Stantec

Les ARCHITECTES Odette Roy et Isabelle Jacques inc.

Publics Works and Government Services Canada (PWGSC)

Sanitary Sewer Line Replacement at Lourdes-de-Blanc-Sablon Airport

Client Ref.: R.116438.600

TECHNICAL SPECIFICATIONS

SR4 ISSUED - For Tender

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Prepared for:
PWGSC

Prepared by:
Stantec Consulting Ltd.

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O/Ref.: 159400401

Public Works and Government Services Canada (PWGSC)

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Client Ref.: R.116438.600

TECHNICAL SPECIFICATIONS

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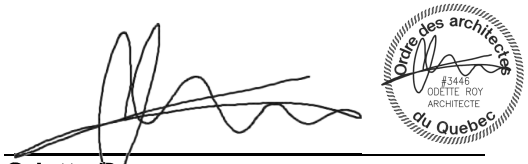

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Stantec

PROJECT NO.: 159400401

SPECIFICATIONS

END OF SECTION

DIVISION 01

General Requirements

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 01 14 00 – Restrictions

.2 Section 01 56 00 – Temporary barriers and enclosures.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

.1 General

.1 Provide and maintain in good condition for the entire duration of the work, portable or trailer type insulated washroom facilities with sinks and water supply, heated and with proper lights, for men and women. Also provide a sanitary block for people with reduced mobility.

.2 Ensure water supply to temporary sanitation facilities and drain tanks as needed.

.3 Ensure the cleanliness of the facilities at all times

.4 Provide adequate electrical power to sanitary blocks at all times.

.2 Architecture:

The work described below is not exhaustive. These works are more specifically defined in the documents and drawings.

.1 Supply and install all the material necessary for the performance of the work.

.2 Demolitions: partitions, ceramic, floor, vanity and w.-c.

.3 Reconstruction: partitions, ceramic, painting. Vanity and partition to reinstall.

.3 Mechanical:

The work described below is not exhaustive. These works are more specifically defined in the documents and drawings. It is understood that all devices or accessories necessary for a complete and functional installation must be supplied and installed, even if they are not specifically described.

.1 Drinking water supply

.1 Recover the existing water inlet and relocate it in the small closet 4A.

.2 Make connections and fillings as shown on the plan.

.2 Men washroom

.1 Remove equipment.

.2 Remove the concrete and ceramic floor as shown on the plan.

.3 Excavate and remove existing pipes.

.4 Install new pipes as shown on the plan.

.5 Backfill and redo the concrete floor.

.6 Reinstall plumbing fixtures

.3 Women washroom

.1 Same steps as men’s washrooms above.

.4 Civil:

The work described below is not restrictive. These works are more specifically defined in the documents and drawings. It is understood that all devices or accessories necessary for a complete and functional installation must be supplied and installed, even if they are not specifically described.

.1 Water supply

.1 Carry out the excavation trench for the new drinking water supply line.

.2 Supply and install the new drinking water supply line.

.3 Connect the new water pipe to the water supply well as shown on the plan.

.4 Supply and install the new pump in a new water supply well as shown on the plan.

.5 Supply and install the insulated cover of the water supply well as shown on the plan.

.6 Carry out the decommissioning of the existing water supply line.

.7 Backfill the new drinking water pipe as shown on the plan.

.8 Provide and install sodding in areas that have been excavated for the passage of the new water supply line.

.2 Sanitary drainage

.1 Carry out the excavation trench for the new sanitary drainage pipe.

.2 Supply and install the new sanitary pipe.

.3 Connect the new sanitary pipe to a new septic tank.

.4 Carry out the decommissioning of the existing external sanitary pipe.

.5 Backfill the new sanitary pipe as shown on the plan.

.6 Carry out the decommissioning of the existing pit and treatment field.

.5 Electricity:

The work described below is not restrictive. These works are more specifically defined in the documents and drawings. It is understood that all devices or accessories necessary for a complete and functional installation must be supplied and installed, even if they are not specifically described.

.1 For the 32 mm drinking water pipe and the pumping well

.1 Dismantle the existing power cable of the well pump and the existing heating cable.

.2 Supply, install, connect and identify new electrical equipment (buried power cable, disconnectors, heating cable, thermostat and control accessories) as shown in the plans and specifications.

.2 For 100 mm ductile iron pipe - sanitary

.1 Supply, install, connect and identify new electrical equipment (power cable, disconnect switch, heating cable, thermostat and control accessories) as shown in the plans and specifications.

1.3 WORK SEQUENCE

.1 Execute the work in phases, so that the Departmental Representative can use the premises continuously during the work. Maintain temporary and secure access to the premises for the public as long as the progress of the work prevents covering the usual accesses.

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

.3 Work sequences

.1 The building will remain occupied by the Ministerial and functional Representative for the duration of the work. All terminal activities must be carried out without interruption.

.2 Building occupancy

.1 The premises are occupied from 7 am to 8 pm except room # 11 which is occupied 24 hours a day every day without interruption.

.3 Exterior entrances (parking / city side)

.1 The work must be carried out in such a way as to maintain functional access to the facade, parking side.

.4 Interior work

.1 Work must be carried out at night from 8 p.m. to 5 a.m., except exterior work.

.2 All systems must be operational every morning.

.3 Surfaces must be cleaned and free of dust and materials every morning, the furniture that has been moved to carry out the work must be put back in place. Protective plastics from all computer equipment will be removed.

.5 The contractor will have to demobilize every day because no material or tools or equipment will be tolerated in the premises except the mechanical room # 8 and electrical room # 9 and the sectors where work is carried out.

.6 Ceiling:

.1 The suspended ceilings which will be dismantled by sector for the passage of mechanics must be fixed / temporarily supported to always ensure the safety of users. Provide all the required fasteners; no item not properly fixed will be tolerated.

.2 Provide adequate temporary installations when services must be interrupted.

.4 Carry out work in stages to allow continuous use of the premises by the public.

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

1.4 CONTRACTOR USE OF PREMISES

.1 Limit use of premises for Work to allow:

.1 Departmental Representative’s occupancy.

.2 Work by other contractors.

.3 Public usage.

.2 Co-ordinate use of premises under direction of Departmental Representative.

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

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

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

.6 Ensure that operations conditions of existing work at completion are still the same, equal to or better than that which existed before new work started.

.7 Maintain fire access and provide means to combat fire.

1.5 DEPARTMENTAL REPRESENTATIVE'S OCCUPANCY

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

.2 Co-operate with Departmental Representative in scheduling operations to minimize conflict and to facilitate his usage.

1.6 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING

.1 Execute work with least possible interference or disturbance to building operations, occupants, public, and normal use of premises. Arrange with Departmental Representative to facilitate execution of work.

.2 Use only existing access points and circulations in building for moving workers and material.

.1 Accept liability for damage, safety of equipment and overloading of existing equipment.

1.7 EXISTING SERVICES

.1 Notify, Departmental Representative and utility companies of intended interruption of services and obtain required permission.

.2 Where Work involves breaking into or connecting to existing services, give Departmental Representative 48 hours notice for necessary interruption of mechanical or electrical service throughout course of work. Minimize duration of interruptions. Carry out work at times as directed by governing authorities with minimum disturbance to vehicular traffic and site operations.

.3 Establish location and extent of service lines in area of work before starting Work. Notify Departmental Representative of findings.

.4 Submit schedule for approval by Departmental Representative for any shutdown or closure of active service or facility including power and communications services. Adhere to approved schedule and provide notice to affected parties.

.5 Provide temporary services when directed by Departmental Representative to maintain critical building and tenant services.

.6 Provide adequate bridging over trenches which cross sidewalks or roads to permit normal traffic.

.7 Where unknown services are encountered, immediately advise Departmental Representative and confirm findings in writing.

.8 Protect, relocate or maintain existing active services. When inactive services are encountered, cap off in manner approved by authorities having jurisdiction.

.9 Record locations of maintained, re-routed and abandoned service lines.

.10 Construct barriers, as required, in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

1.8 DOCUMENTS REQUIRED

.1 Maintain at job site, one copy of each document as follows:

- .1 Contract Drawings;
- .2 Specifications;
- .3 Addenda;
- .4 Reviewed Shop Drawings;
- .5 List of Outstanding Shop Drawings;
- .6 Change Orders;
- .7 Other Modifications to Contract;
- .8 Field Test Reports;
- .9 Copy of Approved Work Schedule;
- .10 Health and Safety Plan and Other Safety Related Documents;
- .11 Other documents as specified.

Part 2 Products

2.1 NOT APPLICABLE

.1 Not applicable.

Part 3 Execution

3.1 NOT APPLICABLE

.1 Not applicable.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 01 11 01 General information on the works

.2 Section 01 35 13.13 Special procedures - airport facilities.

1.2 ACCESS AND EGRESS

.1 Design, construct and maintain temporary "access to" and "egress from" work areas, including stairs, runways, ramps or ladders and scaffolding, independent of finished surfaces and in accordance with relevant municipal, provincial and other regulations.

1.3 USE OF SITE AND FACILITIES

.1 Execute work with least possible interference or disturbance to normal use of premises. Make arrangements with Departmental Representative to facilitate work as stated.

.2 Maintain existing services to building and provide for personnel and vehicle access.

.3 Where security is reduced by work provide temporary means to maintain security.

.4 Departmental Representative will assign sanitary facilities for use by Contractor's personnel. Keep facilities clean. The use of the toilets is prohibited at all times.

.5 Closures: protect work temporarily until permanent enclosures are completed.

1.4 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING

.1 Execute work with least possible interference or disturbance to building operations, occupants, public and normal use of premises. Arrange with Departmental Representative to facilitate execution of work.

1.5 EXISTING SERVICES

.1 Notify, Departmental Representative and utility companies of intended interruption of services and obtain required permission.

.2 Where Work involves breaking into or connecting to existing services, give Departmental Representative 48 hours of notice for necessary interruption of mechanical or electrical service throughout course of work. Keep duration of interruptions minimum. Carry out interruptions after normal working hours of occupants, preferably on weekends.

.3 Provide for personnel, pedestrian and vehicular traffic.

.4 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

1.6 SPECIAL REQUIREMENTS

.1 The premises are occupied from 7 am to 8 pm daily.

.2 All work must be carried out from 8 p.m. to 5 a.m.

.3 Submit work schedule in accordance with section 01 32 16.07 - Work schedule - Bar charts (GANTT).

.4 Ensure that the Contractor's personnel working on the site know the regulations and comply with them, in particular the regulations on fire safety, road traffic and occupational safety.

.5 Stay within the limits of the work and access roads.

.6 Access to the site for the Contractor's vehicles is limited and will be determined with the Departmental Representative. The contractor must notify the Departmental Representative to park in the "city zone".

.7 Ensure that materials / equipment are delivered outside of peak hours, between 8:00 p.m. and 7:00 a.m., unless otherwise specified by the Departmental Representative.

.8 A copy of the key will be sent to the contractor by the Departmental Representative in order to access the building during night work.

1.7 SECURITY

.1 Where security has been reduced by Work of Contract, provide temporary means to maintain security.

.2 Security clearances:

.1 Personnel employed on this project will be subject to security check. Obtain clearance, as instructed, for each individual who will require to enter premises.

.2 Obtain requisite clearance, as instructed, for each individual required to enter premises.

.3 Personnel will be checked daily at start of work shift and provided with pass which must be worn at all times. Pass must be returned at end of work shift and personnel checked out.

.4 Contractor's personnel will require satisfactory RCMP initiated security screening in order to complete Work in premises and on site.

.5 The contractor must undergo training given by the Department before carrying out work in a restricted area.

.3 Security escort:

.1 Personnel employed on this project must be escorted when executing work in non-public areas during normal working hours. Personnel must be escorted in all areas after normal working hours.

.2 All escort requests are to be requested and coordinated by the contractor directly with the escort company. The Departmental Representative does not manage requests, but must be kept informed of the contractor's requests. Requests for an

escort should be made to the escort company at least 14 days in advance. In the case of requests submitted on time, the cost of the escort will be paid by the Departmental Representative. In the case of late requests, the cost will be charged to the contractor.

.3 Any escort request may be cancelled free of charge if notification of cancellation is given at least 4 hours before scheduled time of escort. Cost incurred by late request will be Contractor's responsibility.

.4 Calculation of costs will be based on average hourly rate of security officer for minimum of 8 hours per day for late service request and of 4 hours for late cancellations.

1.8 BUILDING SMOKING ENVIRONMENT

.1 Comply with smoking restrictions. Smoking is not permitted.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 01 32 16.07 Work schedule - bar chart (GANTT).

1.2 1.2 ADMINISTRATIVE PROCEDURES

.1 Provide for the holding of project meetings at the request of the Departmental Representative and ensure their management.

.2 Prepare meeting agendas.

.3 Notify the Departmental Representative in writing of a meeting seven (7) days before the scheduled date.

.4 Provide a room or other space for the holding of meetings and make the necessary arrangements.

.5 Chair project meetings.

.6 Write minutes of meetings. Indicate all important questions and decisions. Specify the actions taken by the different parties.

.7 Make copies of the minutes and distribute them to participants and interested parties absent from the meeting to the Departmental Representative within three (3) days of the meeting.

.8 Representatives of the Contractor, subcontractors and suppliers who attend project meetings are empowered and authorized to intervene on behalf of the parties they represent.

1.3 PRECONSTRUCTION MEETING

.1 Within fifteen (15) days after award of Contract, the Departmental Representative will organize a meeting of parties in Contract to discuss and resolve administrative procedures and responsibilities.

.2 Departmental Representative, Contractor, major Subcontractors are to be in attendance.

.3 Departmental Representative will establish time and location of meeting and notify parties concerned minimum ten (10) days before meeting.

.4 The Departmental Representative will prepare the minutes of these meetings and forward them to the participants as well as the concerned parties absent from them, within three (3) days of each holding.

.5 Departmental Representative will record minutes of meetings and circulate to attending parties and affected parties not in attendance within three (3) days after meeting. Agenda to include:

.1 Appointment of official representative of participants in the Work.

.2 Schedule of Work, Construction Progress Schedules.

.3 Submission schedule for shop drawings, product samples and color samples, according to section 01 33 00

.4 Requirements for temporary facilities, site sign, offices, storage sheds, utilities, fences in accordance with Section 01 52 00 - Construction Facilities.

.5 Delivery schedule for prescribed materials and equipment, according to section 01 61 00.

.6 Site security.

.7 Proposed changes, change orders, procedures, approvals required, margin percentages allowed, time extensions, overtime and other administrative procedures.

.8 Products supplied by the Owner.

.9 Schedule of submission of shop drawings, samples, colour samples. Submit submittals in accordance with Section 01 33 00 - Submittal Procedures.

.10 Maintenance manuals, according to section 01 78 00 - Documents and items to be submitted on completion of work.

.11 Procedures for handing over and accepting work, and guarantees, according to section 01 78 00

.12 Monthly progress claims, administrative procedures, photographs, hold backs.

.13 Appointment of inspection and testing agencies or firms.

.14 Insurances, transcript of policies.

1.4 PROGRESS MEETINGS

.1 Establish a schedule of meetings to be held monthly during work and 2 weeks before completion.

.2 Contractor, major Subcontractors involved in Work, and Departmental Representative are to be in attendance.

.3 Departmental Representative will notify parties minimum seven (7) days prior to meetings.

.4 Departmental Representative will record minutes of meetings and circulate to attending parties and affected parties not in attendance within three (3) days after meeting.

.5 Agenda to include the following:

.1 Review, approval of minutes of previous meeting;

.2 Review of Work progress since previous meeting;

.3 Field observations, problems, conflicts;

.4 Problems which impede construction schedule;

.5 Review of off-site fabrication delivery schedules;

.6 Corrective measures and procedures to regain projected schedule;

.7 Revision to construction schedule;

.8 Progress schedule, during succeeding work period;

.9 Review submittal schedules: expedite as required;

.10 Maintenance of quality standards;

.11 Review proposed changes for affect on construction schedule and on completion date;

.12 Other business.

Part 2 Products

2.1 NOT APPLICABLE

.1 Not applicable.

Part 3 Execution

3.1 NOT APPLICABLE

.1 Not applicable.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 01 45 00 - Quality control

.2 Section 01 61 00 - General product requirements

.3 Section 01 78 00 - Documents / items to be submitted on completion of the work.

1.2 ADMINISTRATIVE

.1 Submit to Departmental Representative submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.

.2 Do not proceed with Work affected by submittal until review is complete.

.3 Present shop drawings, product data, samples, and mock-ups in SI Metric units.

.4 Where items or information is not produced in SI Metric units converted values are acceptable.

.5 Review submittals prior to submission to Departmental Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated, and identified as to specific project will be returned without being examined and considered rejected.

.6 Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.

.7 Verify field measurements and affected adjacent Work are co-ordinated.

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

.9 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.

.10 Keep one reviewed copy of each submission on site.

1.3 SHOP DRAWINGS AND PRODUCT DATA

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

.2 Submit drawings stamped and signed by professional engineer registered or licensed in Canada.

.3 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross-references to design drawings and specifications.

.4 Allow tendays for Departmental Representative's review of each submission.

.5 Adjustments made on shop drawings by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.

.6 Make changes in shop drawings as Departmental Representative may require, consistent with Contract Documents. When resubmitting, notify Departmental Representative in writing of revisions other than those requested.

.7 Accompany submissions with transmittal letter, in duplicate, containing:

- .1 Date.
- .2 Project title and number.
- .3 Contractor's name and address.
- .4 Identification and quantity of each shop drawing, product data, and sample.
- .5 Other pertinent data.

.8 Submissions include:

- .1 Identification of the submitted document according to the discipline: Letter followed by a sequential number, as well as the revision number.
- .2 Date and revision dates.
- .3 Project title and number.
- .4 Name and address of:
  - .1 Subcontractor.
  - .2 Supplier.
  - .3 Manufacturer.
- .5 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
- .6 Details of appropriate portions of Work as applicable:
  - .1 Fabrication.
  - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
  - .3 Setting or erection details.
  - .4 Capacities.
  - .5 Performance characteristics.
  - .6 Standards.
  - .7 Operating weight.
  - .8 Wiring diagrams.
  - .9 Single line and schematic diagrams.
  - .10 Relationship to adjacent work.

.9 After Departmental Representative's review, distribute copies.

.10 Submit three (3) printed copies and one (1) electronic copy of shop drawings for each requirement requested in Specifications and as Departmental Representative may reasonably request.

.11 Submit electronic three (3) printed copies and one (1) electronic copy of product data sheets or brochures for requirements requested in specifications and as requested by Departmental Representative where shop drawings will not be prepared due to standardized manufacture of product.

.12 Submit three (3) printed copies and one (1) electronic copy of test reports for requirements requested in Specifications and as requested by Departmental Representative.

.1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.

.2 Testing must have been within three (3) years of date of Contract award for project.

.13 Submit three (3) printed copies and one (1) electronic copy of certificates for requirements requested in Specifications and as requested by Departmental Representative.

.1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.

.2 Certificates must be dated after award of Project Contract complete with project name.

.14 Submit three (3) printed copies and one (1) electronic copy of manufacturers instructions for requirements requested in Specifications and as requested by Departmental Representative.

.1 Pre-printed material describing installation of product, system or material, including special notices and Safety Data Sheets concerning impedances, hazards, and safety precautions.

.15 Submit three (3) printed copies and one (1) electronic copy of Manufacturer's Field Reports for requirements requested in Specificationw and as requested by Departmental Representative.

.1 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.

.16 Submit three (3) printed copies and one (1) electronic copy of Operation and Maintenance Data for requirements requested in Specifications and as requested by Departmental Representative.

.17 Delete information not applicable to project.

.18 Supplement standard information to provide details applicable to project.

.19 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, copies transparency will be returned, and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.

.20 The review of shop drawings by the Departmental Representative is for sole purpose of ascertaining conformance with general concept.

.1 This review shall not mean that PWGSC approves detail design inherent in shop drawings, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or omissions

in shop drawings or of responsibility for meeting requirements of construction and Contract Documents.

.2 Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of sub-trades.

1.4 SAMPLES

.1 Submit for review samples in duplicate triplicate as requested in respective specification Sections. Label samples with origin and intended use.

.2 Deliver samples prepaid to site office Departmental Representative's business address.

.3 Notify Consultant Departmental Representative in writing, at time of submission of deviations in samples from requirements of Contract Documents.

.4 Where colour, pattern, or texture is criterion, submit full range of samples.

.5 Adjustments made on samples by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.

.6 Make changes in samples which Departmental Representative may require, consistent with Contract Documents.

.7 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

1.5 MOCK-UPS

.1 Erect mock-ups in accordance with 01 45 00 - Quality Control.

1.6 PHOTOGRAPHIC DOCUMENTATION

.1 Submit electronic copy of colour digital photography in .jpg format, high resolution, weekly with progress statement as directed by Departmental Representative.

.2 Project identification: Name and number of project and date of exposure indicated.

.3 Number of viewpoints: Minimum five (5) locations. However, the number is related to the state and complexity of completed works. Departmental Representative will determine with the Contractor the number of desired viewpoints.

.4 Frequency of Photographic Documentation: Daily or as directed by Departmental Representative.

.1 Upon completion of framing and services before concealment, of Work, excavation, foundation, as directed by Departmental Representative.

1.7 CERTIFICATES AND TRANSCRIPTS

.1 Immediately after award of Contract, submit Workers' Compensation Board status.

.2 Submit transcription of insurance immediately after award of Contract.

Part 2 Products

2.1 NOT APPLICABLE

.1 Not applicable.

Part 3 Execution

3.1 NOT APPLICABLE

.1 Not applicable.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 01 11 01 General information on the work

.2 Section 01 14 00 Restrictions on work.

.3 Section 01 52 00 Site installations

.4 Section 01 56 00 Access works and temporary protection

1.2 DEFINITIONS

.1 Restricted Area: Any area within an airport enclosure that is marked as prohibited by a sign or is otherwise controlled by any sign is a restricted area.

.2 Aircraft Movement Area: The portion of an airport used for the movement of aircraft, including maneuvering areas (runway and taxiway) and apron areas.

1.3 RESPONSIBILITIES OF THE GENERAL CONTRACTOR

.1 Read the airport and airport safety regulations "Airport Traffic Regulations" and the Construction Exploitation Plan (CEP) specific to this Project so to inform employees and subcontractors.

.2 The Departmental Representative will provide a copy of the CEP approved by the appropriate authorities.

.3 The regulations can be found at: https://www.tc.gc.ca/eng/acts-regulations/menu.htm under "Government Land Traffic Act".

.4 Be responsible for personnel, construction vehicles, and subcontractors involved in the Project and required to enter restricted areas.

.5 Provide the Departmental Representative with a list of responsible personnel, including an escort officer, who, in case of emergency, can be reached after working hours.

.6 Designate, among employees, a responsible person who will maintain constant with the airport escort.

.7 Ensure that runway lighting is maintained throughout the duration of the work.

1.4 MEASUREMENT FOR PAYMENT

.1 The Contractor will pay the direct costs and expenses associated with escort services. These services are subject to a monetary allowance included in the Contract Price and will be reimbursed as described in Section 01 21 00 - Allowances.

.2 In addition to the airport escort services, all other expenses incurred in the compliance of the requirements of this section must be included in the Contractor's overhead costs and/or allocated proportionately in the various payment items of the bid.

1.5 AIRPORT ESCORTS

.1 Airport escort services may be provided by the airport operator or an accredited firm.

.1 Airport escorts are required when airport facilities are in operation and movement of the Contractor's staff on the airfield must be coordinated. The remaining of the time the staff will be posted at the access barrier so to control access to the airfield.

.2 This staff when acting as guard at the gate, should be in constant contact with the team leader directing work on the airfield as well as with the flight information station.

.2 When the airport is not in service, any vehicles or persons who enter a restricted area must report to the gatekeeper and provide identification. Any person or equipment not authorized by the airport operator, the Contractor, and Departmental Representative will be denied access to the airfield side of the facilities.

.3 When the airport is in service, any vehicle or person that must enter a restricted area must be accompanied by an escort and each vehicle must be equipped with an amber rotating beacon. The access barrier to the airfield side of the installations should always be closed, except for passages authorized by the airport operator, the Departmental Representative, and the Contractor.

.4 Access to the site by Contractor's vehicles and equipment will be limited to the secure entry points. These access points always require a security staff during the periods of work and will be provided by the Contractor.

.5 No vehicles or other modes of transportation related to the work will use or travel on the paved surfaces (runway, taxiway, and apron) located outside the limits of the designated work sites without an authorized security service escort.

.6 The Contractor and his employees must immediately comply with escort instructions.

.7 The Contractor shall notify the airport operator at least 12 hours in advance of any changes to the schedule or work program previously approved by the Departmental Representative when escorts are required. This requirement is necessary to plan the work schedules of the staff assigned to escort services.

.8 The Contractor must have written approval of the Departmental Representative, on a daily basis, for the registration of time allocated for work tasks.

1.6 WORK TIMETABLE

.1 The Contractor must note and consider that the work in the air movement will be carried out during the air movement area closure periods so to allow for airport operations.

.2 Runway closures may vary depending on airline delays and weather conditions.

.3 The period of closure of the movement area may, however, be carried over, delayed, or modified over time, so to take in account contingencies related to air traffic.

.4 The contractor shall validate daily the flight schedule with the Departmental Representative as the operation periods of the airport may vary.

.5 The Contractor must take note and consider that the work will be carried out outside the periods of operation described above.

.6 In preparation for a period of operation, the Contractor shall remove its material, equipment, and personnel to a minimum distance of 90 m measured from the edge of the runway.

.7 During periods of operation, no stockpiled material will be permitted within the leveled area. The trenches must have been backfilled and the backfill material compacted before each period of operation.

.8 Perform work in stages and progress in the manner provided in the Contract to allow the day-to-day operations of the airport schedule.

.9 In emergency situations and in the case of medical evacuations, periods of closure of the movement area of the airport may be cancelled, delayed, or shortened. When emergencies occur during the closure period, the movement area of the airport should be open to air operations as soon as possible as described in article 1.10 below. A two-hour notice is normally given for medical evacuations. The runway must be fully usable in this period of time. The average number of medical evacuations is three (3) per week.

1.7 MAINTAINING AIR TRAFFIC CIRCULATION

.1 No work will be permitted on the airport movement area during periods of airport operation.

.2 When excavations are made, they must be barricaded as required by provincial law. Any trench must be sufficiently marked, flagged, and barricaded to provide adequate protection for the public.

.3 Excavations in airport areas must be backfilled before the end of each working day.

.4 At the end of each shift, during emergency situations and prior to the opening of the airport movement area, the Contractor must inevitably comply with the procedure and following requirements:

.1 The Contractor must inspect the airport movement area with the Departmental Representative and promptly proceed with any corrective work required by the latter.

.2 During periods of operation of the airport movement area, the Contractor shall move and store equipment and materials at the site designated by the Departmental Representative.

1.8 SECURITY MEASURES

.1 Do not interfere with airport operations without the authorization of the Departmental Representative.

.2 Take any necessary temporary security measures for the transportation of the public, personnel, pedestrians, equipment, and vehicular traffic.

.3 Place barriers where indicated by Departmental Representative.

.4 Parking of equipment and storage of materials will only be permitted in the area designated by the Departmental Representative.

1.9 MOVEMENT OF EQUIPMENT AND PERSONNEL

.1 If Work is performed in areas of the airport open to air traffic:

.1 Submit the Work Schedule to the Departmental Representative for approval.

.2 Control movement of equipment and personnel in accordance with the Departmental Representative's instructions.

.3 The Contractor and the Contractor’s employees shall comply immediately with the Departmental Representative’s instructions.

.4 Radios are required for communications between the Contractor, the escort, the Departmental Representative, and Transport Canada Representative will be provided by the Contractor.

.5 At the end of each shift, all equipment and materials shall be moved to a location within the airport enclosure following approval by the Departmental Representative in cooperation with the airport's operational personnel.

1.10 UNSERVICEABLE AREAS

.1 Mark off areas made unserviceable for aircraft by Work of this Contract by providing highly visible danger.

.2 Open flames and flammable fuels are not permitted.

.3 Park equipment not in use and stockpile materials so that stockpile tops are below 50 to 1 ratio from ends of useable landing strip and below 20 to 1 ratio from sides of aircraft traffic areas.

1.11 DAILY SECURITY

.1 No work with an open flame, nor fire and smoking on the deck is permitted, and any contravening of airport regulation regarding this is under the penalty of a fine. This is due to the omnipresence of fuel lines and vapors.

.2 Ensure at the end of each workday that the barrier is locked and there are no breaches in the airport's perimeter fence.

.3 The Contractor must provide security for access to the airport enclosure for the entire period of the execution of Work.

.4 It is forbidden to eat on airport maneuvering areas.

1.12 TRENCHING

.1 Obtain the written permission of the Departmental Representative before proceeding with trenching work.

.2 Excavations in airport areas must be backfilled and the backfill material compacted before each period of operation.

.3 An open trench of a maximum length of 60 m is permitted at a time.

.4 Excavation work with a test board must begin on the north side of threshold 35.

1.13 PUBLIC SERVICE NETWORKS AT THE AIRPORT

.1 The Departmental Representative will stake or indicate the approximate location of the airport's underground utilities (cables, pipes, conduits, etc.).

.2 The Contractor will have to identify the exact location of underground service networks using an exploratory search carried out by hand if necessary.

.3 Notify the Departmental Representative at least 48 hours in advance of the location of the Work to be done, so to allow time to locate underground utilities.

1.14 DAILY SPECIAL PROCEDURES FOR THE COORDINATION OF WORK

.1 Verification of Daily Flight Schedules:

.1 The Contractor shall coordinate with the Airport Manager for confirmation of flight times (arrival and departure) at Airport.

.2 Working hours on the runway and taxiway will be adjusted if there are any variations from the normal period stated in the specifications for the performance of the Work.

.2 Opening of the Runway:

.1 Following the completion of the work, a work inspection will be carried out by the Departmental Representative and the Airport Manager or his representative for the verification of the quality of the works and the compliance of temporary measures after each day.

.2 Any required corrections must be made immediately by the Contractor.

.3 As soon as the compliance of the work is validated by the committee, an official notice of opening of the runway will be issued by the Airport Manager.

.3 Arrangement of Equipment:

.1 The Contractor must obtain the authorizations required by the competent authorities (Land Holding) to develop safe, including the guarding of its equipment storage site and materials.

.4 Daily Work Program:

.1 The Contractor shall submit daily for approval the detailed work program.

Part 2 Products

2.1 NOT APPLICABLE

.1 Not applicable.

Part 3 Execution

3.1 NOT APPLICABLE

.1 Not applicable.

END OF SECTION

Part 1 General

1.1 GENERAL NOTE

.1 In this Section, the term “site” includes all the facilities located at the site where the Work is taking place (construction site, buildings, access, infrastructure, parkings, docks, etc.).

1.2 RELATED REQUIREMENTS

.1 Section 01 41 00 Regulatory requirements

1.3 REFERENCES

.1 Canada Labor Code, Part II, Canada Occupational Safety and Health Regulations

.2 Province of Québec.

.1 Loi sur la santé et la sécurité du travail L.R.Q., c. S-2.1 (Act respecting Occupational Health and Safety).

.2 Code de sécurité pour les travaux de construction L.R.Q., c. S-2.1, r.4 (Safety Code for the Construction Industry).

1.4 ACTION AND INFORMATIONAL SUBMITTALS

.1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit to Departmental Representative, and the CNESST the site-specific prevention program, as outlined in the article “GENERAL REQUIREMENTS”, at least 10 days prior to the start of Work.

.3 Departmental Representative will review Contractor’s site-specific prevention program and provide comments to Contractor within TEN (10) days after receipt of the document. Revise plan as appropriate and resubmit to Departmental Representative within five (5) days after receipt of comments from Departmental Representative. Departmental Representative reserves the right not to authorize the start of work on the construction site as long as the content of the prevention program is not satisfactory. The Contactor must then update his prevention program and resubmit it to the Departmental Representative if the scope of work changes or if the working methods of the Contractor differ from his initial plans or for any other applicable new condition.

.4 Departmental Representative’s review of Contractor’s site-specific prevention program should not be construed as approval of the program and does not reduce the Contractor’s overall responsibility for Construction Health and Safety during the Work.

.5 Submit copies of Contractor’s authorized representative’s construction site health and safety inspection reports to Departmental Representative, at least once a week.

.6 Submit to Departmental Representative within 24 hours a copy of any inspection report, correction notice or recommendation issued by Federal or Provincial health and safety inspectors.

.7 Submit to Departmental Representative within 24 hours an investigation report for any accident involving injury and any incident exposing a potential hazard. The investigation report must contain at least the following:

.1 Date, time, and place of accident;

.2 Name of sub-contractor involved in the accident;

.3 Number of persons involved and condition of wounded;

.4 Witness identification;

.5 Detailed description of tasks performed at the time of the accident;

.6 Equipment being used to accomplish the tasks performed at the time of the accident;

.7 Corrective measures taken immediately after the accident;

.8 Causes of the accident;

.9 Preventive measures that have been put in place to prevent a similar accident.

.8 Submit to Departmental Representative, WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 33 00 - Submittals. Contractor must also keep one (1) copy of these documents on the construction site.

.9 Medical Surveillance: Where prescribed by legislation, regulation, or prevention program, submit certification of medical surveillance for construction site personnel prior to commencement of Work, and submit additional certifications for any new construction site personnel to Departmental Representative.

.10 Submit to Departmental Representative an on-site Emergency Response Plan simultaneously with the prevention program. The Emergency Response plan must contain the elements listed in the article “GENERAL REQUIREMENTS” of this Section.

.11 Submit to Departmental Representative copies of all training certificates required for the application of the prevention program, in particular (if applicable) for the following:

.1 First-aid in workplace and cardiopulmonary resuscitation;

.2 Work likely to release asbestos dust (mandatory for all work where asbestos is present);

.3 Work in confined spaces (mandatory for all work in confined spaces);

.4 Lockout-tagout procedures (mandatory for all work requiring lockout);

.5 Safely operating forklift trucks (mandatory for all forklift usage);

.6 Safely operating elevating work platforms (mandatory for the use of all elevating platforms);

.7 Any other requirement of Regulations or the Safety Program.

.12 In addition, the certifications of the *Cours de santé et sécurité générale pour les chantiers de construction* (General Health and Safety Training for Construction Sites) must be available on demand on the construction site.

.13 Engineer’s drawings and certificates of compliance: Contractor must submit to the Departmental Representative and to the *Commission des normes, de l’équité, de la santé et de la sécurité du travail* (CNESST) a copy signed and sealed by an engineer of all drawings and certificates of compliance required pursuant to the *Code de sécurité pour les travaux de construction* (S-2.1, r.4) (Safety Code for the Construction Industry) or by any other legislation or regulation or by any other clause in the Specifications or in the Contract. The Contractor must also submit a certificate of conformity signed by an engineer once the facility for which these drawings were prepared has been completed and before a person uses the facility. A copy of these documents must always be available on site.

1.5 FILING OF NOTICE OF CONSTRUCTION SITE OPENING

.1 Notice of construction site opening must be submitted to the CNESST before Work begins. A copy of such notice and acknowledgment of receipt from the CNESST must be submitted to Departmental Representative.

.2 At the completion of all the work, a notice of construction site closing must be submitted to the CNESST, with a copy to Departmental Representative.

.3 The Contractor must assume the role of being the Principal Contractor in the limits of the construction site and elsewhere where he must execute work within the framework of this project. The Contractor must recognize the responsibility of being the Principal Contractor of the project and identify himself as such in the notice of the construction site opening he provides to the CNESST.

.4 The Contractor must always accept to divide and identify the construction site adequately to define time and space throughout the course of the project.

1.6 HAZARD ASSESSMENT

.1 The Contractor must perform construction site specific safety hazard assessment related to project.

1.7 MEETINGS

.1 Schedule and administer Health and Safety meeting with Departmental Representative prior to commencement of Work.

.2 Contractor's representative with decision power must attend any meetings at which construction site safety and health issues are to be discussed.

.3 If it is anticipated that there will be 25 workers or more on the construction site at any given time, the Contractor must set up a worksite committee and hold meetings as required by the *Code de sécurité pour les travaux de construction* (S-2.1, r. 4) (Safety Code for the Construction Industry). A copy of the minutes of the meetings of the committee must be provided to the Departmental Representative no later than five (5) days after the committee meeting.

1.8 REGULATORY REQUIREMENTS

.1 Comply with all legislation, regulations, and Standards applicable to the construction site and its related activities.

.2 Comply with specified standards and regulations to ensure safe operations on a site containing hazardous or toxic materials.

.3 Always use the most recent version of the standards specified in the *Code de sécurité pour les travaux de construction* (S-2.1, r.4) (Safety Code for the Construction Industry), notwithstanding the date indicated in that *Code.*

1.9 RESPONSIBILITIES

.1 The Contractor must acknowledge and assume all the tasks and obligations which customarily devolve upon a principal Contractor under the terms of the *Loi sur la santé et la sécurité du travail* (L.R.Q., ch. S-2.1) (Act Respecting Occupational Health and Safety) and the *Code de sécurité pour les travaux de construction* (S-2.1, r.4) (Safety Code for the Construction Industry).

.2 The Contractor must be responsible for health and safety of persons on construction site, safety of property on construction site and for the protection of persons adjacent to construction site and the environment to the extent that they may be affected by conduct of the work.

.3 No matter the size or location of the construction site, the Contractor must clearly define the limits of the construction site by physical means and respect all specific regulation requirements applicable in this regard. The means chosen to define the limits of the construction site must be submitted to the Departmental Representative.

.4 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific prevention Plan.

1.10 WORK PERFORMED BY EXTERNAL CONTRACTORS

.1 On this construction site, it is anticipated that some work may be performed by an external contractor that has not been hired by the Contractor.

.2 The Contractor must take the necessary steps to protect the health and safety of external contractors that have no contractual link with the Contractor but have been mandated by the Departmental Representative to perform certain work. In return, these external contractors are obligated to submit to the authority of the Contractor (Principal Contractor). A subordination agreement must be signed by the Contractor and by each external contractor to this effect and submitted to the Departmental Representative prior to the start of the work of each contractor (see the wording in the article "HEALTH AND SAFETY SUBORDINATION AGREEMENT").

1.11 GENERAL REQUIREMENTS

.1 Before undertaking the work, prepare a site-specific prevention program based on the hazards identified according to the article “HAZARD ASSESSMENT” and the article “RISKS INHERENT TO THE WORKSITE” in this Section. Apply this program in its totality from the start of the project until demobilization of all personnel from the construction site.

.2 The prevention program must take into consideration the specific characteristics of the project and cover all the work to be executed on the construction site.

.3 The safety program must include at least the following:

.1 Company safety and health policy;

.2 Description of the stages of the work;

.3 Total costs, schedule and projected workforce curves;

.4 Flow chart of safety and health responsibilities;

.5 Physical and material layout of the construction site;

.6 Risk assessment for each stage of the work, including preventive measures and the procedures for applying them;

.7 Identification of the preventive measures relative to the specific risks inherent to the worksite indicated in the article “RISKS INHERENT TO THE WORKSITE”;

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

.9 Training requirements;

.10 Procedures in case of accident/injury;

.11 Written commitment from all parties to comply with the safety program;

.12 Construction site inspection cheklist based on the preventive measures;

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

.1 Construction site evacuation procedures;

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

.3 Identification of persons in charge of the construction site;

.4 Identification of the first-aid attendants;

.5 Communication organizational chart (including the person responsible for the site and the Departmental Representative);

.6 Training required for those responsible for applying the plan;

.7 Any other information needed, in the light of the construction site's characteristics.

.14 If available, the Departmental Representative will provide the evacuation procedures to the Contractor who must then coordinate the construction site procedure with that of the site and submit it to the Departmental Representative.

