ARCHITECTURAL, STRUCTURAL, MECHANICAL AND ELECTRICAL SPECIFICATIONS

Public Services and Procurement Canada

La Macaza Institution
M-11 School Roof Renovation
La Macaza, Quebec

PSPC Project No.: **R.095848.001**
CSC Project No.: **352-3602**

Issued for:
TENDER CALL

January 21, 2022

REGISTRE DES ÉMISSIONS

Émission					Date	But de l'émission
Nº émis.	Rév.	Par	Vér.	App.		
AA	00	L.O.	G.R.	A.S.	2020-05-27	99% PROGRESS
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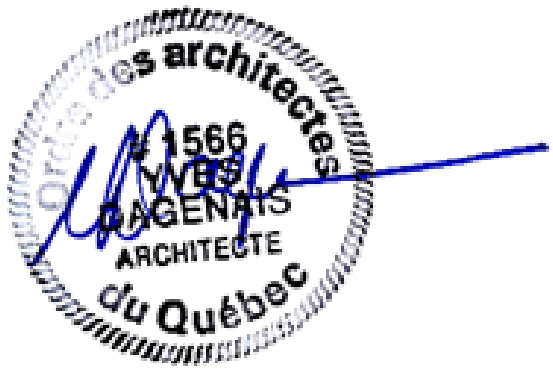
01	**00**	**L.O.**	**G.R.**	**A.S.**	**2022-01-21**	**TENDER CALL**

Je certifie que :

- **les documents d'architecture de la section 00 01 10 TABLE DES MATIÈRES et**
- **les dessins d'architecture énumérés à la section 00 01 15 LISTE DES DESSINS**

ont été préparés par moi ou sous ma supervision directe.

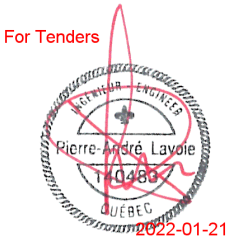


Yves Dagenais, architecte

I certify that:

- **the structural documents of section 00 01 10 TABLE OF CONTENTS and**
- **the structural drawings listed in section 00 01 15 LIST OF DRAWINGS**

were prepared by me or under my direct supervision.



Pierre-André Lavoie, ing.

I certify that:

- **the mechanical documents of section 00 01 10 TABLE OF CONTENTS and**
- **the mechanical drawings listed in section 00 01 15 LIST OF DRAWINGS**

were prepared by me or under my direct supervision.

Marc-Olivier de Tilly, ing., PA LEED BD+C

I certify that:

- **the electrical documents of section 00 01 10 TABLE OF CONTENTS and**
- **the electrical drawings listed in section 00 01 15 LIST OF DRAWINGS**

were prepared by me or under my direct supervision.

2022-01-21

Simon Lacharité, ing., P.Eng., MBA, CEM

Fin de la section

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Legend concerning numbers and titles on the following pages:

Regular font: Section by MSDL
Italic font: Section by PMA
Italic font + (SDK): Section by SDK

DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS **Page(s)**

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NO.	TITLE	REV. NO.	ISSUED
	ARCHITECTURAL DRAWINGS		
A-000	PAGE TITRE - LISTE DES DESSINS COVER PAGE - DRAWING LIST	0	✓
A-001	LÉGENDES & NOTES GÉNÉRALES LEGEND & GENERAL NOTES	0	✓
A-050	PLAN D'IMPLANTATION SITE PLAN	0	✓
A-060	PLAN, ÉLÉVATIONS ET COUPES DU BÂTIMENT– DÉMOLITION DEMOLITION PLAN, ELEVATIONS AND SECTIONS	0	✓
A-100	PLAN, ÉLÉVATIONS ET COUPES DU BÂTIMENT – CONSTRUCTION CONSTRUCTION PLAN, ELEVATIONS AND SECTIONS	0	✓
A-200	PLAN DE PLAFOND RÉFLÉCHI ET COUPES DU BÂTIMENT REFLECTED CEILING PLAN AND SECTIONS - CONSTRUCTION	0	✓
A-405	COUPES ET DÉTAILS DU BÂTIMENT BUILDING SECTIONS AND DETAILS	0	✓
A-406	COUPES ET DÉTAILS DU TOIT ROOF SECTIONS AND DETAILS	0	✓
	STRUCTURAL DRAWINGS		
S000	NOTES GÉNÉRALES GENERAL NOTES	0	✓
S101	VUE EN PLAN DE LA STRUCTURE DU TOIT EXISTANT PLAN VIEW OF EXISTING ROOF STRUCTURE	0	✓
S102	ÉLÉVATIONS ELEVATIONS	0	✓
S401	COUPES SECTIONS	0	✓
S402	COUPES SECTIONS	0	✓
S403	DÉTAILS DETAILS	0	✓
	ELECTROMECHANICAL DRAWINGS		
M001	LÉGENDE LEGEND	0	✓
M100	MULTIDISCIPLINAIRE TOITURE MULTIDISCIPLINARY ROOF	0	✓

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PART 1 - GENERAL

1.1 Work performed by third parties

.1 No work by third parties is anticipated. All of work to be performed by General Contractor who is awarded contract and by specialized contractors and suppliers under this contractor's direction.

1.2 Forthcoming work

.1 Not applicable.

1.3 Work sequence

.1 Work to be performed in continuous manner, in single phase.
.2 Coordinate work progress schedule with occupancy of premises.

1.4 Use of premises by Contractor

.1 The worksite may be used up until substantial completion of work. Access is controlled at all times by CSC, which must be notified at all times of presence of workers.
.2 Use of premises is limited to zones required for performance of work, for storage and for access.
.3 Coordinate use of premises as instructed by Departmental Representative. Ensure that access to and use of premises are coordinated with CSC in accordance with its requirements.
.4 All storage of material and equipment by Contractor to take place on worksite within boundaries identified on site plan. CSC authorizes the use of closed/locked container on worksite. Location of container is indicated on site plan.
.5 Remove or alter existing work to prevent damage to portions of existing work which are to remain.
.6 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.
.7 Upon completion of operations, condition of existing work shall be equal to or better than what existed before new work started.

1.5 Products supplied by Departmental Representative

.1 Following products to be supplied by Departmental Representative for incorporation into work performed by Contractor:
  .1 Refer to drawings for description of products to be supplied by Departmental Representative, which are also identified in the documents as **FRIE** (Fourni par le Représentant Ministériel et Installé par l'Entrepreneur/Supplied by Departmental Representative and Installed by Contractor).
  .2 Contractor remains responsible for their installation, as well as for supply and installation of materials and accessories associated with and required for this work.

.2 Responsibilities of Contractor
  .1 Indicate on the work schedule items and documents to be submitted as well as delivery date for each product.
  .2 Review shop drawings, product data, samples and other items and documents required to be submitted. Notify Departmental Representative of any observed discrepancies or anticipated problems resulting from non-conformity of products with contract documents.
  .3 Receive and unload products at site.
  .4 Inspect deliveries with Departmental Representative and record shortages and damaged/defective items.
  .5 Handle products at site, including unpacking and storage.
  .6 Protect products from damage and bad weather.
  .7 Assemble, install, connect, adjust and finish products and materials.
  .8 Provide post-installation inspections required by authorities having jurisdiction.
  .9 Repair or replace products and materials damaged on site by Contractor or by subcontractor under Contractor's control.

.3 Contractor is responsible for products supplied by Departmental Representative from time Contractor commences to unload them from delivery vehicle of manufacturer or distributor of product in question or from time Contractor takes possession on site in location designated by Departmental Representative.

1.6 Alterations, additions or repairs to existing building

.1 Execute work with least possible interference or disturbance to building operations, occupants, personnel, and normal use of premises. Make arrangements as needed with Departmental Representative to facilitate execution of work.

1.7 Existing services

.1 Before interrupting existing services, notify Department Representative and affected public service and utility companies, and obtain required permission.

.2 Provide alternative circulation routes for personnel, pedestrians and vehicles.

