plaster against speckles, marks and other damage using non-fouling covers or blankets. If the surfaces in question are damaged, clean and restore them according to the instructions of the Departmental Representative.

.2 Protect items that are permanently attached such as Fire Labels on doors and frames.

.3 Protect factory finished products and equipment.

.2 Surface preparation

.1 Remove cover plates from electrical appliances, lighting fixtures, overlay hardware on doors, bathroom fixtures and other hardware, as well as surface mounted fasteners and fittings before beginning any coating work. Identify all deposited items and store them in a safe place; refit them when the paint coating is complete.

.2 If necessary, cover or move furniture and transportable materials to facilitate painting. Replace as painting operations progress.

.3 Place "WET PAINT" signs in occupied areas as painting operations progress. Signs to be approved by the Client.

.3 Clean and prepare interior surfaces in accordance with the requirements of the MPI Architectural Painting Specification Manual. Refer to this document for specific requirements to be added to the instructions below.

.1 Remove dust, dirt and other foreign matter by wiping surfaces with clean, dry cloths or by sweeping them with a jet of compressed air.

.2 Wash surfaces wit biodegradable detergent and clean warm water, using a stiff bristle brush to clean the surfaces of dirt, oil and other contaminants.

.3 After having thoroughly brushed the surfaces, rinse them with clean water until no foreign matter remains.

.4 Allow surfaces to drain completely and allow to dry thoroughly.

.5 To prepare surfaces for water-based paint, it is recommended to use water-based cleaning products rather than organic solvents.

.6 Many water-based paints can not be removed with water once dry. Minimize the use of mineral spirits or organic solvents in cleaning these paints.

.4 Before applying primer or sealer and between subsequent coats, prevent cleaned surfaces from being contaminated by salts, acids, alkalis, corrosive chemicals, grease, oil and solvents. Apply primer or sealer, paint, or other pretreatment product as soon as possible after cleaning, before surface is re-contaminated.

.5 Whenever possible, apply a coat of sealer to the concealed surfaces of new wooden elements before putting them in place. Use sealers prescribed for exposed surfaces for this purpose.

.6 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.

.7 Clean metal surfaces to be painted by removing rust, rolling flakes, welding slag, dirt, oil, grease and other foreign matter in accordance with the requirements of the MPI. Remove all traces of pickling products, then clean corners and recesses of the surfaces by dry air jet or by brushing followed by vacuum cleaning.

.8 Touch up surfaces with shop applied sealer coat with appropriate sealer, as indicated.

.9 Do not apply paint and/or varnish to surfaces prepared prior to their acceptance by the Departmental Representative.

3.5 PRESENCE OF LEAD

.1 Prior to priming existing painted gypsum, plaster or woodwork, the Contractor shall commission a specialized laboratory to take samples and perform an analysis to determine if the existing paint contains lead. See the Englobe report attached to these Specifications for recommendations on the execution of the work. Before obtaining the results of the characterization tests, the Contractor must consider any existing paint as containing lead and comply with the requirements of the firm Englobe.

.2 The contractor must make a sample of the work by applying a primer layer on each type of surface already painted to ensure the correct adhesion of the specified primer with the existing paint. A pull-out test must be carried out according to the paint manufacturer's recommendations before subsequent coats are applied. If the Contractor fails to perform this tear test and applies the paint and an adhesion problem occurs, the Contractor must undertake at his own expense all corrective work as recommended by the paint manufacturer.

3.6 APPLICATION

.1 The method of application used must be accepted by the Departmental

Representative. Apply paint by brush, roller, air spray gun, or airless high-pressure spray gun. Apply the product according to the manufacturer's instructions, unless otherwise indicated.

.2 Paint brush, brush and roller applications

.1 Apply even coat of paint with a paint brush or a brush. A roller of the appropriate type can be used for painting.

.2 Work paint and varnish into cracks, crevices and corners.

.3 Apply spray paint with a gun, pad or sheepskin on surfaces and in inaccessible corners with a paint brush or brush. Use a brush or paintbrush, pad or sheepskin when it is impossible to paint certain surfaces or corners with a roller.

.4 Remove sags and drips with a paint brush, brush or roller and touch up any marks left. Roller painted surfaces must be free of roller marks and excess paint.

.5 Remove sags, drips and paint brush and brush marks on finished surfaces, and touch-up these surfaces.

.3 Spray application

.1 Provide equipment designed for the intended purpose, capable of spraying the product and equipped with appropriate pressure regulators and pressure gauges. Keep this equipment in good condition.