.4 Departmental Representative may respond in writing, where deficiencies or concerns are noted in the prevention program and may request resubmission with correction of deficiencies or concerns.

.5 In addition to the prevention program, during the course of the work the Contractor must elaborate and submit to the Departmental Representative specific written procedures for any work having a high risk factor of accident (for example: Demolition procedures, specific installation procedures, hoisting plan, procedures for entering a confined space, procedures for interrupting electric power, etc.) or at the request of the Departmental Representative.

.6 The Contractor must plan and organize work to eliminate the danger at source or ensure collective protection, thereby minimizing the use of personal protective equipment.

.7 Equipment, tools, and protective gear which cannot be installed, fitted, or used without compromising the health or safety of workers or the public, must be deemed inadequate for the work to be executed.

.8 All mechanical equipment (for example, but not limited to: Hoisting devices for persons or materials, excavators, concrete pumps, concrete saws) must be inspected before delivery to the construction site. Before using any mechanical equipment, the Contractor must obtain a certificate of compliance signed by a qualified mechanic dated less than a week prior to the arrival of each piece of equipment on the construction site; the certificate must remain on the construction site and transmitted to the Departmental Representative on demand.

.9 Ensure all inspections (daily, periodic, annual, etc.) for the hoisting devices for persons or materials required by the current standards are carried out and be able to provide a copy of the inspection certificates to the Departmental Representative on demand.

.10 The Departmental Representative can always, if he suspects a malfunction or the risk of an accident, order the immediate stop of any item of equipment and require an inspection by a specialist of his choice.

.11 The Departmental Representative must be consulted for the location of storing gas cylinders and tanks on the construction site.

1.12 RISKS INHERENT TO THE WORKSITE

.1 In addition to the risks related to the tasks to be carried out, personnel responsible for the execution of the work on the construction site will be exposed to the following risks inherent to the area where the work will be executed.

.2 At the worksite there may in particular be the presence of the following:

.1 Materials containing asbestos;

.2 Overhead power lines;

.3 Underground services (electric, gas, vapour, water system, etc.);

.4 Trees and landscaping to preserve and protect;

.5 Barbed wire fences.

.3 The Contractor must process to a risk assessment of the site to validate this information and see if other risks are present on the site. He must include in his prevention program all risks that have been identified.

1.13 SPECIFIC REQUIREMENTS FOR THE HEALTH AND SAFETY OF OCCUPANTS AND PUBLIC

.1 Worksite may be occupied by employees and/or the public, even if they do not have access to the Contractor's worksite. The Contractor must consider the following specific requirements for the protection of employees and / or the public:

.1 Construct interior and exterior temporary partitions in compliance with regulations.

.2 These requirements must be included in the Contractor's site-specific safety plan as well as any other measures provided by the Contractor to protect the health and safety of employees and / or the public on the site.

1.14 UNFORESEEN HAZARDS

.1 Whenever a source of danger not defined in the Specifications or identified in the preliminary construction site inspection arises as a result of or in the course of the work, the Contractor must immediately suspend work, notify the person responsible for health and safety on the construction site, take appropriate temporary measures to protect the workers and the public and notify Departmental Representative, both verbally and in writing. Then the Contractor must do the necessary modifications to the prevention program or apply the security measures required in order to resume work.

1.15 PERSON IN CHARGE OF HEALTH AND SAFETY

.1 If the construction site meets the requirements of article 2.5.3 of the *Code the sécurité pour les travaux de construction* (S-2.1, r.4) (Safety Code for the Construction Industry), the Contractor needs to hire a competent person authorized as a safety officer and appoint this person full time from the beginning of the work. This person's tasks must solely be dedicated to the management of health and safety on the construction site. This safety officer must have the following qualifications:

.1 Have a safety officer certificate issued by the CNESST since at least one (1) year;

.2 Have site-related working experience specific to the activities associated with the present project;

.3 Have working knowledge of occupational health and safety regulations in the workplace;

.4 Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter the construction site to perform work;

.5 Be responsible for implementing, enforcing in detail and monitoring site-specific Contractor's Health and prevention program;

.6 Always be on construction site during execution of work;

.7 Inspect the work and ensure compliance with all regulatory requirements and those indicated in the Contract Documents or the site-specific prevention program.

.8 Keep a daily log of actions taken and submitting a copy to Departmental Representative each week.

.2 The safety officer's certificate must be submitted to the Departmental Representative before the start of the Work.

.3 When the hiring of a safety officer is not required or if this person is hired by the Departmental Representative, the Contractor must designate a competent person to supervise and take responsibility for health and safety, no matter the size of the construction site or how many workers are present at the workplace. This person must always be on construction site and be able to take all necessary measures to ensure the health and safety of persons and property at or in the immediate vicinity of the construction site and likely to be affected by any of the work. The Contractor must submit the name of this person to the Departmental Representative before the start of work.

1.16 POSTING OF DOCUMENTS

.1 Ensure applicable items, articles, notices, and orders are posted in conspicuous location on construction site in accordance with Acts and Regulations of the Province, and in consultation with Departmental Representative.

.2 At a minimum, the following information and documents must be posted in a location readily accessible to all workers:

.1 Notice of construction site opening;

.2 Identification of principal Contractor;

.3 Company OSH policy;

.4 Site-specific prevention program;

.5 Emergency plan;

.6 Minutes of worksite committee meetings;

.7 Names of worksite committee representatives;

.8 Names of the first-aid attendants;

.9 Action reports and correction notices issued by the CNESST.

1.17 INSPECTION OF THE CONSTRUCTION SITE AND CORRECTION OF NON-COMPLIANCES

.1 Inspect the construction site and complete the construction site inspection checklist and submit it to the Departmental Representative in accordance with the article "ACTION AND INFORMATIONAL SUBMITTALS" in this Section.

.2 Immediately take all necessary measures to correct any situations deemed non-compliant during the inspections mentioned in the previous paragraph or noticed by the Authorities Having Jurisdiction or the Departmental Representative or his agent.

.3 Submit to Departmental Representative written confirmation of all measures taken to correct the situation in case of non-compliance in matters pertaining to health and safety.

.4 The Contractor must give the safety officer or, where there is no safety officer, the person assigned to safety and health responsibilities, full authority to order cessation and resuming of work as and when deemed necessary or desirable in the interests of safety and health. This person should always act so that the safety and health of the public and construction site workers and environmental protection take precedence over cost and scheduling considerations.

.5 The Departmental Representative or his agent may order cessation of work if the Contractor does not make the corrections needed to conditions deemed non-compliant in matters pertaining to health and safety. Without limiting the scope of the preceding articles, the Departmental Representative may order cessation of work if, in his view, there is any hazard or threat to the safety or health of construction site personnel or the public or to the environment.

1.18 PREVENTION OF VIOLENCE

.1 Health and safety management of Public Works and Government Services Canada construction sites includes the implementation of measures designed to protect the psychological health of all persons who access the construction site where the work is taking place. Consequently, in addition to physical violence, verbal abuse, intimidation and harassment are not tolerated on the construction site. Any person who demonstrates such actions or behaviors will receive a warning and/or could be expelled from the construction site by the Departmental Representative.

1.19 BLASTING

.1 Blasting or other use of explosives is not permitted.

1.20 POWDER ACTUATED DEVICE

.1 Use powder actuated devices only after receipt of written permission from Departmental Representative.

.2 Any person using an explosive actuated tool must hold a training certificate and meet all requirements of Section 7 of the *Code the sécurité pour les travaux de construction* (S- 2.1, r. 4). (Safety Code for the Construction Industry)

.3 Any other explosive-actuated device must be used in accordance with the manufacturer’s directions and applicable Standards and Regulations.

1.21 USE OF PUBLIC ROADS

.1 Where it is necessary to encroach on a public road for operational reasons or to ensure the security of the workers, the occupants or the public (for example: Use of scaffolding, cranes, excavation work, etc.), the Contractor must obtain at his own expense any authorizations and permits required by the competent authority.

.2 The Contractor must install at his own expense any signage, barricades, or other devices needed to ensure the safety and security of the public and the Contractor’s own facilities.

1.22 LOCKOUT-TAGOUT

.1 For all work on electrically or otherwise energized equipment, the Contractor must draw up and implement a general lockout-tagout procedure and submit it to the Departmental Representative.

.2 Supervisors and all workers concerned by work requiring lockout-tagout must have received training on lockout-tagout procedures by a recognized organization; Contractor must submit training certificates to the Departmental Representative.

.3 Before starting the lockout-tagout procedure of a item of equipment on an occupied site, Contractor must coordinate his work with the representative of the site if the interruption of the power sources can have an impact on the operations of the site or on its occupants.

.4 Contractor must designate a qualified person as responsible for the lockout-tagout and must make sure that that person prepares a lockout-tagout data sheet for each piece of equipment involved. The lockout-tagout data sheet must be submitted to the Departmental Representative at least 48 hours before the beginning of the work. The Departmental Representative will review the data sheet with the representative of the site if the work takes place in an existing building.

.5 The data sheets for lockout-tagout must contain at least the following information:

.1 Description of work to carry out;

.2 Identification, description, and location of the circuit and/or equipment to lockout-tagout;

.3 Identification of energy sources that feeds the equipment;

.4 Identification of each cutout point;

.5 Sequence of lockout-tagout and the release of residual energy as well as the sequence of unlocking;

.6 List of material needed for the lockout-tagout;

.7 Method of verification of zero energy implementation;

.8 Name and signature of the person who prepared the data sheet.

.6 When required by the Departmental Representative, Contractor must record all this information on the site's representative form.

.7 At the time of lockout-tagout, the person responsible must date the data sheet and ensure that each worker involved in the work on the circuit/equipment to lockout-tagout puts his name on the data sheet and signs it.

1.23 ELECTRICAL WORK

.1 Contractor must ensure that all electrical work is executed by qualified employees in accordance with the provincial regulation respecting vocational training and qualification.

.2 Contractor must respect all requirements of Standard CSA Z462 *Workplace Electrical Safety Standard*.

.3 No repairs or alterations must be carried out on any live equipment, except where complete disconnection of the equipment is not feasible.

.4 Contractor must respect all requirements prescribed in paragraph "LOCKOUT-TAGOUT" in this Section.

.5 Contractor must advise in writing the Departmental Representative of all work which cannot be done with de-energized equipment and obtain his authorization. Contractor must demonstrate to the Departmental Representative that it is impossible to do the work with de-energized equipment and provide all the information necessary to request and obtain an energized electrical work permit (indicate working procedures, arc flash hazard analysis, protective perimeter, protective equipment, etc.) before the beginning of the work, excluding for the exceptions indicated in Standard CSA Z462 - Workplace Electrical Safety.

.6 The energized electrical work permit on must contain at least the following elements:

.1 Description of the circuit and equipment and its location;

.2 Justification d for having to do the work in an energized condition;

.3 Description of safe work practices to apply;

.4 Results of the shock hazard analysis;

.5 Limit of the protective perimeter against electric shocks;

.6 Results of the arc flash hazard analysis;

.7 Description of the arc flash protection boundary;

.8 Description of the personal protective equipment required;

.9 Description of the means to limit access to unqualified persons;

.10 Proof that an information session has been carried out;

.11 Approval signature of the energized electrical work (by a person in authority or by the Owner).

.7 If for the operational requirements of the occupants of the site the representative of the site requires that the Contractor performs work in an energized condition, the Contractor must obtain all the information required to request and obtain obtain an energized electrical work permit (indicate working procedures, arc flash hazard analysis, protective perimeter, protective equipment, etc.) and have it signed by the representative of the site assigned by the Departmental Representative before the beginning of Work.

1.24 ASBESTOS EXPOSURE

.1 The project may involve the manipulation of materials containing asbestos. The wall on which the existing electrical distribution is installed contains small amounts of asbestos. Although it is not required to demolish this wall, the Contractor must take the necessary precautions and carry out works in accordance with regulations and following requirements:

.1 Provide a written procedure for the work, identifying the risk level of the work (low, moderate, high), as defined in Section 3.23 of the *Code the sécurité pour les travaux de construction* S-2.1, r- 4, (Safety Code for the Construction Industry). This procedure must consider all the requirements of that Section 3.23.

.2 Submit certificates that demonstrate that all workers involved in Work have received training on asbestos hazards and on the procedure required in the preceding paragraph.

.3 Demonstrate that he has all the material and equipment required on hand to respect the procedure and for safely conducting the work.

.2 If the Contractor or the Departmental Representative or his agent discover other materials which are susceptible of containing asbestos, the Contractor must immediately stop the work and advise the Departmental Representative. If more investigation demonstrates that the materials do contain asbestos, the Contractor must comply with the same requirements dictated above.

1.25 FUNGAL CONTAMINATION

.1 It is not anticipated that Work covered by the present specifications involves the manipulation of materials contaminated by mould; however, if the Contractor or the Departmental Representative or his agent discover materials which are susceptible of being contaminated by mould, the Contractor must immediately stop the work and advise the Departmental Representative. If more investigation demonstrates that the materials do contain mould, the Contractor must comply with the following requirements.

.1 Prior to starting any work where workers are likely to be in contact with materials contaminated by mould, the Contractor must:

.1 Provide a written procedure for the work which respects all the requirements of the *Code the sécurité pour les travaux de construction* S-2.1, r- 4, (Safety Code for the Construction Industry), as well as the requirements indicated in the document "*Mould Guidelines for the Canadian Construction Industry*" published by the Canadian Construction Association (http://www.cca-acc.com/documents/electronic/cca82/cca82.pdf).

.2 Demonstrate that he has all the material and equipment required on hand to respect the procedure and for safely conducting the work.

1.26 EXPOSURE TO SILICA

.1 Work in wet environment or use tools with the inflow of water in order to reduce dustiness, if not, collect dust at the source and retain it with a high-efficiency filters not to propagate dust in the environment.

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

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

.4 Install shields or other containment device to prevent silica dust from migrating toward other workers or the public.

.5 Wear individual respiratory and ocular protection equipment during all the operations that could generate silica dust in accordance with the requirements of the *Code de sécurité pour les travaux de construction, S-2.1, r.4* (Safety Code for the Construction Industry).

.6 Wear coveralls to prevent contamination outside the construction site.

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

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

1.27 EXPOSURE TO ANIMAL'S FECAL DROPPINGS

.1 Prior to all work where workers are likely to meet materials contaminated by animal's fecal droppings, the Contractor must:

.1 Provide a written procedure for the work which respects all the requirements of the *Code the sécurité pour les travaux de construction* S-2.1, r- 4, (Safety Code for the Construction Industry), as well as the requirements indicated in the document "*Des fientes de pigeons dans votre lieu de travail: méfiez-vous"* (Pigeon droppings in your workplace: Beware" published by the CNESST (http://www.csst.qc.ca/publications/100/Documents/DC100_1331_1web2.pdf).

.2 Demonstrate that he has all the material and equipment required on hand to respect the procedure and for safely conducting the work.

1.28 RESPIRATORORY PROTECTION

.1 Contractor must ensure that all workers who must wear a respirator as part of their duties have received training for that purpose as well as fit testing of their respirator, in accordance with CSA Standard Z94.4 - *Selection, Use and Care of Respirators*. Submit the certificates of the fit testings to the Departmental Representative on demand.

1.29 FALL PROTECTION

.1 Plan and organize work to eliminate the risk of fall at the source or ensure collective protection, thereby minimizing the use of personal protective equipment. When personal fall protection is required, workers must use a safety harness that complies with CSA Standard CAN/CSA Z-259.10 M90. A safety belt must not be used as fall protection.

.2 Every person using an elevating platform (scissors, telescopic mast, articulated mast, rotative mast, etc.) must have a training regarding this equipment.

.3 The use of a safety harness is mandatory for all elevating platforms with telescopic, articulate or rotative mast.

.4 Define the limits of the danger zone around each elevating platform.

.5 All openings in a floor or roof must be surrounded by a guardrail or provided with a cover fixed to the floor able to withstand the loads to which it could be exposed, regardless of the size of the opening and the height of the fall it represents.

.6 Everyone who works within two metres from a fall hazard of 3 metres or more must use a safety harness in accordance with the requirements of the regulation, unless there is a guardrail or another device offering an equivalent safety.

.7 Despite the requirements of the regulation, the Departmental Representative may require the installation of a guardrail or the use of a safety harness for specific situations presenting a risk of fall less than three metres.

1.30 SCAFFOLDINGS

.1 In addition to the requirements of the *Code de sécurité pour les travaux de construction* (Safety Code for the Construction Industry), the Contractor who uses scaffoldings must respect the following requirements:

.1 Foundation:

.1 Scaffoldings must be installed on a solid foundation so that it does not slip or rock;

.2 Contractors wishing to install scaffoldings on a roof, overhang, canopy, or awning must submit their calculations and loads, as well as drawings signed and sealed by an engineer to the Departmental Representative and obtain his authorization before beginning installation.

.2 Assembly, bracing and mooring:

.1 All scaffoldings must be assembled, braced, and moored in accordance with the manufacturer’s instructions and the provisions of the *Code de sécurité pour les travaux de construction* (Safety Code for the Construction Industry);

.2 Where a situation requires the removal of part of the scaffoldings (e.g., crosspieces), the Contractor must submit to the Departmental Representative an assembly procedure signed and sealed by an engineer certifying that the scaffolding assembled in that manner will allow the work to be done safely given the loads to which it will be subject;

.3 For scaffoldings where the span between two supports is greater than three metres, the Contractor must provide the Departmental Representative an assembly plan signed and sealed by an engineer.

.3 Protection agains falls during assembly:

.1 Workers exposed to the risk of falling more than 3 metres must always be protected against falls during assembly.

.4 Platforms:

.1 Scaffolding platforms must be designed and installed in accordance with the provisions of the *Code de sécurité pour les travaux de construction* (Safety Code for the Construction Industry);

.2 If planks are used, they must be approved and stamped in accordance with Section 3.9.8 of the *Code de sécurité pour les travaux de construction* (Safety Code for the Construction Industry;

.3 Scaffoldings of four (4) sections (or 6 metres) high or more must have a full platform covering the entire surface between the putlogs every 3 metres high or fraction thereof, and the components of that platform must not be moved at any time to create an intermediate landing.

.5 Guardrails:

.1 A guardrail must be installed on every landing;

.2 Cross braces must not be considered as guardrails;

.3 If the platforms are not covering the entire surface between the putlogs, the guardrail must be installed just above the edge of the platform so that there is no empty horizontal space between the platform and the guardrail;

.4 Where scaffoldings have four (4) sections (or 6 metres) high or more and full platforms are required, the guardrails must be installed on each landing at the start of work and must remain in place until the work is completed.

.6 Access:

.1 The Contractor must ensure that access to the scaffoldings does not compromise worker safety;

.2 Where the platforms of the scaffoldings are comprised of planks, ladders must be installed in such a way that planks extending beyond the platform do not block the way up or down;

.3 Notwithstanding the provisions of the *Code de sécurité pour les travaux de construction* (Safety Code for the Construction Industry), stairs must be installed on all scaffoldings that have six or more rows of uprights or is six (6) sections (or 9 metres) high or higher.

.7 Protection of the public and occupants:

.1 When scaffoldings are installed in a zone accessible to the public, the Contractor must take the necessary measures to prevent the public from having access to them and, if applicable, to the work or storage area located in the vicinity of these scaffolding;

.2 Contractor must install covered walkways, nets, or other similar devices to protect workers, public, and occupants against falling objects. The means of protection must be approved by the Departmental representative.

.8 Engineering drawings:

.1 In addition to those required by the *Code de sécurité pour les travaux de construction* (Safety Code for the Construction Industry), the Departmental Representative reserves the right to require engineering plans for other types or configurations of scaffoldings;

.2 A drawing signed and sealed by an engineer is required for all scaffoldings that will be covered with a canvas, a tarpaulin, or any other material that has wind resistance;

.3 A certificate of conformity signed by an engineer is required in all cases where an engineering drawing is required before anybody uses the facility. A copy of these documents must always be available on the construction site.

1.31 EXCAVATION WORK

.1 In addition to the requirements of the *Code de sécurité pour les travaux de construction* (Safety Code for the Construction Industry), the Contractor who performs the digging of trenches or excavations must respect the following requirements:

.1 Fill out the following form and submit it to the Departmental Representative before beginning to excavation work;

.2 Therefore, submit to the Departmental Representative, as appropriate, the following documents:

.1 Drawings and specifications, signed and sealed by an engineer, of the shoring needed to be installed for the excavation work; or

.2 Engineer’s advice specifying the wall angles of the trench or excavation.

CSST

Excavation guidelines

N° ____ of ____

This directive is provided as an example by the Commission de la santé et de la sécurité du travail (CSST). It contains the main instructions that the employer should give to the person responsible for the work on the site and to the operator of the earth-moving machine.

Company name	
Project name	Project no.
Address of the site	Construction start date

Field survey

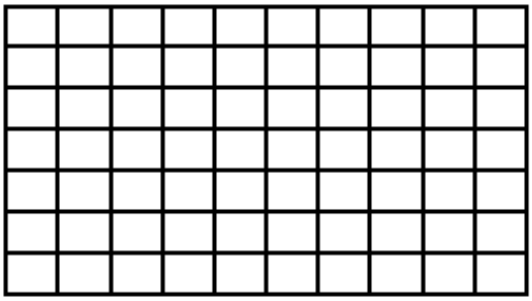
Chaining or axes : from _____ to _____ Attached plan ☐ Plan no. : _____

Working method to use

While making sure the excavation walls do not pose the risk of landslide

- ☐ dig and shore according to the plans and specifications of the engineer ;
- ☐ dig and shore using a trench box ;
- ☐ dig without shoring as long as one of the following conditions is respected:
  - ☐ rock is sound;
  - ☐ no worker goes down in the trench or excavation;
  - ☐ the walls are dug according to the engineer's advice.

Dimensions of excavation (Dig according to the following profile.)



	Minimum	Maximum
H Depth		
Wb Width at bottom Width at top		

Safety measures

Deposit the materials at a distance of at least 1.2 metre (4 feet) from top of walls.
Do not allowed any vehicle to come closer than 3 metres (10 feet) from top of walls.

- ☐ Respect the engineer's plan concerning work in the proximity of an existing facility.
- ☐ Follow the location plan to locate the underground infrastructures.
- ☐ Install signaling devices prescribed in the traffic plan (barriers, visual references, etc.).
- ☐ Assign a flag person or more to control the flow of traffic.
- ☐ Respect the procedure prescribes for work near power lines.
- ☐ Provide protection devices for the workers, such as concrete crash barriers.

Name	Occupation	
Signature	Date	Telephone no.

Directive submitted
☐ to the responsible of the work on the site ☐ to the operator of the earth-moving machine

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1.32 LIFTING LOADS WITH CRANE OR BOOM TRUCK

.1 Unless specified otherwise, the Contractor must prepare a hoisting plan and submit it to the Departmental Representative for all lifting operations done with a crane or a boom truck at least five (5) days before these lifting operations begin. The hoisting plan must contain at a minimum the information listed at the end of this article.

.2 The hoisting plan must be signed and sealed by an engineer for the following lifting operations:

- .1 Lifting of concrete panels;
- .2 Lifting mechanical/electrical equipment on a roof or on the floor of a building;
- .3 Lifting of loads encroaching on the public road;
- .4 Lifting large dimensions or very heavy loads;
- .5 All other lifting operation, in accordance with the requirements of the Departmental Representative.

.3 In addition to the above requirements, the Contractor must plan the hoisting operations in a way as to avoid that the loads pass over the occupied zones on the site. When there is no alternative, the hoisting plan must absolutely be signed and sealed by an engineer and must guarantee the security of the occupants in that zone; the plan must also be approved by the Departmental Representative. The Departmental Representative can, if he deems necessary, require that the work be done at night or on weekends.

.4 Upon the beginning of the work on the construction site, the Contractor must submit the list of the hoisting plans anticipated for the whole project to the Departmental Representative. That list must be updated as needed if changes occur during the work.

.5 In addition to the mechanical service inspection certificate, the annual inspection certificate and the crane logbook must be aboard all cranes and boom truck cabs.

.6 The entire lifting area must be marked off to prevent the entry of non-authorized persons.

.7 The Contractor must carefully inspect all slings and lifting accessories and make sure that those in poor condition are destroyed and scrapped.

.8 Compressed-gas cylinders must be lifted with a basket specially designed for this purpose.

.9 Minimum content of hoisting plan:

- .1 Sketch indicating at a minimum, the location of the crane, the surrounding facilities, the zone covered by the hoisting operations, the pedestrian’s pathways and vehicular routes, the security perimeter, etc.
- .2 Weight of loads.
- .3 Dimensions of loads.
- .4 List of hoisting devices and weight of each.
- .5 Total weight lifted.
- .6 Maximum height of obstacles to clear.
- .7 Height of loads lifting relative to the surface of the roof (in the case of loads to be placed on roofs).
- .8 Use of guide cables.
- .9 Type of crane used.
- .10 Crane capacity.
- .11 Boom length.

.12 Boom angle.

.13 Crane's radius of action.

.14 Deployment of stabilizers.

.15 Percentage usage of the crane's capacity.

.16 Verification confirmation of hoisting equipment.

.17 Identification of the crane operator and the person responsible for the hoisting operations with date and signatures.

1.33 HOT WORK

.1 Hot work means any work where a flame is used or a source of ignition may be produced, i.e., riveting, welding, cutting, grinding, burning, heating, etc.

.1 Before the beginning of each shift of work and for each sector, the Contractor must obtain a "Hot Work Permit" emitted by the person responsible for the site.

.2 A working portable fire extinguisher suitable to the fire risk must be available and easily accessible within a 5 m radius from any flame, spark source or intense heat.

.3 The Contractor must appoint an individual to do continuous monitoring of the fire risks for a period of one (1) hour after the end of the shift of hot work. This individual must sign the section for this purpose on the permit and give it to the person in charge of the construction site after the one-hour period.

.4 When the hot work is done in areas where there are combustible materials or where the walls, ceilings, or floors are made of or covered with combustible materials, a final inspection of the work area must be scheduled four (4) hours after the work has finished. Unless specified otherwise by the Departmental Representative, the Contractor must assign a person to carry out this monitoring.

.2 Welding and cutting: In addition to the requirements prescribed in the preceding paragraphs, the Contractor must respect the following requirements:

.1 Welding and cutting work must be carried out in accordance with the requirements of the *Code de Sécurité pour les travaux de construction, S-2.1, r.4* (Safety Code for the Construction Industry) and CSA standard W117.2, Safety in Cutting, Welding and Allied Processes;

.2 Air extraction system with filters must be used for all welding and cutting work performed inside;

.3 Stop all activities producing flammable or combustible gas, vapours, or dust in the vicinity of the welding or cutting work;

.4 Store all compressed gas cylinder on a fireproof fabric and make sure that the room is well ventilated;

.5 Store all oxygen cylinders more than 6 metres from a flammable gas cylinder (ex: acetylene) or a combustible such as oil or grease, unless the oxygen cylinder is separated from it by a wall made of non-combustible material as mentioned in Article 3.13.4 of the *Code de sécurité pour les travaux de construction, S-2, r. 6* (Safety Code for the Construction Industry);

.6 Store the cylinders far from all heat sources;

.7 Not to store the cylinders close to the staircases, exits, corridors, and elevators;

.8 Do not put acetylene in contact with metals, such as silver, mercury, copper, and alloys of brass having more than 65% copper, to avoid the risk of an explosive reaction;

.9 Check that welding equipment with electric arc has the necessary tension and are grounded;

.10 Ensure that the conducting wires of the electric welding equipment are not damaged;

.11 Place the welding equipment on a flat ground away from the bad weather;

.12 Install fireproof canvas when the welding work is done in a superposition and where there is the risk of falling sparks;

.13 Move away or protect the combustible materials which are closer than 15 metres from the welding work;

.14 Prohibition to weld or cut any closed container;

.15 Do not perform any cutting, welding, or work with a naked flame on a container, a tank, a pipe, or other container containing a flammable or explosive substance unless:

.1 They have been cleaned and air samples indicating that work can be done without danger has been taken; and

.2 Provisions to ensure the safety of the workers have been made.

1.34 INTERIOR USE OF INTERNAL COMBUSTION ENGINES

.1 In addition to respecting article 3.10.17 of the *Code de sécurité pour les travaux de construction* (S-2.1, r.4) (Safety Code for the Construction Industry), the Contractor must also respect the requirements described in the following paragraphs.

.2 The use of a gas-powered equipment inside a building is prohibited even if the building is provided with openings.

.3 The use of other equipment powered by an internal combustion engine inside a building must be submitted to the approval of the Departmental Representative.

.4 For the use of any piece of equipment powered by an internal combustion engine inside a building, even if the building is provided with openings, the Contractor must install a ventilation system able to maintain the concentrations of toxic gases below the regulatory values. The stale air must be exhausted outside the building.

.1 Before using equipment powered by an internal combustion engine, the Contractor must plan and write the following:

.1 Number of fans to install;

.2 Power of the fans;

.3 Location of the fans;

.4 Dimensions of the openings that will be open during the work.

.5 During the operation of equipment with internal combustion engine, the Contractor must measure the concentrations of carbon monoxide and nitrogen oxides in the work area and at the breathing area of the workers; the concentration levels measured must be recorded in a register every 30 minutes that must be available for consultation.

.6 If work is in an occupied building, the Contractor must also measure the concentrations of carbon monoxide and nitrogen oxides in the rooms next to the work area and the concentration levels measured must be recorded in a register every 30 minutes.

.7 If the carbon monoxide or nitrogen oxides detector alarm goes off during the work, the Contractor must stop the work and take the corrective measures required before resuming the work.

.8 A portable fire extinguisher must always be available in the work area during the use of equipment with internal combustion engines.

.9 The equipment must be maintained at a safe distance from all combustible material.

.10 The storage of fuel for any equipment with internal combustion engine is prohibited inside a building.

1.35 WORK NEAR OVERHEAD POWER LINES

.1 When there is an overhead power line in the work zone and that the Contractor chooses to apply paragraph b) of article 5.2.2 of the *Code de sécurité pour les travaux de construction* (2.1, r.4) (Safety Code for the Construction Industry), a copy of the agreement with the electrical power company and a copy of the work process, required in Article 5.2.2 b), must be submitted to the Departmental Representative before the beginning of the work in relation to these documents.

1.36 HEALTH AND SAFETY SUBORDINATION AGREEMENT

.1 Agreement to fill out next page; a completed and signed copy to be submitted to the Departmental Representative.

HEALTH AND SAFETY SUBORDINATION AGREEMENT

Project: _____ Address: _____

EXTERNAL CONTRACTOR

I, hereby, agree to submit to the authority of (name of the Principal Contractor's business)

_____, which is the Principal Contractor for the project indicated above during the entire duration of our work on the construction site. Accordingly, I confirm that I have reviewed the Principal Contractor's prevention program, and I agree to:

- Inform my employees of the content of the Principal Contractor's prevention program and ensure that its content is complied with at all times;
- Apply the prevention program that is specific to the activities that we carry out under this project;
- Inform the Principal Contractor of my actions or dealings on the construction site and obtain the Principal Contractor's agreement before the start of work; and
- Follow the health and safety directives provided by the representative of the Principal Contractor on the construction site and, depending on requirements, attend training sessions and health and safety meetings organized by the representative of the Principal Contractor.

Name of Representative:	Name of Business:
Description of work to be done on the construction site:	
Approximate dates of work (start-end): Start:	End:

_____ _____
Signature Date

PRINCIPAL CONTRACTOR

I hereby agree to allow the business (name of external contractor)
_____ to perform the work under this project indicated above and, as Principal Contractor, to take the necessary steps to protect the health and safety of workers on the construction site. Should the Contractor repeatedly refuse or fail to comply with my directives, I agree to inform PWGSC's Departmental Representative of this and to provide documentary evidence of my actions or dealings with the Contractor.

Name of Representative:	Name of Principal Contractor's Business:

Signature: _____ Date: _____

Submit a completed and signed copy to Departmental Representative

Part 2 Products

2.1 NOT APPLICABLE

.1 Not applicable.

Part 3 Execution

3.1 NOT APPLICABLE

.1 Not applicable.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 01 35 29.06 Health and safety.

.2 Section 01 74 11 Cleaning

.3 Section 01 74 21 Management and disposal of construction / demolition waste

1.2 REFERENCE STANDARDS

.1 U.S. Environmental Protection Agency (EPA) / Office of Water

.1 EPA 832 / R-92-005- [92], Storm Water Management for Construction Activities, Chapter 3.

.2 EPA General Construction Permit (PCG) [2012].

1.3 DEFINITIONS:

.1 Pollution and environmental damage: Presence of chemical, physical, or biological elements or agents that have a detrimental effect on the health and well-being of people, which alter the ecological balances important to humans and which constitute an attack on species that play an important role in the latter or degrade the aesthetic, cultural, or historical characteristics of the environment.

.2 Protection of the environment: Prevention/control of pollution and disturbance of habitat and environment during construction.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:

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

.2 Submit two (2) copies of WHMIS Safety Data Sheets (SDS) in accordance with Section 01 35 29.06 - Health and Safety Requirements.

.3 Before commencing construction activities or delivery of materials to site, submit Environmental Protection Plan for review and approval by Departmental Representative.

.4 Environmental Protection Plan must include comprehensive overview of known or potential environmental issues to be addressed during construction.

.5 Address topics at level of detail commensurate with environmental issue and required construction tasks.

.6 Include in Environmental Protection Plan:

.1 Names of persons responsible for ensuring adherence to Environmental Protection Plan.

.2 Names and qualifications of persons responsible for manifesting hazardous waste to be removed from site.

.3 Names and qualifications of persons responsible for training site personnel.

.4 Descriptions of environmental protection personnel training program.

.5 Erosion and sediment control plan identifying type and location of erosion and sediment controls to be provided including monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan, Federal, Provincial, and Municipal laws and regulations, and EPA 832/R-92-005, Chapter 3.

.6 Drawings indicating locations of proposed temporary excavations or embankments for haul roads, stream crossings, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials, including methods to control runoff and to contain materials on site.

.7 Traffic Control Plans including measures to reduce erosion of temporary roadbeds by construction traffic, especially during wet weather.

.1 Plans to include measures to minimize amount of material transported onto paved public roads by vehicles or runoff.

.8 Work area plan showing proposed activity in each portion of area and identifying areas of limited use or non-use.

.1 Plan to include measures for marking limits of use areas and methods for protection of features to be preserved within authorized work areas.

.9 Spill Control Plan to include procedures, instructions, and reports to be used in event of unforeseen spill of regulated substance.

.10 Non-Hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris.

.11 Air pollution control plan detailing provisions to assure that dust, debris, materials, and trash, are contained on Project site.

.12 Contaminant Prevention Plan identifying potentially hazardous substances to be used on job site; intended actions to prevent introduction of such materials into air, water, or ground; and detailing provisions for compliance with Federal, Provincial, and Municipal laws and regulations for storage and handling of these materials.

.13 Wastewater Management Plan identifying methods and procedures for management and discharge of waste waters which are directly derived from construction activities, such as concrete curing water, clean-up water, dewatering of ground water, disinfection water, hydrostatic test water, and water used in flushing of lines.

.14 Historical, archaeological, cultural resources biological resources, and wetlands plan.

.15 Pesticide treatment plan to be included and updated, as required.

1.5 FIRES

.1 Fires and burning of rubbish onsite are not permitted.

1.6 DRAINAGE

.1 Develop and submit erosion and Sediment Control Plan (ESC) identifying type and location of erosion and sediment controls provided. Plan to include monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan, Federal, Provincial, and Municipal laws and regulations, EPA 832/R-92-005, Chapter 3 US EPA General Construction Permit.

.2 Storm Water Pollution Prevention Plan (SWPPP) to be substituted for erosion and sediment control plan.

.3 Provide temporary drainage and pumping required to keep excavations and site free from water.

.4 Ensure pumped water into waterways, sewer, or drainage systems is free of suspended materials.

.5 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.

1.7 CLEARING THE SITE AND PROTECTING PLANTS

.1 Protect trees and plants on site and on adjacent properties, as indicated.

.2 Protect trees and shrubs adjacent to construction site, storage areas and truck tracks. Surround trees and shrubs with a protective wooden cage at least 1 m high from ground level.

.3 During excavation and earthworks, protect the roots of designated trees up to the drip line, so that they are not displaced or damaged.

.1 Avoid unnecessary movement and unloading or storage of materials above the root zone of protected trees.

.4 Minimize removal of topsoil and vegetation.

1.8 POLLUTION CONTROL

.1 Maintain temporary erosion and pollution control features installed under this Contract.

.2 Control emissions from equipment and plant in accordance with local authorities' emission requirements.

.3 Prevent sandblasting and other extraneous materials from contaminating air and waterways beyond application area.

.1 Provide temporary enclosures where indicated directed by Departmental Representative.

.4 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.

1.9 NON-COMPLIANCE

.1 Departmental Representative will notify Contractor in writing of observed noncompliance with Federal, Provincial or Municipal environmental laws or regulations, permits, and other elements of Contractor's Environmental Protection Plan.

.2 Contractor: After receipt of such notice, inform Departmental Representative of proposed corrective action and take such action for approval by Departmental Representative.

.1 Act only after receipt of written approval by Departmental Representative.

.3 Departmental Representative will issue stop order of work until satisfactory corrective action has been taken.

.4 No time extensions granted or equitable adjustments allowed to Contractor for such suspensions.

1.10 ADDITIONAL TRANSPORT CANADA ENVIRONMENTAL RECOMMENDATIONS

.1 Protect, identify and adequately store any container of hazardous materials at least 30 m from drainage ditches;

.2 The management and disposal of hazardous materials (creosote wood, batteries, soiled materials, thermostat containing mercury, lead paint, etc.) must be carried out in accordance with the standards in force, in sites authorized for this purpose. ;

.3 Ensure that equipment and machinery are in good working order and free from leaks.

.4 The refueling of the machinery must be done on a waterproof surface at least 30 meters from the drainage ditches;

.5 Have a complete spill kit on site near the work. Replace the equipment used with new equipment. In the event of a hazardous material spill, notify the responsible authorities and the Transport Canada environmental officer responsible for the site as soon as possible;

.6 Have on the work site an emergency measures plan in the event of a hazardous material spill;

.7 Water that has been in contact with uncured or partially hardened concrete (such as concrete mixer wash water) must not be discharged into the drainage network or the surrounding environment at any time. This water must be managed off the site and disposed of in an authorized location;

.8 Surplus or remains of concrete must be placed in watertight containers designed for this purpose. No remaining concrete should be thrown on the ground or in drainage ditches;

.9 Return the site to its initial state by cleaning it and disposing of all residual materials.

Part 2 Products

2.1 NOT APPLICABLE

.1 Not applicable.

Part 3 Execution

3.1 CLEANING

.1 Progress Cleaning: Clean in accordance with Section 01 74 00 - Cleaning.

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

.2 Bury rubbish and waste materials onsite where directed after receipt of written approval from Departmental Representative.

.3 Ensure public waterways, storm, and sanitary sewers remain free of waste and volatile materials disposal.

.4 Final Cleaning: Upon completion remove surplus materials, rubbish, tools, and equipment in accordance with Section 01 74 00 - Cleaning.

.5 Waste Management: Separate waste materials for recycling in accordance with Section 01 74 19 - Waste Management and Disposal.

.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

END OF SECTION

Part 1 General

1.1 SUMMARY

.1 This Section references to laws, by laws, ordinances, rules, regulations, codes, orders of Authority Having Jurisdiction, and other legally enforceable requirements applicable to Work and that are; or become, in force during performance of Work.

1.2 RELATED REQUIREMENTS

.1 Section 01 35 29.06 Health and safety.

.2 Section 01 35 43 Environmental protection.

.3 Section 02 41 99 Demolition - small-scale work.