.3 Submit to Departmental Representative detailed timetable relating to interruption or closing of installations or active work, including communications services and electrical power. Respect approved timetable and inform parties affected by these disruptions.

.4 If non-identified utility piping is discovered, immediately inform Departmental Representative and prepare written description.

.5 Protect, relocate or maintain in service the utility pipes that are functional. If non-functional pipes are discovered during work, cap them in manner required by authorities having jurisdiction.
.6 Keep log and record location of utility pipes which are to be maintained, relocated or abandoned.
.7 Construct fences and barriers in accordance with Section 01 56 00 – Temporary Barriers and Enclosures.

1.8 Required documents

.1 Keep on site one copy of each of following documents:
  .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 Reports of on-site testing.
  .9 Approved work schedule.
  .10 Health and safety plan and other documents related to safety.
  .11 Other documents as specified.

End of Section

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PART 1 - GENERAL

1.1 General

.1 English version GDDE # 400789.
.2 The purpose of this "Orientation Guide" is to inform the contractors and subcontractors who will be undertaking construction work at this Institution of the procedures and protocols which need to be followed prior to the commencement of the work. Thereafter, it will be the responsibility of the Contractor to communicate the information included in this presentation to employees and subcontractors. They shall also provide their own "Orientation" (concerning the project or the worksite) and a risk evaluation prior to the commencement of the work.
.3 This guide may be modified from time to time by the building manager.
.4 Important telephone numbers:

Surname, first name	***Representative of***	***Title***	***Telephone***	***Email***
Savard, David	*PSPC*	*Project manager*	*514-607-7954*	*david.savard@tpsgc-pwgsc.gc.ca*
Letourneau, Olivier	*CSC*	*Project officer*	*819-430-6803*	*olivier.letourneau@csc-scc.gc.ca*

Emergency Services	**Police-Ambulance-Fire**	**9-1-1**

.5 Address all requests for information to the CSC representative.

1.2 Interruptions in services

.1 Except when authorized in advance, no interruptions to services will be permitted.
.2 Advance notice of at least 48 hours is required for bypassing or interrupting the following systems: fire alarm; every active life safety system; mechanical, electrical, ventilation and air-conditioning systems.
.3 Welding, the drilling of holes, the use of heavy or noisy equipment, and service interruptions (water, electricity, etc.) are strictly prohibited without authorization.

PART 2 - RULES AND PROCEDURES TO FOLLOW FOR BUILDING M-11 AT LA MACAZA INSTITUTION

2.1 General

.1 PSPC Real Property Services Management and the occupants/clients have agreed on the rules and procedures applicable to every person or firm performing work on the interior and/or exterior of the building. This is not an all-inclusive list and it may be changed at any time, without notice.

2.2 Signature of work orders

.1 Insofar as possible, namely during working hours and subject to their availability, only employees of PSPC are authorized to sign the work orders of the contractors. If no PSPC employee is available, the employees of CSC and the Canadian Corps of Commissionaires are authorized to sign the work orders.

2.3 Access to the building

.1 For certain areas of the building, the clients/occupants may require a higher level of security. Each worker who requires access to these areas shall provide a completed and signed copy of the form entitled “Request for Access to a Federal Institution”. This form shall be submitted together with a photo ID. A delay of seven (7) days may be required before an authorization to access the Institution can be issued. A copy of the form is included in Appendix 1 at the end of this section.

.2 Please note that Contractor and subcontractors must respect the schedule issued and may not present themselves outside of prescribed hours, to access the building whenever they want, without the authorization of the project manager or PSPC management.

2.4 Security and IDs

.1 All employees working on the site must register at the security desk upon arrival and must carry photo ID. The identification cards issued by the building’s security department for the building must be visible at all times. They must be returned when employees leave. The attendance list, working hours, names and telephone numbers of contractors or their representatives working at Building M-11 are given daily to the project manager for the purpose of making observations regarding the projects and sites.

2.5 Work hours

.1 The hours of work of employees at the Institution are from 7:30 a.m. to 6:00 p.m. from Monday to Friday. However, it should be noted that certain services operate on a 24-hour basis.

.2 Except in the case of an urgent repair or for regular maintenance already planned in advance, a written request to perform work must be submitted to the project manager at least forty-eight (48) hours in advance or before 1:00 p.m. on the Thursday preceding the week of the work, whichever is longer. The request must include work schedule (planned start and end time), trades and floors involved, planned disconnections, etc. (see the paragraph on service interruptions). Work schedules must be approved by the project manager in charge, with the agreement of the real property coordinator or the team leader. This requirement does not apply to regular periodic maintenance or to urgent repairs.

2.6 Garage access

.1 Not applicable.

2.7 Loading dock and deliveries

.1 Not applicable.

2.8 Elevator

.1 Not applicable.

2.9 Health and safety

.1 All workers must conform to legal health and safety requirements in accordance with the *Safety Code for the construction industry* and the *Act respecting occupational health and safety* (CNESST), and to any other additional requirements indicated in the work specifications. The project manager and/or project officer will inspect the job site throughout the work. Observation reports will be filed in each contractor's performance record.

2.10 Fire evacuation plan

.1 A copy of the emergency evacuation plan is posted next to the main building exits.

2.11 Medical or fire emergencies

.1 In an emergency (fire, accident, etc.), the escort commissioner will immediately contact the reception desk. If you discover a fire which you are unable to extinguish, go to the nearest manual fire alarm station (pull station), pull the handle and evacuate the premises.

2.12 Manual fire alarm stations

.1 Manual fire alarm stations are located near the exterior exit doors of the building.

2.13 Fire extinguishers and hoses

.1 Fire extinguishing stations are shown on the emergency evacuation plans displayed near the exterior exit doors of the building.

2.14 Heat and smoke detectors

.1 This building is protected by heat and smoke detectors and is equipped with a computer-controlled system. Contractors will be charged for service interruption that are harmful to client operations if the contractors forget to deactivate the detectors prior to starting work.

2.15 Welding/cutting

.1 Authorization and a hot-work permit (heat, smoke, odour) are necessary for any welding or cutting work. These authorizations are issued by the project manager and/or the maintenance technical advisor. Arrangements must be made at least forty-eight (48) hours in advance.

2.16 Bypassing fire alarms

.1 The project manager must contact the building technical advisor at least seventy-two (72) hours in advance to make arrangements for and obtain the necessary authorizations for deviating or bypassing the fire alarms.

2.17 Sprinkler system

.1 This building is protected by a sprinkler system. Any work done close to sprinklers must be carried out with great care.

2.18 Water damage and mechanical breakage

.1 Any water damage, mechanical breakage or other damage must be reported to the CSC representative. Then notify the project authority by cell phone.

2.19 Explosive-actuated devices

.1 Explosive-actuated devices (e.g. Ramset) are strictly prohibited.

2.20 Known risks

.1 Should the existence of hazardous substances be suspected or discovered, the project manager in charge must be contacted before work is continued.

2.21 Roof access

.1 Access to the roof is prohibited unless authorized by the project manager.

2.22 Signage

.1 Bilingual signs must be displayed in every work location. These signs must indicate the potential risks and dangers to the physical integrity of workers and visitors.

2.23 WHMIS – Safety data sheets

.1 Contractor must have up-to-date safety data sheets for all hazardous materials, regulated by WHMIS that are brought into the building. These safety data sheets must be kept for on-site consultation if needed

2.24 Tools

.1 Contractors will ensure that they have all the tools, equipment, materials and machinery necessary to carry out the work required. PSPC will not lend tools, equipment or machinery.

2.25 Noisy work

.1 Noisy work and work generating dust or requiring frequent movement in the office areas must be carried out between 6:00 p.m. and 7:00 a.m. In addition, certain other work may be scheduled outside of normal working hours at the discretion of the building manager.

2.26 Electrical control panel

.1 Contractors will advise the maintenance technical advisor of any changes made to electrical control panels. In addition, contractors must fill out the Request for Electrical Isolation Form when it is required, before starting any electrical work. When the electrical work is completed, they must also fill in the Log Book.

2.27 Storing materials

.1 The storing of materials must be approved by the project manager.