.2 During paint application, ensure adequate mixing of ingredients in the container by continuous mechanical agitation or repeated intermittent agitation as often as necessary.

.3 Apply a coat of even paint, overlapping the surface covered on the previous pass. Roll surface with a dry roll after applying first coat.

.4 Immediately remove drips and sags with a brush.

.5 Use paint brushes or brushes to penetrate paint into cracks, crevices, and other spots hard to reach with gun spray.

.4 Use pad or sheepskin, or use soaking, if there are no other ways to paint hard-to-reach surfaces.

.5 Apply each coat of paint to obtain a continuous film of uniform thickness. Rework surfaces that are bare or covered with a film that is too thin before applying the next layer.

.6 Allow surfaces to dry and cure properly after cleaning and between each successive coat, waiting for the minimum time recommended by the manufacturer.

.7 Rub down and dust off surfaces between each layer to eliminate visible defects.

.8 Finish surfaces above and below the sight lines in accordance with the requirements for adjacent surfaces, including areas such as the tops of cupboards and wardrobes, and projecting edges.

.9 Finish the interior of cabinets and closets according to the indications provided for exposed surfaces.

.10 Finish alcoves and storage areas as indicated for adjacent rooms.

.11 Finish the top, bottom, edges and openings of doors in accordance with the requirements applicable to the facing surfaces of doors, after these have been adjusted.

3.7 ELECTRICAL AND MECHANICAL EQUIPMENT:

.1 Leave piping, electrical ducts, ventilation ducts, supports/suspensions and other visible electrical and mechanical components in their original condition.

.2 Touch up scratches and marks on factory-applied coatings using the product supplied by the equipment manufacturer.

.3 Do not paint nameplates.

.4 Apply a printing product and a layer of matte black paint to the inside surfaces of the ventilation ducts that can be seen through the grilles, dampers and diffusers.

.5 Do not paint the transformers and interior equipment of the electrical distribution substations.

3.8 IMPLEMENTATION TOLERANCES

.1 Walls: No visible defects at a 1000 mm distance, at 90 degrees angle to the surface examined.

.2 Ceilings: No visible defect by an observer on the ground, at a 45 degree angle to the surface under examination, under the permanent lighting provided.

.3 The colour and gloss of the topcoat should be uniform over entire examined surface.

3.9 ON-SITE QUALITY CONTROL

.1 The interior surfaces to be coated with paint or plaster must be inspected, before the start of the painting work or after the application of a printing layer having revealed defects in the substrate, by the Inspector who will inform in writing the Departmental Representative and the Contractor of the various defects and problems identified.

.2 Cooperate with the Inspector and give them access to all areas of the site.

.3 Keep purchase slips, invoices and other documents to establish, at the request of the Departmental Representative, the conformity of the work with the specified MPI requirements.

3.10 RESTORATION OF THE PREMISE

.1 Clean and reinstall all removed hardware items to facilitate painting.

.2 Remove guards and warning signs as soon as possible after completion of work.

.3 Remove spills from exposed surfaces that have not been painted. Remove burrs and speckles as work progresses, using a compatible solvent.

.4 Protect freshly painted surfaces from drips and dust, to the satisfaction of the Client, and avoid scratching new coatings.

.5 Return the premises used for the storage, mixing and handling of paints and for cleaning the tools and equipment used to their initial state of cleanliness, to the satisfaction of the Client.

END OF SECTION

PART 1 GENERAL

1.1 GENERAL INFORMATION OF WORK

.1 The work of this section consists primarily of the following:

.1 Patching of grass sections damaged by work.

1.2 REFERENCE STANDARDS

.1 Canadian Association of Landscape Architects (CACA)/Canadian Association of Nursery and Landscape Architects (CAPP)

.1 Canadian Landscape Standard 2020 , Second Edition

1.3 DOCUMENTS AND SAMPLES

.1 Submit the required documents and samples in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit data sheets for all products in this section.

.3 Submit test reports certifying that products, materials and equipment meet the physical and performance requirements.

1.4 WASTE MANAGEMENT AND DISPOSAL

.1 Transfer unused soil conditioners (fertilizers) to an approved hazardous material collection site.

.2 Unused soil conditioners (fertilizers) shall not be discharged into sewers, streams, lakes, soils or any other place where this could pose a risk to health or the environment.

1.5 WARRANTY

.1 Provide a written document, signed and issued on behalf of the Departmental Representative, certifying that all work in this section will remain free from defects for one (1) full growing season, provided adequate maintenance has been provided.