1.3 REFERENCES TO REGULATORY REQUIREMENTS

.1 Perform Work in accordance with 2015 National Building Code of Canada (NBC) including amendments up to tender closing date and other codes of provincial or local application provided that in case of conflict or discrepancy, more stringent requirements apply.

.2 Specific design and performance requirements listed in specifications or indicated on Drawings may exceed minimum requirements established by referenced Building Code; these requirements will govern over the minimum requirements listed in Building Code

.1 Meet or exceed requirements of:

.1 Contract documents.

.2 Specified standards, codes and referenced documents.

1.4 HAZARDOUS MATERIAL DISCOVERY

.1 Asbestos: demolition of spray or trowel-applied asbestos is hazardous to health. Stop work immediately when material resembling spray or trowel-applied asbestos is encountered during demolition work. Notify Departmental Representative.

.2 PCB: Polychlorinated Biphenyl: stop work immediately when material resembling Polychlorinated Biphenyl is encountered during demolition work. Notify Departmental Representative.

.3 Mould: stop work immediately when material resembling mould is encountered during demolition work. Notify Departmental Representative.

1.5 BUILDING SMOKING ENVIRONMENT

.1 Comply with smoking restrictions and municipal by-laws.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 01 33 00 Documents / samples to be submitted

.2 Section 01 73 00 Execution of the work.

.3 Section 01 78 00 Documents / items to be submitted upon completion of the work

1.2 INSPECTION

.1 Allow Departmental Representative access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.

.2 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Departmental Representative instructions, or law of Place of Work.

.3 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.

.4 Departmental Representative will order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction. If such Work is found in accordance with Contract Documents, Departmental Representative will pay cost of examination and replacement.

1.3 INDEPENDENT INSPECTION AGENCIES

.1 The Departmental Representative will be responsible for retaining the services of independent testing and inspection agencies. The cost of these services will be assumed by the Departmental Representative.

.2 Provide the materials required by the designated organizations for carrying out tests and inspections.

.3 Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.

.4 If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Departmental Representative at no cost to Departmental Representative. Pay costs for retesting and reinspection.

1.4 ACCESS TO WORK

.1 Allow inspection/testing agencies access to Work, off site manufacturing and fabrication plants.

.2 Co-operate to provide reasonable facilities for such access.

1.5 PROCEDURES

.1 Notify appropriate Departmental Representative in advance of requirement for tests, in order that attendance arrangements can be made.

.2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in Work.

.3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

1.6 REJECTED WORK

.1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Departmental Representative as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.

.2 Make good other Contractor's work damaged by such removals or replacements promptly.

.3 If in opinion of Departmental Representative it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Owner will deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which will be determined by Departmental Representative.

1.7 REPORTS

.1 Submit an electronic copy of test and inspection reports to Departmental Representative.

.2 Provide copies to subcontractor of work being inspected or tested manufacturer or fabricator of material being inspected or tested.

1.8 SAMPLES OF WORKS

.1 Prepare samples of work specifically required in the specifications. The requirements of this article apply to all sections of the specifications in which it is requested to provide samples of works.

.2 Build the work samples at the various locations approved by the Departmental Representative designated in the section concerned.

.3 Prepare work samples 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 the work samples shall not constitute a sufficient reason to obtain an extension of the period of execution of the work 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 the work samples.

.6 Remove samples of work at the end of the work or at the time determined by the Departmental Representative.

.7 Work samples may be part of the finished work.

.8 It is specified, in each section of the specifications where it is a question of work samples, whether or not they can be part of the finished work and when they must be removed, if applicable.

1.9 MATERIALS, APPLIANCES AND SYSTEMS

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

1.10 FACTORY TESTS

.1 Submit certificates of factory tests that are prescribed in the various sections of the Specifications, within a maximum of one (1) week from the date of the tests.

Part 2 Products

2.1 NOT APPLICABLE

.1 Not applicable.

Part 3 Execution

3.1 NOT APPLICABLE

.1 Not applicable.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 01 14 00 Restrictions on work

.2 Section 01 35 13.13 Special procedures - airport facilities

.3 Section 01 52 00 Site installation.

1.2 INSTALLATION AND REMOVAL

.1 Provide temporary utilities controls to execute work expeditiously.

.2 Remove from site all such work after use.

1.3 DEWATERING

.1 Provide temporary drainage and pumping facilities to keep excavations and site free from standing water.

1.4 WATER SUPPLY

.1 Departmental Representative will provide continuous supply of potable water for construction use.

.2 Arrange for connection with appropriate utility company and pay costs for installation, maintenance, and removal.

1.5 HEATING AND VENTILATION

.1 Provide temporary heating required during construction period, including attendance, maintenance, and fuel.

.2 Provide temporary heat and ventilation in enclosed areas as required to:

.1 Facilitate progress of Work.

.2 Protect Work and products against dampness and cold.

.3 Prevent moisture condensation on surfaces.

.4 Provide ambient temperatures and humidity levels for storage, installation and curing of materials.

.5 Provide adequate ventilation to meet health regulations for safe working environment.

.3 Maintain temperatures of minimum 10°C in areas where construction is in progress.

.4 Ventilating:

.1 Prevent accumulations of dust, fumes, mists, vapours, or gases in areas occupied during construction.

.2 Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas.

.3 Dispose of exhaust materials in manner that will not result in harmful exposure to persons.

.4 Ventilate storage spaces containing hazardous or volatile materials.

.5 Ventilate temporary sanitary facilities.

.6 Continue operation of ventilation and exhaust system for time after cessation of work process to assure removal of harmful contaminants.

.5 Permanent heating system of building to be used when available. Be responsible for damage to heating system if use is permitted.

.6 Pay costs for maintaining temporary heat, when using permanent heating system.

.7 Maintain strict supervision of operation of temporary heating and ventilating equipment to:

.1 Conform with applicable Codes and Standards.

.2 Enforce safe practices.

.3 Prevent abuse of services.

.4 Prevent damage to finishes.

.5 Vent direct-fired combustion units to outside.

.8 Be responsible for damage to Work due to failure in providing adequate heat and protection during construction.

1.6 POWER AND LIGHT

.1 Supply of electricity and lighting to perform the Work is Contractor's responsibility. Contractor must make a connection request to the utility company.

.2 Arrange for connection with appropriate utility company. Pay costs for installation, maintenance, and removal, including necessary equipment (e.g.: Breakers, conduits, cables, etc.).

.3 Provide and maintain temporary lighting throughout project. Ensure level of illumination on all floors and stairs is not less than 162 lx.

1.7 COMMUNICATION FACILITIES

.1 Provide and pay for temporary telephone, fax, data hook up, lines, and equipment necessary for own use and use of Departmental Representative.

1.8 FIRE PROTECTION

.1 Provide and maintain temporary fire protection equipment during performance of Work required by insurance companies having jurisdiction governing Codes, Regulations, and Bylaws.

.2 Burning rubbish and construction waste materials is not permitted on Site.

Part 2 Products

2.1 NOT APPLICABLE

.1 Not applicable.

Part 3 Execution

3.1 NOT APPLICABLE

.1 Not applicable.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 01 11 01 General information on the work.

.2 Section 01 14 00 Restrictions on work

.3 Section 01 35 13.13 Special procedures - Airport installations

.4 Section 01 51 00 Temporary utility services

.5 Section 01 56 00 Access works and temporary protection

1.2 REFERENCE STANDARDS

.1 Canadian General Standards Board (CGSB).

.1 CAN/CGSB 1.189-00, Exterior Alkyd Primer for Wood.

.2 CGSB 1.59-97, Alkyd Exterior Gloss Enamel.

.2 CSA Group (CSA).

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

.2 CSA-0121-M1978 (R2003), Douglas Fir Plywood.

.3 CAN/CSA-S269.2-M1987 (R2003), Access Scaffolding for Construction Purposes.

.4 CAN/CSA-Z321-96 (R2001), Signs and Symbols for the Occupational Environment.

.3 Public Works and Government Services Canada (PWGSC), Guide to Standard Acquisition Clauses and Conditions (SACC) - ID: R0202D, Title: General Conditions "C", in effect since May 14, 2004.

.4 U.S. Environmental Protection Agency (EPA)/Office of Water.

.1 EPA 832R92005, Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices.

1.3 INSTALLATION AND REMOVAL

.1 Prepare site plan indicating proposed location and dimensions of area to be fenced and used by Contractor, number of trailers to be used, avenues of ingress/egress to fenced area and details of fence installation.

.2 Identify areas which must be gravelled to prevent tracking of mud.

.3 Indicate use of supplemental or other staging area.

.4 Provide construction facilities in order to execute work expeditiously.

.5 Remove from site all such work after use.

1.4 SCAFFOLDING

.1 Scaffolding: In accordance with CAN/CSA-S269.2.

.2 Provide and maintain ladders, platforms, ramps, swing staging, scaffolding, and temporary stairs.

1.5 HOISTING

.1 Provide, operate and maintain hoists cranes required for moving of workers, materials and equipment. Make financial arrangements with Subcontractors for their use of hoists.

.2 Hoists cranes to be operated by qualified operator.

1.6 SITE STORAGE/LOADING

.1 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.

.2 Do not load or permit to load any part of Work with weight or force that will endanger Work.

1.7 PARKING ON CONSTRUCTION SITE

.1 Parking will be permitted on site provided it does not disrupt performance of Work.

.2 Provide and maintain adequate access to project site.

.3 Clean airport runways and taxi areas where used by Contractor's equipment. Contractor is responsible for cleaning taxiway, apron, and runway before each aircraft movement.

1.8 SECURITY

.1 Provide and pay for responsible security personnel to guard site and contents of site after working hours and during holidays.

1.9 OFFICES

.1 Provide office of sufficient size to accommodate site meetings and furnished with drawing laydown table.

.2 Provide marked and fully stocked first-aid case in a readily available location.

.3 Maintain in clean condition.

1.10 EQUIPMENT, TOOL, AND MATERIAL STORAGE

.1 Provide and maintain, in clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment, and material.

.2 Locate materials not required to be stored in weatherproof sheds on site in manner to cause least interference with work activities.

1.11 SANITARY FACILITIES

.1 Existing sanitary facilities can be used.

1.12 CONSTRUCTION SIGNAGE

.1 Provide and erect project sign, as shown below, within three (3) weeks of signing Contract, in a location designated by Departmental Representative.

.2 Construction sign 1.2 m x 2.4 m, of wood frame, complying with drawing provided by the Departmental Representative.

.3 On the panel must be indicated the name of the Owner, and of the Contractor; stylized lettering employed will be determined by the Departmental Representative.

.4 Other than warning signs, no other sign or poster may be installed on the site.

.5 Provide a site panel consisting of a framework and a 1200 mm x 2400 mm element forming the support surface.

.1 Foundation: concrete block.

.2 Frame elements and battens: EPS, pressure treated, 89 mm x 89 mm.

.3 Support surface: Douglas fir plywood, coated, medium density, conforming to CSA O121.

.4 Painting: exterior alkyd resin printing paint in accordance with CAN / CGSB 1.189; alkyd resin enamel paint, in accordance with CAN / CGSB-1.59.

.5 Fastening devices: nails and machine bolts in hot dipped galvanized steel.

.6 Vinyl coating: vinyl film, self-adhesive, bearing the identification marking of the site, provided by the Departmental Representative.

.6 Install the site panel at the location designated by the Departmental Representative and assemble it as indicated below.

.1 Make the foundation in concrete block, assemble the framework and fix the plywood panel to the latter.

.2 Coat all surfaces of the panel itself and the framing with one coat of primer paint and two coats of enamel paint. Use white paint on the face of the panel and black paint on other surfaces.

.3 Apply vinyl coating to painted face of panel according to installation instructions provided.

.7 Submit to the Departmental Representative the approval requests for the installation of an identification panel of the Departmental Representatives and the contractor. The general appearance of this sign must correspond to that of the site sign and the inscriptions must be written in both official languages.

.8 The inscriptions appearing on the instruction panels and on the safety notices must be written in both official languages. Graphic symbols must conform to CAN / CSA-Z321.

.9 Keep approved signs and notices in good condition for the duration of the work and remove them from the site upon completion, or before if requested by the Departmental Representative.

1.13 PROTECTION AND MAINTENANCE OF TRAFFIC

.1 Provide access and temporary relocated roads to maintain traffic, as necessary.

.2 Maintain and protect traffic on affected roads during construction period, except as otherwise specifically directed by Departmental Representative.

.3 Provide measures for protection and diversion of traffic, including provision of watchpersons and flagpersons, erection of barricades, placing of lights around and in front of equipment and work, and erection and maintenance of adequate warning, danger, and direction signs.

.4 Protect travelling public from damage to person and property.

.5 Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with public traffic.

.6 Verify adequacy of existing roads and allowable load limit on these roads. Contractor: Responsible for repair of damage to roads caused by construction operations.

.7 Construct access and haul roads necessary.

.8 Provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic.

.9 Dust Control: Adequate to always ensure safe operation.

.10 Location, grade, width, and alignment of construction and hauling roads: Subject to approval by Departmental Representative.

.11 Lighting: To assure full and clear visibility for full width of haul road and work areas during night work operations.

.12 Provide snow removal during period of Work.

.13 Remove, upon completion of Work, haul roads designated by Departmental Representative.

1.14 CLEAN-UP

.1 Remove construction debris, waste materials, packaging material from work site daily.

.2 Clean dirt or mud tracked onto paved or surfaced roadways.

.3 Store materials resulting from demolition activities that are salvageable.

.4 Stack stored new or salvaged material not in construction facilities.

Part 2 Products

2.1 NOT APPLICABLE

.1 Not applicable.

Part 3 Execution

3.1 NOT APPLICABLE

.1 Not applicable.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 01 11 01 General information on the work.

.2 Section 01 14 00 Restrictions on work

.3 Section 01 52 00 Site installations

1.2 REFERENCE STANDARDS

.1 Canadian General Standards Board (CGSB).

.1 CGSB 1.59-97, Alkyd Exterior Gloss Enamel.

.2 CAN/CGSB 1.189-00, Exterior Alkyd Primer for Wood.

.2 CSA Group (CSA).

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

.3 Public Works and Government Services Canada (PWGSC), Guide to Standard Acquisition Clauses and Conditions (SACC) - ID: R2002D, Title: General Conditions “C”, in effect since May 14, 2004.

1.3 INSTALLATION AND REMOVAL

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

.2 Remove from site all such work after use.

.3 Take into account that there is particular airside work conditions.

1.4 GUARD RAILS AND BARRICADES

.1 Provide secure, rigid guard rails and barricades around deep excavations.

.2 Provide as required by governing authorities.

1.5 ROADWAY ACCESS

.1 Site access, including airside, will be coordinated with the appropriate authorities.

1.6 ACCESS ROUTES FOR EMERGENCY VEHICLES

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

1.7 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

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

.2 Be responsible for damage incurred.

1.8 PROTECTION OF BUILDING FINISHES

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

.2 Provide necessary screens, covers, and hoardings.

.3 Confirm with Departmental Representative locations and installation schedule three (3) days prior to installation.

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

Part 2 Products

2.1 NOT APPLICABLE

.1 Not applicable.

Part 3 Execution

3.1 NOT APPLICABLE

.1 Not applicable.

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

.1 Reference Standard may be provided in each Section.

.2 Comply with these Reference Standards, in whole or in part, as specifically requested in specifications.

.3 If there is question as to whether products or systems are in conformance with applicable standards, Departmental Representative reserves right to have such products or systems tested to prove or disprove conformance.

.4 Cost for such testing will be born by Departmental Representative in event of conformance with Contract Documents or by Contractor Design-Builder in event of non-conformance.

1.2 QUALITY

.1 Products, materials, equipment, and articles incorporated in Work shall be new, not damaged or defective, and of best quality for purpose intended. If requested, provide evidence as to type, source, and quality of products provided.

.2 Procurement policy is to acquire, in cost effective manner, items containing highest percentage of recycled and recovered materials practicable consistent with maintaining satisfactory levels of competition. Make reasonable efforts to use recycled and recovered materials and in otherwise utilizing recycled and recovered materials in execution of Work.

.3 Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve the Contractor from his responsibility, but simply a precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.

.4 Should disputes arise as to quality or fitness of products, decision rests strictly with Departmental Representative based upon requirements of Contract Documents.

.5 Unless otherwise indicated in Specifications, maintain uniformity of manufacture throughout building.

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

1.3 AVAILABILITY

.1 Immediately upon signing Contract, review product delivery requirements and anticipate foreseeable supply delays for items. If delays in supply of products are foreseeable, notify Departmental Representative of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.

.2 In event of failure to notify Departmental Representative at commencement of Work and should it subsequently appear that Work may be delayed for such reason, Departmental Representative reserves right to substitute more readily available products of similar character, at no increase in Contract Price or Contract Time.

1.4 STORAGE, HANDLING, AND PROTECTION

.1 Handle and store products in manner to prevent damage, adulteration, deterioration, and soiling, and in accordance with manufacturer's instructions when applicable.

.2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.

.3 Store products subject to damage from weather in weatherproof enclosures.

.4 Store cementitious products clear of earth or concrete floors, and away from walls.

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

.6 Store sheet materials, on flat, solid supports, and keep clear of ground. Slope to shed moisture.

.7 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.

.8 Remove and replace damaged products at own expense, to satisfaction of Departmental Representative.

.9 Touch-up damaged factory finished surfaces to Departmental Representative's satisfaction. Use touch-up materials to match original. Do not paint over name plates.

1.5 TRANSPORTATION

.1 Pay costs of transportation of products required in performance of Work.

1.6 MANUFACTURER'S INSTRUCTIONS

.1 Unless otherwise indicated in Specifications, install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.

.2 Notify Departmental Representative in writing, of conflicts between specifications and manufacturer's instructions, so that Departmental Representative will establish course of action.

.3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes Departmental Representative to require removal and re-installation at no increase in Contract Price or Contract Time.

1.7 QUALITY OF WORK

.1 Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify Departmental Representative if required Work is such as to make it impractical to produce required results.

.2 Do not employ anyone unskilled in their required duties. Departmental Representative reserves right to require dismissal from site, workers deemed incompetent or careless.

.3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Departmental Representative, whose decision is final.

1.8 CO-ORDINATION

.1 Ensure co-operation of workers in laying out Work. Maintain efficient and continuous supervision.

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

1.9 ELEMENTS TO BE DISSIMULATED

.1 Unless otherwise indicated, conceal pipes, conduits and electrical cables in floors, walls and ceilings of rooms and finished areas.

.2 Before hiding items, inform Departmental Representative of any abnormal situation. Install according to the instructions of the Departmental Representative.

1.10 REMEDIAL WORK

.1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Co-ordinate adjacent affected Work as required.

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

1.11 LOCATION OF FIXTURES

.1 Consider location of fixtures, outlets, and mechanical and electrical items indicated as approximate.

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

1.12 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 specification 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.

1.13 FASTENINGS - EQUIPMENT

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

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

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

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

1.14 PROTECTION OF WORK 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 Departmental Representative.

1.15 EXISTING UTILITIES

.1 When breaking into or connecting to existing services or utilities, execute Work at times directed by local governing authorities, with minimum of disturbance to Work, and pedestrian and vehicular traffic and/or building occupants.

.2 Protect, relocate or maintain existing active services. When services are encountered, cap off in manner approved by Authority Having Jurisdiction. Stake and record location of capped service.

Part 2 Products

2.1 NOT APPLICABLE

.1 Not applicable.

Part 3 Execution

3.1 NOT APPLICABLE

.1 Not applicable.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 01 73 00 Execution of the work.

1.2 REFERENCE STANDARDS

.1 Owner's identification of existing survey control points and property limits.

1.3 QUALIFICATIONS OF SURVEYOR

.1 Qualified registered land surveyor, licensed to practise in Place of Work, acceptable to Departmental Representative.

1.4 SURVEY REFERENCE POINTS

.1 Existing base horizontal and vertical control points are designated on drawings.

.2 Locate, confirm and protect control points prior to starting site work. Preserve permanent reference points during construction.

.3 Make no changes or relocations without prior written notice to Departmental Representative.

.4 Report to Departmental Representative when reference point is lost or destroyed or requires relocation because of necessary changes in grades or locations.

.5 Require surveyor to replace control points in accordance with original survey control.

1.5 SURVEY REQUIREMENTS

.1 Establish 2 permanent benchmarks on site, referenced to established benchmarks by survey control points. Record locations, with horizontal and vertical data in Project Record Documents.

.2 Establish lines and levels, locate and lay out, by instrumentation.

.3 Stake for grading, fill [and topsoil] placement [and landscaping features].

.4 Stake slopes and berms.

.5 Establish pipe invert elevations.

.6 Stake batter boards for foundations.

.7 Establish foundation floor elevations.

.8 Establish lines and levels for mechanical and electrical work.

1.6 EXISTING SERVICES

.1 Before commencing work, establish location and extent of service lines in area of Work and notify Departmental Representative of findings.

.2 Remove abandoned service lines within [2] m of structures. Cap or otherwise seal lines at cut-off points as directed by Departmental Representative.

1.7 LOCATION OF EQUIPMENT AND FIXTURES

.1 Location of equipment, fixtures and outlets indicated or specified are to be considered as approximate.

.2 Locate equipment, fixtures and distribution systems to provide minimum interference and maximum usable space and in accordance with manufacturer's recommendations for safety, access and maintenance.

.3 Inform Consultant of impending installation and obtain approval for actual location.

.4 Submit field drawings to indicate relative position of various services and equipment when required by Departmental Representative.

1.8 RECORDS

.1 Maintain a complete, accurate log of control and survey work as it progresses.

.2 On completion of foundations and major site improvements, prepare a certified survey showing dimensions, locations, angles and elevations of Work.

.3 Record locations of maintained, re-routed and abandoned service lines.

1.9 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit name and address of Surveyor to Departmental Representative.

.2 On request of Departmental Representative submit documentation to verify accuracy of field engineering work.

.3 Submit certificate signed by surveyor certifying [and noting] those elevations and locations of completed Work that conform and do not conform with Contract Documents.

1.10 SUBSURFACE CONDITIONS

.1 Promptly notify Consultant in writing if subsurface conditions at Place of Work differ materially from those indicated in Contract Documents, or a reasonable assumption of probable conditions based thereon.

.2 After prompt investigation, should Consultant determine that conditions do differ materially, instructions will be issued for changes in Work as provided in Changes and Change Orders.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 01 33 00 Documents and samples to be submitted.

.2 Section 07 84 00 Fire protection.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submittals: In accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit written request in advance of cutting or alteration which affects:

- .1 Structural integrity of elements of project.
- .2 Integrity of weather-exposed or moisture-resistant elements.
- .3 Efficiency, maintenance, or safety of operational elements.
- .4 Visual qualities of sight-exposed elements.
- .5 Work of Owner or separate contractor.

.3 Include in request:

- .1 Identification of project.
- .2 Location and description of affected Work.
- .3 Statement on necessity for cutting or alteration.
- .4 Description of proposed Work, and products to be used.
- .5 Alternatives to cutting and patching.
- .6 Effect on Work of Owner or separate contractor.
- .7 Written permission of affected separate contractor.
- .8 Date and time work will be executed.

1.3 MATERIALS

.1 Material/equipment required for identical installation.

.2 Change in Materials: Submit request for substitution in accordance with Section 01 33 00 - Submittal Procedures.

1.4 PREPARATION WORK

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

.2 After uncovering, inspect conditions affecting performance of Work.

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

.4 Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of project from damage.

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

1.5 EXECUTION OF WORK

.1 Execute cutting, fitting, and patching, including excavation and fill, to complete Work.

.2 Fit several parts together, to integrate with other Work.

.3 Uncover Work to install ill-timed Work.

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

.5 Remove samples of installed Work for testing.

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

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

.8 Retain the services of the initial installer for cutting and patching water-repellent elements, elements exposed to bad weather and exposed surfaces.

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

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

.11 Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

.12 When passing through walls, ceilings or fire-rated floors, completely seal the voids around the openings with a fire-resistant material, in accordance with section 07 84 00 - Fire protection, over the entire thickness of the element crossed.

.13 Using construction joint fire stops and building perimeter fire stops to protect gaps at fire separations and between fire separations and other construction assemblies.

.14 Refinish surfaces to match adjacent finishes: Refinish continuous surfaces to nearest intersection. Refinish assemblies by refinishing entire unit.

1.6 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for recycling reuse in accordance with Section 01 74 21 - Waste Management and Disposal.

Part 2 Products

2.1 NOT APPLICABLE

.1 Not applicable.

Part 3 Execution

3.1 NOT APPLICABLE

.1 Not applicable.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 01 74 21 Construction / demolition waste management and disposal

.2 Section 01 14 00 Restriction on work.

.3 Section 01 77 00 Completion of the work

1.2 WORKSITE CLEANLINESS

.1 Maintain worksite in tidy condition, free from accumulation of waste products and debris, other than those caused by Departmental Representative or other Contractors. Protect materials and other components from movement caused by wind so as not to present risk to aircrafts.

.2 Remove waste materials from site daily after each work shift or dispose of as directed by Departmental Representative. Do not burn waste materials on site, unless approved by Departmental Representative.

.3 Keep access routes to building free of ice and snow. Pile / pile snow in designated areas only or evacuate snow off site.

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

.5 Provide, onsite, containers for collection of waste materials and debris.

.6 Provide and use marked separate bins for recycling. Refer to section 01 74 21 - Waste Management and Disposal.

.7 Dispose of waste materials and debris off site at designated dumping areas on Crown properties.

.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 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.

.13 General cleaning to be done every day given the occupancy of the premises.

1.3 FINAL CLEANING

.1 When work is substantially performed, remove surplus products, tools, construction machinery, and equipment not required for performance of remaining work.

.2 Remove waste products and debris other than that caused by others and leave worksite clean and suitable for occupancy.

.3 Prior to final review, remove surplus products, tools, construction machinery, and equipment.

.4 Remove waste products and debris other than including that caused by Owner or other contractors.

.5 Remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials onsite, unless approved by Departmental Representative.

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

.7 Remove stains, spots, marks, dust, and dirt from decorative work, electrical and mechanical fixtures, furniture fitments, walls, and floors.

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

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

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

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

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

.13 Remove dirt and other disfiguration from exterior surfaces.

.14 Clean and sweep roofs, gutters, areaways, and sunken wells.

.15 Sweep and wash clean paved areas.

.16 Clean equipment and fixtures to sanitary condition; clean or replace filters of mechanical equipment.

.17 Clean roofs, downspouts, and drainage systems.

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

.19 Remove snow and ice from access to building.

1.4 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse recycling in accordance with section 01 74 21 - Waste Management and Disposal.

Part 2 Products

2.1 NOT APPLICABLE

.1 Not applicable.

Part 3 Execution

3.1 NOT APPLICABLE

.1 Not applicable.

END OF SECTION

Part 1 General

1.1 DEFINITIONS

.1 Clean Waste: Untreated and unpainted; not contaminated with oils, solvents, sealants, or similar materials.

.2 Construction and Demolition Waste: Solid wastes typically including building materials, packaging, trash, debris, and rubble resulting from construction, remodeling operations, repair, and demolition.

.3 Hazardous: Exhibiting the characteristics of hazardous substances including properties such as ignitability, corrosiveness, toxicity or reactivity.

.4 Non-hazardous: Exhibiting none of the characteristics of hazardous substances, including properties such as ignitability, corrosiveness, toxicity, or reactivity.

.5 Non-toxic: Not poisonous to humans either immediately or after a long period of exposure.

.6 Recyclable: The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product for reuse by others.

.7 Recycle: To remove a waste material from the project site to another site for remanufacture into a new product for reuse by others.

.8 Recycling: The process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for the purpose of using the altered form; recycling does not include burning, incinerating, or thermally destroying waste.

.9 Return: To give back reusable items or unused products to vendors for credit.

.10 Reuse: To reuse a construction waste material in some manner on the project site.

.11 Salvage: To remove a waste material from the project site to another site for resale or reuse by others.

.12 Sediment: Soil and other debris that has been eroded and transported by storm or well production run off water.

.13 Source Separation: The act of keeping different types of waste materials separate beginning from the first time they become waste.

.14 Toxic: Poisonous to humans either immediately or after a long period of exposure.

.15 Trash: Any product or material unable to be reused, returned, recycled, or salvaged.

.16 Volatile Organic Compounds (VOCs): Chemical compounds common in and emitted by many building products over time through outgassing:

.1 Solvents in paints and other coatings.

.2 Wood preservatives; strippers and household cleaners.

.3 Adhesives in particleboard, fiberboard, and some plywood; and foam insulation.

.4 When released, VOCs can contribute to the formation of smog and can cause respiratory tract problems, headaches, eye irritations, nausea, damage to the liver, kidneys, and central nervous system, and possibly cancer.

.17 Waste: Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable, and reusable material.

1.2 ADMINISTRATIVE REQUIREMENTS

.1 Coordination: Coordinate waste management requirements with all Divisions of the Work for the project and ensure that requirements of the Construction Waste Management Plan are followed.

.2 Preconstruction Meeting: Arrange a pre-construction meeting in accordance with Section 01 31 19 - Project Meetings before starting any Work of the Contract attended by the Departmental Representative, the Contractor, and Subcontractors, to discuss the Construction Waste Management Plan and to develop mutual understanding of the requirements for a consistent policy towards waste reduction and recycling.

1.3 QUALITY ASSURANCE

.1 Resources for Development of Construction Waste Management Report (CWM Report): The following sources may be useful in developing the Draft Construction Waste Management Plan:

.1 Recycling Haulers and Markets: Investigate local haulers and markets for recyclable materials and incorporate into CWM Plan.

.2 Waste-to-Energy Systems: Investigate local waste-to-energy incentives where systems for diverting materials from landfill for reuse or recycling are not available.

1.4 DELIVERY, STORAGE, AND HANDLING

.1 Storage Requirements: Implement a recycling/reuse program that includes separate collection of waste materials as appropriate to the project waste and the available recycling and reuse programs in the project area.

.2 Handling Requirements: Clean materials that are contaminated before placing in collection containers and ensure that waste destined for landfill does not get mixed in with recycled materials:

.1 Deliver materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to recycling process.

.2 Arrange for collection by or delivery to the appropriate recycling or reuse facility.

.3 Hazardous Waste and Hazardous Materials: Handle in accordance with applicable Regulations.

Part 2 Products

2.1 NOT APPLICABLE

.1 Not applicable.

Part 3 Execution

3.1 CWM PLAN IMPLEMENTATION

.1 Manager: Contractor is responsible for designating an onsite party or parties responsible for instructing workers and overseeing and documenting results of the CWM Plan for the project.

.2 Distribution: Distribute copies of the CWM Plan to the job site foreman, each Subcontractor, the Departmental Representative, and other site personnel, as required, to maintain CWM Plan.

.3 Instruction: Provide on-site instruction of appropriate separation, handling, and recycling, salvage, reuse, composting and return methods being used for the Project to Subcontractor's at appropriate stages of the Project.

.4 Separation Facilities: Lay out and label a specific area to facilitate separation of materials for potential recycling, salvage, reuse, composting, and return:

.1 Recycling and waste bin areas are to be kept neat and clean and clearly marked in order to avoid contamination of materials.

.2 Hazardous wastes shall be separated, stored, and disposed of in accordance with local Regulations.

END OF SECTION

Part 1 General

1.1 WASTE MANAGEMENT OBJECTIVES

.1 Before the start of work, meet with the Departmental Representative to review PWGSC's objectives in terms of waste management and the waste reduction plan proposed by the Contractor with regard to construction waste, renovation and demolition (CRD) generated by the project.

.2 PWGSC waste management objective: reduce the total flow of construction / demolition waste to landfills by at least 75 percent. Before the end of the work, provide the Departmental Representative with documents certifying that exhaustive measures and procedures for waste management, recycling, reuse / reuse of recyclable and reusable / reusable materials have been implemented. The overall waste recovery target for this project is 25%.

.3 Minimize the amount of non-hazardous solid waste generated by the work; Maximize source reduction, reuse / reuse and recycling of solid waste produced by CRD activities.

.4 Protect the environment and prevent damage related to environmental pollution.

1.2 RELATED REQUIREMENTS

.1 Section 01 11 01 General information on the work.

.2 Section 01 74 11 Cleaning

1.3 1.3 REFERENCE STANDARDS

.1 Canadian Construction Association (CCA)

.1 ACC 81-2001: Guide to Best Practices in Solid Waste Reduction.

.2 Public Works and Government Services Canada (PWGSC)

.1 National Protocol for the Management of Non-Hazardous Solid Waste from Construction, Renovation and Demolition, 2002.

.2 CRD waste management market research report (available from the Environmental Services Directorate of PWGSC).

.3 Sustainable Development Strategy 2007-2009: Target 2.1, Sustainable use of natural resources.

.1 For real estate projects over $ 1 million in communities where industrial recycling is available, CRD waste management practices will be implemented whereby waste will be reused / reused or recycled.

.2 Ensure, under the contract, that resources used in construction or maintenance are consumed and recovered in a sustainable manner.

1.4 DEFINITIONS

.1 Approved / authorized recycling facility: Recycler approved by applicable provincial authority, or other material recyclers approved by Departmental Representative.

.2 Class III non-hazardous materials: Construction, renovation and demolition waste.

.3 Construction, renovation and / or demolition (CRD) waste: Class III non-hazardous solid waste generated by construction, renovation and / or demolition activities.

.4 Cost-revenue analysis plan (PACR): Plan based on data from the waste reduction plan and used to monitor the economics of the methods used for waste management (Annex E).

.5 Landfill - inert waste: Bituminous materials and concrete only.

.6 Source Sorting Program (PTDS): Implementation and coordination of activities on an ongoing basis, aimed at ensuring that designated wastes will be sorted into predefined categories and sent for recycling and reuse / re-use. re-use, which will maximize recovery and the potential for reduced disposal costs.

.7 Recyclability: Character of a product or material that can be recovered at the end of its life cycle and transformed into a new product for reuse or reuse.

.8 Recycle: Process of collecting or transforming waste and used materials, intended to allow their reintroduction into a consumption cycle as new products.

.9 Recycling: Operations including sorting, cleaning, treatment and reconstitution of solid waste and other materials or discarded materials, intended to promote the use of these in a form different from their original state. Recycling does not include combustion, incineration or thermal destruction of waste.

.10 Reuse / reuse: Repeated use of a product or material in its original form, for a different use in the case of reuse and a similar use in the case of reuse. Reuse / reuse includes the following.

.1 The recovery of products and materials that can be reused / reused, generated by modernization work of a structure or a work, before their demolition, for the purposes of their resale, their reuse, their reuse within the same project or their storage for later use.

.2 Return to suppliers of products and materials that can be reused / reused, such as pallets and unused products.

.11 Recovery: Removal of components and load-bearing and non-load-bearing construction materials during deconstruction or dismantling of industrial, commercial or institutional structures, with a view to their reuse / reuse or their recycling.

.12 Sorted waste: Waste already classified by type.

.13 Source sorting: Separation of the different types of products and waste materials as soon as they become waste.

.14 Waste audit (AD): Detailed inventory with estimated quantities of waste that will be generated by construction, demolition, deconstruction and / or renovation work.

.15 DA encompasses the assessment, by volume and mass, of the quantities of scrap materials and wastes that will be reused / reused, recycled or landfilled. See appendix A.

.16 Waste recovery report: Detailed report of final results, which quantifies the cumulative weights and percentages of reused / reused, recycled and landfilled waste throughout the work. Measures the achievement of the objectives of the waste reduction plan (PRD) and notes the lessons learned.

.17 Waste Management Coordinator (CGD): Representative of the Contractor responsible for overseeing waste management activities and coordinating requirements for reports, documents and samples to be submitted.

.18 Waste reduction plan (PRD): Written document in which the possibilities for reducing, reusing / reusing or recycling the waste generated by the project are studied. Prescribes valuation goals, implementation and reporting procedures, expected results and

responsibilities. Information from the waste reduction plan (Annex B) from the waste audit.

1.5 DOCUMENTS

.1 Post and keep, in a visible and accessible place on site, a copy of each of the following documents.

- .1 Waste audit (Annex A).
- .2 Waste reduction plan (Annex B).
- .3 Waste sorting program at the source.

1.6 QUALITY ASSURANCE

.1 Submit documents and samples required in accordance with section 01 33 00 - Documents / Samples to be submitted.

.2 Prepare and submit the following before start of work.

- .1 One (1) electronic copy of waste audit (AD, Annex A).
- .2 One (1) electronic copy of waste reduction plan (PRD, Annex B).
- .3 One (1) electronic copy of the Source Waste Sorting Program (PTDS).

.3 Prepare and submit throughout the project, the following.

- .1 Receipts, weigh tickets, waybills and / or waste disposal receipts indicating quantities and types of materials reused / reused, recycled or disposed of.
- .2 Up-to-date waste tracking form (Annex D).
- .3 Summary written monthly report, which details the cumulative amounts of reused / reused, recycled and landfilled waste, as well as a summary status of activities related to ongoing waste management.

.4 Before final payment, submit the following.

- .1 A waste recovery report indicating the final quantities (in tonnes) by type of material recovered for reuse / reuse, recycling or disposal, in landfills, recycling centers, reuse depots and other waste treatment facilities (Annex C).
- .2 Provide receipts, weigh tickets, waybills and waste disposal receipts confirming quantities and types of reused / reused, recycled and disposed waste materials, as well as their destination.

1.7 WASTE AUDIT (AD)

.1 The Departmental Representative will prepare the DA before the start of work. The DA will be provided with the tender documentation (Annex A).

.2 The AD provides the detailed inventory, estimated quantities and types of wastes that will be produced, as well as their potential for reuse / reuse and / or recycling and the goals and objectives for the recovery of wastes generated by the project.

.3 After contract award, the Contractor must review the AD and confirm that the quantities forecasts of waste produced are accurate and that the goals are achievable.

.4 If after examination, the Contractor determines that the quantities or possibilities indicated in the AD are inaccurate or unachievable, he must provide written details of the discrepancies and revised quantities for the areas concerned. The Contractor must meet with the Departmental Representative to review and justify the revisions.

.5 Post the AD, on site, in a place where the Contractor and subcontractors can read it.

1.8 WASTE REDUCTION PLAN (WRP)

.1 Prepare and submit the WRP (Annex B) at least 10 days before the start of work.

.2 The WRP determines strategies to optimize recovery through reduction, reuse / reuse and recycling of materials and to comply with applicable regulations, according to data taken from AD.

.3 WRP must include, but not be limited to, the following.

.1 Applicable regulations.

.2 Specific waste reduction goals, existing barriers and strategies to overcome them.

.3 The destination of the waste materials indicated.

.4 Deconstruction / dismantling techniques and schedules.

.5 Means of collecting, sorting and reducing the waste produced.

.6 Location of waste bins on site.

.7 Safety measures relating to waste in heaps and in bins on site.

.8 Protective measures for personnel and subcontractors.

.9 Precise indication of storage areas.

.10 The training plan for the Contractor and subcontractors.

.11 Reliable methods of monitoring and recording results in reports (Annex D).

.12 Details of handling and removal of waste materials.

.13 The recycler's requirements.

.14 The quantities of waste materials that will be recovered for reuse / reuse and that will be landfilled.

.15 Requirements for monitoring waste management activities taking place on site.

.4 Organize the waste reduction plan so that the different actions are matched with priorities that respect the 3R hierarchy in decreasing order of importance, reduction, reuse / reuse and recycling.

.5 Post WRP, or summary thereof, on site, where workers can read it.

.6 Follow up on waste reduction; produce a report; indicate the total volume (in tonnes) of waste materials effectively removed from the site as well as the cost of the operation (Annex D).

1.9 SOURCE WASTE SORTING PROGRAM (SWSP)

.1 As part of the waste reduction plan, prepare the SWSP before the start of work.

.2 The SWSP will present in detail the methodology and activities planned on site aimed at sorting reusable / reusable and recyclable materials and waste to be landfilled.