2.28 Lockout

.1 A lockout procedure must be used where there is the slightest risk of electrocution, burns, crushing or other injuries that may be caused by moving parts. The procedure must be submitted in writing for authorization by the project manager before the start of work. All work must be performed at zero energy state.

2.29 Work area cleanliness

.1 Contractor is responsible for cleanliness of work areas both during and after work, and for removal of debris and waste materials. Contractor shall remove from institution and site all debris resulting from work for this contract and shall clean work zone at end of each work shift. The building's maintenance department is not responsible for cleaning work areas after work. If the services of maintenance staff are required, the contractors will be charged.

2.30 Tobacco use

.1 Smoking in this building is prohibited.

2.31 Protocol

.1 PSPC has a zero-tolerance policy on drug and alcohol use by its employees and representatives at work. This also applies to contractors.

2.32 Parking

.1 Subject to availability, some parking spaces may be made available to contractors near the worksite during the operating hours of the service barrier for company vehicles, and in the visitors' parking lot adjacent to the site for the personal vehicles of the workers. A request must be made in advance (when required) to the project manager. An access authorization will then be sent to the security office.

2.33 Washrooms

.1 Workers must use the washrooms designated by the Departmental Representative in charge.

2.34 Statutory holidays

.1 The Institution recognizes all federal and provincial holidays, including Remembrance Day and the *Fête nationale du Québec*.

2.35 Cameras

.1 It is strictly prohibited to take photographs on site for any reason whatsoever without consent of relevant authorities. When use of camera is authorized, it is strictly forbidden to photograph inmates or employees.

2.36 APPENDIX 1 – Form: Request for Access to a Federal Institution

.1 A sample of the form is shown on the following pages.

Service correctionnel Canada | Correctional Service Canada → Protégé B une fois complété
Classer au dossier ▶ 3170-12

Demande d'accès à un établissement fédéral

RENSEIGNEMENTS PERSONNELS

Nom de famille*: _____ Prénom*: _____

Date de naissance (AA-MM-JJ)*: _____ Sexe*: M ☐ F ☐

Grandeur*: _____ Poids*: _____ Yeux*: _____ Cheveux*: _____

Rue*: _____ Ville*: _____

Province*: _____ Code postale*: _____

Numéro de tel.: Maison: (___) _____ Cellulaire*: (___) _____

RENSEIGNEMENTS GÉNÉRAUX

Avez-vous déjà été reconnu coupable d'une infraction criminelle ou faites-vous l'objet d'accusations en instance ?

Non ☐ Oui ☐ Si oui, lesquelles ? _____

Connaissez-vous personnellement une personne incarcérée dans un établissement fédéral ou provincial ?

Non ☐ Oui ☐ Si oui, quel est son nom ? _____

Êtes-vous inscrit sur une liste de visiteur de détenu ou avez-vous déjà visité un détenu ?

Non ☐ Oui ☐ Si oui, quel est son nom ? _____

Avez-vous effectué une demande d'accès similaire dans les deux dernières années ?

Non ☐ Oui ☐ Si oui, à quel établissement ? _____

Raison pour laquelle vous désirez avoir accès à un établissement fédéral ? _____

_____

Nom de votre employeur / établissement d'enseignement ? _____

Nom de l'employé responsable de la visite*: _____

Énoncé de la loi sur la protection des renseignements personnels

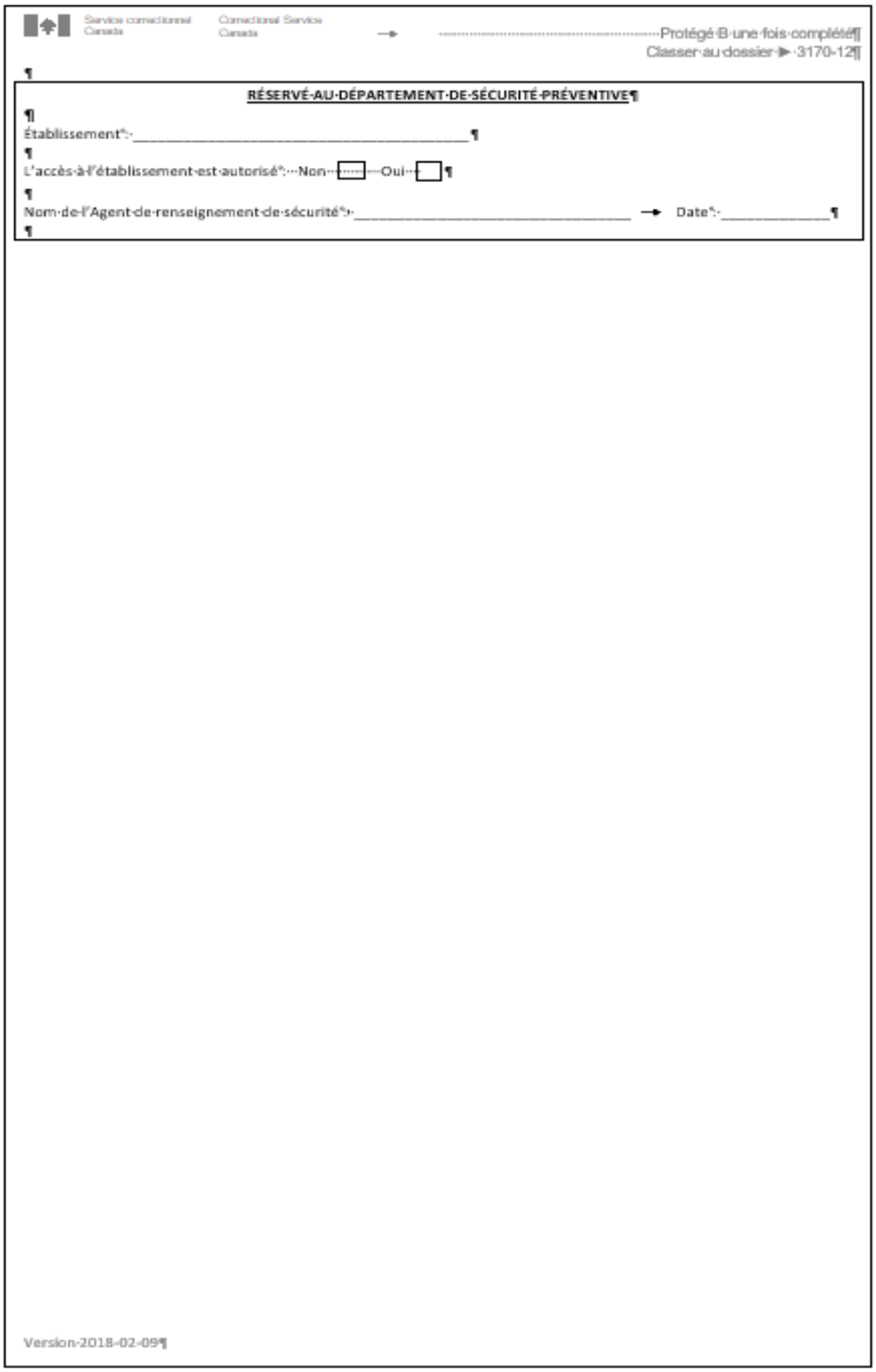
Des renseignements personnels à votre sujet sont recueillis en vertu de la *Loi sur le système correctionnel et la mise en liberté sous condition* dans le but d'autoriser votre accès à un établissement fédéral. Ces renseignements sont recueillis sans obligation de votre part et seront conservés dans le Système d'autorisation sécuritaires (SAS) ; néanmoins, si vous vous opposez à toute vérification sécuritaire, les privilèges d'accès vous seront refusés. Les données que vous nous soumettez ne peuvent pas être divulguées à d'autres personnes sans votre consentement, SAUF si la communication est justifiée conformément à l'un des alinéas du paragraphe 8(2) de la *Loi sur la protection des renseignements personnels*. **Tout demandeur qui fournit de faux renseignements pourra se voir refuser en tout temps l'accès à l'établissement. L'établissement se réserve le droit de refuser l'accès au demandeur avant, à l'arrivée ou pendant la visite.**

En la présente, j'autorise le Service correctionnel du Canada à mener toute enquête jugée nécessaire afin d'autoriser mon accès à leur établissement. Je conviens que le Service correctionnel du Canada ne peut être tenu responsable d'un préjudice subi dans le cadre de mes activités sauf si ce préjudice est directement attribuable à la négligence d'un ou de plusieurs employés du Service.