PART 2 PRODUCTS

2.1 MATERIALS

.1 Grass cultivated: Kentucky grass turf number one; grown solely from Kentucky grass cultivar seed and containing at least 50% Kentucky grass cultivar.

.2 Quality of cultivated turf: turf having the following characteristics:

.1 Grass containing not more than 2 seeds of broadleaf weeds or 10 other seeds per 40 square metre area

.2 Grass of a density such that the earth remains invisible, from a height of 1500 mm, after mowing to a height of 50 mm

.3 Maximum mowing height: from 35mm to 65mm, and

.4 Grass plate floor thickness: from 6mm to 15mm

.3 Water: Drinking water, provided by the Departmental Representative.

.4 Fertilizers: Compliant with the Fertilizers Act and Fertilizers Regulations of Canada, synthetic, slow-acting compounds, containing 65% nitrogen in water-insoluble form.

PART 3 EXECUTION

3.1 PREPARATORY WORK

.1 Ensure that the soil is adequate and that the surfaces to be grassed are adequately prepared. Inform the Departmental Representative of any deviations from the drawings and await instructions from the Departmental Representative before commencing work.

.2 The commencement of grassing work constitutes acceptance of the infrastructure and no claim can be later made in this regard.

.3 Carry out sodding work between the end of thaw and June 15 (spring period) and between August 15 and the beginning of freezing (autumn period).

.4 Deliver sod rolls within twenty-four (24) hours of collection and extend them within forty-eight (48) hours of collection.

.5 No work shall be carried out under adverse conditions, such as when the ground is frozen or soaked, or when it is covered with snow, ice or standing water.

.6 Carry out the finishing levelling of the surfaces so as to achieve a smooth and uniform slope, free from dents and roughnesses, according to the level dimensions indicated, to within 8 mm in the case of cultivated turf, favouring natural drainage of the surfaces.

.7 Remove weeds, debris, stones 50 mm in diameter and larger, soil contaminated with oil, gasoline or other harmful products and remove them from the work site.

3.2 SODDING

.1 Place sod rolls in parallel strips with offset joints. Tighten them together so that they leave no voids, but do not overlap. Cut the narrow or irregularly shaped plates using sharp tools.

.2 Roll the sod with a hand-held roller. Carry out a light rolling intended to ensure contact of the rolls with the ground. It is prohibited to use a heavy roller to correct surface irregularities.

.3 Place the sod rolls so that the grass reaches the same level as the adjacent existing grass. Cut the grass as needed in a linear manner so that the junction is clean and uniform.

3.3 FERTILIZATION PROGRAM

.1 Apply the fertilizer during the establishment and warranty periods of the sod according to the recommendations of the supplier of the rolls.

3.4 MAINTENANCE DURING THE ESTABLISHMENT PERIOD

.1 Carry out the following maintenance work from the date of laying of the turf to the date of acceptance of the work.

.2 Water turf in sufficient quantity and frequency to maintain optimal moisture content in the lawn to a depth of 75 mm to 100 mm.

.3 Mow the grass to a height of 50 mm when it reaches or before 75 mm and remove mowing debris that could choke the grassy surfaces.

.4 Keep grassed surfaces free of weeds at 80%.

.5 Apply fertilizers to grassed surfaces in accordance with the established fertilization schedule. Apply half of the required amount of fertilizer in one (1) direction, then apply the rest perpendicularly; water well to allow the fertilizer to penetrate the soil.

3.5 ACCEPTANCE OF WORKS

.1 Surfaces covered with cultivated turf will be accepted by the Departmental Representative if the following conditions are met:

.1 Grassed surfaces are adequately established

.2 Grassed surfaces must be free from dead grass areas and bare areas

.3 The earth remains invisible, from a height of 1500 mm, after mowing the grass to a height of 50 mm, and

.4 The grassed surfaces have been mowed at least two (2) times before acceptance of the work

.2 Autumn grassed areas will be accepted the following spring, one (1) month after the start of the growing season, if the above conditions are met.

3.6 MAINTENANCE DURING THE WARRANTY PERIOD

.1 Carry out the following maintenance work from the date of issue of the certificate of substantial completion of the work until the end of the warranty period.

.2 Repair and re-grass bare areas and dead grass areas to the satisfaction of the Departmental Representative.

.3 Mow the grass to a height of 50 mm and remove debris from the mowing which could choke the lawn surfaces.

.4 Mow the grass every three (3) weeks; the interval between mowing must allow the height of the grass to be reduced by approximately one third in a single cut.

.5 Mechanically dispose of weeds in a proportion that is acceptable to the Departmental Representative.

3.7 CLEANING

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

END OF SECTION