.3 Provide the list and drawings of the locations that will be available for the sorting, collection, handling and storage of the anticipated quantities of reusable / reusable and recyclable materials.

.4 Provide, on site, enough facilities and containers to collect, handle and store the anticipated quantities of reusable / reusable and recyclable waste materials.

.5 Place containers in such a way as to facilitate the deposit of waste materials without hindering site activities.

.6 Provide training to sub-contractors and workers in handling and segregation of materials for reuse / reuse and / or recycling.

.7 Place sorted waste materials in places where they will suffer the least possible damage.

.8 Clearly and securely label containers to indicate type / condition of materials accepted; help subcontractors and workers sort materials properly.

.9 Monitor activities related to on-site waste management by conducting periodic on-site inspections to verify the condition of signage, contamination levels, location and condition of bins, staff participation, using waste tracking forms and collecting consignment notes, receipts and invoices.

.10 On-site sale of recovered waste materials is not permitted, except with written authorization from Departmental Representative and provided site safety regulations and safety requirements are met.

1.10 USE OF PREMISES AND FACILITIES

.1 Execute the work with the least possible disruption of the normal use of the premises.

.2 Maintain in force the safety measures established for the installation. Implement the provisional security measures approved by the Departmental Representative.

1.11 WASTE PROCESSING SITE

.1 The Contractor is responsible for finding waste recovery resources and service providers. Recovered waste materials should be transported to approved and / or licensed recycling facilities, or material recyclers.

1.12 QUALITY ASSURANCE

.1 After contract award, a mandatory site review will be performed as part of this project for the Contractor responsible for construction, renovation and demolition / deconstruction waste management.

.1 The date, time and location will be determined by the Departmental Representative.

.2 Waste Management Meeting: The Waste Management Coordinator to provide an update on the recovery and waste management status at each meeting. He must provide a summary of the monthly waste recovery report in writing (see the form waste tracking in Appendix D).

1.13 DELIVERY, STORAGE, AND HANDLING

.1 Store recovered waste materials at locations indicated by Departmental Representative for reuse / reuse or recycling.

.2 Unless otherwise indicated, waste materials to be removed become the property of the Contractor.

.3 Protect, stockpile, store and catalog recovered items.

.4 Separate non-recoverable items from recoverable items. Transport and deliver unrecoverable items to the authorized disposal facility.

.5 Protect framing members left in place and salvaged scrap materials against displacement and damage.

.6 Support the works affected by the work. If the building's security risks being compromised, stop the work and immediately inform the Departmental Representative.

.7 Protect surface water drainage works to prevent them from being damaged or blocked; protect electrical and mechanical installations.

.8 Provide on site facilities and containers to collect and store reusable / reusable and recyclable materials.

.9 Sort and store waste materials generated by the project in designated areas.

.10 Prevent contamination of waste materials intended for recovery and recycling, in accordance with acceptance conditions of designated treatment facilities.

.1 It is recommended to sort waste materials at source.

.2 Evacuate the waste materials collected jumbled to a treatment facility outside the site for sorting.

.3 Obtain waybills, receipts and / or weighing tickets for waste materials sorted and removed from site.

.4 It is considered that the materials reused / reused on site have been valued and that they must be included in any report.

1.14 ÉLIMINATION DES DÉCHETS

.1 Il est interdit d'enfouir les rebuts ou les déchets.

.2 Il est interdit de jeter des déchets, des matières volatiles, des essences minérales, des hydrocarbures, du diluant á peinture dans un cours d'eau ou dans un égout pluvial ou sanitaire.

.3 Tenir un registre des déchets de construction indiquant ce qui suit.

.1 Le nombre de bacs et leur grosseur.

.2 Le type de déchets placés dans chaque bac.

.3 Le tonnage total de déchets générés.

.4 Le tonnage total de déchets réutilisés/réemployés ou recyclés.

.5 La destination des déchets qui seront réutilisés/réemployés ou recyclés.

.4 Récupérer les matériaux des lieux au fur et à mesure de l'avancement des travaux.

.5 Préparer un sommaire du projet afin de contrôler la destination et les quantités de chaque type de matériau de rebut indiqué dans l'audit des déchets.

1.15 CALENDRIER DES TRAVAUX

.1 Coordonner la gestion des déchets avec les autres activités afin d'assurer un déroulement ordonné des travaux.

Part 2 Products

2.1 NOT APPLICABLE

.1 Not applicable.

Part 3 Execution

3.1 GENERAL

.1 Perform work in accordance with WRP and SWSP.

.2 Handle waste that is not reused / reused, recycled or recovered in accordance with relevant codes and regulations.

3.2 CLEANING

.1 .1 Cleaning during work: perform cleaning work in accordance with section 01 74 11 - Cleaning.

.1 Leave the premises clean at the end of each working day.

.2 Final cleaning: remove surplus materials / equipment, waste, tools and equipment from site in accordance with section 01 74 11 - Cleaning.

.3 Waste management: sort waste for reuse / reuse and recycling, in accordance with section 01 74 21 - Construction / demolition waste management and disposal.

.1 Remove recycling bins and skips from site and dispose of materials at appropriate facilities.

.2 Separate waste materials to be reused / reused or recycled at source, and place in locations indicated.

3.3 RECOVERY OF WASTE

.1 Based on the list below, sort the waste materials from the general waste stream and place them in separate piles or in separate containers, with the authorization of the Departmental Representative and in accordance with the relevant regulations on waste disposal. fire safety.

.1 Identify containers or disposal areas.

.2 Provide instructions for disposal practices.

.2 The on-site sale of waste materials recovered for recycling is prohibited unless otherwise specified by the Departmental Representative.

3.4 WASTE VALUATION REPORT

.1 At the end of the project, prepare a written waste recovery report indicating the quantities of materials reused / reused, recycled or disposed of, as well as the following.

.1 Indicate the final recovery results and measure the achievement of the objectives of the waste reduction plan.

.2 Compare the final quantities / percentages of materials recovered with the initial projections of the waste audit and the waste reduction plan. Explain the variations.

.1 Supporting documents.

.2 Waybills and tracking forms.

.3 Description of problems, solutions and lessons learned.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 01 78 00 Documents / Items to be submitted at the end of the work

1.2 REFERENCE STANDARDS

.1 Canadian Environmental Protection Act (CEPA).

.1 SOR/2008-197, Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations.

1.3 ADMINISTRATIVE REQUIREMENTS

.1 Acceptance of Work Procedures:

.1 Contractor's Inspection: Contractor must conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.

.1 Notify Departmental Representative in writing of satisfactory completion of Contractor's inspection and submit verification that corrections have been made.

.2 Request Departmental Representative's inspection.

.2 Departmental Representative's Inspection:

.1 Departmental Representative and Contractor to inspect Work and identify defects and deficiencies.

.2 Contractor to correct Work as directed.

.3 Completion Tasks: Submit written certificates that tasks have been performed as follows:

.1 Work: Completed and inspected for compliance with Contract Documents.

.2 Defects: Corrected and deficiencies completed.

.3 Equipment and systems: Tested, balanced adjusted, and fully operational.

.4 Certificates required by Utility companies submitted.

.5 Operation of systems: Demonstrated to Owner's personnel.

.6 Commissioning of mechanical systems: Completed in accordance with Section 01 91 13 - General commissioning requirements and one (1) copy of final Commissioning Report submitted to Departmental Representative.

.7 Aboveground Underground storage tank inspection documentation, registration, forms, decommissioning, and removal in accordance with CEPA SOR/2008-197.

.8 Work: Complete and ready for final inspection.

.4 Final Inspection:

.1 When completion tasks are done, request final inspection of Work by Departmental Representative and Contractor.

.2 When Work incomplete according to Departmental Representative, complete outstanding items and request re-inspection.

.3 Declaration of Substantial Completion: When the Departmental Representative considers that the deficiencies and defects have been corrected and that the contractual requirements seem largely satisfied, submit a request for the production of a certificate of substantial completion of the work.

.4 Beginning of the warranty period and of the period of exercise of the right of retention: The date of acceptance by the Employer of the declaration of substantial completion of the work submitted will be the date of the beginning of the period of 'exercise of the right of retention and the warranty period, unless otherwise prescribed by the regulations relating to the right of retention in force at the place of work.

.5 Final payment

.1 When the Departmental Representative considers that the deficiencies and defects have been corrected and that the contractual requirements are fully satisfied, submit a request for final payment.

.2 If the work is deemed incomplete by the Departmental Representative, complete the items that were not performed and submit a new inspection request.

.6 Payment of holdback: After issuance of the certificate of substantial completion of the work, submit a request for payment of holdback in accordance with the provisions of the contractual agreement.

1.4 FINAL CLEANING

.1 Clean in accordance with Section 01 74 00 - Cleaning. Remove surplus materials, excess materials, rubbish, tools, and equipment.

.2 Waste Management: Separate waste materials for recycling reuse in accordance with Section 01 74 19 - Waste Management and Disposal.

Part 2 Products

2.1 NOT APPLICABLE

.1 Not applicable.

Part 3 Execution

3.1 NOT APPLICABLE

.1 Not applicable.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 01 45 00 Quality control

.2 Section 01 77 00 Completion of the work

1.2 REFERENCE STANDARDS

.1 Canadian Environmental Protection Act (CEPA).

.1 SOR/2008-197, Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations.

1.3 ADMINISTRATIVE REQUIREMENTS

.1 Pre-warranty Meeting:

.1 Convene meeting one week prior to contract completion with Departmental Representative, in accordance with Section 01 31 19 - Project Meetings to:

.1 Verify Project requirements.

.2 Review warranty requirements manufacturer's installation instructions.

.2 Departmental Representative to establish communication procedures for:

.1 Notifying construction warranty defects.

.2 Determine priorities for type of defects.

.3 Determine reasonable response time.

.3 Provide name, telephone number, and address of company authorized for construction warranty work action.

.4 Ensure contact is located within local service area of warranted construction, is continuously available, and is responsive to inquiries for warranty work action.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Two weeks prior to Substantial Performance of the Work, submit to the Departmental Representative, three final paper copies and one electronic copy of final Operating and Maintenance (O&M) Manuals in French and English.

.3 Provide spare parts, maintenance materials, and special tools of same quality and manufacture as products provided in Work.

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

1.5 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.

.1 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 process flow, 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.

.1 Bind in with text; fold larger drawings to size of text pages.

.9 Provide 1:1 scaled CAD files, in dwg format, on CD.

1.6 CONTENTS - PROJECT RECORD DOCUMENTS

.1 Table of Contents for Each Volume: Provide title of project.

.1 Date of submission; names.

.2 Addresses, name, and telephone numbers of Consultant and Contractor with name of responsible parties.

.3 Schedule of products and systems, indexed to content of volume.

.2 For each product or system:

.1 List names, addresses, and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.

.3 Product Data: Mark each sheet to 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.

.1 Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01 45 00 - Quality Control.

.6 Training: Refer to Section 01 79 00 - Demonstration and Training.

1.7 AS-BUILT DOCUMENTS AND SAMPLES

.1 Maintain, in addition to requirements in General Conditions, at site for Departmental Representative, one record copy of:

.1 Contract Drawings.

.2 Specifications.

.3 Addenda.

.4 Change Orders and other modifications to Contract.

.5 Reviewed shop drawings, product data, and samples.

.6 Field test records.

.7 Inspection certificates.

.8 Manufacturer's certificates.

.2 Store record documents and samples in field office apart from documents used for construction.

.1 Provide files, racks, and secure storage.

.3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual.

.1 Label each document "PROJECT RECORD" in neat, large, printed letters.

.4 Maintain record documents in clean, dry, and legible condition.

.1 Do not use record documents for construction purposes.

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

1.8 RECORDING INFORMATION ON PROJECT RECORD DOCUMENTS

.1 Record information on set of black line opaque drawings.

.2 Use felt tip marking pens, maintaining separate colours for each major system, for recording information.

.3 Record information concurrently with construction progress.

.1 Do not conceal Work until required information is recorded.

.4 Contract Drawings and shop drawings: Mark each item to record actual construction, including:

.1 Measured depths of elements of foundation in relation to finish first floor datum.

.2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.

.3 Measured locations of internal utilities and appurtenances referenced to visible and accessible features of construction.

.4 Field changes of dimension and detail.

.5 Changes made by change orders.

.6 Details not on original Contract Drawings.

.7 Referenced Standards to related shop drawings and modifications.

.5 Specifications: Mark each item to record actual construction, including:

.1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.

.2 Changes made by Addenda and change orders.

.6 Other Documents: Maintain field test records, inspection certifications, manufacturer's certifications, required by individual specifications sections.

.7 Provide digital photos, if requested, for site records.

1.9 CERTIFICATE OF FINAL SURVEY

.1 Submit the final survey certificate in accordance with section 01 71 00 - Examination and preparation, attesting to the compliance or non-compliance with the requirements of the contractual documents for the location and level ratings of the completed works.

1.10 EQUIPMENT AND SYSTEMS

.1 For each item of equipment and each system include description of unit or system, and component parts.

.1 Give function, normal operation characteristics, and limiting conditions.

.2 Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.

.2 Panel Board Circuit Directories: Provide electrical service characteristics, controls, and communications.

.3 Include installed colour coded wiring diagrams.

.4 Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences.

.1 Include regulation, control, stopping, shutdown, and emergency instructions.

.2 Include summer, winter, and any special operating instructions.

.5 Maintenance Requirements: Include routine procedures and guide for troubleshooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

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

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

.8 Include sequence of operation by controls manufacturer.

.9 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

.10 Provide installed control diagrams by controls manufacturer.

.11 Provide Contractor's co-ordination drawings, with installed colour coded piping diagrams.

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

.13 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

.14 Include test and balancing reports as specified in Sections 01 45 00 - Quality Control and 01 91 13 - General Commissioning Requirements.

.15 Aboveground storage tank inspection documentation, registration, forms, decommissioning, and removal in accordance with CEPA SOR/2008-197.

.16 Additional Requirements: As specified in individual Specification.

1.11 MATERIALS AND FINISHES

.1 Building products, applied materials, and finishes: include product data, with catalogue number, size, composition, and colour and texture designations.

.1 Provide information for re-ordering custom manufactured products.

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

.3 Moisture-protection and weather-exposed products: Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

.4 Additional Requirements: As specified in individual Specification.

1.12 MAINTENANCE MATERIALS

.1 Spare Parts:

.1 Provide spare parts, in quantities specified in individual Specification.

.2 Provide items of same manufacture and quality as items in Work.

.3 Deliver to location as directed site; place and store.

.4 Receive and catalogue items.

.1 Submit inventory listing to Departmental Representative.

.2 Include approved listings in Maintenance Manual.

.5 Obtain receipt for delivered products and submit prior to final payment.

.2 Extra Stock Materials:

.1 Provide maintenance and extra materials, in quantities specified in individual Specification.

.2 Provide items of same manufacture and quality as items in Work.

.3 Deliver to location as directed site; place and store.

.4 Receive and catalogue items.

.1 Submit inventory listing to Departmental Representative.

.2 Include approved listings in Maintenance Manual.

.5 Obtain receipt for delivered products and submit prior to final payment.

.3 Special Tools:

.1 Provide special tools, in quantities specified in individual Specification.

.2 Provide items with tags identifying their associated function and equipment.

.3 Deliver to site location as directed; place and store.

.4 Receive and catalogue items.

.1 Submit inventory listing to Departmental Representative.

.2 Include approved listings in Maintenance Manual.

1.13 DELIVERY, STORAGE, AND HANDLING

.1 Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.

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

.3 Store components subject to damage from weather in weatherproof enclosures.

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

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

1.14 WARRANTIES AND BONDS

.1 Develop warranty management plan to contain information relevant to Warranties.

.2 Submit Warranty Management Plan, 30 days before planned pre-warranty conference, to Departmental Representative approval.

.3 Warranty management plan to include required actions and documents to assure that Departmental Representative receives warranties to which it is entitled.

.4 Provide plan in narrative form and contain enough detail to make it suitable for use by future maintenance and repair personnel.

.5 Submit, warranty information made available during construction phase, to Departmental Representative for approval prior to each monthly pay estimate.

.6 Assemble approved information in binder, submit upon acceptance of work and organize binder as follows:

.1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing;

.2 List of subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible designated by each one;

.3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten (10) days after completion of applicable item of work.

.4 Verify that documents are in proper form, contain full information, and are notarized.

.5 Co-execute submittals when required.

.6 Retain warranties and bonds until time specified for submittal.

.7 Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial Performance is determined.

.8 Conduct joint 9-month warranty inspection, measured from time of acceptance, with Departmental Representative.

.9 Include information contained in Warranty Management Plan as follows:

.1 Roles and responsibilities of personnel associated with warranty process, including points of contact and telephone numbers within the organizations of Contractors, subcontractors, manufacturers, or suppliers involved.

.2 Listing and status of delivery of Certificates of Warranty for extended warranty items, to include roofs, motors, pumps, HVAC balancing, transformers, sprinkler systems, lightning protection systems, alarm systems, commissioned systems fire protection.

.3 Provide list for each warranted equipment, item, feature of construction or system, indicating:

.1 Name of item.

.2 Model and serial numbers.

.3 Location.

.4 Name and phone numbers of manufacturers or suppliers.

.5 Names, addresses, and telephone numbers of sources of spare parts.

.6 Warranties and terms of warranty: Include one-year overall warranty of construction. Indicate items that have extended warranties and show separate warranty expiration dates.

.7 Cross-reference to warranty certificates as applicable.

.8 Starting point and duration of warranty period.

.9 Summary of maintenance procedures required to continue warranty in force.

.10 Cross-Reference to specific pertinent Operation and Maintenance manuals.

.11 Organization, names and phone numbers of persons to call for warranty service.

.12 Typical response time and repair time expected for various warranted equipment.

.4 Contractor's plans for attendance at 4- and 9-month post-construction warranty inspections.

.5 Procedure and status of tagging of equipment covered by extended warranties.

.6 Post copies of instructions near selected items of equipment where operation is critical for warranty and/or safety reasons.

.10 Respond in timely manner to oral or written notification of required construction warranty repair work.

.11 Written verification to follow oral instructions.

.1 Failure to respond will be cause for the Departmental Representative to proceed with action against Contractor.

1.15 WARRANTY TAGS

.1 Tag, at time of installation, each warranted item. Provide durable, oil and water-resistant tag approved by Departmental Representative.

.2 Attach tags with copper wire and spray with waterproof silicone coating.

.3 Leave date of acceptance until project is accepted for occupancy.

.4 Indicate following information on tag:

.1 Type of product/material;

.2 Model number;

.3 Serial number;

.4 Contract number;

.5 Warranty period;

.6 Inspector's signature;

.7 Contractor's signature.

Part 2 Products

2.1 NOT APPLICABLE

.1 Not applicable.

Part 3 Execution

3.1 NOT APPLICABLE

.1 Not applicable.

END OF SECTION

1 GENERAL

1.1 RELATED REQUIREMENTS

.1 Section 01 14 00 Word restrictions

.2 Section 01 35 29.06 Health and safety requirements

.3 Section 01 56 00 temporary barriers and enclosures

.4 Section 01 74 21 Construction/demolition waste management and disposal

1.2 REFERENCE STANDARDS

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

.2 National Research Council Canada (NRC)
- .1 National Building Code of Canada 2010 (NBC).
- .2 National Fire Code of Canada 2010 (NFC).

.3 U.S. Environmental Protection Agency (EPA)/Office of Water
- .1 EPA 832/R-92-005, Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures and 01 74 21 - Construction/Demolition Waste Management Disposal.

.2 Submit demolition drawings:
- .1 Submit for review and approval by Ministerial Representative shoring and underpinning drawings stamped and signed by professional engineer registered or licensed in Canada, showing proposed method.

.3 Sustainable Design Submittals:
- .1 not used.
- .2 Construction Waste Management:
  - .1 Submit project [Waste Management Plan] [Waste Reduction Workplan] highlighting recycling and salvage requirements.
  - .2 Submit calculations on end-of-project recycling rates, salvage rates, and landfill rates demonstrating that 50% of construction wastes were recycled or salvaged.
- .3 Erosion and Sedimentation Control: submit erosion and sedimentation control plan in accordance with EPA 832/R92-005 authorities having jurisdiction.

1.4 SITE CONDITIONS

.1 Review "Designated Substance Report" and take precautions to protect environment.

.2 If material resembling spray or trowel-applied asbestos or other designated substance [listed as hazardous] be encountered, stop work, take preventative measures, and notify Ministerial Representative immediately.
- .1 Proceed only after receipt of written instructions have been received from Ministerial Representative.

.3 Notify Ministerial Representative before disrupting [building] access or services.

2 PRODUCTS

2.1 NOT USED

.1 Not used.

3 EXECUTION

3.1 EXAMINATION

.1 Inspect building with Ministerial Representative and verify extent and location of items designated for removal, disposal, alternative disposal, recycling, salvage and items to remain.

.2 Locate and protect utilities. Preserve active utilities traversing site in operating condition.

.3 Notify and obtain approval of utility companies before starting demolition.

.4 Disconnect, cap, plug or divert, as required, existing public utilities within the property where they interfere with the execution of the work, in conformity with the requirements of the authorities having jurisdiction. Mark the location of these and previously capped or plugged services on the site and indicate location (horizontal and vertical) on the record drawings. Support, shore up and maintain pipes and conduits encountered.

.1 Immediately notify Ministerial Representative and utility company concerned in case of damage to any utility or service, designated to remain in place.

.2 Immediately notify the Ministerial Representative should uncharted utility or service be encountered, and await instruction in writing regarding remedial action.

3.2 PREPARATION

.1 Temporary Erosion and Sedimentation Control:

.1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to: requirements of authorities having jurisdiction.

.2 Inspect, repair, and maintain erosion and sedimentation control measures during demolition.

.3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal after completion of demolition work..

.2 Protection of In-Place Conditions:

.1 Prevent movement, settlement, or damage to adjacent [structures,] [utilities,] [and landscaping features] [and parts of building] to remain in place. Provide bracing and shoring required.

.2 Keep noise, dust, and inconvenience to occupants to minimum.

.3 Protect building systems, services and equipment.

.4 Provide temporary dust screens, covers, railings, supports and other protection as required.

.5 Do Work in accordance with Section 01 35 29.06 - Health and Safety Requirements .

.3 Demolition/Removal:

.1 Remove items as indicated.

.2 Removal of Pavements, Curbs and Gutters:

.1 Square up adjacent surfaces to remain in place by saw cutting or other method

approved by Ministerial Representative.

.2 Protect adjacent joints and load transfer devices.

.3 Protect underlying and adjacent granular materials.

.3 Remove parts of existing building to permit new construction.

.4 Trim edges of partially demolished building elements to tolerances as defined by Ministerial Representative to suit future use.

3.3 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.

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

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

.3 Refer to demolition drawings and specifications for items to be salvaged for reuse.

.4 Waste Management: separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

END OF SECTION

1 GENERAL

1.1 RELATED REQUIREMENTS

.1 Section 09 22 16 Non structural metal framing

.2 Section of divisions 22, 23 and 26 for the plumbing, HVAC and electricity devices.

1.2 REFERENCE STANDARDS

.1 CSA International
- .1 CSA B111-1974(R2003], Wire Nails, Spikes and Staples.
- .2 CSA O121-08, Douglas Fir Plywood.
- .3 CSA O141-05(R2009), Softwood Lumber.
- .4 CSA O151-09, Canadian Softwood Plywood.
- .5 CAN/CSA-O325.0-07, Construction Sheathing.
- .6 CAN/CSA-Z809-08, Sustainable Forest Management.

.2 National Research Council Canada (NRC)
- .1 National Building Code of Canada 2010 (NBC).

.3 Forest Stewardship Council (FSC)
- .1 FSC-STD-01-001-2004, FSC Principle and Criteria for Forest Stewardship.

.4 Green Seal Environmental Standards (GS)
- .1 GS-11-11, Paints and Coatings.

.5 National Lumber Grades Authority (NLGA)
- .1 Standard Grading Rules for Canadian Lumber 2010.

.6 South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards
- .1 SCAQMD Rule 1113-A2011, Architectural Coatings.

.7 Sustainable Forestry Initiative (SFI)
- .1 SFI-2010-2014 Standard.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:
- .1 Submit manufacturer's instructions, printed product literature and data sheets for [rough carpentry work] and include product characteristics, performance criteria, physical size, finish and limitations.

1.4 QUALITY ASSURANCE

.1 Lumber identification: by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.

.2 Plywood identification: by grade mark in accordance with applicable CSA standards.

.3 Plywood, OSB and wood based composite panel construction sheathing identification: by grademark in accordance with applicable CSA standards.

.4 Sustainable Standards Certification:
.1 Certified Wood: submit listing of wood products and materials used in accordance with CAN/CSA-Z809 or FSC or SFI.

1.5 DELIVERY, STORAGE AND HANDLING

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

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

.3 Storage and Handling Requirements:
.1 Store materials off ground, in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
.2 Store and protect wood from nicks, scratches, and blemishes.
.3 Replace defective or damaged materials with new.

.4 Packaging Waste Management: remove for reuse and return of pallets, crates, padding, banding, and packaging materials as specified in[Construction Waste Management Plan in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

2 PRODUCTS

2.1 MATERIALS

.1 Lumber: unless specified otherwise, softwood, S4S, moisture content 19% (R-SEC) or less in accordance with following standards:
.1 CAN/CSA-O141.
.2 NLGA Standard Grading Rules for Canadian Lumber.
.3 CAN/CSA-Z809 or FSC or SFI certified.

.2 Furring, blocking, nailing strips, grounds, rough bucks, cants, curbs, fascia backing and sleepers:
.1 S2S is not acceptable.
.2 Board sizes: "Standard" or better grade.
.3 Dimension sizes: "Standard" light framing or better grade.
.4 Post and timbers sizes: "Standard" or better grade.

.3 Panel Materials:
.1 Douglas fir plywood (DFP): to CSA O121, standard construction.
.1 Urea-formaldehyde free.
.2 Canadian softwood plywood (CSP): to CSA O151, standard construction.
.1 Urea-formaldehyde free.
.3 Plywood, OSB and wood based composite panels: to CAN/CSA-O325.
.1 Urea-formaldehyde free.
.4 Fibrous cement composite panels made up of Portland cement compound reinforced with synthetic fibers and additives, density of 1500 kb/m3, having a thickness indicated on the plans, conform to ULC S-114 noncombustibility standard and ASTM D1037 Impacts standard. Dimensions of 1220 mm x 3050 mm smooth finish. Light cement panels made up of beadwalls are not acceptable for these works

.4 Wood Preservative:

.1 General points

.1 The preservative products must be danger free for the structures that will be in contact with humans or horticultural products.

.2 . Products applied in factory: chemical type, in compliance with CSA 080 standards, under pressure, dried after treatment.

.2 Water repellent wood

.1 .Preservative product applied on surface: coloured water repellent preservative product.

.2 VOC content no more than 350 g /l, in compliance with Rule number 113 of SCAQMD.

.3 Preservative products containing pentachlorophenol (PCP), creosote or inorganic arsenicals such as chromate copper arsenate (CCA) are not acceptable.

.4 Wood preservative methods against rot and mildew (water repellent)

.1 Apply on surface to cover the perforations, cuts and nicks of pressure treated products: Water repellent solution with 2% zinc, muted green, to apply in 2 coats (coloured water repellent preservative product).

.2 Vacuum and pressure wood impregnation product, in compliance with CSA 080 standard: wood impregnation with a preservative product until obtaining a net retention of at least 3.84 kg/m3 of wood; muted green colour.

.3 If a water base preservative product (water-soluble) have been used, after treatment, let the materials dry until getting a humidity degree of no more than 14%.

.5 Treat the following elements:

.1 Eaves boards, nailing bases for roof fascias, selvages, nailing strips, ledger strips for roof deck;

.2 Nailing bases of openings in walls that will have entrance or window frame ;

.3 Flashings, strips or any other wood pieces included in the structures of outer envelopes .

.4 Plywood boards for building roofs and the surround of the glass-porches structure. .

2.2 ACCESSORIES

.1 Fasteners: to CAN/CSA-G164, for exterior work, pressure- preservative treated lumber.

.2 Nails, spikes and staples: to CSA B111.

.3 Bolts: 12.5 mm diameter unless indicated otherwise, complete with nuts and washers.

.4 Proprietary fasteners: toggle bolts, expansion shields and lag bolts, screws and lead or inorganic fiber plugs, [explosive actuated fastening devices], recommended for purpose by manufacturer.

.5 Vaporized material to fill in empty spaces between the outer frames and the elements of the outer walls: polyurethane foam with one component, minimal foaming, adjustable gun applied in order to control the length of the isolating cordon.

.1 Acceptable product::

.1 Demilec R SEAL 260 .

.2 Hilti CF-I XTW

.3 Adfast AD Foam Plus

.6 All purpose glue in compliance with CSA 0112.9 standards

.1 VOC content no more than 200g/L in accordance with Gs-36 standard and rule number 1168 of SCAQMD.

.7 Nailing disks: sheet metal with a diameter of at least 25 mm and 0.4 mm thick ,made to prevent

their cupping. Distorted disks are not acceptable.

.8 Fasteners finish

.1 Galvanized steel: in compliance with ASTM A123/A123M and ASTM A653 standards for outer structures and pressure treated wood structures

.2 Stainless steel: shade 302

3 EXECUTION

3.1 EXAMINATION

.1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for rough carpentry installation in accordance with manufacturer's written instructions.

.1 Visually inspect substrate in presence of Ministerial Representative.

.2 Inform Ministerial Representative of unacceptable conditions immediately upon discovery.

.3 Proceed with installation only after unacceptable conditions have been remedied [and after receipt of written approval to proceed from Ministerial Representative.

3.2 PREPARATION

.1 Treat surfaces of material with wood preservative, before installation.

.2 Apply preservative by dipping, or by brush to completely saturate and maintain wet film on surface for minimum 3 minute soak on lumber and 1 minute soak on plywood.

.3 Re-treat surfaces exposed by cutting, trimming or boring with liberal brush application of preservative before installation of the elements or treated wood.

3.3 MATERIALS USES

.1 Exterior walls siding panels (nailing base)

.1 Douglas fir plywood or Canadian softwood, siding category, 19 mm thick rough standard category (unless otherwise indicated)

.2 Underlayment

.1 . Douglas fir plywood or Canadian softwood, siding category, 19 mm thick rough framing headers (unless otherwise indicated)

3.4 INSTALLATION

.1 Install the element square and plumb, according to recommended height dimensions, rivals and alignments

.2 Realize continuous elements from the longest possible parts.

.3 Comply with requirements of National Building Code of Canada (NBC), supplemented by the following paragraphs.

.4 Align and plumb faces of furring and blocking to tolerance of 1:600.

.5 Install rough bucks, nailers and linings to rough openings as required to provide backing for frames and other work.

.6 Install wood cants, fascia backing, nailers, curbs and other wood supports as required and secure using galvanized fasteners.

.7 Use caution when working with particle board. Use dust collectors and high quality respirator masks.

.8 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.

.9 Countersink bolts where necessary to provide clearance for other work.

3.5 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
- .1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

.3 Waste Management: separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.6 PROTECTION

.1 Protect the installed materials and elements against all damages during construction.

.2 Repair damages caused by the installation of carpentry element to materials and adjoining materials.

END OF SECTION

1 GENERAL

1.1 RELATED REQUIREMENTS

.1 Section 06 08 99 Rough carpentry for minor works

1.2 REFERENCE STANDARDS

.1 ASTM International
- .1 ASTM C 553-13, Standard Specification for Mineral Fibre Blanket Thermal Insulation for Commercial and Industrial Applications.
- .2 ASTM C 665-12, Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.
- .3 ASTM C 1320-10, Standard Practice for Installation of Mineral Fiber Batt and Blanket Thermal Insulation for Light Frame Construction.

.2 CSA Group
- .1 CSA B111-1974(R2003), Wire Nails, Spikes and Staples.
- .2 CSA B149 PACKAGE-10, Consists of B149.1, Natural Gas and Propane Installation Code and B149.2, Propane Storage and Handling Code.

.3 Underwriters Laboratories of Canada (ULC)
- .1 CAN/ULC-S702-2012, Standard for Mineral Fibre Insulation for Buildings.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:
- .1 Submit manufacturer's instructions, printed product literature and data sheets for [blanket insulation] and include product characteristics, performance criteria, physical size, finish and limitations.

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

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

1.4 DELIVERY, STORAGE AND HANDLING

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

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

.3 Storage and Handling Requirements:
- .1 Store materials off ground in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
- .2 Store and protect specified materials from nicks, scratches, and blemishes.
- .3 Replace defective or damaged materials with new.

.4 Packaging Waste Management: remove for packaging materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

2 PRODUCTS

2.1 INSULATION

.1 Batt and blanket mineral fibre: to ASTM C 665 (resistance to steel corrosion), CAN/ULC-S702, friction installation type 1 .
- .1 Thickness: as indicated.
- .2 Thermal resistance: value RSI 0,60/25 mm

2.2 ACCESSORIES

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

.2 Nails: galvanized steel, length to suit insulation plus 25 mm, to CSA B111.

.3 Staples: 12 mm minimum leg.

.4 Tape: as recommended by manufacturer.

3 EXECUTION

3.1 EXAMINATION

.1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for blanket insulation application in accordance with manufacturer's written instructions.
- .1 Visually inspect substrate in presence of Ministerial Representative.
- .2 Inform Ministerial Representative of unacceptable conditions immediately upon discovery.
- .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Ministerial Representative.

.2 For the replacement allocation of batt insulation according to section 01 21 00 – Allocations, the contractor must carry out an inspection of the premises with the departmental representative and count the quantities to be replace. No work can be done before obtaining the departmental representative’s written approval.

3.2 INSULATION INSTALLATION

.1 Install insulation to maintain continuity of thermal protection to building elements and spaces and to ASTM C 1320.

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

.3 Do not compress insulation to fit into spaces.

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

minimum 50 mm from [idewalls of CAN/ULC-S604 Type A chimneys and CSA B149.1 and CSA B149.2 Type B and L vents.

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

3.3 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  .1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

.3 Waste Management: separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
  .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

END OF SECTION

1 GENERAL

1.1 RELATED REQUIREMENTS

.1 Section 07 92 00 Joint sealants

.2 Section 09 21 16 Gypsum board and finish concrete panels finish

.3 Section 09 91 23.01 Interior re-painting

.4 See the mechanical and electrical reference drawings for the firewall and smoke barrier set in place in the mechanical and electrical installations (for example: and damper assemblies, cable trays)

1.2 REFERENCE STANDARDS

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

.2 National Research Council Canada (NRC)
- .1 National Building Code of Canada 2010 (NBC).

.3 Underwriter's Laboratories of Canada (ULC)
- .1 ULC-S115-1995, Fire Tests of Fire stop Systems.

1.3 DEFINITIONS

.1 Fire Stop Material: device intended to close off opening or penetration during fire or materials that fill openings in wall or floor assembly where penetration is by cables, cable trays, conduits, ducts and pipes and poke-through termination devices, including electrical outlet boxes along with their means of support through wall or floor openings.

.2 Single Component Fire Stop System: fire stop material that has Listed Systems Design and is used individually without use of high temperature insulation or other materials to create fire stop system.

.3 Multiple Component Fire Stop System: exact group of fire stop materials that are identified within Listed Systems Design to create on site fire stop system.

.4 Tightly Fitted; (ref: NBC Part 3.1.9.1(1) and 9.10.9.6(1)): penetrating items that are cast in place in buildings of noncombustible construction or have "0" annular space in buildings of combustible construction.
- .1 Words "tightly fitted" should ensure that integrity of fire separation is such that it prevents passage of smoke and hot gases to unexposed side of fire separation.

1.4 DESIGN CRITERIAS

.1 It is up to the present section to choose the different types of firewall assemblies to use for all the conditions in the project, in accordance with the recommendations.

.2 The firewall assemblies chosen must be approved by the Underwriter’s Laboratories of Canada (ULC) and bear an assembly number certifying the test and approval.

.3 The choice of the different firewall assemblies must take into account alle the conditions related

to its location including among others and without being restricted to: adjoining materials and works, structure deflection and movement, environment and fire resistance indicated.

.4 When the firewall assembly is installed in a non-hidden location, the latter must be made of paintable materials and must be painted.

1.5 ACTION AND INFORMATIONAL SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:
- .1 Submit manufacturer's printed product literature, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.
- .2 Submit [two] copies of WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 35 29.06 Health and safety requirements and 01 35 43 Environmental procedures.

.3 Shop Drawings:
- .1 Submit shop drawings to show location, proposed material, reinforcement, anchorage, fastenings and method of installation.
- .2 Construction details should accurately reflect actual job conditions.

.4 Samples:
- .1 Submit duplicate 300 x 300 mm samples showing actual fire stop material proposed for project.

.5 Quality assurance submittals: submit following in accordance with Section 01 45 00 - Quality Control.
- .1 Test reports: in accordance with CAN-ULC-S101 for fire endurance and CAN-ULC-S102 for surface burning characteristics.
  - .1 Submit certified test reports from approved independent testing laboratories, indicating compliance of applied fire stopping with specifications for specified performance characteristics and physical properties.
- .2 Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.
- .3 Manufacturer's Instructions: submit manufacturer's installation instructions and special handling criteria, installation sequence and cleaning procedures.
- .4 Manufacturer's Field Reports: submit to manufacturer's written reports within [3] days of review, verifying compliance of Work, as described in PART 3 - FIELD QUALITY CONTROL.

1.6 QUALITY ASSURANCE

.1 Qualifications:
- .1 Installer: company, person specializing in fire stopping installations approved by manufacturer.

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

1.7 DELIVERY, STORAGE AND HANDLING

- .1 Packing, shipping, handling and unloading:

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
.2 Deliver, store and handle materials in accordance with manufacturer's written instructions.
.3 Deliver materials to the site in undamaged condition and in original unopened containers, marked to indicate brand name, manufacturer, ULC markings.

.2 Storage and Protection:
.1 Store materials indoors, in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
.2 Replace defective or damaged materials with new.

.3 Waste Management and Disposal:
.1 Separate waste materials for [recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

1.8 WORK SAMPLES

.1 Make the work required samples at the locations indicated by the departmental representative.

.2 Give 72 hours to the departmental representative to examine the work samples before beginning the works.

.3 Once reviewed by the Architect, the work samples will be the minimum standard to respect concerning the works being part of the present section. Unless otherwise indicated, they may be part of the finish work. Otherwise, and for the rejected works, they may be dismantled, the rejected materials will taken out of the site and a new work sample will have to be made.

.4 Make the following works samples:

.1 One (1) work sample for each type of proposed firewall assembly.

1.9 WARRANTY

.1 For works in the present section, the 12 month warranty period prescribed in the general conditions is extended to 5 years.

.2 Provide a written document jointly signed, issued by the manufacturer and the installer in the name of Canada certifying that the works in the present section will meet all the established performance requirements in normal use conditions for a five (5) year period.

.3 The warranty will cover among others that the works made will free from defects, including the adhesion or cohesion losses, crazings, flarings, fusions, shrinkages, sagging or smudging of the adjoining surfaces and the lack of making an efficient flames, fumes and gas barriers

.4 The warranties must include the fast correction of any defect upon reception of a written notice from the departmental representative to this effect. The repairing works must include workmanship, materials, equipments, and in the case of manufactured elements, the supplying and installation of new replacement parts, all of it free of charge and to the departmental representative liking. The warranties must also include the repairing or the replacement of the other components of the building (and its finishes) and any other works of the departmental representative, damaged or

moved during the repairing of the defects to the work.

2 PRODUCTS

2.1 MANUFACTURER

.1 Acceptable manufacturers:

.1 A/D Fire Protection Systems
.2 3M Fire Protection Products
.3 Hilti
.4 Tremco
.5 Or replacement product approved by addenda in accordance with the instructions to the bidders.