Signature du demandeur*: _____ Date : _____

Signature de l'employé responsable de la visite*: _____ Date*: _____

Version 2018-02-09



Service correctionnel Canada | Correctional Service Canada → Protégé B une fois complété
Classer au dossier ▶ 3170-12

RÉSERVÉ AU DÉPARTEMENT DE SÉCURITÉ PRÉVENTIVE

Établissement* : _____

L'accès à l'établissement est autorisé* : Non ☐ Oui ☐

Nom de l'Agent de renseignement de sécurité* : _____ → Date* : _____

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PART 1 - GENERAL

1.1 Administrative

.1 Be prepared to attend weekly meetings for the entire duration of the project.
  .1 The Departmental Representative shall provide written notice of a meeting five (5) days prior to the scheduled date.
.2 The Departmental Representative shall record the minutes of the meetings, which shall include decisions, significant proceedings and the names of the parties, and shall issue a copy to each participant.

1.2 Pre-construction meeting

.1 Within 15 days following awarding of contract, request a meeting of the parties to the contract to discuss administrative procedures and to define the responsibilities of each one
.2 The Departmental Representative, Contractor, major subcontractors, field inspectors and supervisors shall be in attendance.
.3 Establish the time and location of meeting and notify the parties concerned at least five (5) days before meeting.
.4 Incorporate mutually agreed modifications to contract documents prior to signing.
.5 Agenda to include:
  .1 Appointment of official representatives of participants in the work.
  .2 Schedule of work, in accordance with Section 01 32 16.19 – Construction Progress Schedule – Bar (GANTT) Chart.
  .3 Schedule for submission of shop drawings, product samples and colour chips, in accordance with Section 01 33 00 – Submittal Procedures.
  .4 Requirements for temporary facilities, site sign, offices, storage sheds and installations, utilities and fences, in accordance with Section 01 52 00 – Construction Facilities.
  .5 Delivery schedule of specified materials and equipment, in accordance with Section 01 32 16.19 – Construction Progress Schedule – Bar (GANTT) Chart.
  .6 Site security in accordance with Section 01 56 00 – Temporary Barriers and Enclosures.
  .7 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, and other administrative requirements.
  .8 Owner-provided products.
  .9 Drawings to include in project file, in accordance with Section 01 33 00 – Submittal Procedures.
  .10 Maintenance manuals, in accordance with Section 01 78 00 – Closeout Submittals.
  .11 Take-over procedures, acceptance, warranties, in accordance with Section 01 78 00 – Closeout Submittals.
  .12 Monthly progress claims, administrative procedures, photographs, hold backs.
  .13 Appointment of inspection and testing agencies or firms.
  .14 Insurances, transcript of policies.

1.3 Progress meetings

.1 During course of the work, Departmental Representative to schedule bi-weekly progress meetings.
.2 Major subcontractors participating in work and Departmental Representative shall be in attendance.
.3 Departmental Representative shall notify parties at least five (5) business prior to meetings.
.4 Departmental Representative shall record minutes of meetings and circulate to attending parties and affected parties not in attendance within five (5) business days after each meeting.
.5 Agenda to include the following:
    .1 Review and approval of minutes of previous meeting.
    .2 Review of work progress since previous meeting.
    .3 Field observations, problems, conflicts.
    .4 Problems affecting the schedule of work.
    .5 Review of off-site fabrication delivery schedules.
    .6 Corrective measures and procedures to regain projected schedule.
    .7 Revision of the work schedule.
    .8 Progress schedule, during succeeding work period.
    .9 Review submittal schedules and expedite as required.
    .10 Maintenance of quality standards.
    .11 Review proposed changes for effect on work schedule and on completion date.
    .12 Site safety and security.
    .13 Other business.

End of Section

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PART 1 - General

1.1 Definitions

.1 Activity: Specified work performed as part of a project. An activity normally has an expected duration, an expected cost and expected resource requirements. Activities can be subdivided into tasks.
.2 Bar chart (GANTT chart): Graphic representation of data related to the schedule of work. In a typical bar chart, activities or other elements of the project are presented from top to bottom, at the left of the chart, while the dates are shown at the top, from left to right; the duration of each activity is indicated by horizontal segments placed between the dates. In general, the bar chart is generated from a commercially available computerized project management system.
.3 Core reference: Approved initial plan (for a project, work package or activity), taking into account the approved modifications to the scope of the project.
.4 Week of work: Week of five (5) days, Monday to Friday, defining working days for bar (GANTT) chart submission.
.5 Duration: Required number of work periods (excluding holidays and other non-working periods) for the performance of an activity or other element of the project. The duration is usually expressed in working days or weeks.
.6 Master Plan: Summary programme outlining key activities and milestones.
.7 Milestone: An important event in the completion of a project, most commonly the completion of a significant (deliverable) product.
.8 Schedule of work: Timelines for implementation of activities and achievement of milestones. Dynamic and detailed programme of the tasks or activities necessary to reach the milestones of a project. The monitoring and control process is based on the schedule of work for the execution and monitoring of activities; it determines the decisions that will be made throughout the duration of the project.
.9 Scheduling - Project Planning, Monitoring and Control: A comprehensive system managed by the Departmental Representative to track project implementation against specific phases or milestones.

1.2 Schedule of work

.1 If schedule of work was not required at time of signing of contract, Contractor shall provide, within fourteen (14) days following date of issue of authorization to commence work, one (1) copy in PDF format to Departmental Representative for review, in manner approved by Representative.
.2 Submit the detailed and definitive work schedule, conforming to contractual deadlines, for performance of all work.
.3 Presentation of schedule by Contractor and comments provided by Departmental Representative do not bind these parties, nor do they modify obligations of Contractor with respect to contract time.
.4 Work schedule shall conform to following requirements:
    .1 Presented in format no larger than A1, formulated as horizontal (GANTT) bar chart, showing relationship between tasks and activities, and highlighting progress of project and its correspondence to the critical path.
    .2 In particular, schedule shall include following elements:
        .1 dates for submittal of shop drawings and other documents, delay required by Departmental Representative to review lists of materials, samples and prototypes;
        .2 delivery dates of important pieces of equipment and materials;

.3 commencement and completion dates for work described in each section of specifications for each phase of project;
.4 date for substantial completion of work and other specified deadlines with respect to completion time stipulated in contract documents.

.3 Divide the activities into periods of no more than seven (7) days.

.5 Schedule of work is subject to comment by Departmental Representative. Revise schedule as often as needed, in accordance with comments provided and re-submit it.

.6 Implement schedule of work, monitor progress and provide report to Departmental Representative at end of each week on work performance; perform monthly revision of schedule and indicate, for each activity, actual degree of progress compared to projected degree of progress.

.7 Where applicable, provide progress reports to describe measures undertaken to correct discrepancies with respect to work schedule.

.8 In addition to periodic revisions mentioned above, revise schedule, without additional charge,
.1 when requested by Departmental Representative;
.2 when actual performance of work no longer matches submitted schedule;
.3 when work sequence must be modified to make up for accumulated delays;
.4 when delays have been granted.

.9 Refer to General Conditions for all additional requirements related to schedule of work.

1.3 Requirements

.1 Ensure that the master plan and schedule of work are operable and within the prescribed contract duration.

.2 The master plan must provide for the completion of the work in accordance with the prescribed milestones, within the agreed time.

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

.4 Ensure that it is understood that award of contract or time of beginning, rate of progress, certificate of substantial performance and certificate of completion as defined times of completion are essential conditions of this contract.

1.4 Submittals

.1 Provide submittals in accordance with Section 01 33 00 – Submittal Procedures.