2.2 MATERIALS

.1 All the firewall and smoke barrier products of the assemblies of the same type set in place must come from one and the same manufacturer.

.2 Fire stopping and smoke seal systems: in accordance with CAN-ULC-S115.
.1 Asbestos-free materials and systems capable of maintaining effective barrier against flame, smoke and gases in compliance with requirements of CAN-ULC-S115 and not to exceed opening sizes for which they are intended and conforming to specified special requirements described in PART 3.
.2 Fire stop system rating: according to the indications and conform to the recommendations of the 2010 National Building Code..

.3 Service penetration assemblies: systems tested to CAN-ULC-S115.

.4 Service penetration fire stop components: certified by test laboratory to CAN-ULC-S115.

.5 Fire-resistance rating of installed fire stopping assembly in accordance with NBC 2010.

.6 Fire stopping and smoke seals at openings intended for ease of re-entry such as cables: elastomeric seal.

.7 Fire stopping and smoke seals at openings around penetrations for pipes, ductwork and other mechanical items requiring sound and vibration control: elastomeric seal.

.8 Primers: to manufacturer's recommendation for specific material, substrate, and end use.

.9 Water (if applicable): potable, clean and free from injurious amounts of deleterious substances.

.10 Damming and backup materials, supports and anchoring devices: to manufacturer's recommendations, and in accordance with tested assembly being installed as acceptable to authorities having jurisdiction.

.11 Sealants for vertical joints: non-sagging.

.12 Firewall mastic to wrap the electrical outlets in the fire resistant divisions. Acceptable product: Hilti CP 617 or acceptable product according to the manufacturers' standards in point 2.01

.13 Self-bracing intumescent pillows for clogging the bar or duct guides through the walls or floors: pillow made of a coating of intumescent materials embedded in fire-resistant insulation, the whole thing being covered with an airproof polyethylene envelope.

3 EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

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

3.2 EXAMINATION

.1 Before proceeding to the installation of the fire-retardant assemblies**,** make sure that the state of the surfaces/supports first set up at the end of other sections or contracts and the flatness variations are acceptable and allow for the realization of the works in accordance to the manufacturer’s written instructions.

.1 Inform the departmental representative immediately of any unacceptable conditions detected.

.2 Have the installation surfaces approved by the technical representative of the supplier of flexible pavement.

.2 Provide, otherwise, a report showing the deficiencies or the approval of the control desk inspector before starting the installations.

.3 Start installation works only after having corrected the unacceptable conditions and received the written approval of the control desk inspector of the partition’s supplier. Installing them without this approval, this contractor alone will be responsible for repairing the entire work including the works of other sections and of the latter

3.3 PREPARATION

.1 Examine sizes and conditions of voids to be filled to establish correct thicknesses and installation of materials.
.1 Ensure that substrates and surfaces are clean, dry and frost free.

.2 Prepare surfaces in contact with fire stopping materials and smoke seals to manufacturer's instructions.

.3 Maintain insulation around pipes and ducts penetrating fire separation [without interruption to vapour barrier.

.4 Mask where necessary to avoid spillage and over coating onto adjoining surfaces; remove stains on adjacent surfaces.

3.4 INSTALLATION

.1 Install fire stopping and smoke seal material and components in accordance with manufacturer's certified tested system listing.

.2 Seal holes or voids made by through penetrations, poke-through termination devices, and unpenetrated openings or joints to ensure continuity and integrity of fire separation are

maintained.

.3 Provide temporary forming as required and remove forming only after materials have gained sufficient strength and after initial curing.

.4 Tool or trowel exposed surfaces to neat finish.

.5 Remove excess compound promptly as work progresses and upon completion.

3.5 SEQUENCES OF OPERATION

.1 Proceed with installation only when submittals have been reviewed by Ministerial Representative.

.2 Metal deck bonding: fire stopping to precede spray applied fireproofing to ensure required bonding.

.3 Mechanical pipe insulation: [certified] fire stop system component.
.1 Ensure pipe insulation installation precedes fire stopping.

3.6 LOCATION OF THE FIRE-RETARDANT ASSEMBLIES

.1 Determine the location of the fire-retardant assemblies according to the instructions for all the fields among others and without being limited to: for the location and dimensions of the openings, ducts, steel and concrete framing elements, types of partitions and exteriors walls.

.2 The openings include among others and without being limited to: the electrical, mechanical and telecommunication ducts, the architectural elements and any other element that go through.

.3 Walls and partitions include among others and without being limited to plasterboard partitions, concrete elements.

.4 Make fire-retardant and smoke barrier in the following locations:

.1 Walls and partitions making a fire-retardant division and whose fire resistance is shown:
.1 Walls and partitions openings.
.2 Joints between two types of walls and partitions.
.3 Walls and partitions intersection.
.4 Top and bottom part of the walls and partitions.
.5 Recessed and reinforcing joints made in walls and partitions.
.6 Access points and sheaths put in or set in place in fire-retardant partitions for future use, including among others and without being limited to the trapdoors for the mechanical and electrical equipments.
.7 Edge of the mechanical and electrical assemblies that go through walls and partitions.
.8 Edge and surface of electrical outlets inside fire-resistance partitions.

3.7 FIELD QUALITY CONTROL

.1 Inspections: notify Ministerial Representative when ready for inspection and prior to concealing or enclosing fire stopping materials and service penetration assemblies.

.2 Manufacturer's Field Services:
.1 Obtain written report from manufacturer verifying compliance of Work, in handling, installing, applying, protecting and cleaning of product and submit Manufacturer's Field

Reports as described in PART 1 - SUBMITTALS.

.2 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

.3 Schedule site visits, to review Work, as directed in PART 1 - QUALITY ASSURANCE.

3.8 CLEANING

.1 Proceed in accordance with Section 01 74 11 - Cleaning.

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

.3 Remove temporary dams after initial set of fire stopping and smoke seal materials.

END OF SECTION

1 GENERAL

1.1 RELATED REQUIREMENTS

.1 Section 07 84 00 Fire stopping

.2 Division 9 for Sheating finish

1.2 REFERENCE STANDARDS

.1 ASTM International
- .1 ASTM C 919-08, Standard Practice for Use of Sealants in Acoustical Applications.

.2 Canadian General Standards Board (CGSB)
- .1 CGSB 19-GP-5M-1984, Sealing Compound, One Component, Acrylic Base, Solvent Curing (Issue of 1976 reaffirmed, incorporating Amendment No. 1).
- .2 CAN/CGSB-19.13-M87, Sealing Compound, One-component, Elastomeric, Chemical Curing.
- .3 CGSB 19-GP-14M-1984, Sealing Compound, One Component, Butyl-Polyisobutylene Polymer Base, Solvent Curing (Reaffirmation of April 1976).
- .4 CAN/CGSB-19.17-M90, One-Component Acrylic Emulsion Base Sealing Compound.
- .5 CAN/CGSB-19.24-M90, Multi-component, Chemical Curing Sealing Compound.

.4 General Services Administration (GSA) - Federal Specifications (FS)
- .1 FS-SS-S-200-E(2)1993, Sealants, Joint, Two-Component, Jet-Blast-Resistant, Cold Applied, for Portland Cement Concrete Pavement.

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

.6 South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards
- .1 SCAQMD Rule 1168-A2005, Adhesives and Sealants Applications.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:
- .1 Submit manufacturer's instructions, printed product literature and data sheets for joint sealants and include product characteristics, performance criteria, physical size, finish and limitations.
- .2 Manufacturer's product to describe:
  - .1 Caulking compound.
  - .2 Primers.
  - .3 Sealing compound, each type, including compatibility when different sealants are in contact with each other.
- .3 Submit 2 copies of WHMIS MSDS in accordance with Section 01 35 29.06 - Health and Safety Requirements and 01 35 43 - Environmental Procedures.

.3 Samples:
- .1 Submit 2 samples of each type of material and colour.
- .2 Cured samples of exposed sealants for each colour where required to match adjacent material.

.4 Manufacturer's Instructions:
.1 Submit instructions to include installation instructions for each product used.

.5 Laboratory tests reports
1 Submit the laboratory tests reports, in accordance with section 01 45 00 – Quality control
2 Test the sealing materials, accessories and substrates in accordance with the following elements before beginning work on this section.
1 Obtain the samples of substrate specified in other sections.
2. Adhesion: in accordance with C 510 or C1248 ASTM D2203, check that the sealing materials will not stain the substrates to be joined.
3. Compatibility: in accordance with ASTM C1087, determine that the materials that join and the adjoining materials do not change the performance of the sealing materials and their colour.
4. Stains: in accordance with C 510 or C1248 ASTM D2203, check that the sealing materials will not stain the substrates to be joined

1.4 CLOSEOUT SUBMITTALS

.1 Submit in accordance with Section 01 78 00 - Closeout Submittals.

.2 Operation and Maintenance Data: submit operation and maintenance data for incorporation into manual.

1.5 DELIVERY, STORAGE AND HANDLING

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

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

.3 Storage and Handling Requirements:
.1 Store materials indoors, in accordance with manufacturers' recommendations in clean, dry, well-ventilated area with room temperature or less than 15°C.
.2 Store and protect joint sealants from [nicks, scratches, and blemishes.
.3 Replace defective or damaged materials with new.

.4 Develop Construction Waste Management Plan.

.5 Packaging Waste Management: remove for reuse and return by manufacturer of pallets, crates, padding, and packaging materials as specified in Construction Waste Management Planning accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

1.6 SITE CONDITIONS

.1 Ambient Conditions:
.1 Proceed with installation of joint sealants only when:
.1 Ambient and substrate temperature conditions are within limits permitted by joint sealant manufacturer or are above 4.4 degrees C.
.2 Joint substrates are dry.
.3 Conform to manufacturer's recommended temperatures, relative humidity, and substrate moisture content for application and curing of sealants including special conditions governing use.

.2 Joint-Width Conditions:
.1 Proceed with installation of joint sealants only where joint widths are more than those

allowed by joint sealant manufacturer for applications indicated.

.3 Joint-Substrate Conditions:
.1 Proceed with installation of joint sealants only after contaminants capable of interfering with adhesion are removed from joint substrates.

1.7 ENVIRONMENTAL REQUIREMENTS

.1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and provision of Material Safety Data Sheets (MSDS) acceptable to Health Canada.

.2 Ministerial Representative will arrange for ventilation system to be operated on maximum outdoor air and exhaust during installation of caulking and sealants. Ventilate area of work as directed by Ministerial Representative by use of approved portable supply and exhaust fans.

1.8 WARRANTY

.1 For works in the present section, the 12 month warranty period prescribed in the general conditions is extended to 5 years

.2 Provide a written document jointly signed, issued by the manufacturer and the installer in the name of Canada certifying that the works in the present section will meet all the established performance requirements, without water or air infiltration through the sealed joints for a five (5) year period.

.3 The warranty will cover among others that the works made will free from defects, including the adhesion or cohesion losses, splitting, flairings, fusions, disintegrations, shrinkages, saggings or smudgings of the adjoining surfaces

.4 The warranties must include the fast correction of any defect upon reception of a written notice from the departmental representative to this effect. The repairing works must include workmanship, materials, equipments, and in the case of manufactured elements, the supplying and installation of new replacement parts, all of it free of charge and to the departmental representative liking. The warranties must also include the repairing or the replacement of the other components of the building (and its finishes) and any other works of the departmental representative, damaged or moved during the repairing of the defects to the work.

2 PRODUCTS

2.1 WATERPROOFING PRODUCTS – GENERALITIES

.1 Caulking products emitting strong odours, containing toxic chemicals or not certified as being moistures resistant must not be used in air treatment apparatuses and on site.

.2 Waterproofing products for each location must be one and only type and be form the same manufacturer.

.3 In the case of waterproofing products homologated with a primer, only the primer in question must be used with the said waterproofing product.

.4 Unless otherwise stated, the colour of each waterproofing product for each location will at the

departmental representative from the manufacturer's standard coulours.

2.2 WATERPROOFING PRODUCTS - DESCRIPTION

.1 Urethane base sealing material

.1 Type 1:

.1 Multi-components waterproofing material.

.2 Type M, Grade NS, conform to ASTM C 920 standard.

.1 Average strength modulus:

.1 Acceptable products (see note 1 at the end of 2.02)

.1 Sika Class 25 Sikaflex 2c NS, T, NT, M, G, A and O use.

.2 Tremco Class 25 or 50 Dymeric 240 or 240FC, T, NT, M, A and O use.

.2 Type 2:

.1 One component waterproofing material.

.2 Type S, Grade NS, conform to ASTM C 920 standard.

.1 2A – Low strength modulus

.1 Acceptable product (see note 1 at the end of 2.02)

.1 Tremco Class 50 Dymonic FC, NT, M, A and O use.

. 2 2B - Average strength modulus:

.1 Acceptable products (see note 1 at the end of 2.02)

.1 Tremco Class 25, Vulkem 116, T, NT, M, A, I and O use. .

.3 Type 3:

.1 Self-leveling multi-components waterproofing material

.2 Type M, Grade P, conform to ASTM C 920 standard.

.1 Average strength modulus:

.1 Acceptable product (see note 1 at the end of 2.02)

.1 Tremco Class 25 THC 900 (THC 901 for inclined plan up to 10%),, T, M and O use

.2 Sika Class 25, Sikaflex 2c SL, T, NT, M, G, A, O, I use.

.4 Type 4:

.1 Self-leveling one component waterproofing material.

.2 Type S, Grade P, conform to ASTM C 920 standard.

.1 Average strength modulus:

.1 Acceptable product (see note 1 at the end of 2.02)

.1 Sika Class 25 Sikaflex self-leveling T and M use.

.2 Tremco Class 50 Vulkem 45 SSL T, M, A, O and I use.

.2 Silicon base neutral maturing sealant:

.1 Type 5:

.1 Multi-components waterproofing material

.2 Type M, Grade S, conform to ASTM C 920 standard.

.1 Low strength modulus:

.1 Acceptable product (see note 1 at the end of 2.02)

.1 Tremco Class 25 Spectrem 4-TS NT, M, G, A and O use.

.2 Type 6:

.1 Multi-components waterproofing material

.2 Type M, Grade P, conform to ASTM C 920 standard.

.1 Very low strength modulus :

.1 Acceptable product (see note 1 at the end of 2.02)

.1 Sika Grade P Class 100/50 Sikasil-728 RCS T, M, G, A and O use.

.3 Type 7:

.1 One component waterproofing material.

.2 Type S, Grade NS, conform to ASTM C 920 standard.

.1 Type-7A - Very low strength modulus:

.1 Acceptable product (see note 1 at the end of 2.02)

.1 Tremco Class 100/50 Spectrem 1, NT, M, G, A and O use.

.2 Dow Corning Class 100/50 790 Silicone building sealant, T, NT, M, G, A and O use.

.2 Type-7B - Low strength modulus:

.1 Acceptable product (see note 1 at the end of 2.02)

.1 Sika Class 100/50 Sikasil-728 NS, NT, T, M, G, A and O use.

.2 Tremco Class 50 Spectrem 3, NT, M, G, A and O use.

.3 Dow Corning Class 50 Contractor concrete sealant (CCS), T, NT, M, G, A and O use.

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.3 Type 7C: Average strength modulus.

.1 Acceptable product (see note 1 at the end of 2.02)

.1 Dow Corning Class 25 Contractors weatherproofing sealant (CWS), NT, M, A and O use

.2 Tremco Class 25 Tremsil 600, NT, G, A and O use.

.4 Type 7D : . - Low strength modulus, for parking lots, Class 100/50

.1 Acceptable product (see note 1 at the end of 2.02)

.1 Tremco Spectrem 800, application with sprayer.

.2 Self-leveling Tremco Spectrem 900.

.3 Dow corning NS Parking structure sealant

.3 Acetic acid maturing silicone base sealant:

.1 Type 8:

.1 One component waterproofing material.

.2 Type S, Grade NS, conform to ASTM C 920 standard

.1 8A - Mold and mildew resistant:

.1 Acceptable product (see note 1 at the end of 2.02)

.1 Dow Corning 786 Silicone sealant, Class 25, NT, G, and A use.

.2 Tremco Tensil 200, NT, G, A et O use.

.2 8B - Glazing:

.1 UV resistant and non-yellowing acceptable product (see note 1 at the end of 2.02).

: .1 Dow Corning 999-A Silicone building and glazing, NT, G, A and O use.

.2 Acceptable product (see note 1 at the end of 2.02)

.1 Dow Corning 795 Silicone Building Sealant, NT, G, A and O use.

.2 Tremco Spectrem2, Class 50, NT, M. G. A and O use.

.3 Tremco Proglaze, NT, G, A et O use.

.4 Other sealants

.1 Type 9:

.1 Acrylic latex one component waterproofing material

.2 Conform to ASTM 834 standard; one component, solvent maturing, does not stain, bleeding-free, non-sag.

.1 Acceptable product: Tremco Tremflex 834 (see note 1 at the end of 2.02)

2 Type 10:

.1 Rubber bas one component waterproofing material

.1 Acceptable product: Tremco Acoustic sealant (see note 1 at the end of 2.02)

.3 Type 11:

.1 Butyle or polyisobutylene one component waterproofing material conform to ASTM C1311 standard.

.1 Acceptable product: Tremco Butyle sealant (see note 1 at the end of 2.02)

** Note 1: for all the acceptable products it is possible to suggest a replacement product by addenda in accordance with the instructions to the bidders in the products from Dow Corning, Tremco, Sika.

2.3 ACCESSORIES

.1 Non-corrosive cleaner, leaving no stain in accordance with the sealant manufacturer's recommendations and compatible with the materials to join.

.2 Primer:

.1 Leaving no stain, leaving no stain in accordance with the sealant

manufacturer's recommendations and compatible with the substrates on which it will be applied.

.3 Compressible and non-compressible preformed backup strips:

.1 Backup strips must fit the appropriate waterproofing products and be of the same type recommended by the manufacturer.

.2 Polyethylene foam elements

.1 Cavernous/extruded foam filling rods.

.2 Elements oversized by 30 to 50%.

.3 Conform to ASTM C1330 type B standard.

.3 Neoprene or rubber-butyle elements

.1 Round and solid rods, with 70 Shore A hardness.

.4 Strong density foam elements.

.1 Extruded cellular polythene foam elements,

.2 with 20 Shore A hardness

.3 Tensile strength from 140 to 200 kPa.

.4 Ant- positive connection tape.

.1 Polyethylene tape that does not adhere to the waterproofing material and recommended by the sealant's manufacturer.

.5 Masking tape:

.1 Leaving no stain and non-absorbent, recommended by the sealant's manufacturer and compatible with substrates on which it will be applied.

2.4 CLEANING PRODUCTS FOR JOINTS:

.1 Non-corrosive and non-dirty, compatible with the materials with which the joints are made and the waterproofing products, and recommended by their manufacturer.

3 EXECUTION

3.1 QUALITY OF EXECUTION

.1 Conformity: conform with the manufacturer's written requirements, recommendations and specifications, including the technical bulletins and installation instructions specified in the products' catalogues and the wrapping cardboards, as well as to the indications on the data sheets.

.2 In addition to the manufacturers' requirements, ensure that the sealing works respect the requirements in the « Applicator Training Manual » of the Sealant, Waterproofing & Restoration Institute (SWR Institute

3.2 INSPECTION

.1 Check the surfaces and joints openings meant to receive these works. Before proceeding to the installation of the waterproofing products:

.1 Make sure that the state of the surfaces/supports first set up at the end of other sections or contracts and the flatness variations are acceptable and allow for the realization of the works in accordance to the manufacturer's written instructions.

.2 Make sure that the concrete surfaces have completed their setting cycle.

.3 Inform the departmental representative immediately of any unacceptable conditions detected

.2 Have the installation surfaces approved by the technical representative of the supplier. Send this approval immediately to the departmental representative.

.3 Start installation works only after having corrected the unacceptable conditions and received the written approval of the control desk inspector of the partition's supplier. Beginning the works without this approval means the acceptation of the base works and the responsibility if need be.

3.3 PREPARATION

.1 Protect works installed by third parties from soiling or any other form of contamination. Before applying the primer and the waterproofing product, mask the adjoining surfaces to avoid soiling.

.2 Preparing the surfaces:

.1 Prepare the surface in accordance with AST C 1193 and the manufacturer's instructions.

.2 Check the dimensions of the joints to make and the state of the surfaces in order to obtain an adequate width-depth ratio for the setting up of the backup strips and waterproofing products.

.3 Remove from the joints' surfaces any undesirable matter, including dust, rust, oil, grease and other foreign matters that are likely to impede the quality of execution of the works.

.4 Make sure that joints' surfaces are well dried and that they are not frozen.

3.4 SETTING UP CONDITIONS

.1 Environment:

.1 Do not proceed to the setting up of waterproofing products in the following conditions:

.1 When room temperature and the substrate temperature are outside the limits fixed by the manufacturer of the products.

.2 When the degree of relative humidity and the moisture content of the substrate are outside the limits fixed by the manufacturer of the products.

.3 Or any other more strict recommendations of the manufacturer or mentioned standards and organisms.

.2 Width of the joints:

.1 Do not proceed with the setting up of the waterproofing products when the width of the joints is inferior to the one fixed by the product's manufacturer for the indicated applications or to less than 6 mm

.2 Obtain the approval of the departmental representative to make joint that are less than 6 mm or more than 13 mm.

.3 Substrate:

.1 Do not proceed to the setting up of waterproofing products until the substrate have been cleared of any contaminants that are likely to prevent the adherence of the products.

.4: Safety :

.1 Make sure that building's ventilation system works at the maximum admission of air and de-aeration during the setting up of the waterproofing and caulking products. Aerate the working areas following the instruction of the manufacturer's Consultant or the technical advisor with portable blower and roof fans

.2 Satisfy the requirements of the Workplace Hazardous Materials Information System (WHMIS) concerning the use, handling, storing and disposal of hazardous materials as well as the labeling and providing safety data sheets acknowledge by Labour Canada

3.5 SETTING UP THE PRIMER

1 Apply the primer on the lateral surfaces of the joints immediately before setting up the waterproof product, in accordance with the instructions of the waterproof product's manufacturer.

3.6 INSTALLATION OF THE BACKUP STRIP

.1 Install Anti-positive connection tape at the required locations, in accordance with the manufacturer's instructions.

.2 Compressing it about 30%,install the backup joint according to the depth and profile of desired and requested by the technical representative of the waterproofing products' manufacturer.

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3.7 SETTING UP THE WATERPROOFING PRODUCT

.1 Proportion:

.1 Proportion the components rigorously respecting the instructions of the waterproofing products' manufacturer

.2 Application of the waterproofing product:

.1 Set up the waterproofing product in accordance with the manufacturer's written instructions.

.2 In order to achieve clean joints, install masking tape on the edges of the surface to joint.

.3 Apply the waterproofing product making a continuous bead.

.4 Apply the waterproofing product with a constant flow electric gun equipped with a nozzle of the appropriate dimension.

.5 The feeding pressure must be strong enough to allow the filling of voids and the perfect filling of the joints.

.6 Achieve the joint so as to form a continuous waterproofing bead free from edges, plies, saggings, airspaces and covered dirt.

.7 Before a skin is formed on the joints, shape the exposed surfaces in order to give them a slightly concave profile.

.8 Remove the surplus of waterproofing products as the works progress as well as at the end.

.9 Where it is unavoidable to join silicone sealants to urethane sealants:

.1 First install the urethane sealant..

.2 Join the silicone sealants to urethane sealants according to the manufacturer's recommendations.

.10 Give a concave profile to the exposed sealants or according to the manufacturer's recommendations

.3 Drying :

.1 Ensure the drying and hardening of the waterproofing products according to the instructions of these products' manufacturer.

.2 Do not cover the joints made waterproofing products before they are well dry.

.4 Make sure that the waterproofing products are free from forming skin, bad adhesion and that they do not have defective works that are likely to harm the quality of the work.

3.8 LISTS AND TABLES

.1 Waterproofing products – interior locations

.1 Application:

.1 Expansion and control joints provided for in the interior withe of the site concrete walls

.2 Interior edge of the openings made in exterior walls according to the detail of the drawings

.3 Joints provided for in the prefabricated beams or planks underside.

.4 Joints between the interior walls' materials mentioned above and the doors, windows, louvers, elevator's doors and other openings according to indications and details.

.5 Other moving joints provided for in vertical surfaces and other horizontal surfaces not prone to vehicle or pedestrian traffic such as:

.1 At the intersection of masonry walls (blocks/blocks, blocks/concrete).

.2 At the top of non-bearing masonry wall, at the underside of site concrete elements.

.3 In drywall partitions constructions.

.2 Type of products to use depending on the working conditions and according and the manufacturer's recommendations:

.1 Type-1, Type-2B, Type-5, Type-7A,C ou Type-9.

.2 Interior waterproofing products – Sanitary facility:

.1 Applications:

.1 Joint on restroom and bathroom counters.

.2 Joints between the plumbing equipments and the adjoining materials.

.3 Other interior joints in humid or wet locations where the control of mold and mildew is necessary.

.2 Type of products to use depending on the working conditions and according and the manufacturer's recommendations:

.1 Type-8A

.3 Waterproofing products in immersion

.1 Applications: joints in liquid approved by manufacturer of the immerged sealant.

.1 Type of products to use depending on the working conditions and according and the manufacturer's recommendations:

.1 Tremco Vulkem 116, Type-2B

.2 Sika Sikaflex 2c SL, Type-3

.3 Tremco Vulkem 45 SSL,Type-4

.4 Waterproofing products – fuel petroleum product

.1 Applications:

.1 Joints in concrete surfaces prone to fuel petroleum product spill.

.2 Type of products to use depending on the working conditions and according and the manufacturer's recommendations:

.1 Type-4.

.5 Other hidden waterproofing products.

.1 Applications: Joints between the metal flashings and the trims.

.1 Type of products to use depending on the working conditions and according and the manufacturer's recommendations: Type-7B.

.2 Applications: treated bed joints under the metal tresholds.

.1 Type of products to use depending on the working conditions and according and the manufacturer's recommendations: Type-7C or Type-10.

.3 Applications: Joints between the vapour barrier sheets.

.1 Type of products to use depending on the working conditions and according and the manufacturer's recommendations:

.1 Type -10.

.4 Applications: Interior acoustic joints

.1 Type of products to use depending on the working conditions and according and the manufacturer's recommendations:

.1 Type-10.

3.9 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.

.1 Leave Work area clean at end of each day.
.2 Clean adjacent surfaces immediately.
.3 Remove excess and droppings, using recommended cleaners as work progresses.
.4 Remove masking tape after initial set of sealant.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

.3 Waste Management: separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.8 PROTECTION

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

.2 Repair damage to adjacent materials caused by joint sealants installation.

END OF SECTION

1 GENERAL

1.1 RELATED REQUIREMENTS

.1 Section 06 08 99 Rough carpentry for minor works

.2 Section 07 21 16 Blanket and bat insulations

.3 Section 07 84 00 Fire stopping

.4 Section 07 92 00 Joints sealants

.5 Section 09 22 16 Non-structural metal framing

.6 Section 09 30 13 Ceramic tiling

.7 Divisions 22 and 23 for the positioning of access doors to fire-fighting and mechanical equipment and embedded equipments in these divisions.

.8 Division 26 for the positioning of access doors to electrical, communication and electronic security equipment and embedded equipments in these divisions.

1.2 REFERENCE STANDARDS

.1 Aluminum Association (AA)
- .1 AA DAF 45-03(R2009), Designation System for Aluminum Finishes.

.2 ASTM International
- .1 ASTM C 475-02(2007), Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
- .2 ASTM C 514-04(2009e1), Standard Specification for Nails for the Application of Gypsum Board.
- .3 ASTM C 557-03(2009)e1, Standard Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing.
- .4 ASTM C 840-08, Standard Specification for Application and Finishing of Gypsum Board.
- .5 ASTM C 954-07, Standard 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.
- .6 ASTM C 1002-07, Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.
- .7 ASTM C 1047-09, Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.
- .8 ASTM C 1280-99, Standard Specification for Application of Gypsum Sheathing.
- .9 ASTM C 1177/C 1177M-08, Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing.
- .10 ASTM C 1178/C 1178M-08, Standard Specification for Glass Mat Water-Resistant Gypsum Backing Board.
- .11 ASTM C1396/C1396M-09a, Standard Specification for Gypsum Wallboard.

.3 Association of the Wall and Ceilings Industries International (AWCI)
- .1 AWCI Levels of Gypsum Board Finish-97.

.4 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-51.34-M86(R1988), Vapour Barrier, Polyethylene Sheet for Use in Building Construction.
.2 CAN/CGSB-71.25-M88, Adhesive, for Bonding Drywall to Wood Framing and Metal Studs.

.6 Green Seal Environmental Standards (GS)
.1 GS-11-2008, 2nd Edition, Paints and Coatings.

.7 South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards
.1 SCAQMD Rule 1113-A2007, Architectural Coatings.
.2 SCAQMD Rule 1168-A2005, Adhesives and Sealants Applications.

.8 Underwriters' Laboratories of Canada (ULC)
.1 CAN/ULC-S102-07, Standard Method of Test of Surface Burning Characteristics of Building Materials and Assemblies.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:
.1 Submit manufacturer's instructions, printed product literature and data sheets for gypsum board assemblies and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Samples:
.1 Submit for review and acceptance of each unit.
.2 Samples will be returned for inclusion into work.
.3 Submit one samples of corner and casing beads and shadow mould.

1.4 TRANSPORTATION, STORAGE AND HANDLING

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

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

.3 Storage and Handling Requirements:
.1 Store gypsum board assemblies materials level off ground, indoors and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
.2 Store and protect gypsum board assemblies from nicks, scratches, and blemishes.
.3 Protect from weather, elements and damage from construction operations.
.4 Handle gypsum boards to prevent damage to edges, ends or surfaces.
.5 Protect prefinished aluminum surfaces with wrapping. Do not use adhesive papers or sprayed coatings which bond when exposed to sunlight or weather.
.6 Replace defective or damaged materials with new.

.4 Packaging Waste Management: remove for reuse of pallets, as specified in Construction Waste Management Plan in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal].

1.5 AMBIENT CONDITIONS

.1 Maintain temperature 10 degrees C minimum, 21 degrees C maximum for 48 hours prior to and

during application of gypsum boards and joint treatment, and for 48 hours minimum after completion of joint treatment.

.2 Apply board and joint treatment to dry, frost free surfaces.

.3 Ventilation: ventilate building spaces as required to remove excess moisture that would prevent drying of joint treatment material immediately after its application.

1.6 WARRANTY

.1 For works in the present section, the 12 month warranty period prescribed in the general conditions is extended to 5 years.

.2 Provide a written and signed document issued in the name of Canada, certifying the installed material from any presence of mildew, any delamination or any other deformation or deterioration for a period of 5 years. Refer to the general condition for the beginning of the warranties.

.3 The warranties must include the fast correction of any defect upon reception of a written notice to Canada to this effect. The repairing works must include workmanship, materials, equipments and the required services to repair the de defectives parts of the building and, in the case of manufactured elements, the supplying and installation of new replacement parts, all of it free of charge and to the departmental representative liking. The warranties must also include the repairing or the replacement of the other components of the building (and its finishes) and any other works of the departmental representative, damaged or moved during the repairing of the defects to the work.

2 PRODUCTS

2.1 PANELS AND BOARDS

.1 Standard gypsum boards: to ASTM C1396/C1396M standard having thicknesses indicated on the drawings, and Type X, 1200 mm wide x maximum practical length, square edges on the ends and beveled edges on the sides.

.2 Water-resistant gypsum board: to ASTM C1396/C1396M, having the thicknesses indicated on the plans, Type X, 1200 mm wide x longest practical length with square edges on the ends and beveled edges on the sides.

.3 Gypsum boards resistant to shocks, conform to ASTM C36/C36M and C1396 standards, cellulose reinforced, having a thickness indicated on the plans, Type X, 1200 mm wide x maximum practical length possible, square edges on the ends and beveled edges on the sides.

.4 Glass mat gypsum substrate sheathing: to ASTM C 1177/C 1177M, having thicknesses indicated on the drawings,1200 mm wide x maximum practical length.

.5 Fibrous cement composite panels made up of Portland cement compound reinforced with synthetic fibers and additives, density of 1500 kb/m3, having a thickness indicated on the plans, conform to ULC S-114 noncombustibility standard and ASTM D1037 Impacts standard. Dimensions of 1220 mm x 3050 mm smooth finish. Light cement panels made up of beadwalls are not acceptable for these works.

2.2 MOLDINGS AND ACCESSORIES

.1 Metal furring runners, hangers, tie wires, inserts, anchors: according to the manufacturer’s

characteristics.

.2 Drywall furring channels: 0.5 mm core thickness galvanized steel channels for screw attachment of gypsum board.

.3 Resilient clips: 0.5 mm base steel thickness galvanized steel for resilient attachment of gypsum board.

.4 Nails: to ASTM C 514.

.5 Steel drill screws: to ASTM C 1002.

.6 Stud adhesive: to CAN/CGSB-71.25.

.7 Laminating compound: as recommended by manufacturer, asbestos-free.

.8 Casing beads, corner beads, control joints and edge trim: to ASTM C 1047, metal, galvanized by 0.5 mm base thickness, perforated flanges, one piece length per location.

.9 Aluminum extrusion molding: 6063 conform to ASTM B-221 standard for recessed joint.

.10 Adjustable and detachable guard “J” molding for PVC window edge with integrated thermal break.

.11 Cornice cap: 12.7 mm deep x partition width, of 1.6 mm base thickness galvanized sheet steel, prime painted and extruded aluminum, minimum 2.5 mm thick, clear anodized to Aluminum Association designation AA . Include splice plates for joints.

.12 Sealants: in accordance with Section 07 92 00 - Joint Sealants.
.1 VOC limit 250 g/L maximum to SCAQMD Rule 1168.
.2 Acoustic sealant: in accordance with Section 07 92 00 - Joint Sealants.

.13 Polyethylene: to CAN/CGSB-51.34, Type 2.

.14 Insulating strip: rubberized, moisture resistant, 3 mm thick closed cell neoprene strip, with self sticking permanent adhesive on one face, with right length and width.

.15 Joint compound for gypsum boards: conform to ASTM C 475 standard, asbestos-free type recommended by the panel manufacturer for the required application.

.16 Joint tape for gypsum boards: conform to ASTM C 475 standard, preformed plastic and coated to receive the joint compound and recommended by the panel manufacturer for the required application.

.17 Non-combustible acoustic insulation: fiberglass bat insulation to be inserted, conform to CAN/ULC S702 and CAN 4-S114 standard, type 1 of the indicated thickness. Bats must be of the right dimensions for the spacing of the studs.

.18 Polyethylene film : conform to CAN/CGSB-51-34 standard, 0.15 mm (6 mils) thick for walls with adapted sealing tape and recommended by the manufacturer.

.19 Wood furring for attachment backing in accordance with section 06 08 99 - Carpentry - minor works

2.3 ACCESS PANELS

.1 Supply the non-prescribed access panels in the electromagnetic sections (divisions 21 to 28).
.1 Steel, type to be installed in gypsum partition, embedded, with no resistance to fire, of a thickness recommended by the manufacturer, prefinished in factory with a primer

coating

.2 Flush model with no resistance to fire for installation in gypsum.

.1 Acceptable product: Acudor Model DW-5040 or ED-2002, or equivalent product approved by the ministerial representative.

.3 Flush model with resistance to fire of 90 minutes to 120 minutes for installation in gypsum.

.4 Tight model in aluminum, of the right dimensions for tightness joints.

.5 Dimensions: according to the indications (305 x 305 mm, 457 x 457 mm or 610 x 610 mm).

.6 Lock working with a master key for spaces used by the public and working with a screwdriver for service spaces.

3 EXECUTION

3.1 EXAMINATION

.1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for gypsum board assemblies installation in accordance with manufacturer's written instructions.

.1 Visually inspect substrate in presence of Ministerial Representative.

.2 Inform Ministerial Representative of unacceptable conditions immediately upon discovery.

.3 Proceed with installation only after unacceptable conditions have been remedied [and after receipt of written approval to proceed from Ministerial Representative.

3.2 ERECTION

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

.2 Do application of gypsum sheathing to ASTM C 1280.

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

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

.5 Install work level to tolerance of 1:1200

.6 Frame with furring channels, perimeter of openings for access panels, light fixtures, diffusers, grilles, as well as all the other equipments embedded in the ceiling.

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

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

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

.10 Install wall furring for gypsum board wall finishes to ASTM C 840, except where specified otherwise.

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

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

.13 Erect drywall resilient furring transversely across studs or joists between the layers of gypsum board, spaced maximum 600 mm on centre and not more than 150 mm from ceiling/wall juncture. Secure to each support with drywall screw long enough to ensure a minimum drive of 10 mm in the steel studs.

.14 To fill in the difference between the height of the partition and the height of the sack panels, install a continuous adjustment gypsum strip at the base of the partition cut in a gypsum panel making this partition mounted on resilient furring to ensure its rigidity.

.15 Install the cement panels in accordance with ANSI A108.11 standard and to the manufacturer's instructions.

.16 Set in place the bat insulation in the partitions identified on the plans according to the required thicknesses and in accordance with the manufacturer's instructions.

3.3 APPLICATION

.1 Apply gypsum board after bucks, anchors, blocking, sound attenuation, electrical and mechanical work have been approved.

.2 Apply single or double layer gypsum board to metal furring or framing using screw fasteners for first layer and for second layer. Maximum spacing of screws 300 mm on centre.
- .1 Single-Layer Application:
  - .1 Apply gypsum board on ceilings prior to application of walls to ASTM C 840.
  - .2 Apply gypsum board vertically or horizontally, providing sheet lengths that will minimize end joints.
- .2 Double-Layer Application:
  - .1 Install gypsum board for base layer and exposed gypsum board for face layer.
  - .2 Apply base layer to ceilings prior to base layer application on walls; apply face layers in same sequence. Offset joints between layers at least 250mm.
  - .3 Apply base layers at right angles to supports unless otherwise indicated.
  - .4 Apply base layer on walls and face layers vertically with joints of base layer over supports and face layer joints offset at least 250 mm with base layer joints.

.3 In the case of walls and partitions going up to the structural slabs, make joints de désolidarisation at the top of these partitions with a double ledger strip and according to the indications on the drawings. In general, do not fix the gypsum boards to the wall plates but only to the studs leaving enough space to allow a bending of the slabs of at least 16 mm.

.4 Apply water-resistant gypsum board where wall tiles coating to be applied and adjacent to slop sinks, janitors closets and other indicated locations. Apply water-resistant sealant to edges, ends, cut-outs which expose gypsum core and to fastener heads. Do not apply joint treatment on areas to receive tile finish.

.5 Apply 12 mm diameter bead of acoustic sealant continuously around periphery of each face of partitioning to seal gypsum board/structure junction where partitions abut fixed building components. Seal full perimeter of cut-outs around electrical boxes, ducts, in partitions where perimeter sealed with acoustic sealant.

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

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

.8 Install gypsum board with face side out.

.9 Do not install damaged or damp boards.

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

3.4 INSTALLATION

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

.2 Install casing beads around perimeter of suspended ceilings.

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

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

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

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

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

.8 Locate control joints where indicated at changes in substrate construction at approximate 10 m spacing on long corridor runs at approximate 15 m spacing on ceilings.

.9 Install control joints straight and true.

.10 Construct expansion joints as detailed, at building expansion and construction joints. Provide continuous dust barrier.

.11 Install expansion joint straight and true.

.12 Install cornice cap where gypsum board partitions do not extend to ceiling.

.13 Fit cornice cap over partition, secure to partition track with two rows of sheet metal screws staggered at 300 mm on centre.

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

.15 Install access doors to electrical and mechanical fixtures specified in respective sections.
.1 Rigidly secure frames to furring or framing systems.

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

.17 Gypsum Board Finish: finish gypsum board walls and ceilings to following levels in accordance with AWCI Levels of Gypsum Board Finish:
- .1 Levels of finish and location:
  - .1 Degree 0: no jointing product, accessory or finish element required.
    - .1 Location: for temporary works.
  - .2 Degree 1: Install with interior joints and angles covered with a masking tape embedded in the joint compound. The jointed surfaces must be free from excess joint compound but tool marks and dents are acceptable.
    - .1 Location: acoustic partition in the ceiling spaces.
  - .3 Degree 2 : Embed the tape put on the interior joints and angles in a joint compound and apply a distinct layer of joint compound on the joints, angles and head of fastening devices and other used accessories. The jointed surfaces must be free from excess joint compound but tool marks and dents are acceptable
    - .1 Location: panels covered with ceramic/porcelain tiling.
  - .4 .Degree : Embed the tape put on the interior joints and angles in a joint compound and apply two distinct layers of joint compound on the joints, angles and head of fastening devices and other used accessories. The jointed surfaces must be free from excess joint compound but tool marks and dents are acceptable
    - .1 Location : Exposed panels to be coated with a medium or heavy thickness of textured material or to cover with a thick wallpaper.
  - .5 Degree 4 : Embed the tape put on the interior joints and angles in a joint compound and apply three distinct layer of joint compound on the joints, angles and head of fastening devices and other used accessories. The jointed surfaces must be free from tool marks and dents.
    - .1 Location lightly textured partitions, interior faces of the walls, ceilings and everywhere else.
  - .6 Degree 5: Embed the tape put on the interior joints and angles in a joint compound and apply three distinct layers of joint compound on the joints, angles and head of fastening devices and other used accessories. Then apply a thin layer of skimming coat on all the surface of the skin set in place. The jointed surfaces must be smooth and free from tool marks and dents
    - .1 Location: plain partitions with not very or not visible joints and fastening devices, once the decoration completed.

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

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

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

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

3.5 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
- .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

.2 Waste Management: separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.6 PROTECTION

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

.2 Repair damage to adjacent materials caused by gypsum board assemblies installation.

END OF SECTION

1 GENERAL

1.1 RELATED REQUIREMENTS

.1 Section 06 08 99 Rough carpentry for minor works

.2 Section 07 21 16 Blanket and bat insulations

.3 Section 07 92 00 Joint sealants

1.2 REFERENCE STANDARDS

.1 ASTM International
- .1 ASTM C 645-11a, Standard Specification for Nonstructural Steel Framing Members.
- .2 ASTM C 754-11, Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.

.2 Environmental Choice Program (ECP)
- .1 CCD-047-98(R2005), Architectural Surface Coatings.
- .2 CCD-048-95(R2006), Surface Coatings - Recycled Water-Borne.

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

.4 The Master Painters Institute (MPI)
- .1 Architectural Painting Specification Manual - [current edition].
  - .1 MPI #26, Primer, Galvanized Metal, Cementitious.

.5 South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards
- .1 SCAQMD Rule 1168-A2005, Adhesives and Sealants Applications.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:
- .1 Submit manufacturer's instructions, printed product literature and data sheets for [metal framing] and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Samples:
- .1 Submit duplicate 300 mm long samples of non-structural metal framing.

1.4 QUALITY ASSURANCE

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

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

1.5 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product

Requirements and with manufacturer's written instructions.

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

.3 Storage and Handling Requirements:
- .1 Store materials off ground, indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
- .2 Store and protect metal framing from nicks, scratches, and blemishes.
- .3 Replace defective or damaged materials with new.

.4 Packaging Waste Management: remove for reuse of pallets, crates, padding, and packaging materials as specified in Construction Waste Management Plan in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

1.6 WARRANTY

.1 For works in the present section, the 12 month warranty period prescribed in the general conditions is extended to 5 years

.2 Provide a written document jointly signed by the manufacturer and the installer, issued in the name of Canada certifying the installed material from any deformation or deterioration and will meet all the performance requirements established in normal use conditions, for a period of5 years. Refer to general conditions for the beginning of the warranty.

.3 The warranties must include the fast correction of any defect upon reception of a written notice from the departmental representative to this effect. The repairing works must include workmanship, materials, equipments required services to repair the defective parts of the work and in the case of manufactured elements, the supplying and installation of new replacement parts, all of it free of charge and to the departmental representative liking. The warranties must also include the repairing or the replacement of the other components of the building (and its finishes) and any other work of the departmental representative, damaged or moved during the repairing of the defects to the work.

2 PRODUCTS

2.1 MATERIALS

.1 Non-loadbearing channel stud framing: studs of indicated dimensions, conform to ASTM C 645 standard, flat rolled hot dipped galvanized steel metal plate with required thickness designed for screwing gypsum panels, strip laths and with knockouts set at 460 mm center to center for the passing of active pipes.

Stud:	*Max. height Partition, one*	*Max. height Partition, two*	*Max. height Build-out*
41	2.510m	2.700m	2.175m
64	3.270m	3.580m	2.970m
64	3.657m	4.267m	3.505m
92	4.267m	4.750m	3.886m
92	4.495m	5.384m	4.572m
152	6.090m	6.090m	5.715m
152	6.959m	7.594m	7.086m

Note: the maximum spacing of the profiles will be 400 mm c/c and the deflection L/360.

.2 Upper and lower laths: conform to ASTM C 645 standard, of width appropriate to the dimension of the studs and with 32 mm high legs except in the case of partitions going up to the structural slabs where the legs must be 50 mm high so as to make désolidarisation joints.

.3 Metal stiffeners of required dimensions: 1.4 mm thick, galvanized cold rolled steel profiles

.4 Z bar: flat rolled hot dipped galvanized metal sheet with required thickness with the required thickness according to stud indicated on the plans.

.5 Acoustic sealing compound: conform to ASTM C919,last revision and report to section07 92 10 – Sealing products for joints.

.6 Insulating strip: rubber foam strip, 3 mm thick and 12 mm wide, resistant to humidity, self -adhesive on one face ant cut to the required length.

.7 Sealing strip: closed cells polyethylene foam, 4.7 mm thick, of width indicated or required (to fill in void between low lath and substrate).

.8 Non-combustible acoustic insulation: fiberglass bat insulation to insert, conform to CAN/ULC S702 and CAN4-S114 standards, type 1, of the thickness indicated. Bats must be of the dimensions appropriate to the spacing of the studs.

.9 Anchor backings: 1.21 mm thick galvanized steel metal plate (gauge 18) of the required width.

3 EXECUTION

3.1 INSPECTION

.1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for non-structural metal framing application in accordance with manufacturer's written instructions.
- .1 Visually inspect substrate in presence of Ministerial Representative.
- .2 Inform Ministerial Representative of unacceptable conditions immediately upon discovery.
- .3 Proceed with installation only after unacceptable conditions have been remedied [and after receipt of written approval to proceed from Ministerial Representative.

3.2 ERECTION

.1 Align partition tracks at floor and ceiling and secure at [600] mm on centre maximum.

.2 Install damp proof course under stud shoe tracks of partitions on slabs on grade.

.3 Place studs vertically at 400 mm on centre and not more than 50 mm from abutting walls, and at each side of openings and corners.
- .1 Position studs in tracks at floor and ceiling. Cross brace steel studs as required to provide rigid installation to manufacturer's instructions.

.4 Brace the steel stud, if needed, so as to ensure the stiffness of the skeleton.

.5 Erect metal studding to tolerance of 1:1000.

.6 Attach studs to bottom ceiling track using screws except in the case of désolidarisation joints where we must not fix the jambs to the top laths leaving a space between the top of the jamb and the core of the top lath (top plate) making a double lath assembly: install 2 top laths with 50 mm

overlapping legs and fixing the studs to the bottom lath only. Respect the spacing between the two laths according to the indications.

.7 Co-ordinate simultaneous erection of studs with installation of service lines. When erecting studs ensure web openings are aligned.

.8 Co-ordinate erection of studs with installation of door/window frames and special supports or anchorage for work specified in other Sections.

.9 Provide two studs extending from floor to ceiling at each side of openings wider than stud centres specified.
- .1 Secure studs together, 50 mm apart using column clips or other approved means of fastening placed alongside frame anchor clips.

.10 Install 0.914 mm and more (gauge 20 and less) heavy gauge single jamb studs at openings.

.11 Erect track at head of door/window openings and sills of sidelight/window openings to accommodate intermediate studs.
- .1 Secure track to studs at each end, in accordance with manufacturer's instructions.
- .2 Install intermediate studs above and below openings in same manner and spacing as wall studs.

.12 Frame openings and around built-in equipment, cabinets, access panels, on four sides. Extend framing into reveals. Check clearances with equipment suppliers.

.13 Provide 40mm stud or furring channel secured between studs for attachment of fixtures behind lavatory basins, toilet and bathroom accessories, and other fixtures including grab bars and towel rails, attached to steel stud partitions.

.14 Install steel studs or furring channel between studs for attaching electrical and other boxes.

.15 Extend partitions to ceiling height except where noted otherwise on drawings.

.16 Maintain clearance under beams and structural slabs to avoid transmission of structural loads to studs.
- .1 Use 50 mm leg ceiling tracks. Use double track slip joint as indicated.

.17 Install continuous insulating strips to isolate studs from non insulated surfaces.

.18 Install two continuous beads of acoustical sealant or insulating strip under studs and tracks around perimeter of sound control partitions.

.19

3.3 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
- .1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

.3 Waste Management: separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.4 PROTECTION

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

.2 Repair damage to adjacent materials caused by non-structural metal framing application.

END OF SECTION

1 GENERAL

1.1 RELATED REQUIREMENTS

.1 Section 07 92 00 Joint sealants

.2 Section 09 21 16 Gypsum board finish

.3 Section 09 91 23.01 Interior re-painting

.4 Division 22 – Plumbing

1.2 REFERENCE STANDARDS

.1 American National Standards Institute (ANSI)/Ceramic Tile Institute (CTI)
- .1 ANSI A108.1-99, Specification for the Installation of Ceramic Tile (Includes ANSI A108.1A-C, 108.4-.13, A118.1-.10, ANSI A136.1).
- .2 CTI A118.3-92, Specification for Chemical Resistant, Water Cleanable Tile Setting and Grouting Epoxy and Water Cleanable Tile Setting Epoxy Adhesive (included in ANSI A108.1).
- .3 CTI A118.4-92, Specification for Latex Cement Mortar (included in ANSI A108.1).
- .4 CTI A118.5-92, Specification for Chemical Resistant Furan Resin Mortars and Grouts for Tile Installation (included in ANSI A108.1).
- .5 CTI A118.6-92, Specification for Ceramic Tile Grouts (included in ANSI A108.1).

.2 American Society for Testing and Materials International (ASTM)
- .1 ASTM C 144-04, Specification for Aggregate for Masonry Mortar.
- .2 ASTM C 207-06, Specification for Hydrated Lime for Masonry Purposes.
- .3 ASTM C 847-06, Specification for Metal Lath.
- .4 ASTM C 979-05, Specification for Pigments for Integrally Coloured Concrete.

.3 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-51.34-M86(R1988), Vapour Barrier, Polyethylene Sheet for Use in Building Construction.
- .2 CGSB 71-GP-22M-78(AMEND.), Adhesive, Organic, for Installation of Ceramic Wall Tile.
- .3 CAN/CGSB-75.1-M88, Tile, Ceramic.
- .4 CAN/CGSB-25.20-95, Surface Sealer for Floors.

.4 Canadian Standards Association (CSA International)
- .1 CSA A123.3-05, Asphalt Saturated Organic Roofing Felt.
- .2 CAN/CSA-A3000-03(R2006), Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005).

.5 South Coast Air Quality Management District (SCAQMD), California State
- .1 SCAQMD Rule 1168-05, Adhesives and Sealants Applications.

.6 Terrazzo Tile and Marble Association of Canada (TTMAC)
- .1 Tile Specification Guide 09 30 00 2006/2007, Tile Installation Manual.
- .2 Tile Maintenance Guide 2000.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Provide product data in accordance with Section 01 33 00 - Submittal Procedures.
.1 Include manufacturer's information on:
.1 Ceramic tile, marked to show each type, size, and shape required.
.2 Chemical resistant mortar and grout (Epoxy and Furan).
.3 Cementitious backer unit.
.4 Dry-set cement mortar and grout.
.5 Divider strip.
.6 Elastomeric membrane and bond coat.
.7 Reinforcing tape.
.8 Levelling compound.
.9 Latex cement mortar and grout.
.10 Commercial cement grout.
.11 Organic adhesive.
.12 Slip resistant tile.
.13 Waterproofing isolation membrane.
.14 Fasteners.

.3 Provide samples in accordance with Section 01 33 00 - Submittal Procedures.
.1 Base tile: submit duplicate, 300 x 300 mm sample panels of each colour, texture, size, and pattern of tile.
.2 Floor tile: submit duplicate, 300 x 300 mm sample panels of each colour, texture, size, and pattern of tile.
.3 Trim shapes, bullnose cap and cove including bullnose cap and base pieces at internal and external corners of vertical surfaces, each type, colour, and size.
.4 Adhere tile samples to 11 mm thick plywood and grout joints to represent project installation.

1.4 QUALITY ASSURANCE

.1 Quality Assurance Submittals:
.1 Manufacturer's Instructions: manufacturer's installation instructions.
.2 Manufacturer's Field Reports: manufacturer's field reports specified.

1.5 DELIVERY, STORAGE AND HANDLING

.1 Packing, shipping, handling and unloading:
.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.

.2 Waste Management and Disposal:
.1 Separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

1.6 AMBIENT CONDITIONS

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

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

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

1.7 MAINTENANCE

.1 Extra Materials:
.1 Provide maintenance materials in accordance with Section 01 78 00 - Closeout

Submittals.

.2 Provide minimum 5% of each type and colour of tile required for project for maintenance use. Store where directed.

.3 Maintenance material same production run as installed material.

1.8 WARRANTY

.1 For works in the present section, the 12 month warranty period prescribed in the general conditions is extended to 5 years

.2 Provide a written and jointly signed document issued by the manufacturer and the installer in the name of Canada, certifying the tiling woks from delamination, flaring, colour fading, crevices, loss of watertightness, for a period of 5 years. Refer to the general conditions for the beginning of the warranties

.3 The warranties must include the fast correction of any defect upon reception of a written notice to Canada to this effect. The repairing works must include workmanship, materials, equipments and the required services to repair the de defectives parts of the building and, in the case of manufactured elements, the supplying and installation of new replacement parts, all of it free of charge and to the departmental representative liking. The warranties must also include the repairing or the replacement of the other components of the building (and its finishes) and any other works of the departmental representative, damaged or moved during the repairing of the defects to the work.

2 PRODUCTS

2.1 MATERIALS – GENERAL POINTS

.1 All the mortars, adhesives, additive products, membranes and grouts must come from the same manufacturer.

.2 All the tiles of a given type must come from a one and only manufacturer and must be modular.

.3 The tiling bonding coat and the grout must be supplied by the same manufacturer.

2.2 FLOOR TILING

.1 Ceramic tiles: conform to CAN/CGSB-75.1 standard

.1 Acceptable products:

.1 ***** Tuile Olympia Eco-Stone, colour Grigio # 7600564, size 300 mm x 600 mm, 9.5 mm thick. *** TO PRIORITIZE AS EXISTING**

.2 Soligo Gravel Serie tile, colour Mud # CA70682, size 300 mm x 600 mm, 9.5 mm thick.

.3 Ciot Tecnica Serie tile, colour Cenere, size 300 mm x 600 mm, 9.5 mm thick.

.4 or replacement product approved by addenda in accordance with the instructions to the bidders.

2.3 BASEBOARDS

.1 Baseboards: blocks of the type, shape, colour and texture corresponding to the adjoining floor tiling.

2.4 EDGE ELEMENT

.1 The characteristics of the edge elements must correspond to those of the tiling

.2 The edge element to install on constantly humid horizontal surfaces must be non-slip surface.

.3 The size and dimension of the edge elements must correspond to the tile elements, joints included, unless otherwise indicated.

.4 Internal and external angles: the following edge elements must be planned at the indicated location.

.1 Rounded edge elements for external angles edges.
.2 Groove elements for internal angles.

2.5 TILING BONDING COAT

.1 Portland cement mortar-glue (dry mortar or for dry setting): two components (powder and liquid polymer), conform to ANSI A118.4

1 Acceptable products:
.1 Proma Probond grey with for walls and Probond Plus..
.2 Mapei Kerabond grey white and Keralastic
.3 TEC TA 337 with additive TA 862
.4 or replacement product approved by addenda in accordance with the instructions to the bidders

.2 Water: drinkable and free from minerals or chemicals that could spoil the mortar and grout mixes. (Where there is no water supply system, use bottled water).

2.6 GROUT

.1 Pigments:

.1 Mineral pigments, lime resistant, non-fading, conform to ASTM C979 standard.
.2 Pigments must be added to the grout by the manufacturer.
.3 Grouts coloured on site are not accepted.
.4 Pigments can be added to the commercial type cement grouts, to the grout for dry setting and to latex modified cement grout.

.2 Chemicals resistant grout: conform to ANSI A118.3 standard, non-slip, high resistance and 100% solids.

.1 Acceptable products:
.1 Proma Prosuperpoxy 2
.2 Mapei Kerapoxy
.3 TEC TA440
.4 or replacement product approved by addenda in accordance with the instructions to the bidders

2.7 ACCESSORIES

.1 Transition and tape edgings:

.1 Stainless steel extruded special elements to cover the top of the tiling baseboard and transition between the floor finishes.

.2 Reducer strip : stainless steel extruded special elements showing a maximal slope of 1:2.

.3 Prefabricated control joints: stainless steel extruded special elements with a coloured elastomer strip.

.1 Acceptable product: Schluter Systems DILEX-EKSA

.4 Floor drain

.1 Refer to documents in division 22 - Plumbing

.5 Tightness product:

.1 To seal joints and drill into the wall ceramic works: mono-component silicone rubber sealant with incorporated fungicide conform to CAN/CGSB-19.22-M standard, colours chosen by the departmental representative among the manufacturer's standard range.

.1 Acceptable product: Dow Corning #786

.2 To seal control joints in floor ceramic works: sealant conform to CAN/CGSB-19.24-M standard, last revision, type 1 category B, self-leveling, colours chosen by the departmental representative among the manufacturer's standard range

.1 Acceptable product : Tremco THC 900 or 901

.3 Backup strips, primers and other accessories: according to the recommendations in section 07 92 00 – Joints' tightness

.6 Sealer (primer) and floor sealer: conform to the recommendations of the tiling and grout manufacturer,

.7 Cleaning products

.1 Specially designed products for cleaning masonry and concrete surfaces, but that do not spoil the bonding of the various layers of sealer for the setting of tiling, including the patching-smoothing layers as well as the layers and elastomer base waterproofing membranes.

.2 Products with acid or caustic matters are not accepted.

2.8 PATCHING-SMOOTHIGS SEALER

.1 Portland cement base polymer resins pre-dosed mix, specially designed to recharge and smooth the concrete support-slabs. Products with gypsum are not accepted.

.2 The sealer must be able to be applied in three coats of no more than 50 mm thick, to feather edged and smooth with a trowel.

.3 The sealer coating must be ready to receive the following coating 48 hours after application.

.4 Patching-smoothing sealer mixed with a polymer applicable with a trowel:

.1 Acceptable products:

.1 Proma Propatch Plus

.2 Mapei Planipatch plus

.3 TEC TA330

.4 or replacement product approved by addenda in accordance with the instructions to the bidders.

.5 Primers and adhesives: as required and recommended by the manufacturer of the patching-smoothing sealer.

3 EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

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

3.2 INSPECTION

.1 Examine the state of the surfaces, supports and works intended to receive the ceramic tiles.

.2 Checking the conditions: before proceeding to the setting of the ceramics, make sure that the state of the surfaces/supports first set up at the end of other sections or contracts and the flatness variations are acceptable and allow for the realization of the works in accordance to the manufacturer’s written instructions.

- .1 Inform the departmental representative immediately of any unacceptable conditions detected.
- .2 Have the installation surfaces approved by the technical representative of the supplier. Send this approval immediately to the departmental representative.
- .3 Start installation works only after having corrected the unacceptable conditions and received the written approval of the control desk inspector of the ceramics’ supplier. Beginning the works without this approval means the acceptation of the base works and the responsibility of their correction if need be.

3.3 PREILMINARY WORKS

.1 Preparing the support

- .1 Inspect the supports to determine the works that must be made to have them clean to receive the ceramic tiling.
- .2 Fill in the 3 mm wide crevices and smooth the protrusions of more than 1 mm with an appropriate and compatible patching-smoothing sealer.
- .3 Respect the manufacturer recommendations with regard to thickness of sealer to apply.
- .4 Apply a compatible primer on the large surfaces to repair.
- .5 Concrete supports must be dry, hardened and clean.
- .6 Concrete supports must be free from paint, dirt, grease, oil, curing compound and désolidarisation, sealer and any other contaminant susceptible of spoiling the gluing of the bonding sealer.
- .7 Apply on the porous or powdery concrete supports a primer compatible with the bonding sealer so as to make the surface suited to receive a covering set by direct bonding on the support.

.2 Preparing the surfaces: prepare the surfaces in accordance with the Terrazzo, Tile and Marble Association of Canada (TTMAC) and in the allowed tolerances.

.3 Preparing the supports ceramic tiling: according to the manufacture’s written instructions.

3.4 QUALITY OF EXECUTION

.1 Unless otherwise indicated, execute the tiling according to the manual titled “Tile setting manual 2006/2007” published by the Terrazzo, Tile and Marble Association of Canada (TTMAC)

.2 Set the tiles or support sealers on sound and clean surfaces.

.3 .Adjust the tiles at the angles, around the accessories, equipments, floor drains and other embedded objects. Make even joints. Cut the edged so that they are clean and smooth.

.4 Maximum flatness deviation admissible is 1:800.

.5 Make even joints of the width recommended by the manufacturer so that the tiles be plumb, square, aligned and all in the same plan. Make sure that we do not distinguish the different tile boards in the finished work. Align the patterns.

.6 Set the tiling so that the peripheral tiles measure less than half of their full size. Plan a staggered n installation of the tiling, overlapping 1/3:2/3.

.7 After setting, pat the tiles and replace those that sound hollow in order to obtain a perfect adherence.

.8 Make the inside corners with sharp edges and the outside corners with smooth edges.

.9 Use smooth edges tiles to finish the a wall panel except at the crossing line of the panel with an overhanging surface or in a different plan.

.10 Set the baguette joints where the floor tiling and different floor coverings meet.

.11 Wait at least 24 hours after setting the tiles before applying the jointing grout.

.12 Once the work has hardened and that the grout is well set, clean the tiled surfaces.

.13 Execute control joints at the indication locations, of a width equal to the one of the joints between the tiles. Fill in the control joints with waterproofing product conform to section 07 92 00 – Waterproofing products for joints. Keep the expansion joints of the building free mortar and grout.

.14 Use the double spread method in order to reduce the voids.

.15 Unless otherwise indicated, set the door openings, interrupt the floor tiling under lateral axis of the door when the tiling finish or colour is different in the adjoining rooms. Install the transition molding centered in the median plane of the door or the frame.

.16 Unless otherwise indicated, set the floor tiling flush with the adjoining finishes. Make tiling slope at the door openings, when required, to join the finishes with the existing floors. The slope must not exceed 1:12 (8.33%). The vertical drops are not acceptable.

.17 At the saw marks and the construction or expansion joints, set the tile in accordance with the TTMAC 301 MJ-E detail and according to the manufacturer's written instructions.

3.5 FLOOR TILING

.1 Set the tiling accordance with the TTMAC 311F-2002A detail and according to the manufacturer's written instructions.

3.6 BASEBOARDS

.1 Set the tiling accordance with the TTMAC instructions.

3.7 PRIMER AND FLOOR SEALERS

.1 Apply in accordance with the manufacturer's instructions.

3.8 ACCESSORIES

.1 Install the prefabricated tape edgings, transition and control joints according to the manufacturer's written instructions and the minimum following instructions:

.1 For protection, outside angles decoration, install a Schiene type molding.

.2 At the changes of different finishes and of same thickness, install a Schiene type molding.

.3 At raising finishes changes, install a Quadec type molding.

.4 At the baseboards stoppers, install a Quadec type molding.

.5 At the top of the baseboards, install a Schiene type molding.

3.9 QUALITY CONTROL ON SITE

.1 Controls made on site by the manufacturer.

.1 The manufacturer must make recommendations regarding the use of the product(s), and make periodic visits to verify if the setting up has been made according to his recommendations

3.10 CLEANING

.1 . Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning

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

.1 Remove any trace of primer and sealer, caulking and waterproofing.

.2 Clear the finished surfaces of the mastic and any other material used to set glazings.

.3 Remove all the tags, once the works completed.

.4 Clean the glazing with a non-abrasive product, according to the manufacturer's instructions.

.2 Final cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

.2 Waste Management: separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.1 Remove recycling containers and bins from site and dispose of materials at appropriate facilities.

3.11 PROTECTION

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

END OF SECTION

1 GENERAL

1.1 RELATED REQUIREMENTS

.1 Section 09 53 00.01 Acoustical suspension

.2 Sections for divisions: 23 and 26 for embedded sprinklers, mechanical, lighting and communication equipments.

1.2 REFERENCE STANDARDS

.1 American Society for Testing and Materials International (ASTM)
- .1 ASTM C 423-02a, Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method
- .2 ASTM E 1264-98, Standard Classification for Acoustical Ceiling Products.
- .3 ASTM E 1477-98a(2003), Standard Test Method for Luminous Reflectance Factor of Acoustical Materials by Use of Integrating-Sphere Reflectometers.

.2 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-51.34-M86, Vapour Barrier, Polyethylene Sheet, for Use in Building Construction and Amendment No. 1 [1988].
- .2 CAN/CGSB-92.1-M89, Sound Absorptive Prefabricated Acoustical Units.

.3 Canadian Standards Association (CSA International)
- .1 CSA B111-1974(R2003), Wire Nails, Spikes and Staples.

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

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

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

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data: submit WHMIS MSDS.

.3 Co-ordinate submittal requirements and provide submittals required.

.4 Submit duplicate samples of each type acoustical units.

1.4 QUALITY ASSURANCE

.1 Regulatory Requirements:
- .1 Fire-resistance rated floor/ceiling and roof/ceiling assembly: certified by Canadian Certification Organization accredited by Standards Council of Canada.

.2 Mock-up:

.1 Construct mock-ups in accordance with Section 01 45 00 - Quality Control.
.2 Construct mock-up 15m^{2}minimum of each type acoustical panel ceiling including one inside corner and one outside corner.
.3 Construct mock-up where directed.
.4 Allow 72 hours for inspection of mock-up by Ministerial Representative before proceeding with ceiling work.
.5 When accepted, mock-up will demonstrate minimum standard for this work. Mock-up may remain as part of the finished work.

.3 Health and Safety:
.1 Do construction occupational health and safety in accordance with Section [01 35 29.06 - Health and Safety Requirements].

1.5 DELIVERY, STORAGE AND HANDLING

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

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

.3 Waste Management and Disposal:
.1 Separate waste materials for recycling] in accordance with Section 01 74 21 - Construction /Demolition Waste Management and Disposa].
.2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
.3 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard packaging material [in appropriate on-site bins for recycling in accordance with Waste Management Plan (WMP).
.4 Separate for recycling and place in designated containers Steel, Metal, Plastic waste in accordance with Waste Management Plan.
.5 Place materials defined as hazardous or toxic in designated containers in accordance with Section 01 35 43 - Environmental Procedures.
.6 Handle and dispose of hazardous materials in accordance with CEPA, Regional and Municipal, regulations.
.7 Ensure emptied containers are sealed and stored safely in accordance with Section 01 35 43 - Environmental Procedures.
.8 Fold up metal and plastic banding, flatten and place in designated area for recycling.

1.6 ENVIRONMENTAL REQUIREMENTS

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

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

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

1.7 EXTRA MATERIALS

.1 Provide extra materials of acoustic units in accordance with Section 01 78 00 - Closeout Submittals.

.2 Provide acoustical units amounting to 5% of gross ceiling area for each pattern and type required for project.

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

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

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

1.8 WARRANTY

.1 For works in the present section, the 12 month warranty period prescribed in the general conditions is extended to 5 and 10 years.

.2 Provide a written and jointly signed document issued by the manufacturer and the installer in the name of Canada, certifying that the supplied ceiling acoustic elements will remain free from any material, finish, manufacturing defect for a period of ten (10 years); refer to the general conditions.

.3 The installer of the ceiling acoustic elements supplied in this section must provide a written and signed document, issued in the name of Canada certifying that the works in the present section are warranted from any installation defect for a period of 5 years; refer to the general conditions.

.4 The warranties must include the fast correction of any defect upon reception of a written notice from the departmental representative to this effect. The repairing works must include workmanship, materials, equipments and services required to repair the defective parts of the work and in the case of manufactured elements, the supplying and installation of new replacement parts, all of it free of charge and to the departmental representative liking. The warranties must also include the repairing or the replacement of the other components of the building (and its finishes) and any other works of the departmental representative, damaged or moved during the repairing of the defects to the work.

2 PRODUCTS

2.1 MATERIALS

.1 Acoustic units for suspended ceiling system: to ASTM E 1264.
- .1 Type IV, form 2, E pattern.
- .2 Resistant to Class A fire.
- .3 Durabrite Hydroformed mineral fibers with acoustically transparent membrane.
- .4 Textures: fine.
- .5 Flame spread rating of 25 or less in accordance with CAN/ULC-S102.
- .6 Smoke developed 50 or less in accordance with CAN/ULC-S102.
- .7 Noise Reduction Coefficient (NRC) designation: 0..80
- .8 Ceiling Attenuation Class (CAC) rating 35, in accordance with ASTM E 1264
- .9 Light Reflectance (LR) range of [_____] to [ASTM E 1477] [_____].
- .10 Colour. White
- .11 Size 610 mm x 1220 mm x 25 mm thick.
- .12 Shape: square suspended.

.2 Acceptable products
- .1 Armstrong Ultima tegular 1943
- .2 Rockfon Sona tegular 16101
- .3 CGC Mars tegular 88185
- .4 or replacement product approved by addenda in accordance with instructions to bidders

3 EXECUTION

3.1 EXAMINATION

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

Ministerial Representative.

3.2 INSTALLATION

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

.2 Install fibrous acoustical media [and spacers] over entire area above [suspended metal panels].

.3 In fire rated ceiling systems, secure lay-in panels with hold-down clips and protect over light fixtures, diffusers, air return grilles and other appurtenances according to Certification Organizations design requirements.

3.3 INTERFACE WITH OTHER WORK

.1 Co-ordinate with Section 09 53 00.01 - Acoustical Suspension.

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

3.3 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  .1 Leave Work area clean at end of each day.
  .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

.2 Waste Management: separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
  .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.4 PROTECTION

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

.2 Repair damage to adjacent materials caused by non-structural metal framing application.

END OF SECTION

1 GENERAL

1.1 RELATED REQUIREMENTS

.1 Section 09 51 13 Acoustical Panel ceilings.

.3 Sections for divisions: 23 and 26 for the trims of embedded mechanical, electrical and electronic equipments.

1.2 REFERENCE STANDARDS

.1 ASTM International
- .1 ASTM C 635/C 635M-07, Standard Specifications for the Manufacture, Performance and Testing of Metal Suspension Systems for Acoustical Tile and Lay-In Panel Ceilings.
- .2 ASTM C 636/C 636M-08, Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels.

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

1.3 CALCULATION CRITERIA

.1 Maximum flexion: deflection of 1/360 of the span, determined by the bending tests prescribed in ASTM C 635 standard.

.2 Submit the calculation notes showing that the design of the suspended ceilings meets the requirements article 4.1.8,Charges and effects due to earthquakes**,** National Building Code of Canada (NBC 2010) or those of ASTM E 580/E 580M, Standard Practice for Application of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Requiring Moderate Seismic Restraint. These calculations must bear the seal and signature of an engineer acknowledged in Canada. This seal certifies that the designs of the works prescribed in the present section answer the requirements of the contract documents.

.3 In addition, these sealed calculations certify that the capacity of the anchorings to the supports indicated supports in the installation plans and are used to answer the requirements of the NBC and of the applicable standards.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:
- .1 Submit manufacturer's instructions, printed product literature and data sheets for [acoustical suspension] and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Shop Drawings:
- .1 Submitted drawings must bear the seal and signature of an engineer acknowledged or licensed in Canada.
- .2 Submit reflected ceiling plans for special grid patterns as indicated.
- .3 The shop drawing must clearly show the layout, spacing details and fastening method of the anchoring and suspension elements to meet the requirements imposed by a seismic categorization B for ceiling grid braces, location of hidden splines, changes in level

details, access door dimensions, and locations and acoustical unit support at ceiling fixture, lateral bracing and accessories.

.4 Samples:
- .1 Submit for review and acceptance of each unit.
- .2 Samples will be returned for inclusion into work.
- .3 Submit one representative model of each type ceiling suspension system.
- .4 Ceiling system to show basic construction and assembly, treatment at walls, recessed fixtures, splicing, interlocking, finishes, acoustical unit installation.

1.5 CLOSEOUT SUBMITTALS

.1 Submit in accordance with Section 01 78 00 - Closeout Submittals.

.2 Operation and Maintenance Data: submit operation and maintenance data for acoustical suspension for incorporation into manual.

1.6 QUALITY ASSURANCE

.1 Fire-resistance rated suspension system: certified by a Canadian Certification Organization accredited by Standards Council of Canada.

.2 Certifications: submit product certificates signed by manufacturer certifying materials comply with specified performance criteria and physical characteristics, namely the requirements for seismic charges.

1.7 DELIVERY, STORAGE AND HANDLING

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

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

.3 Storage and Handling Requirements:
- .1 Store materials off ground, indoors, and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
- .2 Store acoustical ceiling braces so as to protect them from nicks, scratches, and blemishes.
- .3 Replace defective or damaged materials with new.

.4 Packaging Waste Management: remove for reuse and return by manufacturer of pallets, crates, padding, and packaging materials as specified in Construction Waste Management Plan in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

1.8 WARRANTY

.1 For works in the present section, the 12 month warranty period prescribed in the general conditions is extended to 10 years.

.2 Provide a written and jointly signed document issued by the manufacturer and the installer in the name of Canada, certifying that the installed braces will remain free from any material, manufacturing, finish and installation defect for a period of 10 years. Refer to the general conditions.

.3 The warranties must include the fast correction of any defect upon reception of a written notice

from the departmental representative to this effect. The repairing works must include workmanship, materials, equipments and services required to repair the defective parts of the work and in the case of manufactured elements, the supplying and installation of new replacement parts, all of it free of charge and to the departmental representative liking. The warranties must also include the repairing or the replacement of the other components of the building (and its finishes) and any other works of the departmental representative, damaged or moved during the repairing of the defects to the work

2 PRODUCTS

2.1 MATERIALS

.1 Heavy duty system to ASTM C 635/ASTM C635M.

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

.3 Suspension system: non fire rated, made up as follows:
- .1 Parallel exposed T section grid.
- .2 Acceptable products:
  - .1 Armstron Prelude XL suspension, 24 mm
  - .2 Rockfon #1250 suspension, 24 mm
  - .3 CGC DX/DL suspension, 24 mm
  - .4. or replacement product approved by addenda in accordance with the instructions to the bidders.

.4 Hanger wire: galvanized soft annealed steel wire:
- .1 3.6 mm diameter for access tile ceilings.
- .2 2.6 mm diameter for other ceilings.

.5 Carrying channels: 38 x 19 mm channel, painted steel.

.6 White extruded aluminum molding, supplied by the manufacturer of suspension braces for vertical installation between two different ceiling levels. Moulding height ± 50 mm.

.7 Accessories: splices, clips, metal ties (wire or other), retainers, anchoring for perimeter rod, sections and shims and wall-ceiling moulding for flush or recessed erection, to achieve a complete suspension grid, as recommended by system manufacturer.

.8 Staples release :
- .1 Acceptable products :
  - .1 Modèl CHDC, Armstrong
  - .2 Modèl 935, Chicago Metallic of Rockfon
  - .3 Modèl PZ (variable locking hold-down clip) of CGC

3 EXECUTION

3.1 EXAMINATION

.1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for acoustical ceiling tile and track installation in accordance with manufacturer's written instructions.
- .1 Visually inspect substrate in presence of Ministerial Representative.
- .2 Inform Ministerial Representative of unacceptable conditions immediately upon discovery.

.3 Proceed with installation only after unacceptable conditions have been remedied [and after receipt of written approval to proceed from Ministerial Representative.

3.2 INSTALLATION

.1 Manufacturer's Instructions: comply with manufacturer's written recommendations, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

.2 Installation: to ASTM C 636/C 636M except where specified otherwise.

.3 Install suspension system to manufacturer's instructions and Certification Organizations tested design requirements.

.4 Seismic restraint: install the grid elements in accordance to ASTM E 580-87 standard, manufacturer’s instructions and the sop drawing certified by a qualified engineer.

.5 Do not erect ceiling suspension system until work above ceiling has been inspected and approved by Ministerial Representative.

.6 Secure hangers to overhead structure using attachment methods as indicated on the sop drawings and installation plans certified by a qualified engineer concerning the resistance to earthquakes and the suspension of the equipments and other heavy objects.

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

.8 Lay out centre line of ceiling both ways, to provide balanced borders at room perimeter with border units not less than 50% of standard unit width system according to reflected ceiling plan.

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

.10 Install wall moulding to provide correct ceiling height.

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

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

.13 The new suspended ceiling section must be aligned with the frame of the existing suspended ceiling.

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

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

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

.17 Expansion joints:

.1 All along the building’s expansion joint, install parallel to and at ± 100 mm from each other, two main T bearing sections. A joint cover for expansion joint will be installed between the two T sections in accordance with the instructions in section 07 95 13 Joint covers for expansion joints.

3.3 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.

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

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning
.1 Touch up scratches, abrasions, voids and other defects in painted surfaces.

.3 Waste Management: separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.4 PROTECTION

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

.2 Repair damage to adjacent materials caused by acoustical suspension installation.

END OF SECTION

1 GENERAL POINTS

1.1 RELATED REQUIREMENTS

.1 Section 09 21 16 Gypsum board assemblies

1.2 REFERENCE STANDARDS

.1 The Master Painters Institute (MPI)
  .1 Maintenance Repainting Manual 2004, Master Painters Institute (MPI), including Identifiers, Evaluation, Systems, Preparation and Approved Product List.

.2 Environmental Protection Agency (EPA)
  .1 Test Method for Measuring Total Volatile Organic Compound Content of Consumer Products, Method 24 (for Surface Coatings).

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

.4 South Coast Air Quality Management District (SCAQMD), California State
  .1 SCAQMD Rule 1113-04, Architectural Coatings.

1.3 QUALITY ASSURANCE

.1 Conform to latest MPI requirements for interior repainting work including cleaning, preparation and priming.

.2 Materials (primers, paints, coatings, varnishes, stains, lacquers, fillers, thinners and solvents) shall be in accordance with the latest edition of the MPI Approved Product List and shall be from a single manufacturer for each system used.

.3 Paint materials such as linseed oil, shellac, reducers and turpentine shall be the highest quality product of an approved manufacturer listed in MPI Maintenance Repainting Manual and shall be compatible with other coating materials as required.

.4 Retain purchase orders, invoices and other documents to prove conformance with noted MPI requirements when requested by Ministerial Representative.

.5 Standard of Acceptance: when viewed using final lighting source surfaces shall indicate the following:
  .1 Walls: no defects visible from a distance of 1000 mm at 90degrees to surface.
  .2 Ceilings: no defects visible from floor at 45 degreesto surface.
  .3 Final coat to exhibit uniformity of colour and sheen across full surface area.