.2 Submit to Departmental Representative within ten (10) weekdays of award of contract bar (GANTT) chart as master plan for planning, monitoring and reporting of project progress.

.3 Submit project schedule to Departmental Representative within five (5) working of receipt of acceptance of master plan.

1.5 Project milestones

.1 Principal milestones for each phase shall be set out in the schedule of work.

.2 Each phase will be subject to partial provisional acceptance in accordance with the terms of this document.

.3 For each phase, the Contractor's performance schedule shall identify the proposed dates for the following milestones:
  .1 dates for the submission and approval of shop drawings;
  .2 start of work;
  .3 dates of the demolition phase;
  .4 date for the construction phase;
  .5 date of partial substantial completion for each of the phases.

1.6 Master plan

.1 Structure schedule to allow orderly planning, organization and execution of work as indicated by bar (GANTT) chart.
.2 Departmental Representative will review and return revised schedules to Contractor within five (5) working days.
.3 Revise impractical schedule and resubmit with five (5) working days.
.4 Accepted revised schedule will become master plan and be used as baseline for updates.

1.7 Schedule of work

.1 Develop detailed schedule of work based on master plan.
.2 Ensure detailed schedule includes at least the following steps for the following activities:
  .1 award of contract;
  .2 shop drawings, samples;
  .3 permits;
  .4 mobilization;
  .5 demolition;
  .6 wall cladding and roofing;
  .7 electrical;
  .8 heating, ventilation and air conditioning;
  .9 testing and commissioning;
  .10 supplied equipment long delivery times;
  .11 requested delivery dates for equipment supplied by Engineer.

1.8 Status of work progress

.1 Update schedule of work on bi-weekly basis to reflect changes in activities, completion of activities and activities in progress.
.2 Attach a narrative report to the schedule of work, indicating the progress of the work, comparing progress against the reference schedule and presenting current forecasts, anticipated delays, impacts and possible mitigation measures.

.3 Weekly work planning reports:
.1 Submit on a weekly basis, during the week preceding the execution of work in the schedule, a report describing the planned work for the next week, for each day of the week, also identifying the zone where the work will take place. Include all pertinent information on the operations and functioning of the facility: such as access, guard service, circulation on the premises of the institution, interruption in services, work outside designated limits and others.

1.9 Project meetings

.1 Discuss schedule during periodic meetings held on site; identify activities that are behind schedule and provide ways to address these delays. Late activities considered are considered to have a start date or end date that exceeds the respective approved dates in the reference schedule.
.2 Also discuss delays due to bad weather and negotiate remediation measures.

PART 2 - PRODUCTS

2.1 Not used

.1 Not used

PART 3 - EXECUTION

3.1 Not used

1. Not used

End of Section

ISSUE LOG

Issue					Date	Issued for
Issue No.	Rev.	By	Ver.	App.		
BB	00	L.O.	G.R.	A.S.	2020-11-12	100% PROGRESS
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PART 1 - GENERAL

1.1 Administrative tasks - general

.1 Within fourteen (14) days from the date of the authorization to commence the work, the Contractor shall prepare and submit to the Departmental Representative three (3) copies of a document which includes a list of all of the submittals and all of the administrative requirements of the project, and which refers to the applicable articles of the contract documents.

.2 Within a reasonable delay, and in the proper sequence to avoid any delay in the performance of the work, submit to the Departmental Representative the required documents for review. Lateness will not be considered to be a valid cause for requesting an extension of the contract time, and any request of this nature will be refused.

.3 Do not proceed with any work affected by the submittals until the review has been completed. The Contractor will assume any risk resulting from ordering a given material or for any work performed prior to the review of the documents.

.4 Review submittals prior to submission. This review by the Contractor represents that the necessary requirements have been, or will be, determined and verified, and that each submittal has been checked and ascertained to be in conformity with the requirements of the work and the contract documents and, where applicable, with the existing conditions observed on the worksite. Submittals not stamped, signed, dated and identified as to this specific project will be returned without being examined and considered rejected.

.5 Verify that field measurements and affected adjacent work are coordinated.

.6 Within fifteen (15) business days from the moment of receipt of the documents, the Departmental Representative shall review them and provide comments. This delay can only be respected by the Departmental Representative if the documents have been submitted within the delay and in the proper sequence indicated in the work schedule.

.7 At the time that documents are submitted, notify the Departmental Representative in writing of any divergence between them and the requirements in the plans and specifications, indicating the reasons for these divergences.

.8 Adjustments made on the documents by the Departmental Representative are not intended to change the contract price. If adjustments affect the value of the work, state such in writing to the Departmental Representative prior to proceeding with the work.

.9 At the time that new documents are submitted, notify the Departmental Representative in writing of the changes which were made in addition to those required by the Representative.

.10 Distribute copies once the Departmental Representative has reviewed the submitted documents.
.11 The review of the submitted documents by the Departmental Representative does not, in any way, relieve the Contractor of the responsibility for verifying the exactitude of the information which they contain or of the characteristics which they describe, or for their conformity to the requirements of the contract documents
    .1 The review of the submitted documents by the Departmental Representative is for the sole purpose of ascertaining conformance with the general concept. This review shall not mean that the Departmental Representative approves detail design inherent in the shop drawings, the responsibility for which shall remain with Contractor submitting them, and such review shall not relieve the Contractor of the responsibility for errors or omissions in the shop drawings or of the responsibility for meeting the requirements of the construction and contract documents.
    .2 Without restricting the generality of the foregoing, the Contractor is responsible for dimensions to be confirmed and correlated on the worksite, for information that pertains to fabrication processes or to techniques of construction and installation and also for coordinating the work of the subcontractors.
.12 Keep one reviewed copy of each submitted document and sample on site.

1.2 Shop drawings and product data

.1 Within fourteen (14) days from the date of the authorization to commence the work, the Contractor shall prepare and submit to the Departmental Representative, in three (3) copies, a control schedule for document submittal. This schedule shall include a list of the shop drawings, product data and samples to be submitted, and shall refer to the applicable articles of the contract documents.
    .1 This schedule shall be used to perform a follow-up of the documents to be submitted during the course of the project, it shall be completed and updated periodically by the Contractor, and shall be transmitted to the Departmental Representative at each site meeting.
    .2 The Departmental Representative will not perform any review of the shop drawings, product data or samples until the above-mentioned lists and schedules have been received and accepted.
.2 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by the Contractor to illustrate details of a portion of the work.
.3 The shop drawings shall be prepared by the Contractor or the involved subcontractor and detailed specifically for this project. Unless specific authorization has been granted in advance by the Departmental Representative, it is not permitted to submit a copy of drawings prepared by the Architect or by any other professional involved in the project as shop drawings, even if these have been modified specifically to suit the needs of this project.
.4 The shop drawings shall include references to the numbers used in the drawings and specifications.
.5 The shop drawings and product data shall be presented in French and shall be in metric units when the contract documents have been prepared in the metric system. If the products and technical data are not offered in metric units, converted values are acceptable.
.6 Where applicable, the shop drawings shall take into account existing conditions encountered on the worksite.
.7 Submit six (6) copies of the shop drawings or one (1) copy by email in PDF format for drawings which are no larger than 279 x 432 mm (11" x 17") in size for each work for which these are required in the sections of the specifications, and in accordance with the reasonable requirements of the Departmental Representative.

.8 When the shop drawings have not been prepared for the use of a standard manufactured product, submit six (6) copies of product data or documentation from the manufacturer for each element for which the sections of the specifications so require, and in accordance with the reasonable requirements of the Departmental Representative.

.9 Shop drawings and product data issued by fax machine or by email in PDF format which are larger than 280 x 430 mm (11" x 17") in size will not be reviewed, except in cases where permission was obtained in advance from the Departmental Representative.

.10 Before sending the shop drawings to the Departmental Representative for review,
- .1 verify that the shop drawings conform to the plans and specifications with respect to quality, features and relationship to adjacent work;
- .2 correct shop drawings if needed;
- .3 approve shop drawings;
- .4 stamp and sign each drawing.