.6 Mock-ups: construct mock-ups in accordance with Section 01 45 00 - Quality Control.
  .1 Provide a mock-up in accordance with requirements of Section 01 45 00 - Quality Control to Ministerial Representative.
  .2 Prepare and repaint mock-up designated interior room, surface or item to requirements specified herein, with specified paint or coating showing selected colours, gloss/sheen, textures and workmanship to MPI Maintenance Repainting Manual standards for review and approval.
  .3 When approved, repainted room, surface and/or item shall become acceptable standard of finish quality and workmanship for similar on-site interior repainting work.

1.4 PERFORMANCE REQUIREMENTS

.1 Environmental Performance Requirements: ecological performance required in accordance with the Green Seal Agency MPI GPS-1 "Green Seal" standard.

.2 Provide paint products meeting MPI "Environmentally Friendly" E3 ratings based on VOC (EPA Method 24) content levels. When products are not E3 homologated by the MPI, use product having received the E2 rating.

.3 Where indoor air quality (odour) is a problem, use only MPI listed materials having a minimum E3 rating.

1.5 SCHEDULING

.1 Submit work schedule for various stages of painting to Ministerial Representative for review. Submit schedule a minimum of 48 hours in advance of proposed operations.

.2 Paint occupied facilities in accordance with approved schedule. Schedule operations to approval of Ministerial Representative such that painted surfaces will have dried and cured sufficiently before occupants are affected.

.3 Obtain written authorization from Ministerial Representative for changes in work schedule.

.4 Schedule repainting operations to prevent disruption by other trades if applicable and by occupants in and about building.

1.6 ACTION AND INFORMATIONAL SUBMITTALS

.1 Provide product data and manufacturer's installation/application instructions for each paint and coating product to be used in accordance with the requirements of Section 01 33 00 - Submittal Procedures.

.2 Provide samples in accordance with Section 01 33 00 - Submittal Procedures.
- .1 Submit full range colour sample chips for review and selection. Indicate where colour availability is restricted.
- .2 Submit WHMIS MSDS - Material Safety Data Sheets for paint and coating materials.

.3 Closeout Submittals:
- .1 Provide maintenance data for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.
  - .1 Submit records of products used. List products in relation to finish system and include following:
    - .1 Product name, type and use (i.e. materials and location).
    - .2 Manufacturer's product number.
    - .3 Colour code numbers.
    - .4 MPI Environmentally Friendly classification system rating.
    - .5 Manufacturer's Material Safety Data Sheets (MSDS).

1.7 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements, supplemented as follows:.
- .1 Deliver and store materials in original containers, sealed, with labels intact.
- .2 Labels to indicate:
  - .1 Manufacturer's name and address.
  - .2 Type of paint or coating.

.3 Compliance with applicable standard.
.4 Colour number in accordance with established colour schedule.

.3 Remove damaged, opened and rejected materials from site.
.4 Store and handle in accordance with manufacturer's recommendations.
.5 Store materials and equipment in secure, dry, well-ventilated area with temperature range between 7 degrees C to 30]degrees C. Store materials and supplies away from heat generating devices and sensitive products above minimum temperature as recommended by manufacturer.
.6 Keep areas used for storage, cleaning and preparation, clean and orderly to approval of Ministerial Representative. After completion of operations, return areas to clean condition to approval of Ministerial Representative.
.7 Remove paint materials from storage in quantities required for same day use.
.8 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling storage, and disposal of hazardous materials.
.9 Fire Safety Requirements:
.1 Provide one 9 kg Type ABC dry chemical fire extinguisher adjacent to storage area.
.2 Store oily rags, waste products, empty containers and materials subject to spontaneous combustion in ULC approved, sealed containers and remove from site daily.
.3 Handle, store, use and dispose of flammable and combustible materials in accordance with National Fire Code of Canada.

.2 Waste Management and Disposal:
.1 Separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
.2 Paint, stain and wood preservative finishes and related materials (thinners, and solvents) are hazardous products and are subject to regulations for disposal. Information on these controls can be obtained from Provincial Ministries of Environment and Regional levels of Government.
.3 Materials that cannot be reused must be treated as hazardous waste and disposed of in an appropriate manner.
.4 Place materials defined as hazardous or toxic waste, including used sealant and adhesive tubes and containers, in containers or areas designated for hazardous waste.
.5 To reduce the amount of contaminants entering waterways, sanitary/storm drain systems or into the ground the following procedures shall be strictly adhered to:
.1 Retain cleaning water for water-based materials to allow sediments to be filtered out. In no case shall equipment be cleaned using free draining water.
.2 Retain cleaners, thinners, solvents and excess paint and place in designated containers and ensure proper disposal.
.3 Return solvent and oil soaked rags used during painting operations for contaminant recovery, proper disposal, or appropriate cleaning and laundering.
.4 Dispose of contaminants in an approved legal manner in accordance with hazardous waste regulations.
.5 Empty paint cans are to be dry prior to disposal or recycling (where available).
.6 Close and seal tightly partly used cans of materials including sealant and adhesive containers and store protected in well ventilated fire-safe area at moderate temperature.
.6 Where paint recycling is available, collect waste materials by type and provide for delivery to recycling or collection facility.
.7 Set aside and protect surplus and uncontaminated finish materials: Deliver to or arrange collection by organizations for verifiable re-use or re-manufacturing.

1.8 SITE CONDITIONS

.1 Heating, Ventilation and Lighting:
- .1 Do not perform repainting work unless adequate and continuous ventilation and sufficient heating facilities are in place to maintain ambient air and substrate temperatures above [10] degrees C for 24 hours before, during and after paint application and until paint has cured sufficiently.
- .2 Ventilate enclosed spaces in accordance with Section 01 35 29 Health and dafety requirements. Where required, provide continuous ventilation for seven days after completion of application of paint.
- .3 Co-ordinate use of existing ventilation system with General Contractor and Ministerial Representative and ensure its operation during and after application of paint as required.
- .4 Provide temporary ventilating and heating equipment where permanent facilities are not available or supplemental ventilating and heating equipment if ventilation and heating from existing system is inadequate to meet minimum requirements. Use of gas-fired appliances is not permitted.
- .5 Do not perform painting work unless minimum lighting level of 323 Lux is provided on surfaces to be painted.

.2 Temperature, Humidity and Substrate Moisture Content Levels:
- .1 Unless specifically pre-approved by specifying body, Paint Inspection Agency and, applied product manufacturer, do not perform repainting work when:
  - .1 Ambient air and substrate temperatures are below 10 degrees C.
  - .2 Substrate temperature is over 32 degrees C unless paint is specifically formulated for application at high temperatures.
  - .3 Relative humidity within area to be repainted is above 85%.
- .2 Conduct moisture tests using properly calibrated electronic Moisture Meter, except use simple "cover patch test" on concrete floors to be repainted.
- .3 Do not perform repainting work when maximum moisture content of substrate exceeds:
  - .1 12% for concrete and masonry (clay and concrete brick/block).
  - .2 15% for wood.
  - .3 12% for plaster and gypsum board.
- .4 Test painted concrete, masonry and plaster surfaces for alkalinity as required.

.3 Surface and Environmental Conditions:
- .1 Apply paint finish in areas where dust is no longer being generated by related construction operations or when ventilation conditions are such that airborne particles will not affect quality of finished surface.
- .2 Apply paint to adequately prepared surfaces and to surfaces within moisture limits noted herein.
- .3 Apply paint when previous coat of paint is dry or adequately cured, unless otherwise pre-approved by specific coating manufacturer.
- .4 Apply paint in occupied facilities unoccupied rooms or areas. Schedule operations to approval of the Ministerial Representative such that painted surfaces will have dried and cured sufficiently before occupants are affected.

1.10 MAINTENANCE

.1 Extra Materials:

.2 Submit maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.

.3 Submit one - four litre can of each type and colour of finish coating. Identify type and colour in relation to established colour schedule and finish system.

2 PRODUCTS

2.1 MATERIALS

.1 Paint materials listed in latest edition of MPI Approved Product List (APL) are acceptable for use on this project.

.2 Where required by authorities having jurisdiction, paints and coatings to provide a fire resistant rating.

.3 Paint materials for repaint systems to be products of single manufacturer.

.4 Only qualified products with MPI "Environmentally Friendly" E3 and E2 rating are acceptable for use on this project.

.5 Use only MPI listed L rated materials.

.6 Paints, coatings, thinners, solvents, cleaners and other fluids used in repainting, to be as follows:
- .1 Be manufactured without compounds which contribute to ozone depletion in upper atmosphere.
- .2 Be manufactured without compounds which contribute to smog in lower atmosphere.
- .3 Be manufactured where matter generating 'Biochemical Oxygen Demand' (BOD) in undiluted production plant effluent discharged to natural watercourse or a sewage treatment facility lacking secondary treatment does not exceed 15 mg/L.
- .4 Be manufactured where total suspended solids (TSS) content in undiluted production plant effluent discharged to natural watercourse or sewage treatment facility lacking secondary treatment does not exceed 15 mg/L.

.7 Paints and coatings must not be formulated or manufactured with formaldehyde, halogenated solvents, mercury, lead, cadmium, hexavalent chromium or their compounds.

.8 Water based covering products, new or recycled, must have a flash point of 61:00C or more.

.9 Painting products and sealers must be manufactured and transported so that every steps of the process, including the disposal of wastes generated during the works, conform to the relevant requirements of governmental laws, order and rules, including in the case of installations located in Canada, to the Fisheries Act and the Canadian Environmental Protection Act (CEPA).

2.2 COLOURS

.1 Ministerial Representative will provide Colour Schedule after Contract award.

.2 Mix paints into paste, powder or catalytic hardening in accordance with the manufacturer's written instructions.

.3 Colour schedule will be based upon selection of five (5) base colours and three (3) accent colours. No more than twenty colours will be selected for entire project and no more than three colours will be selected in each area.

.4 Selection of colours will be from manufacturers full range of colours.

.5 Where specific products are available in restricted range of colours, selection will be based on limited range.

.6 First coat in three coat (Premium) repaint system to be tinted slightly lighter colour than top coat to show visible difference between coats.

2.3 MIXING AND TINTING

.1 Perform colour tinting operations prior to delivery of paint to site. On-site tinting of painting materials.

.2 Mix paste, powder or catalyzed paint mixes in accordance with manufacturer's written instructions.

.3 Where thinner is used, addition not to exceed paint manufacturer's recommendations. Do not use kerosene or such organic solvents to thin water-based paints.

.4 Thin paint for spraying in accordance with paint manufacturer' instructions. If directions are not on container, obtain instructions in writing from manufacturer and provide copy of instructions to Ministerial Representative.

.5 Re-mix paint in containers prior to and during application to ensure break-up of lumps, complete dispersion of settled pigment, and colour and gloss uniformity.

2.4 GLOSS/SHEEN RATINGS

.1 Paint gloss defined as sheen rating of applied paint, in accordance with following MPI gloss / sheen standard values:

Gloss Level Category	Units @ 60 Degrees	Units @ 85 Degrees
G1 - matte finish	0 to 5	maximum 10
G2 - velvet finish	0 to 10	10 to 35
G3 - eggshell finish	10 to 25	10 to 35
G4 - satin finish	20 to 35	minimum 35
G5 - semi-gloss finish	35 to 70	
G6 - gloss finish	70 to 85	
G7 - high gloss finish	> 85	

.2 Gloss level ratings of repainted surfaces shall be as specified herein and as noted on Finish Schedule.

2.5 INTERIOR RESTORING PAINTING SYSTEMS

.1 General points:

.1 For the acceptable products mentioned in the painting systems, the acceptable products equivalent to each product from:

.1 Benjamin Moore,
.2 Dulux (Bétonel),
.3 Sherwin-Williams,
.4 PPG are accepted as replacement products.
.5 or replacement product approved by addenda in accordance with the instructions to the bidders

.2 System 01 – System for gypsum board walls (except in bathrooms and equipment rooms).

.1 Preparation of the surfaces: conform to 85-GP-33M standard.

.2 Latex sealer primer, 0 VOC, MPI approved and conform to CAN/CSGB-1.119-95 standards.

.1 Reference product: ECOSOURCE 850-130.

.3 Finish: 2 coats of 100% acrylic latex paint, eggshell finish, 0VOC, 15 to 25% sheen (85 degrees); MPI and Green Seal GS-11 approved.

.1 Reference product: ECOSOURCE Serie 853

.3 System 02 - System for gypsum board walls in bathrooms and equipment rooms.

.1 Preparation of the surfaces: conform to 85-GP-33M standard.

.2 Latex sealer primer, conform to CAN/CSGB-1.119-95 and MPI-6 standards, 0 VOC 83 g/l.

.1 Reference product: SICO EXPERT 870-177

.3 Finish: 2 coats of 100% acrylic latex paint, melamine finish, MPI-43 approved, VOC <150g/l, 20-30% sheen (60 degrees).

.1 Reference product: SICO EXPERT Serie 875.

.4 System 03 - System for gypsum board ceiling

.1 Preparation of the surfaces: conform to 85-GP-33M standard.

.2 Latex sealer primer, low VOC, MPI approved and conform to CAN/CSGB-1.119-95 standards.

.1 Reference product: SICO EXPERT 870-177

.3 Finish: 2 coats of interior latex paint finish mat for ceiling. Low VOC.(85degrees): 0 to 5%, MPI approved.

.1 Reference product: SICO EXPERT Serie 871.

.5 System 04 - System for concrete wall panels

.1 Preparation of the surfaces: conform to ONGC 1.138 standard and to the manufacturer's instructions.

.2 Clean thoroughly according to the manufacturer's instructions.

.3 Apply 3 coats of acrylic latex mat such as Sico Expert Serie 971.

.6 System 05 - System for galvanized or zinc coated surfaces (interior steel doors and frames and other metals left with a hot dip galvanized finih.

.1 Preparation of the surfaces in accordance with ONGC 85-GP-16M standard and according to the manufacturer's instructions.

.2 Treat the surface with a cleaner and de-rusting for metal.

.1 Reference product : SICO 635-104.

.3 Rince with clear water.

.4 Finish: 2 coats of 1 component paint without VOC.

.1 Reference product: Sierra S37.

.7 System 06 – 2 components floor water base epoxy coating system for equipment rooms, 0 VOC industrial quality primer.

.1 Mechanical preparation of all the surfaces to paint, necessary to remove existing paint surfaces and/or to apply the covering system.

.2 Two finishing coats of the thickness of a dry film per coat: 125 microns (5 mils), thickness of wet film to obtain dry film: 250 microns (10 mils).

.1 Reference product: SICO SIERRA S-40 / RUST-OLÉUM

.3 Colour: at the choice of the ministerial representative.

.8 System 07 – System for interior material, primed

.1 Preparation of the surfaces: touch up the bare spots in accordance with CAN/CGSB-1.40-97 standard.

.2 Primer/finish: 2 coats of anticorrosion water bas paint for metal, conform to MPI-153 standard.

.1 Reference product: SICO Serie 632

3.1 MANUFACTURER'S INSTRUCTIONS

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

3.2 EXAMINATION

.1 Interior repainting work: inspected by MPI Accredited Paint Inspection Agency (inspector) acceptable to specifying authority and local Painting Contractor's Association. Painting contractor to notify Paint Inspection Agency a minimum of three week prior to commencement of work and provide a copy of project repainting specification and Finish Schedule (as well as plans and elevation drawings).

.2 Interior surfaces requiring repainting: inspected by both painting contractor and Paint Inspection Agency who will notify Ministerial Representative in writing of defects or problems, prior to commencing repainting work, or after surface preparation if unseen substrate damage is discovered.

.3 Where an assessed degree of surface degradation of DSD-1 to DSD-3 before preparation of surfaces for repainting is revealed to be DSD-4 after preparation, repair or replacement of such unforeseen defects discovered are to be corrected, as mutually agreed, before repainting is started.

.4 Where "special" repainting or recoating system applications (i.e. elastomeric coatings) or non-MPI listed products or systems are to be used, paint or coating manufacturer to provide as part of work, certification of surfaces and conditions for specific paint or coating system application as well as on site supervision, inspection and approval of their paint or coating system application as required at no additional cost to Ministerial Representative.

3.3 PREPARATION

.1 Perform preparation and operations for interior painting in accordance with MPI Maintenance Repainting Manual requirements except where otherwise specified.

.2 Apply paint materials in accordance with paint manufacturer's written application instructions.

.3 Clean and prepare interior surfaces to be repainted in accordance with MPI Maintenance Repainting Manual requirements. Refer to MPI Manual in regard to specific requirements and as follows:

.1 Remove dust, dirt, and surface debris by [vacuuming,] wiping with dry, clean cloths [or compressed air].

.2 Wash surfaces with a biodegradable detergent [and bleach where applicable] and clean warm water using stiff bristle brush to remove dirt, oil and surface contaminants.

.3 Rinse scrubbed surfaces with clean water until foreign matter is flushed from surface.

.4 Allow surfaces to drain completely and to dry thoroughly. Allow sufficient drying time and test surfaces using an electronic moisture metre before commencing work.

.5 Use water-based cleaners in place of organic solvents where surfaces will be repainted using water based paints.

.6 Many water-based paints cannot be removed with water once dried. Minimize use of kerosene or such organic solvents to clean up water-based paints.

.4 Clean metal surfaces to be repainted by removing rust, dirt, oil, grease and foreign substances in accordance with MPI requirements. Remove such contaminates from surfaces, pockets and corners to be repainted by brushing with clean brushes, blowing with clean dry compressed air, or brushing/vacuum cleaning as required.

.5 Prevent contamination of cleaned surfaces by salts, acids, alkalis, other corrosive chemicals, grease, oil and solvents before priming and between applications of remaining coats. Touch-up, spot prime, and apply primer, paint, or pre-treatment as soon as possible after cleaning and before deterioration occurs.

.6 Do not apply paint until prepared surfaces have been accepted by Ministerial Representative.

.7 Sand and dust between coats as required to provide adequate adhesion for next coat and to remove defects visible from distance up to 1000 mm.

3.4 EXISTING CONDITIONS

.1 Prior to commencing work, examine site conditions and existing interior substrates to be repainted. Report in writing to Ministerial Representative and General Contractor damages, defects, or unsatisfactory or unfavourable conditions or surfaces that will adversely affect this work.

.2 Conduct moisture testing of surfaces to be painted using properly calibrated electronic moisture meter, except test concrete floors for moisture using simple "cover patch test" and report findings to Ministerial Representative and General Contractor. Maximum moisture content not to exceed specified limits.

.3 Do not commence until such adverse conditions and defects have been corrected and surfaces and conditions are acceptable to Painting Subcontractor and Inspection Agency.

.4 Degree of surface deterioration (DSD) to be assessed using MPI Identifiers and Assessment criteria indicated in MPI Maintenance Repainting Manual. MPI DSD ratings and descriptions are as follows:

Condition	Description
DSD-0	Sound Surface (includes visual (aesthetic) defects that do not affect film's protective properties).

DSD-1 Slightly Deteriorated Surface (indicating fading; gloss reduction, slight surface contamination, minor pin holes scratches).

DSD-2 Moderately Deteriorated Surface (small areas of peeling, flaking, slight cracking, and staining).

DSD-3 Severely Deteriorated Surface (heavy peeling, flaking, cracking, checking, scratches, scuffs, abrasion, small holes and gouges).

DSD-4 Substrate Damage (repair or replacement of surface required).

3.5 PROTECTION

.1 Protect existing surfaces and adjacent fixtures and furnishings from paint spatters, markings and other damage by suitable non-staining covers or masking. If damaged, clean and restore such surfaces as directed by Ministerial Representative.

.2 Protect items that are permanently attached such as Fire Labels on doors and frames.

.3 Protect factory finished products and equipment.

.4 Protect general public and building occupants in and about building.

.5 Remove electrical cover plates, light fixtures, surface hardware on doors, bath accessories and surface mounted equipment, fittings and fastenings prior to undertaking re-painting operations. Store items and re-install after painting is completed.

.6 Move and cover furniture and portable equipment as necessary to carry out repainting operations. Replace as painting operations progress.

.7 As repainting operations progress, place "WET PAINT" signs in occupied areas to approval of Ministerial Representative.

3.6 APPLICATION

.1 Apply paint by method that is best suited for substrate being repainted using brush, roller, air sprayer and/or airless sprayer. Conform to manufacturer's application instructions unless specified otherwise. Methods of application as pre-approved by Ministerial Representative before commencing work.

.2 Brush and Roller Application:

- .1 Apply paint in uniform layer using brush and/or roller of types suitable for application.
- .2 Work paint into cracks, crevices and corners.
- .3 Paint surfaces and corners not accessible to brush using spray, daubers and/or sheepskins. Paint surfaces and corners not accessible to roller using brush, daubers or sheepskins.
- .4 Brush and/or roll out runs and sags, and over-lap marks. Rolled surfaces free of roller tracking and heavy stipple unless approved by Ministerial Representative.
- .5 Remove runs, sags and brush marks from finished work and repaint.

.3 Spray Application:

.1 Provide and maintain equipment that is suitable for intended purpose, capable of properly atomizing paint to be applied, and equipped with suitable pressure regulators and gauges.
.2 Keep paint ingredients properly mixed in containers during paint application by continuous mechanical agitation or intermittent agitation frequently as necessary.
.3 Apply paint in uniform layer, with overlapping at edges of spray pattern.
.4 Back roll spray applications and brush out runs and sags immediately.
.5 Use brushes to work paint into cracks, crevices and places which are not adequately painted by spray.

.4 Use dipping, sheepskins or daubers when no other method is practical in places of difficult access and when specifically authorized by Ministerial Representative.

.5 Apply paint coats in continuous manner and allow surfaces to dry and properly cure between coats for minimum time period as recommended by manufacturer. Minimum dry film thickness of coats not less than that recommended by manufacturer. Repaint thin spots or bare areas before next coat of paint is applied.

.6 Sand and dust between coats to remove visible defects.

.7 Repaint surfaces both above and below sight lines as specified for surrounding surfaces, including such surfaces as tops of interior cupboards and cabinets and projecting ledges.

.8 Repaint top, bottom, and vertical edges of doors and frames to be repainted.

.9 Repaint inside of cupboards and cabinets as specified for outside surfaces.

.10 Repaint closets and alcoves to match existing, unless otherwise scheduled or noted.

3.7 MECHANICAL / ELECTRICAL EQUIPMENT

.1 Unless otherwise noted, repainting to include exposed to view / previously painted mechanical and electrical equipment and components (panels, conduits, piping, hangers, and ductwork.).

.2 Touch up scratches and marks and repaint such mechanical and electrical equipment and components with colour, and sheen finish to match existing unless otherwise noted or scheduled.

.3 Do not paint over name plates or instruction labels.

.4 Leave unfinished exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment in original finish.

.5 Keep sprinkler heads free of paint.

.6 Do not paint interior transformers and substation equipment.

.7 Standard of Acceptance: when viewed using natural prevailing sunlight at peak period of day (mid-day) on surface viewed, surfaces to indicate following:
.1 Walls: no defects visible from distance of 1000 mm at 90 degrees to surface.
.2 Soffits: no defects visible from grade at 45 degrees to surface.
.3 Final coat to exhibit uniformity of colour and sheen across full surface area.

.8 Apply a primer and one coat of black paint finish G1 on the interior surfaces of the ventilation ducts that can be seen through the louvers.

3.8 SITE QUALITY CONTROL

.1 Inspection:

.1 Advise Ministerial Representative and Paint Inspection Agency when each surface and applied coating is ready for inspection. Do not proceed with subsequent coats until previous coat has been approved.

.2 Co-operate with Paint Inspection Agency and provide access to areas of work.

.3 The inspection on site of the interior painting works will be performed by an independent inspection organism named and hired by the ministerial representative.

3.9 CLEANING

.1 Proceed in accordance with Section 01 74 11 - Cleaning, supplemented as follows:.

.1 Remove paint where spilled, splashed, splattered or sprayed as work progresses using means and materials that are not detrimental to affected surfaces.

.2 Keep work area free from unnecessary accumulation of tools, equipment, surplus materials and debris.

.3 Remove combustible rubbish materials and empty paint cans each day and safely dispose of same in accordance with requirements of authorities having jurisdiction.

.4 Clean equipment and dispose of wash water used for water borne materials, solvents used for oil based materials as well as other cleaning and protective materials (e.g. rags, drop cloths, and masking papers), paints, thinners, paint removers/strippers in accordance with safety requirements of authorities having jurisdiction and as noted herein.

.5 Clean painting equipment in leak-proof containers that will permit particulate matter to settle out and be collected. Sediment remaining from cleaning operations to be recycled or disposed of in manner acceptable to authorities having jurisdiction.

.6 Recycle paint and coatings in excess of repainting requirements as specified.

3.10 RESTORATION

.1 Clean and re-install hardware items removed before undertaken painting operations.

.2 Remove protective coverings and warning signs as soon as practical after operations cease.

.3 Remove paint splashings on affected exposed surfaces. Remove smears and spatter immediately as operations progress, using compatible solvent.

.4 Protect freshly completed surfaces from paint droppings and dust to approval of Ministerial Representative . Avoid scuffing newly applied paint.

.5 Restore areas used for storage, cleaning, mixing and handling of paint to clean condition as approved by Ministerial Representative.

END OF SECTION

DIVISION 23

Heating, Ventilating and Air-Conditioning (HVAC)

Part 1 General

1.1 REFERENCE STANDARDS

.1 CSA Group.

.1 CAN/CSA-C22.2 No. 130-03(C2013), Requirements for Resistor Heating Cables and Resistor Heating Appliance Assemblies.

1.2 SUBMITTALS

.1 Data Sheets.

.1 Submit the required data sheets and manufacturer's documentation for electrical heating cables. The data sheets shall indicate the characteristics of products, performance criteria, dimensions, limits, and finish.

.2 Certificates.

.1 Submit documents signed by the manufacturer, certifying that the products, materials, and equipment meet the requirements for physical characteristics and performance criteria.

1.3 CLOSEOUT SUBMITTALS

.1 Submit the documents/elements required in accordance with Section 01 78 00 - Closeout Submittals.

1.4 TRANSPORTATION, STORAGE, AND HANDLING

.1 Transport, store, and handle materials and equipment in accordance with Section 01 61 00 - Common Product Requirements.

Part 2 Products

2.1 GENERAL

.1 Heating Cables: Complying with CAN/CSA-C22.2 No. 130.03.

2.2 HEATING CABLES FOR STEEL OR HDPE CONDUIT

.1 Thermocable constant power heating cables, isolated from fluoropolymer, consist of a number of nichrome heating resistors connected in parallel.

2.3 ACCESSORIES

.1 PFK-1: A power supply kit for connecting one (1) or two (2) thermocables and the temperature sensor(s) on a pipe to an electronic thermostat.

.2 PFK-4: Power supply kit for connecting a thermocable and temperature sensor(s) to a connection pipe to an electronic thermostat.

2.4 COMMAND/CONTROL DEVICES

.1 For Plastic Driving: Model UTC-2030-01/2230-01 (with circuit breaker), with ground fault detection, 120-240 VCA, 30 A, 2 poles in a NEMA 4 steel housing. Setpoint adjusted to 3°C and a high temperature limit of 65°C for protection of the plastic pipe.

2.5 TEMPERATURE SENSOR

.1 RTD 100-ohm temperature sensor, model URTD-xx-06 /15 /30, with gray or red cables and different cable lengths (6, 15, and 30 m) and the TS1 temperature sensor for piping temperature control. The TS3 sensor is used as a high-temperature cutoff.

Part 3 Execution

3.1 INSPECTION

.1 Verification of Conditions: Before proceeding with the installation of heating electrical cables, ensure that the condition of the surfaces/supports previously implemented under other Sections or Contracts is acceptable and allows the work to be carried out in accordance with the manufacturer's written instructions.

3.2 INSTALLATION

.1 Install the cables according to the manufacturer's instructions.

END OF SECTION

DIVISION 26

Electrical

Part 1 General

1.1 REFERENCE STANDARDS

.1 Canadian Standards Association (CSA)/CSA International.

.1 CAN/CSA-C22.3, No. 1, Aerial Networks.

.2 CSA C22.1-15, Canadian Electrical Code, Part I (24th Edition), Safety Standard for Electrical Installations.

.3 CSA C22.10, Construction Code of Québec, Chapter V - Electricity, 2018.

.4 CAN3-C235, Recommended Voltages for AC Networks from 0 to 50,000 V.

.2 Electrical and Electronic Equipment Manufacturers Association of Canada (EEMAC).

.1 EEMAC 2Y-1, Light Gray Color for Indoor Switch Gear.

.3 Health Canada - Workplace Hazardous Materials Information System (WHMIS).

.1 Material Safety Data Sheets.

1.2 DESIGN REQUIREMENTS

.1 Operating voltages shall comply with CAN3-C235 Standard.

.2 Motors, electric heaters, and command/control/regulation and distribution devices shall operate satisfactorily at the frequency of 60 Hz and within the limits set out in the above-mentioned Standard.

.1 Materials shall be able to operate without damage under the extreme conditions defined in this Standard.

.3 Language of Operation and Display: Provide for the purpose of identification and display of indicator plates in English and French for control devices.

1.3 SUBMITTALS

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

.2 Workshop Drawings.

.1 Drawings shall bear the seal and signature of a qualified engineer recognized or qualified to practice in Canada.

.2 Submit five (5) copies of the drawings and data sheets to the Departmental Representative.

.3 If changes are required, inform the Departmental Representative before they are made.

.3 Quality Control: In accordance with Section 01 45 00 - Quality Control.

.1 Provide CSA-certified equipment and materials.

.2 In cases where CSA-certified equipment and materials cannot be obtained, submit the proposed equipment to the Departmental Representative for approval, prior to delivery to the site.

.3 Submit test results of installed electrical systems and instruments.

.4 Permits and rights: In accordance with the terms and conditions of the Agreement.

.5 Once the work is completed, submit a load balancing report in accordance with the LOAD BALANCING article of PART 3.

.6 Once the work has been completed, submit to the Department Representative the acceptance certificate issued by the competent authority.

1.4 QUALITY ASSURANCE

.1 Quality Assurance: According to Section 01 45 00 - Quality Control.

.2 Qualifications: The electrical work shall be performed by certified, qualified electricians, a master electrician or an electrical contractor licensed by the Province in which the work will be performed.

1.5 DELIVERY, STORAGE, AND HANDLING

.1 Equipment Delivery Schedule: Provide a delivery schedule to the Departmental Representative within two (2) weeks of Contract award.

.2 Management and disposal of construction/demolition waste: In accordance with Section 01 74 19 - Waste Management and Disposal.

1.6 INSTALLATION START-UP

.1 Instruct operating personnel on the operation and maintenance methods of the facility, its equipment, and components.

.2 Retain and pay for the services of an engineer seconded from the manufacturer's plant to supervise the installation start-up, to verify, adjust, balance, and calibrate the various elements, and to instruct operating personnel on the door control system.

.3 Provide these services for a 4-hour period, including a necessary visit to start up the equipment and ensure that operating personnel are familiar with all aspects of its maintenance and operation.

Part 2 Products

2.1 MATERIALS/EQUIPMENT

.1 Provide materials and equipment in accordance with Section 01 61 00 - Common Product Requirements.

.2 Equipment shall be CSA certified. In cases where CSA-certified materials and equipment cannot be obtained, submit the replacement materials and equipment to the inspection authorities prior to delivering them to the site, in accordance with the SUBMITTALS article of PART 1.

.3 Command/control panels and component assemblies shall be factory-assembled.

2.2 ELECTRIC MOTORS, EQUIPMENT, AND COMMAND/CONTROLS

.1 Verify installation and coordination responsibilities for engines, equipment, and command/control, as indicated.

2.3 WARNING SIGNS

.1 Warning Signs: Dimensions of 175 mm x 250 mm.

2.4 WIRING TERMINATIONS

.1 Ensure lugs, terminals, screws used for termination of wiring are suitable for copper conductors.

2.5 IDENTIFICATION OF THE MATERIAL

.1 To designate electrical equipment, use indicator plates meeting the following requirements:

.1 Indicator plates: Lamicoid plastic engraving plates 3 mm thick, with white face finished mast and black core, mechanically fixed by means of tapping screws, with inscriptions in letters correctly aligned, engraved to the core of the plate.

.2 Size complying with following indications:

SIZE OF IDENTIFICATION PLATES

Size 1	10 x 50 mm	1 line	3 mm high letters
Size 2	12 x 70 mm	1 line	5 mm high letters
Size 3	12 x 70 mm	2 lines	3 mm high letters
Size 4	20 x 90 mm	1 line	8 mm high letters
Size 5	20 x 90 mm	2 lines	5 mm high letters
Size 6	25 x 100 mm	1 line	12 mm high letters
Size 7	25 x 100 mm	2 lines	12 mm high letters

.3 Markings on indicator plates shall be approved by the Departmental Representative prior to manufacture.

.4 Nameplates for terminal cabinets and junction boxes to indicate system and/or voltage characteristics.

.5 Disconnects, Starters, and Contactors: Indicate equipment being controlled and voltage.

.6 Terminal Cabinets and Pull Boxes: Indicate system and voltage.

.7 Transformers: Indicate capacity, primary and secondary voltages.

2.6 WIRING IDENTIFICATION

.1 Both ends of the phase conductors of each feeders and branch circuit shall be permanently and indelibly marked with a numbered or colored plastic tape.

.2 Keep phase order and color code for the entire installation.

.3 The color code shall comply with CSA C22.1 Standard.

.4 Use communication cables formed of conductors with uniform color tracking throughout the network.

2.7 IDENTIFICATION OF CONDUITS AND CABLES

.1 Color code conduits, boxes, and metallic sheathed cables.

.2 Code with plastic tape or paint at points where conduit or cable enters wall, ceiling, or floor, and at 15 m intervals.

.3 The bands of the basic colors shall be 25 mm wide and those of the additional colors 20 mm wide.

	Basic Color	Complementary Color
Up to 250 V	Yellow	---
Up to 600 V	Yellow	Green
Up to 5 kV	Yellow	Blue
Up to 15 kV	Yellow	Red
Telephone	Green	---
Other	Green	Blue
Communication Networks	---	---
Klaxon	Red	---
Emergency Communication	Red	Blue
Other	Red	Yellow
Security Systems	---	---

2.8 FINISH

.1 The surfaces of metal casings shall be finished in the workshop and coated with an anti-rust primer, inside and out, and with at least two (2) coats of finishing enamel paint.

.1 Electrical equipment to be installed outdoors shall be painted in "Machine Green".

.2 Cabinets of switching and dispensing devices installed indoors shall be painted light grey according to EEMAC 2Y-1.

Part 3 Execution

3.1 INSTALLATION

.1 Unless otherwise specified, complete the entire installation in accordance with CSA C22.1 Standard.

.2 Unless otherwise specified, install overhead and underground systems in accordance with CSA C22.3 No. 1 Standard.

3.2 LABELS, INDICATOR PLATES AND NAMEPLATES

.1 Ensure that CSA labels, indicator plates, and nameplates are visible and legible once the equipment is installed.

3.3 INSTALLATION OF CONDUITS AND CABLES

.1 Install conduit and sleeves before concrete pouring.

.1 Sleeves through concrete: steel pipe of 40 Series, of diameter allowing the free passage of the conduit and exceeding the concrete surface by 50 mm on each side.

.2 If plastic sleeves are used in fire rated walls or floors, remove before conduit installation.

.3 Install cables, conduits, and fittings embedded or plastered over, close to building structure so furring can be kept to minimum.

3.4 LOCATION OF OUTLETS

.1 Locate outlets in accordance with Section 26 05 32 - Outlet Boxes, Conduit Boxes and Fittings.

.2 Do not install outlets back-to-back in wall; allow minimum 150 mm horizontal clearance between boxes.

.3 Change location of outlets at no extra cost or credit, providing distance does not exceed 3,000 mm, and information is given before installation.

.4 Locate light switches on latch side of doors.

.1 Locate disconnect devices in mechanical and elevator machine rooms on latch side of floor.

3.5 MOUNTING HEIGHTS

.1 Unless otherwise specified or required, measure the mounting height of the equipment from the surface of the coated floor to the axis of the equipment.

.2 If mounting height of equipment is not specified or indicated, verify before proceeding with installation.

.3 Unless otherwise specified, install the equipment at the height indicated below:

.1 Light switches: 1,200 mm.

.2 Wall outlets:

.1 In general: Height such as those preserved.

.2 Above continuous heating skirting boards: Height such as those preserved.

.3 Above a worktop or backsplash: 175 mm.

.4 In mechanical installation rooms: 1,200 mm.

.3 Distribution signs: as required by the Code or as indicated.

.4 Telephone and interphone outlets: height such as those kept.

.5 Wall-mounted phone and intercom outlets: 1,200 mm.

.6 Wall-mounted speakers: 2,100 mm.

3.6 COORDINATION OF PROTECTIVE DEVICES AND ELECTRICAL ARCS

.1 Ensure circuit protective devices such as overcurrent trips, relays and fuses are installed to required values and settings.

.2 When handing over workshop drawings, provide the coordination study of the main protective devices.

.3 The entire installation shall comply with section 2-306 "Protection Against Electric Shock and Arcing" of the Canadian Electrical Code, 24th Edition, 2018.

3.7 FIELD QUALITY CONTROL

.1 Load Balancing.

.1 Measure the phase current of the distribution panels under normal loads (lighting) at the time of acceptance of the work. adjust branch circuit connections as required to obtain best balance of current between phases and record changes.

.2 Measure phase voltages at loads and adjust transformer taps to within 2% of rated voltage of equipment.

.3 Once the actions have been completed, submit the load balancing report prescribed in the SUBMITTALS section of PART 1. This report shall indicate the currents under normal loads recorded on the phases and neutrals of the distribution panels, dry transformers, and motor control centers. Specify the time and date at which each load was measured, as well as the voltage of the circuit at the time of measurements.

.2 Perform tests of the following in accordance with Section 01 45 00 - Quality Control:

.1 Electricity generation and distribution network, including phase, voltage and grounding control, and load balancing;

.2 Circuits originating from branch distribution panels;

.3 Lighting and its control;

.4 Motors, heaters, and associated control equipment including sequenced operation of systems, where applicable;

.5 Fire alarm system and communication network;

.6 Isolation resistance measurement:

.1 Measure, using a 500-V megohmmeter, the isolation value of circuits, distribution cables and equipment with a nominal voltage of not more than 350 V.

.2 Measure, using a 1,000-V megohmmeter, the isolation value of circuits, arteries, and equipment with a nominal voltage between 350 V and 600 V.

.3 Check the ground resistance value before powering on.

.3 Conduct the tests in the presence of the Departmental Representative.

.4 Provide the measuring devices, indicators, equipment, and personnel required for the performance of the tests during the performance of the work and upon completion of the work.

3.8 CLEANING

.1 Clean and retouch painted surfaces in the workshop that have been scratched or damaged during shipping and installation; use a paint of the same type and color as the original paint.

.2 Clean exposed, non-galvanized hooks, supports, fasteners, and other fasteners and apply a primer to protect them from rust.

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

.1 Canadian Standards Association (CSA)/CSA International:

.1 CAN/CSA-C22.2, No. 18, Output Boxes, Duct Boxes, Fittings and Accessories.

.2 CSA C22.2, No. 65, Wire Connectors.

.2 Electrical and Electronic Equipment Manufacturers Association of Canada (AMEEEC):

.1 AMEEEC 1 Y-2 standard, Connectors for crossing terminals and aluminum adapters (nominal intensity 1,200 A).

.3 National Electrical Manufacturers Association (NEMA).

1.2 WASTE MANAGEMENT AND DISPOSAL

.1 Sort and recycle waste in accordance with Section 01 74 19 - Waste Management and Disposal.