.11 Coordinate each required document with work requirements, plans and specifications. Documents submitted individually will not be reviewed until related information has been provided.

.12 Include the following information on the transmittal letter:
- .1 date;
- .2 project title and number;
- .3 name and address of Contractor;
- .4 name and number of shop drawings and product data submitted;
- .5 section number and article of the specifications;
- .6 all other pertinent data.

.13 Ensure that submitted documents also include the following information:
- .1 date of preparation and revision dates;
- .2 name and address of:
  - .1 subcontractor;
  - .2 supplier;
  - .3 manufacturer.
- .3 supplier's stamp and signature of the supplier's authorized representative, certifying approval of submissions and compliance with plans and specifications;
- .4 the seal of an engineer, when required in accordance with the contract documents;
- .5 details of appropriate portions of the work, as applicable, in particular:
  - .1 description of all components and materials;
  - .2 fabrication, fastening and anchoring details;
  - .3 layout, showing dimensions and required clearances;
  - .4 installation details;
  - .5 capacities or power;
  - .6 performance characteristics;
  - .7 applicable standards;
  - .8 operating weight;
  - .9 wiring diagrams;
  - .10 single line and schematic diagrams;
  - .11 relationship to adjacent work, whether existing or other.

.14 For the product data and other documentation from the manufacturer, remove the information which does not apply to this project. Also, add the additional information which applies to this project to the standard information.
.15 When the shop drawings have been reviewed by the Departmental Representative and no error or omission has been discovered, or when only minor corrections are needed, the copies shall be returned, and the fabrication and installation work can be undertaken. If the shop drawings are rejected, the annotated copies shall be returned, and the corrected drawings shall be re-submitted in accordance with the above-mentioned procedures before the fabrication and installation work can be commenced.

1.3 Samples

.1 Submit three (3) review samples, in accordance with the requirements of the various sections of the specifications. Label the samples to indicate their origin and intended use.
.2 Deliver the samples prepaid to the business address designated by the Departmental Representative.
.3 In addition to the samples specifically required by the various sections of the specifications, submit, when requested by the Departmental Representative, samples showing the colour, finish, pattern and texture of all of the materials identified, as well as the visible equipment for the project, except for those located in the mechanical and electrical rooms.

1.4 Notices, reports and certificates

.1 Submit to the Departmental Representative, at the time prescribed by the various bodies or in the contract documents, a copy of every notice, report and certificate required by the authorities, the contract documents, or requested by the Departmental Representative and, in particular:
  .1 the notice of opening of a worksite issued by the *Commission des normes, de l'équité, de la santé et de la sécurité du travail*;
  .2 the Contractor's safety programme;
  .3 the required insurance policies.
.2 Submit to the Departmental Representative every notice of non-conformity, infraction, correction or other document received from or transmitted to the *Régie du bâtiment* concerning the work.
.3 Also submit, in a timely manner, every test report, certificate of conformity or compatibility, proof of competence and every other similar document required by the contract documents or which may be required by the Departmental Representative during the work.

1.5 Work progress photos

.1 Provide photos of the construction on a weekly basis, with a minimum of 24 photos per week, in accordance with the directives of the Departmental Representative and the following requirements:
   .1 camera: digital camera with time/date stamp feature;
   .2 format: .JPG, on CD-ROM;
   .3 viewpoints: as determined by the Departmental Representative;
   .4 identification: project name and number, date on which photo was taken and viewpoint shall be identified on each file;
   .5 frequency: spread out the photos over the week, and deliver them every week, at the same time as the minutes of the meetings.

.2 Notwithstanding the preceding article 1.5.1, coordinate with CSC the requirements and restrictions which apply to the photographing of the premises during the work. Cameras shall be identified on forms supplied by CSC.

End of Section

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Issue No.	Rev.	By	Ver.	App.		
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01	**00**	**L.O.**	**G.R.**	**A.S.**	**2022-01-21**	**TENDER CALL**

GENERAL INFORMATION

1.1. PURPOSE

1.1.1. To ensure that the work and institutional activities are carried out smoothly with no undue delays, and that institutional security is maintained at all times.

1.2. DEFINITIONS

1.2.1. « CSC » Correctional Service Canada.

1.2.2. « Warden » Warden of the institution.

1.2.3. « Departmental representative » Any employee who is mandated to intervene, carry out supervision, ensure coordination and/or supervision of the work.

1.2.4. « Work enclosure » Area where, as indicated on the project plans, the contractor is authorized to work. This can be isolated from the perimeter of the institution.

1.2.5. « Perimeter » Area of the establishment surrounded by fences or walls preventing the movement of inmates.

1.2.6. « Prohibited items » :

a) Intoxicants, including alcohol, drugs and narcotics;

b) A weapon or a component thereof, ammunition, or anything that is designed to kill, injure or disable a person or that can be assembled or modified for such purposes, possessed without prior authorization;

c) An explosive or a bomb, or a component thereof;

d) An amount of money exceeding the regulatory limit;

NOTE: Consult the *Corrections and Conditional Release Regulations* (SOR/92-620): $50 limit in a minimum-security institution, $25 limit in a medium-security institution, maximum-security institution, or multi-level security institution.

e) Any other item possessed without prior authorization that could jeopardize the security of the penitentiary or the safety of persons;

f) Electronic or telecommunication devices;

g) Tobacco products and associated products (including, but not limited to, cigarettes, electronic cigarettes, cigars, tobacco, chewing tobacco, cigarette-making machines, matches and lighters) are considered unauthorized items.

1.2.7. **«** Commercial vehicle » Vehicle intended for the transportation of material, equipment or tools necessary for the work.

1.3. PRELIMINARY MEASURES

1.3.1. Prior to starting the work, the Contractor must communicate with the Departmental representative to:

a) Discuss the nature and the scope of the work associated with the project;

b) Establish mutually-acceptable security measures, in accordance with this directive and the specific needs of the institution.

1.3.2. The Contractor must:

a) Be sure to inform their employees of the security requirements;

b) Work with institutional staff to ensure that their employees comply with the security requirements.

1.4. CONTRACTOR'S EMPLOYEES

1.4.1. According to the Warden's preference, the Contractor must be aware that no employee will be admitted access to the institution without valid security clearance and have a recent photo identification card, such as a provincial driver's licence.

1.4.2. The Contractor must submit to the Departmental representative a list of the names and birth dates of all his employees scheduled to work in the institution or all other CSC site, as well as their completed security clearance forms (*Federal Institution Access Request* form). Allow two (2) weeks for the security clearance forms to be processed.

1.4.3. The Warden may require that headshots be taken of the Contractor's Employees so that their pictures can be posted in appropriate areas throughout the institution or entered into a database for identification purposes. The Warden may also require that the Contractor's Employees prominently display photo identification on their clothing when they are within the institutional perimeter.

1.4.4. An individual will be refused entry to institutional premises if there is reason to believe that they pose a security risk.

1.4.5. Individuals will be immediately removed from institutional premises if:

c) They appear to be under the influence of alcohol, drugs or narcotics;

d) They behave in an abnormal or disorderly manner;

e) They are in possession of prohibited items.

1.4.6. Before accessing the institution any individual may be required to fill out a form or to answer questions concerning their immediate health state. When requested by the Warden, the individual's body temperature may be checked. Following these verifications, CSC might chose to refuse access to any individual.

1.5. VEHICLES

1.5.1. The personal vehicles of the Contractor's Employees are not allowed within the perimeter of medium- or maximum-security institutions without the express permission of the Warden.

1.5.2. All individuals who leave a vehicle unattended on CSC premises must close the windows and lock the doors and trunk. The owner of the vehicle or the employee from the company that owns the vehicle must ensure that the keys are kept safely in their personal possession.

NOTE: The institution may require that all vehicles and motorized equipment be equipped with a device that allows for locking the fuel cap.

1.5.3. The Warden can limit the number and type of vehicles permitted within the perimeter at any time.

1.5.4. Those delivering materials needed for the work may be required to have security clearance.

1.5.5. Should the Warden allow trailers to be left within the institution's perimeter, the doors and windows must remain closed and locked when left unattended. Windows must be equipped with expanded metal grates.

1.6. PARKING

1.6.1. The Departmental representative designates authorized parking areas for vehicles. If the Contractor's Employees park elsewhere, their vehicle may be towed.

1.7. SHIPMENTS

1.7.1. All shipments of material, equipment or tools for the work must be addressed to the Contractor to clearly distinguish them from shipments for the institution. The Contractor must ensure that his employees are on site to receive deliveries, as CSC staff will **not** accept deliveries of materials, equipment or tools intended for the Contractor.

1.8. COMMUNICATION DEVICES

1.8.1. Cellular or digital cordless phones (including, but not limited to, text messaging devices, pagers, BlackBerry, and telephones used as two-way radios), laptop computers and tablets are prohibited in the institution without the express authorization of the Warden. Even when permitted, they are not to be used by inmates.

1.8.2. The Warden may approve but limit the use of two-way radios.

NOTE: In some institutions, cellular or digital phones and two-way radios are permitted; however, conditions may apply. For example, their use may not be permitted in areas accessible to inmates.

1.9. TOOLS AND EQUIPMENT

1.9.1. The Contractor must keep a comprehensive list of the tools and equipment used during the work. This list must be kept up-to-date throughout the work and be submitted for inspection when necessary.

NOTE: A list of unauthorized or restricted tools and equipment may be provided to the Contractor if necessary.

1.9.2. The Contractor's Employees must never leave tools unattended, particularly mechanical tools, files, saw blades, hacksaws, wire, rope, ladders and any item used for lifting (jacks, cylinders, etc.).

1.9.3. The Contractor's Employees must store tools and equipment in a secure, authorized location.

1.9.4. The Contractor's Employees must lock all toolboxes after use and keep the keys with them at all times. They must also lock scaffolding that is not being used; once erected, scaffolding must be secured to the satisfaction of the Departmental representative.

1.9.5. The Contractor's Employees must notify the Departmental representative immediately if any tools or equipment have been lost or are unaccounted for.

1.9.6. The Warden will ensure that security staff verifies the Contractor's tools and equipment based on the list provided by the Contractor, at the following times:

a) at the beginning and end of each project;

b) each week, if the work lasts more than one (1) week.

NOTE: Some institutions require that tools and equipment be removed from the work site on a daily basis (e.g., in a busy area).

1.9.7. Some tools and equipment - such as cartridges and metal saw blades - are closely controlled. At the beginning of the day, the Contractor will be given a sufficient number of these items for one (1) day's work. Used blades/cartridges must be returned to the security personnel at the end of each day.

1.9.8. The use of fastening tools or other tools with cartridges is strictly prohibited.

NOTE: Controlled items are managed differently from one institution to another and must be verified with the specific institution.

1.9.9. If propane or natural gas is used as a heat source for the work, the institution requires that a member of its personnel supervise the work site outside of regular working hours.

NOTE: This is a concern if the work site is located near inmates' living units. A fire could put human lives in danger. Check the institution's policy.

1.10. KEYS

1.10.1. During the work, the Contractor must use regular cylinders in regular locks.

1.10.2. Once the security locks are installed, the Departmental representative who escorts the Contractor's Employees must obtain the keys in order to open doors according to the Contractor's needs. The Contractor must inform his employees that only the Departmental representatives escorting them are authorized to use the keys.

1.11. PRESCRIPTION MEDICATION

1.11.1. If the Contractor employs individuals who must take prescription medication during the work day, these employees must obtain authorization from the Warden to bring one (1) day's dosage into the institution.

1.12. RESTRICTIONS ON TOBACCO USE

1.12.1. Neither Contractors nor the Contractor's Employees are permitted to smoke inside correctional institutions, nor outside while within the perimeter of a correctional institution. They must not have unauthorized tobacco products in their possession within the institutional perimeter.

1.12.2. All individuals who violate this policy will be asked to stop smoking or to throw out all unauthorized tobacco products immediately. Individuals who continue to violate this policy will be asked to leave the institution.

1.12.3. Smoking will only be permitted outside the correctional institution's perimeter, in a location designated by the Departmental representative.

1.13. PROHIBITED ITEMS

1.13.1. Firearms, ammunition, explosives, alcohol, drugs and narcotics are prohibited on institutional premises.

1.13.2. The Warden must be notified immediately if anyone is found in possession of prohibited items on the work site.

1.13.3. The Contractor must be vigilant in monitoring their employees as well as the employees of their Subcontractors. Individuals found in possession of prohibited items may have their security clearance revoked. If the violation is serious, the company in question may be expelled from the institution for the duration of the work.

1.13.4. If firearms or ammunition are found in the vehicle of a Contractor, Subcontractor, supplier, or their personnel, the security clearance of the vehicle's driver will be revoked immediately.

1.14. SEARCHES

1.14.1. All individuals and vehicles arriving on the institution's premises may be searched.

1.14.2. If the Warden has reason to believe that one of the Contractor's Employees is in possession of a prohibited item, the Warden may order a search of that individual.

1.14.3. The personal belongings of all the Contractor's Employees arriving at the institution may be checked to search for the residue of contraband drugs.

1.15. CONTACT WITH INMATES

1.15.1. It is prohibited to enter into contact with inmates, speak to them, give them anything or accept anything from them without specific authorization. Anyone who violates this order will be expelled from the site and have their security clearance revoked.

1.15.2. It is prohibited to photograph inmates or CSC employees. It is also prohibited to photograph sectors of the institution when such photography is not required for the execution of the present contract.

2. PRODUCTS

2.1. NO OBJECT

3. EXECUTION

3.1. ACCESS TO THE INSTITUTION

3.1.1. Neither the Contractor's Employees nor commercial vehicles may be admitted to the institution's premises outside normal working hours without the express authorization of the Departmental representative.

3.1.2. The work week at the facility is Monday to Friday, generally 7:30 a.m. to 4 p.m. Hours of work vary from institution to institution. They should be checked with the institution concerned.

3.1.3. Plan the coming and going of the vehicles to the site and optimize the movements in order to minimize the loss of time involved.

3.1.4. Except for special conditions, allow for an approximate wait time of fifteen (15) minutes per vehicle for entry and exit.

3.1.5. Except for special conditions, allow for an approximate wait time of fifteen (15) minutes per person for the entry and exit of individuals, therefore approximately 30 minutes/day.

3.2. DAILY WORK PROGRAM

3.2.1. The contractor must send a daily work program to the departmental representative in the form of an email one day in advance and before noon, so that he can coordinate the work with the operations and security of the institution as well as with other work in progress and schedule the security escorts required for surveillance. The contractor must notify the departmental representative as soon as possible if there are any changes to the day's schedule, eg: interruption or need for extension of work, etc.

3.3. VEHICLE TRAFFIC

3.3.1. Vehicles may enter and leave the facility escorted through the vehicle access barrier, at the times specified by the Departmental representative for each site. Note that service barriers will be inaccessible during the lunch hour.

NOTE: Hours vary from one institution to the next. They should be verified with the institution concerned.

3.3.2. The Contractor must provide the Departmental representative forty-eight (48) hours' notice of the arrival of heavy equipment.

3.3.3. Vehicles carrying detritus or other material deemed impossible to search must constantly be monitored by CSC employees or security personnel who report to the Warden or must wait for an official head-count of the inmates to be conducted.

3.3.4. Before a commercial vehicle may be admitted onto the institution's perimeter, the Contractor or its representative must certify that the vehicle's content is essential to the execution of the work.

3.3.5. Entry will be refused to all vehicles carrying materials that the Warden believes pose a risk to institutional security.

3.4. CIRCULATION OF THE CONTRACTOR'S EMPLOYEES ON INSTITUTIONAL PREMISES

3.4.1. Subject to proper institutional security, the Warden will give the Contractor and the Contractor's Employees as much freedom of movement and autonomy as possible.