.2 Remove all packaging materials from the site and transport them to appropriate recycling facilities.

.3 Place all paper, plastic, polystyrene, and corrugated fiber packaging materials in appropriate, on-site dumpsters for recycling in accordance with the Waste Management Plan.

.4 Route unused metal wiring to a metal recycling facility approved by the Departmental Representative.

Part 2 Products

2.1 HARDWARE

.1 Pressure connectors for cables: With copper current-carrying elements and of a gauge suitable for copper conductors, as required.

.2 Splicing connectors for lighting fixtures: With copper current-carrying elements, of a size suitable for copper conductors of gauge 10 AWG or less.

.3 Connectors for Crossing Terminals: Compliant with AMEEC 1 Y-2 and relevant NEMA Standards, consisting of the following:

.1 Connector body and stud clamp for copper twisted conductors;

.2 Clamping flange for copper twisted conductors;

.3 Clamping flange for steel core aluminum twisted conductor (ACSR);

.4 Clamping flange bolts;

.5 Bolts for copper conductors or bars;

.6 Size suitable for conductors and bars as indicated.

.4 Clamping flanges or connectors for reinforced cables, aluminum sheathed cables, mineral insulated cables, flexible conduits, or non-metallic sheathed cables, as required.

.5 Waterproof connectors for TECK cables.

Part 3 Execution

3.1 INSTALLATION

.1 Install the connectors according to the manufacturer's recommendations for the connections on bars.

.2 Carefully strip the ends of the conductors of the insulating material and, as appropriate:

.1 Install mechanical pressure type connectors and tighten screws with appropriate compression tool recommended by manufacturer. Installation shall meet secureness tests in accordance with CAN/CSA-C22.2 No. 65.

.2 Install the connectors for lighting fixtures and tighten them. Re-position the insulating cap.

.3 Install the connectors for crossing terminals in accordance with AMEEEC 1 Y-2 and the relevant NEMA Standards.

.4 The Contractor will have to demonstrate that each screw has been tightened to the torque recommended by the manufacturer.

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

.1 CSA C22.2, No. 0.3, Test Methods for Electrical Wires and Cables.

.2 National Building Code 2015.

1.2 WORKSHOP DRAWINGS AND DATA SHEETS

.1 Submit workshop drawings and data sheets in accordance with Section 26 05 00 - Common Work Results for Electrical.

.2 Perform dielectric tests in accordance with Section 26 05 00 - Common Work Results for Electrical.

1.3 TRANSPORTATION, STORAGE, AND HANDLING

.1 Packaging Waste Management: Recover packaging waste for reuse and take back pallets, crates, quilting, and other packaging materials by their manufacturer, in accordance with current Standards and general requirements.

Part 2 Products

2.1 BUILDING WIRES

.1 In accordance with CSA C22.2 No. 0.3, when cables are required to have a PVC outer jacket, the PVC jacket shall pass the vertical fire-resistance test according to the class of the building determined by the National Building Code 2015 and the location where the cables will be installed.

.2 Conductors: Stranded when of gauge 10 AWG and more. Minimum size 12 AWG.

.3 Conductors: Copper, of size according to the indications, under chemically crosslinked thermosetting polyethylene insulation and having a nominal dielectric index of RW90 XLPE or RWU90 XLPE.

.4 Use isolated cabling at:

.1 300 V for loads up to 240 V.

.2 600 V for loads over 240 V up to 480 V.

.3 1,000 V for loads over 480 V up to 600 V.

.5 A GREEN insulated conductor of minimum gauge 12 AWG is required in any conduit other than threaded galvanized rigid steel for mass continuity (see Section 26 05 34 - Conduits, Fasteners and Fittings).

2.2 TECK 90 CABLE

.1 Cables: In accordance with Section 26 05 00 - Common Work Results for Electrical.

.1 Grounding conductor: Copper.

.2 Feed conductors: Copper and caliber as indicated.

.3 Teck cables will have cross-linked polyethylene (XLPE) insulation. They will be insulated at 600 V for use up to 300 V and will be insulated at 1,000 V for use up to 600 V. They will be equipped with a polyvinyl chloride sheath and metal armor with aluminum strip.

.4 Teck cables for control and communication purposes not exceeding 300 V will be insulated at 600 V and will be equipped with metal armor with galvanized steel strip. The conductors will be made of copper of minimum caliber 12 or higher considering the loads, voltage drops, and the number of conductors per cable.

.5 All Teck cables will be type 90 with polyvinyl chloride (PVC) outer casing. They will comply with CAN/CSA-C22.2, Nos. 131 and 174 for hazardous locations (HL) and against flame spread (FT-4).

.6 Fasteners:

.1 One-hole and steel flanges for exposed cables of 50 mm or less. Two-hole and steel mounting flanges for cables over 50 mm.

.2 U-shaped brackets for groups of two or more cables and placed at a maximum distance of 1.5 m.

.3 Threaded suspension rods: 6 mm in diameter and for "U" supports.

.7 Connectors:

.1 Approved waterproof or explosion-proof models suitable for TECK cables.

Part 3 Execution

3.1 FIELD QUALITY CONTROL

.1 Conduct the tests in accordance with Section 26 05 00 - Common Work Results for Electrical.

.2 Perform tests using method appropriate to site conditions and to approval of the Departmental Representative and the competent local authorities.

.3 Test before energizing the electrical installation.

3.2 CABLE INSTALLATION - GENERAL

.1 Carry out the terminations of the cables in accordance with Section 26 05 20 - Connectors for Cables and Boxes (0 – 1,000 V).

.2 Use a colour code for cables in accordance with Section 26 05 00 - Common Work Results for Electrical.

.3 Attach power route cables to distribution centers, draw boxes, and terminations.

.4 Route downhill or vertical loops the wiring hidden in the walls to facilitate further work. It is forbidden to route wiring from bottom to top as well as horizontally into the walls.

.5 The control wiring shall be identified by collars with numbering corresponding to the legend of the workshop drawings.

.6 Use only two-wire circuits for bypasses to the sockets and with overvoltage suppression for permanently connected electronic and computer equipment. Common neutral circuits are prohibited.

3.3 INSTALLATION OF BUILDING WIRES

.1 Unless otherwise specified, all wires shall be under conduit.

.2 Use the types of conduits or piping according to the requirements of the respective sections.

3.4 INSTALLATION OF TECK CABLES 90 (0 - 1,000 V)

.1 Install cables as indicated; by securing them securely by means of staples, flanges, or calipers in suspension.

.2 When there are two (2) cables on the same route, group them on the "U" profiles.

.3 Terminate the end of the cables in accordance with Section 26 05 20 - Connectors for Cables and Boxes (0 – 1,000 V).

3.5 INSTALLATION OF ARMOURED CABLES

.1 In the ceiling space and drywall, the Contractor may use AC-90 armored cables between the luminaires in such a way that the length of cable used between two (2) luminaires or between the junction box and a luminaire does not exceed 3,000 mm.

.2 In ceiling space and drywall, the Contractor may use AC-90 armored cables between sockets of the same circuits in such a way that the length of cable used between two (2) sockets or between the junction box and one socket does not exceed 6,000 mm.

.3 Make groups of up to maximum three (3) cables wherever possible. Support every 1.5 m. The cables shall follow the structural lines of the building. No horizontal cables in the partitions will be accepted.

.4 The use of AC-90 armored cables in a visible manner on the surface is prohibited.

.5 Terminate the end of the cables in accordance with section 26 05 20 - Connectors for Cables and Boxes (0 – 1,000 V).

3.6 INSTALLATION OF CONTROL CABLES

.1 Lay the control cables in ducts as indicated.

.2 Connect the metal armor of the control cables to the grounding network.

3.7 INSTALLATION OF CABLES/WIRES WITH FIRE RESISTANCE

.1 Group cables and/or conduits wherever possible by securing them securely by means of suspension calipers. The supports will be at intervals of 1 m.

.2 Lay the cables and/or conduits in such a way as not to reduce the free height of the room and using as little space as possible.

.3 Conceal cables and/or conduits, except those laid in mechanical and electrical rooms, and in unfinished premises.

.4 At the end of the cables, insert the bare end of the conductors into thermoplastic sleeves.

.5 Place sleeves at the entrance and exit of cables embedded in poured concrete or masonry structures.

.6 Unless otherwise specified, it is forbidden to make springs on cables. If required, carry them out in dry and accessible places.

.7 Identify cables every 3 m and on both sides when they pass through a wall or floor by means of an indicator tape with the words "120 V cable", "600 V cable" or other, as appropriate.

.8 Complete the installation with the termination assemblies (manufactured in the factory) and connect in accordance with the manufacturer's requirements and recommendations.

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

.1 Canadian Standards Association (CSA)/CSA International.

.1 Grounding equipment according to CSA C22.2, No. 41.

1.2 WASTE MANAGEMENT AND DISPOSAL

.1 Sort and recycle waste in accordance with Section 01 74 19 - Waste Management and Disposal.

.2 Remove all packaging materials from the site and transport them to appropriate recycling facilities.

.3 Place all paper, plastic, polystyrene, and corrugated fibre packaging materials in appropriate, on-site dumpsters for recycling in accordance with the Waste Management Plan.

.4 Route unused metal elements to a metal recycling facility proposed by the Contractor but approved by the Departmental Representative.

.5 Fold the strapping metal strips, flatten them, and place them in designated areas for recycling.

Part 2 Products

2.1 HARDWARE

.1 Grounding Collars: Of suitable size to connect conductors to a groundwater pipe of good electrical conductivity.

.2 Electrodes embedded in concrete: bare copper conductor, twisted, tinned, annealed, enlarged according to the indications and at least 6 m long.

.3 Electrode Rods: Copper steel 19 mm in diameter by 3 m in length (minimum of three (3) per site).

.4 Electrode Plates: Copper, with an area of 0.2 m² and at least 1.6 mm thick.

.5 Earthen Conductors: Bare copper, tinned as indicated, stranded, annealed, and of the indicated size.

.6 Green insulated earth conductors, type RWU 90 when in soil or wet places, type RW 90 in other places, and gauge indicated.

.7 Earthen bus bars: Copper, dimensions as indicated, with insulating supports, fasteners, and connectors.

.8 Non-corroding accessories necessary for the grounding system of type, dimensions and materials as indicated, including:

.1 Grounding and bonding terminal tips.

.2 Protective flanges.

.3 Bolted connectors.

.4 Connectors for welding by aluminothermy.

.5 Jumpers, braidings, flash brackers.

.6 Wire clamp connectors.

.7 Compression connectors.

.9 Connection box (access) branded "SYNERTECH" or equivalent approved.

2.2 MANUFACTURERS

.1 Acceptable Products: Thomas & Betts; Cadwell; Burndy or Thermoweld.

Part 3 Execution

3.1 INSTALLATION - GENERAL

.1 Install complete, permanent, and continuous grounding systems for networks, circuits, and apparatus, including electrode rods (minimum of three (3) per site), conductors, connectors, and necessary accessories, as specified and in such a way as to meet the requirements of the Departmental Representative and the competent local authorities.

.2 Install connectors according to the manufacturer's instructions.

.3 Protect open grounding conductors from damage.

.4 It is indicated that approved or thermite welded compression fittings should be used for underground connections as well as for connections to good conductivity groundwater pipes and electrodes and structural elements.

.5 Use mechanical connectors to make connections to devices with grounding terminals.

.6 Welded joints are prohibited unless they complete the installation of a compression joint.

.7 Place a connecting wire on the flexible ducts, secure it carefully on the outside of the duct and connect each end to a grounding tip, seamless terminal, wire clamp or screw with Belleville washer.

.8 Lay flexible connecting braids at the joints of shielded bars when binding is not provided by the equipment itself.

.9 Arrange the grounding conductors in radial shape and route all connections directly to a single grounding common point on the street side of the water pipe. Avoid loop connections.

.10 Connect one end of the metal armor of the single-wire cables to the power source box and lay a non-metallic plate at the other end.

.11 Ground secondary distribution boxes.

3.2 GROUNDING OF THE NETWORK AND CIRCUITS

.1 Make the grounding connections of the network and circuits to the neutral of the 120/240 V network, as indicated.

3.3 GROUNDING OF THE APPARATUS

.1 Make the prescribed grounding connections for all equipment, including: Turnouts, transformers, switchgear, piping, motor frames, motor control centers, starters, control panels, steel frames, generators, alternators, elevators, escalators, distribution panels, outdoor lighting networks, etc.

3.4 GROUNDING BUSBARS

.1 Mount the copper bus bars on insulated supports attached to the wall of the electrical installation room.

.2 Connect the electrical equipment to the earthing busbar using individual conductors of bare copper, stranded, and enlarged as indicated.

3.5 FIELD QUALITY CONTROL

.1 Test in accordance with the requirements of Section 26 05 00 - Common Work Results for Electrical.

.2 Verify the continuity and resilience of the grounding system using methods appropriate to local conditions and approved by the Departmental Representative and the relevant local authorities.

.3 Test before energizing the electrical installation.

.4 During testing, disconnect the grounding indicator if necessary.

END OF SECTION

Part 1 General

1.1 WASTE MANAGEMENT AND DISPOSAL

.1 Sort and recycle waste in accordance with Section 01 74 19 – Waste Management and Disposal.

.2 Remove all packaging materials from the site and transport them to appropriate recycling facilities.

.3 Place all paper, plastic, polystyrene, and corrugated fiber packaging materials in appropriate, on-site dumpsters for recycling in accordance with the Waste Management Plan.

.4 Route unused metal elements to a metal recycling facility proposed by the Contractor but approved by the Departmental Representative.

.5 Fold the strapping metal strips, flatten them, and place them in designated areas for recycling.

Part 2 Products

2.1 SUPPORTS AND ACCESSORIES

.1 “U”-shaped supports, made of hot-dip galvanized steel, of minimum dimensions of 41 mm x 41 mm, of minimum thickness 2.5 mm, laid on the surface, suspended or embedded in the ceilings and walls of poured concrete.

.2 Installation accessories, such as threaded rods, bolts, washers, nuts, spring nuts, etc., of plated steel, chromium, or zinc.

.3 Galvanizing product meeting CAN/CSA-G164.

.4 Fasteners used outdoors and in damp places shall be made of stainless steel.

Part 3 Execution

3.1 INSTALLATION

.1 For fasteners and supports, see Section 01 61 00 - Common Product Requirements.

.2 Secure equipment to hollow or solid masonry, ceramic and plaster surfaces using lead anchors or nylon dowels.

.3 Secure equipment to poured concrete surfaces using expansion anchors.

.4 Secure equipment to hollow masonry walls or suspended ceilings using fin bolts.

.5 Support conduits or cables with staples, spring bolts, and cable clamps designed as accessories for “U”-shaped profiles.

.6 Fasteners for securing cables or conduits exposed to the frame or construction elements of the building:

.1 Flanges with one (1) steel hole to secure on the surface conduits and cables of 50 mm diameter or less.

.2 Flanges with two (2) steel holes to fix conduits and cables more than 50 mm in diameter.

.3 Clamping flanges for attaching conduits to exposed steel structural elements.

.7 Suspended Media Systems:

.1 Support each cable or conduit by means of threaded rods of a minimum diameter of 6 mm and spring staples.

.2 Support at least two (2) cables or conduits on “U”-shaped profiles supported by threaded suspension rods of minimum diameter 6 mm when it is not practical to attach them directly to the frame of the building.

.8 To surface two or more conduits, use "U" profiles placed at 1 m of distance.

.9 Install consoles, frames, hooks, clamping flanges, and other types of metal supports where indicated and where necessary to support conduits and cables.

.10 Provide suitable support for conduits and cables laid vertically to the equipment when there is no wall support.

.11 Do not use tie wire or perforated strip to support or secure pipes and cables.

.12 Do not use as support for conduit or cable, supports, and equipment installed for other trades, unless written permission from the Departmental Representative.

.13 Install fasteners and brackets according to the needs of each type of equipment, conduit, and cable, and according to the manufacturer's recommendations.

.14 Cover all scratched, altered, or cut surfaces of galvanized parts with a galvanizing product.

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

.1 Canadian Standards Association (CSA)/CSA International.

.1 CSA C22.1, Canadian Electrical Code, Part I, current Edition.

.2 CSA C22.2, No. 40.

.3 CSA C22.2, No. 76 - Allocation Boxes.

1.2 SUBMITTALS

.1 Submit the required documents and samples in accordance with Sections 01 33 00 – Submittal Procedures and 26 05 00 - Common Work Results for Electrical.

.2 Data Sheets: Submit the required data sheets as well as the manufacturer's specifications and documentation for the products concerned. These sheets shall indicate the characteristics of products, performance criteria, dimensions, limits, and finish.

.3 Submit the required workshop drawings in accordance with section 26 05 00 - Common Work Results for Electrical.

1.3 TRANSPORTATION, STORAGE, AND HANDLING

.1 Waste Management and Disposal: Sorting waste for reuse/recycling in accordance with Section 01 74 19 – Waste Management and Disposal.

1.4 ELECTRICAL DEVICES PROTECTED BY SPRINKLERS

.1 Provide and install equipment in accordance with Section 26 05 00 - Common Work Results for Electrical.

Part 2 Products

2.1 SPLITTERS

.1 Construction: Metal sheet boxes with welded angles, with a hinged lid, shaped and lockable in the closed position.

.2 Terminations: The mains and branch terminals as well as the connection bars shall correspond to the size and number of input and output conductors connected to them, as indicated.

.3 Reserve Terminals: Provide at least three reserve terminals for each series of lings in the distribution boxes with a rated intensity of less than 400 A.

2.2 JUNCTION AND PULL BOXES

.1 Steel boxes, welded, with flat and screwed lids for projecting mounting.

.2 Lids having a rim of at least 25 mm, adaptable to flushing and junction boxes mounted outcrop.

.3 The covers of boxes of 150 mm x 150 mm and more shall be hinged.

2.3 CABINETS

.1 Steel sheet type "E" cabinets, for projecting mounting, with folded and overlapping edged sides, fitted with a hinged door, a handle, a lock, and a latch.

2.4 FITTINGS

.1 Insulated metal sleeves and connectors with insulated nylon grooves for gauge 8 AWG and above.

.2 Pressure pellets to prevent debris from entering the knockouts.

.3 Access fittings for conduits up to 35 mm in diameter and pull boxes for larger conduits.

.4 Double counter nuts and insulated metal sleeves on sheet metal boxes.

Part 3 Execution

3.1 SPLITTER INSTALLATION

.1 Install the distribution boxes according to the indications and mount them with aplomb, alignment, and square with the building walls.

.2 Unless otherwise specified, the allocation boxes shall be as long as required to accommodate the arrangement of the secondary equipment.

3.2 JUNCTION, PULL BOXES AND CABINETS INSTALLATION

.1 Place the pull boxes in hidden, but easily accessible places.

.2 Install the cabinets so that the top is not more than 2 m above the finished floor.

.3 Place terminal plates in "T" type cabinets as directed.

.4 Only the main junction and pull boxes are indicated. Install enough pull boxes so that the conduits placed between each box are no more than 30 m long or four (4) 90° elbows.

.5 Provide screw terminal plates in junction boxes containing more than four (4) joints.

3.3 IDENTIFICATION LABELS

.1 Provide and install equipment identification labels in accordance with Section 26 05 00 - Common Work Results for Electrical.

.2 Install format 2 labels indicating the name of the network, the permissible current, the voltage and the number of phases.

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

.1 Canadian Standards Association (CSA)/CSA International.

.1 CSA C22.1, Canadian Electrical Code, Part I, Last Edition.

.2 CSA C22.2, No. 18 - Outlets Boxes, Bypass Boxes and Accessories.

1.2 SUBMITTALS

.1 Submit the required documents and samples in accordance with Sections 01 33 00 - Submittal Procedures and 26 05 00 - Common Work Results for Electrical.

.2 Submit samples of floor boxes in accordance with Section 01 33 00 - Submittal Procedures and Section 26 05 00 - Common Work Results for Electrical.

1.3 TRANSPORTATION, STORAGE, AND HANDLING

.1 Transport, store, and handle materials and equipment in accordance with Section 01 61 00 – Common Product Requirements.

.2 Waste Management and Disposal: Sorting waste for reuse/reuse/recycling in accordance with section 01 74 19 – Waste Management and Disposal.

Part 2 Products

2.1 OUTLET AND CONDUIT BOXES - GENERAL

.1 Boxes of dimensions in accordance with the Canadian Electrical Code, 23rd Edition, 2015.

.2 Outlet boxes of 102 mm or more side (as required) for special devices.

.3 Grouped boxes when multiple threading devices are installed in the same location.

.4 Blank cover plates for boxes without wiring devices.

.5 347 V outlet boxes for 347 V switching devices.

.6 Boxes combined with partitions when the outlets of more than one network are grouped there.

2.2 STEEL-SHEET OUTLET BOXES

.1 Electrolysis galvanized steel boxes for mounting single or multiple devices in outcrop, of minimum dimensions of 76 mm x 50 mm x 38 mm or as indicated. Outlet boxes of 102 mm side when more than one conduit enters on the same side, with extension frames and plastering frames as needed.

.2 Junction boxes of at least 102 mm x 54 mm x 48 mm for connection to surface mounted EMT tubes.

.3 Square outlet boxes of 102 mm side or octagonal for lighting fixture outlets.

.4 Square exit boxes of 102 mm side with extension frames and plastering frames for wiring devices mounted flush in walls with plaster finish or ceramic tiles.

2.3 BOXES FOR MOUNTING IN MASONRY

.1 Electrolysis galvanized steel outlet boxes, simple or grouped and for outcropping in masonry walls of exposed blocks.

2.4 BOXES FOR MOUNTING IN CONCRETE

.1 Electrolysis galvanized steel outlet boxes for outcrop mounting, embedded in concrete, with matching extension frames and plastering frames as needed.

2.5 JUNCTION BOXES (FOR CONDUITS)

.1 Boxes of the “FS” or “FD” type, molded in aluminum, with factory-tapped openings and mounting brackets for surface mounting of switches and receptacles.

2.6 OUTLET BOXES FOR NON-METALLIC SHEATH CABLES

.1 Electrolysis galvanized steel boxes, removable, which can be grouped by screwing, of at least 76 mm x 50 mm x 63 mm, with two double flanges for cables with a non-metallic sheath.

2.7 ACCESSORIES (GENERAL)

.1 Insulated metal sleeves and connectors with insulated nylon grooves for gauge No. 8 AWG and above.

.2 Pressure pellets to prevent debris from entering knockouts.

.3 Access fittings for conduits up to 35 mm in diameter and pull boxes for larger conduits.

.4 Double counter nuts and insulated metal sleeves on metal sheet metal boxes.

2.8 CONNECTION FITTINGS

.1 Base of the "mains voltage" type consisting of a two-piece housing in stainless steel or molded aluminum, with brushed or satin finish for a single or double power outlet, or two (2) double power outlets. Bottom plate with two breakable caps for centered or off-center installation. Extension element of 12 mm x 102 mm, as indicated.

.2 Base of the "low voltage" type consisting of a two-piece housing in stainless steel or cast aluminum, with brushed or satin finish for one (1) or two (2) telephone dialers.

Part 3 Execution

3.1 INSTALLATION

.1 Secure the boxes so that they are supported independently of the ducts connected to them.

.2 Fill boxes with paper, sponges, foam, or other similar material to prevent debris from entering during construction. Remove these materials once the work is complete.

.3 In the case of outcrop exit boxes with the finished wall, use plastering frames to allow the edges of the wall cladding to be made 6 mm or less from the opening.

.4 The openings in the boxes shall be of the dimensions corresponding to those of the connections of ducts, mineral insulated cables, and reinforced cables. It is forbidden to use reduction washers.

.5 Vacuum the inside of the exit boxes before installing the small equipment.

.6 Identify outlet boxes based on network type and circuit numbers.

END OF SECTION

Part 1 General

1.1 LOCATION OF CONDUITS

.1 Not all conduits are shown in the drawings. Those listed are represented in schematic form.

1.2 REFERENCE STANDARDS

.1 Canadian Standards Association (CSA)/CSA International:

.1 CAN/CSA-C22.2, No. 18, Output Boxes, Conduit Boxes, Fittings and Accessories, National Standard of Canada.

.2 CSA C22.2, No. 45, Rigid metal conduits.

.3 CSA C22.2, No. 56, Flexible metal conduits and liquid-tight flexible metal conduits.

.4 CSA C22.2, No. 83, Electrical metal tubes.

.5 CSA C22.2, No. 211.2, Rigid unplasticized polyvinyl chloride conduits.

.6 CAN/CSA-C22.2, No. 227.3, Non-Metallic Mechanical Protective Tubes (NMMT), National Standard of Canada.

.2 Canadian Electrical Code, 23rd Edition, 2015, as amended by Quebec.

1.3 SUBMITTALS

.1 Submit the required documents and samples in accordance with Sections 01 33 00 – Submittal Procedures and 26 05 00 - Common Work Results for Electrical.

.2 Data sheets: submit the required data sheets as well as the manufacturer's specifications and documentation for the products concerned.

1.4 WASTE MANAGEMENT AND DISPOSAL

.1 Sorting waste for reuse/recycling in accordance with Section 01 74 19 - Waste Management and Disposal.

.2 Place substances that meet the definition of toxic or hazardous waste in designated containers.

.3 Ensure that empty containers are sealed, stored properly, and out of the reach of children for disposal.

Part 2 Products

2.1 CONDUITS

.1 Threaded Galvanized Steel Rigid Conduits: To CSA C22.2, No. 45 Standard.

.2 Conduits coated with an epoxy coating: Compliant with CSA C22.2, No. 45, with zinc coating and anticorrosive finish coating based on epoxy resins, both indoors and outdoors.

.3 Metal Electric Tubes (EMT): Fitted with leakproof fittings of the indicated size and complying with CSA C22.2, No. 83.

.4 Rigid PVC conduits of the indicated size: Comply with CSA C22.2, No. 211.2 Standard.

.5 Flexible and leakproof metal conduits of the indicated size: Complying with CSA C22.2, No. 56 Standard.

.6 Flexible PVC Conduits: Compliant with CAN/CSA-C22.2, No. 227.3 Standard.

2.2 CONDUIT FASTENERS

.1 Steel straps for attaching to one (1) steel hole to secure apparent conduits with a diameter of 50 mm or less.

.2 Steel straps with two (2) steel holes to secure conduits with a nominal diameter greater than 50 mm.

.3 When installed outdoors and in damp places, fasteners shall be made of stainless steel.

.4 Beam calipers to secure the conduits to the apparent steel structures.

.5 “U”-shaped profiles to support three (3) conduits and more, arranged at a maximum distance of 2 m.

.6 Threaded rods of at least 6 mm diameter to support the suspended profiles.

.7 The quantities and dimensions mentioned above for the various fasteners are a minimum.

2.3 CONDUIT FITTINGS - GENERAL

.1 Fittings: Complying with CAN/CSA C22.2, No. 18 and specially manufactured for prescribed conduits. Coating: Same as used for conduits.

.2 Prefabricated "L" fittings, to be placed where 90° elbows are required on conduits 25 mm in diameter or more.

.3 Pressure screw seals are prohibited when watertight fittings and couplings for metal electrical tubes are required.

.4 Ring for conduits in boxes when required by the Canadian Electrical Code, 23rd Edition, 2015, with Quebec modifications, metal type only and insulated nylon.

2.4 EXPANSION FITTINGS

.1 Provide the necessary expansion fittings for all conduits:

.1 Embedded in concrete and through expansion joints of the building.

.2 Apparent and subject to significant temperature variations.

.3 Whose race exceeds the limit allowed by manufacturers.

.2 Weather-resistant expansion fittings able to withstand a linear expansion of 200 mm and ensure the continuity of mass of the network.

.3 Watertight expansion fittings, capable of supporting linear expansion and 19-mm deformation in all directions and ensuring the continuity of mass of the network.

.4 Weather-resistant expansion fittings and allowing linear expansion of conduits at the entrance of the enclosures.

2.5 FISH CORD

.1 6-mm polypropylene pull rope.

2.6 MASSES CONTINUITY

.1 In all conduits other than those in 2.1.1, an insulated conductor GREEN of minimum size 12 AWG shall be installed.

2.7 CONDUIT EXPOSED TO SUNLIGHT

.1 Fully enclosed non-metallic piping exposed directly to the sun's rays shall be specifically approved for this purpose and marked accordingly.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Comply with the manufacturer's written requirements, recommendations, and specifications, including any available technical bulletin, instructions for handling, storing, and installing products, and indications in data sheets.

3.2 INSTALLATION

.1 Install the exposed conduits so as not to decrease the free height of the room and using as little space as possible.

.2 Conceal conduits, except those placed in mechanical and electrical installation rooms and in unfinished rooms.

.3 Use metal electrical tubes (EMTs) with sealed fittings for electrical and mechanical control chambers as well as for all technical rooms.

.4 Use rigid PVC conduits for underground or concrete-embedded installations.

.5 Use threaded galvanized steel rigid conduits in explosion-proof classified areas, tunnels, and wetlands.

.6 Use epoxy-coated conduits for corrosive or saline installations.

.7 Use, over a maximum length of 3 m, flexible metal conduits in the case of connections of motors, transformers, and equipment capable of vibrating and situated in dry spaces, connections of incandescent appliances, recessed and without a pre-threaded output box, connections of projecting or recessed fluorescent lighting equipment, works or elements in removable metal partitions.

.8 Use flexible, liquid-tight metal conduits for connections to motors or equipment that are capable of vibrating or transformers located in damp, wet, or corrosive spaces.

.9 Install explosion-proof sealants on conduits installed in hazardous locations. Fill them with epoxy paste.

.10 Bend the conduits cold. Replace conduits that have decreased by more than 1/10th of the original diameter due to crushing or deformation.

.11 Mechanically bend steel tubes with a diameter of more than 21 mm.

.12 Use conduits of at least 21 mm for lighting and supply circuits.

.13 The thread of the rigid conduits carried out on the site shall be of sufficient length to allow tight and watertight joints to be made.

.14 Install fish cord in empty conduits.

.15 If the conduits were clogged, remove and replace the clogged part of the conduit. It is forbidden to use liquids to unclog them.

.16 Dry conduits out before installing wire.

3.3 APPARENT CONDUITS

.1 Unless otherwise indicated by an explicit note to the drawings, install conduits parallel to or perpendicular to the building's siting lines.

.2 Behind the infrared or gas radiators, install the conduits leaving a clearance of 1.5 m.

.3 Pass conduits into the wing of steel framing elements, if applicable.

.4 Where possible, group the conduits on suspended or applied "U" profiles.

.5 Unless otherwise specified, conduits shall not pass through the structural elements.

.6 In the case of conduits placed parallel to steam or hot water pipes, provide lateral clearance of at least 75 mm and vertical clearance of at least 25 mm between the conduits and intersecting pipes.

.7 Install expansion joints on PVC conduits when installed in places with temperatures of 10° and above. There shall be an expansion joint for each length of 7.5 m and a maximum of 15 m between each of them.

3.4 CONCEALED CONDUITS

.1 Install the conduits parallel to or perpendicular to the building's layout lines.

.2 Do not install horizontal runs in masonry walls.

.3 It is forbidden to drown conduits in concrete screeds.

.4 In drywall, no horizontal conduits will be accepted. Only vertical conduits will be tolerated.

3.5 CONDUITS EMBEDDED IN CAST-IN-PLACE CONCRETE STRUCTURES

.1 Do not place any conduit in concrete structures unless otherwise specified in the drawings and specification.

.2 Install the conduits in the central third of the slab considering the arrangement of the steel reinforcement bars.

.3 Protect conduits at their outlet from a concrete structure.

.4 Install sleeves where conduits pass through a slab or wall.

.5 Before placing the water-repellent membrane on a concrete structure, install oversized sleeves where the conduits shall pass through it.

.6 Put a sealant (cold applied) between the sleeves and conduits.

.7 The thickness of the slabs in which conduits are embedded shall correspond to at least four (4) times the diameter of the conduits.

.8 In the walls, completely embed the conduits under a layer of concrete with a thickness of at least 25 mm on either side.

.9 Arrange the conduits in the slabs in such a way as to minimize crossings.

.10 It is forbidden to drown aluminum conduits in concrete structures.

3.6 UNDERGROUND CONDUITS

.1 Install sloping conduits to ensure drainage.

.2 Water-repellent the joints by applying a thick layer of bituminous paint.

.3 Install conduits 1 m from the surface or as indicated.

.4 Underground conduits shall be rigid PVC of at least 41 mm in diameter.

.5 Underground conduits should be surrounded by a layer of fine sand of 150 mm, unless otherwise specified.

3.7 CONDUIT THROUGH A FIRE PARTITION

.1 Caulk all spaces between the fire partition and the conduit. The fire resistance shall thus equal that of the surface crossed. The manufacturer of the product used shall inspect the work and issue a certificate stating that the facilities so inspected comply with its recommendations and meet the ULC's requirements for fire-resistance characteristics.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 31 23 33.01 - Excavating, Trenching and Backfilling.

Part 2 Products

2.1 CABLE PROTECTION (TRENCH WORK ONLY)

.1 Plastic prevention and identification tape marked "High Voltage Hazard".

Part 3 Execution

3.1 CABLES BURIED DIRECTLY IN THE GROUND

.1 Once the base sand layer is in place, lay the cables at least 75 mm from the trench walls. Do not pull or drag cables along the trench.

.2 To compensate for the effects of thermal contraction and slight ground movements, make deviations of 150 mm in the cables every 60 m of the course, while respecting the minimum values prescribed for spacings and radii of curvature.

.3 Underground cable splices are not acceptable.

.4 The radius of curvature of cables with rubber, plastic, or lead sheaths shall not be less than 8 times the diameter of the cable and, in the case of metal-armored cables, 12 times the diameter or according to the manufacturer's instructions.

.5 Maintain a minimum spacing of 75 mm between cables of different circuits. Maintain a minimum horizontal spacing of 300 mm between high and low voltage cables. At high- and low-voltage cable crossings, maintain a minimum vertical spacing of 300 mm, with low-voltage cables passing over. At low voltage cable crossings, maintain a minimum vertical spacing of 75 mm, and 150 mm at high-voltage cable crossings.

.6 Once the protective sand layer is in place, lay the prevention and identification tape as indicated to cover the cable along its entire route.

3.2 CABLE INSTALLATION IN DUCTS

.1 Lay the cables in the ducts as indicated.

.2 It is forbidden to pull spliced cables into the ducts.

.3 Install multiple cables in duct simultaneously.

.4 Use CSA approved lubricants of type compatible with cable jacket to reduce pulling tension

.5 To make it easier to match color-coded multiconducting control cables, always unroll them in the same direction during installation.

.6 Before pulling the cables into the conduits and until they are permanently connected, seal the ends of the lead-sheathed cables with wiping solder and those of the other cables with a water-repellent sealing tape.

.7 After installation of cables, seal duct ends with duct sealing compound.

3.3 FIELD QUALITY CONTROL

.1 Perform tests in accordance with Section 26 05 00 - Common Work Results for Electrical.

.2 Perform tests using qualified personnel and provide the necessary instruments and equipment.

.3 For three-phase circuits, check and establish an order of A-B-C phases from left to right, from bottom to top and from front to back and keep it for the entire installation, except for the apparatus installed mirrored and electrically linked.

.4 Locate and identify individually conductors of each power supply circuit.

.5 Check the continuity of all supply circuits, ensure that they are free of short circuits and grounding leaks and that the resistance between the ground and each circuit is not less than 50 megohms.

.6 Pre-acceptance Tests:

.1 After laying the cables, but before splicing and connection, measure the isolation resistance of each phase conductor, with a megohmmeter of 1,000 V. After each splice and/or connection has been performed, check the strength of the insulation to ensure that the cable network is ready for the acceptance test.

.7 Acceptance Tests:

.1 Ensure that terminations and accessory equipment are disconnected.

.2 Ground shields, ground wires, metallic armor, and conductors not under test.

.3 Dielectric tests (high voltage):

.1 Do the high voltage dielectric tests, from the original factory test voltage, in accordance with the manufacturer's recommendations.

.4 Leakage current tests:

.1 Increase the voltage in steps from 0 to the maximum value prescribed by the manufacturer for the type of cable tested.

.2 Maintain the maximum voltage for the duration prescribed by the manufacturer.

.3 Note the value of the leakage current at each rung.

.8 Provide the Departmental Representative with a list of test results indicating the location of each test point, the circuit tested, and the result of each test.

.9 Remove and completely replace any cable length that does not meet the test criteria.

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

.1 Canadian Standards Association (CSA)/CSA International.

.1 CSA-C22.2 Number 5, Molded Circuit Breakers and Circuit Breaker Envelope (trinational standard with UL 489, and NMX-J-266-ANCE).

1.2 WORKSHOP DRAWINGS AND DATA SHEETS

.1 Submit workshop drawings and data sheets in accordance with Sections 26 05 00 - Common Work Results for Electrical and 01 33 00 - Submittal Procedures.

.2 Include feature curves based on time-current constants, for circuit breakers with a permissible current of 100 A and above, or with a cut-off power of 22,000 A symmetrical effective and above, at the network voltage.

.3 Provide all available data regarding short-circuit current breaking capacity values and maximum I2t values allowed for all circuit breakers.

.4 Provide the certificate of manufacture and authenticity of the circuit breaker.

1.3 AUTHENTICATION

.1 Before proceeding with any installation of circuit breakers either in a new or existing installation, the Electrical Contractor shall submit in three (3) copies a certificate of authenticity written in French of the manufacturer duly signed by the factory and the local representative of the said manufacturer, certifying that all the circuit breakers come from it, that they are new and that they meet the Standards and Regulations in force. These certificates shall be submitted to the Departmental Representative for acceptance.

.2 A delay in the production of the authentication certificate will not justify an extension of the contract or any additional compensation.

.3 Any manufacturing, assembly or installation work shall begin only after the acceptance of the authentication certificate by the Departmental Representative. Failing to comply with this requirement, the Departmental Representative and/or the user customer reserve the right to mandate the manufacturer registered on the circuit breakers to authenticate all new circuit breakers provided for in the Contract, at the expense of the Electrician Contractor.

.4 In general, the authentication certificate shall contain:

.1 The name and contact information of the manufacturer and the person responsible for authentication. The person in charge shall date and sign the certificate.

.2 The name and contact details of the authorized distributor as well as the person of the distributor responsible for the account of the Contractor.

.3 The name and contact information of the Contractor and the person responsible for the project.

.4 The name and address of the building where the circuit breakers will be installed:

.1 The title of the project (title on the quote or drawings).

.2 The reference number of the user client.

.3 The list of circuit breakers in table form when required.

Part 2 Products

2.1 GENERAL REQUIREMENTS

.1 Circuit breakers in molded, bolted, or plug-in circuit-ins with busbars, of the quick-closing and abruptly breaking type, with manual and automatic actuation, with compensation for an ambient temperature of 40°C.

.2 Common-trip breakers: With single handle for multi-pole applications.

.3 Circuit breakers with instantaneous magnetic triggers, designed to act only when the current value reaches the setting value.

.4 Circuit breakers with interchangeable triggers, as indicated.

2.2 THERMOMAGNETIC CIRCUIT BREAKERS (MODEL A)

.1 Automatic molded housing circuit breakers, actuated by thermal and magnetic triggers providing time protection inversely proportional to overload and instant protection in the event of a short-circuit.

2.3 OPTIONAL DEVICES

.1 Include the following, as indicated:

.1 Auxiliary switch;

.2 "On-Off" locking device;

.3 Handle mechanism.

2.4 MANUFACTURERS

.1 Acceptable Products: Schneider Electric, QOB.

Part 3 Execution

3.1 INSTALLATION

.1 Install circuit breakers as directed.

.2 The order in which the circuit breakers are to be mounted in the panels shall respect that shown in the drawings.

END OF SECTION