3.4.2. The previous paragraph notwithstanding, the Warden may:

a) Prohibit access to sections of the institution;

b) Require that the Contractor's Employees be accompanied by CSC security personnel in designated sections;

c) Require that the Contractor's Employees remain on-site during coffee/health and lunch breaks, depending on the institution and the situation. The Contractor's Employees are not authorized to eat in the break room of CSC employees, but they may use another area designated by the Departmental representative.

3.5. UNINSTALLED EQUIPMENTS AND ACCESSORIES

3.5.1. Return all uninstalled devices, devices, equipment, accessories or hardware to the Departmental Representative to ensure that they are disposed of or kept in a safe place for later reuse. If authorized by the departmental representative, dispose of it responsibly.

3.6. MONITORING AND INSPECTION

3.6.1. CSC security personnel will monitor and inspect the Contractor's Employees activities as well as related movement and vehicle traffic to ensure that established security standards are being followed.

3.6.2. At the start and throughout the duration of the work, CSC staff will convey to the Contractor's Employees the necessity of monitoring and inspections.

3.7. WORK STOPPAGE

3.7.1. At any time, the Warden may ask the Contractor, the Contractor's Employees, or Subcontractors not to enter the work site or to leave immediately if a security incident is in progress in the institution. The Contractor's Employees must note the name of the CSC employee issuing the request as well as the time and comply with the order as soon as possible.

3.7.2. Once notified, the Contractor must inform the Departmental representative of work stoppage without delay.

3.8. WORK COMPLETION

3.8.1. Unless otherwise indicated in the contract, once the project is completed or the facilities handed back to the CSC, the Contractor must remove all materials, tools and equipment from the institution, as well as perform a final clean-up of the site.

END OF SECTION 01 35 13

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PART 1 - GENERAL

1.1 References

.1 *Canada Labour Code*, Part II, Canada Occupational Health and Safety Regulations.
.2 CSA Group (Canadian Standards Association).
.3 Workplace Hazardous Materials Information System (WHMIS)/Health Canada.
.4 Safety Data Sheets (SDS).
.5 *Act respecting occupational health and safety*, CQLR, c. S-2.1.
.6 *Safety Code for the construction industry*, CQLR, c. S-2.1, r. 4.

1.2 Submittals

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

.2 Submit to Departmental Representative the site-specific safety plan, as outlined in article 1.6 of this section, at least ten (10) days prior to start of work. Contractor must update plan during course of project if any change occurs in work methods or site conditions. Departmental Representative may, after receiving plan or at any time during project, ask Contractor to modify or complete plan to better reflect reality of construction site and activities. The Contractor must make required changes before work begins. Departmental Representative reserves right to withhold authorization to commence work on site if content of safety plan is unsatisfactory.

.3 Departmental Representative's review of Contractor's site-specific safety plan shall not be construed as approval of plan and shall not reduce Contractor's overall responsibility for health and safety during work.

.4 Each week, submit to Departmental Representative the site inspection sheet, duly completed, at intervals indicated in article 1.11.1 of this section.

.5 Submit to Departmental Representative, within 24 hours, a copy of any inspection report, correction notice or recommendation issued by federal and provincial inspectors.

.6 Submit to Departmental Representative, within 24 hours, an investigation report for any accident involving injury and any incident exposing a potential hazard. Investigation report shall include:
  .1 Date, time, and place of accident.
  .2 Name of subcontractor involved in accident.
  .3 Number of persons involved and condition of wounded.
  .4 Witness identification.
  .5 Detailed description of tasks performed at time of accident.
  .6 Equipment being used to accomplish tasks performed at time of accident.
  .7 Corrective measures taken immediately after accident.
  .8 Causes of accident.
  .9 Preventive measures put in place to prevent a similar accident.

.7 Submit to Departmental Representative, all WHMIS safety data sheets for hazardous materials to be used at the site at least three (3) days before they are to be used. Contractor shall keep one copy of these documents on construction site.

.8 Submit to Departmental Representative copies of all training certificates required for application of safety plan, in particular:

.1 General construction site health and safety course.
.2 Security officer attestations.
.3 First aid in the workplace and cardiopulmonary resuscitation.
.4 Work likely to release asbestos dust.
.5 Work in confined spaces.
.6 Lockout procedures.
.7 Wearing and fitting of individual protective gear.
.8 Safe operation of forklift trucks.
.9 Positioning platforms.
.10 Any other requirements of regulations or safety plan.

In addition, certificates confirming successful completion of the *Course on health and general safety on construction sites* shall be available upon request on the construction site.

.9 Submit emergency plan described in article 1.6.3 to Departmental Representative at same time as site-specific safety plan.

.10 Notice of construction site opening: Notice of site opening shall be submitted to the *Commission des normes, de l'équité, de la santé et de la sécurité du travail (CNESST)* before work begins. Provide a copy of this notice and an acknowledgment of receipt from the *CNESST* to the Departmental Representative. Post a copy of this notice in full view at the site. During demobilization, a notice of site closing shall be submitted to the *CNESST*, with a copy to the Departmental Representative.

.11 Engineer's drawings and certificates of compliance: Contractor shall submit to *CNESST* and to Departmental Representative copies of all plans and certificates of compliance, signed and sealed by an engineer, required in accordance with the *Safety Code for the construction industry* or any other legislation, regulation or clause in the specifications or in the contract. Contractor shall also submit a certificate of compliance signed by an engineer once the facility for which these plans were prepared has been completed and before a person uses the facility. A copy of these documents shall always be available on the construction site.

.12 Certificate of compliance issued by the *CNESST*: The certificate of compliance is a document delivered by the *CNESST* confirming that the Contractor is in good standing with the *CNESST*, i.e. that the contractor has paid out all the benefits concerning this contract. This document must be delivered to the Departmental Representative at the end of the work.

.13 At all times, Contractor shall assume role of Principal Contractor within the limits of the construction site and elsewhere where he must execute work within the scope of this project. Contractor shall accept the responsibilities associated with being the Principal Contractor of the project and be so identified in the notice of the construction site opening provided to the *CNESST*.

1.3 Hazards assessment

.1 Contractor must identify all hazards inherent in each task to be carried out at the site.
.2 Contractor must plan and organize work to eliminate hazards at source or promote mutual protection so that reliance on individual protective gear can be kept to a minimum. When individual protection against falling is required, workers shall use safety harnesses conforming to CSA-Z259.10. Safety belts shall not be used as protection against falling.
.3 Equipment, tools and protective gear which cannot be installed, fitted or used without compromising the health or safety of workers or the public shall be deemed inadequate for the work to be executed.
.4 All mechanical equipment shall be inspected before delivery to the site. Before using any mechanical equipment, Contractor shall submit to Departmental Representative a certificate of compliance signed by a qualified mechanic. Whenever a defect or accident risk is suspected, Departmental Representative may at any time order the immediate shutdown of equipment and choose a specialist to perform a second inspection.
.5 For equipment intended to hoist persons or materials, ensure that inspections required by standards in effect have been performed and be able to provide copy of inspection certificates if requested by Departmental Representative.

1.4 Meetings

.1 Contractor's authorized representative must attend any meetings at which site safety and health issues are to be discussed.
.2 If it is anticipated that there will be twenty-five (25) workers or more on construction site at any time during work, Contractor shall establish a site committee, hold meetings and submit minutes of meetings to Departmental Representative as required by the *Safety Code for the construction industry*.

1.5 Legal and regulatory requirements

.1 Comply with all legislation, regulations, and standards applicable to the site and its related activities.
.2 Regardless of the publication dates of standards referenced in the *Safety Code for the construction industry*, always use the most recent version.

1.6 Health and safety management

.1 Acknowledge and assume all the tasks and obligations which customarily devolve upon a "principal contractor" in accordance with the *Act respecting occupational health and safety* and the *Safety Code for the construction industry*.
.2 Develop written site-specific safety plan based on the hazards identified and apply it from the start of project work until close-out is completed. Transmit to all concerned parties in accordance with article 1.2 of this section. Safety plan shall take into account specific characteristics of project and cover all work to be performed on construction site. As a minimum, health and safety plan shall include:

.1 Company health and safety policy.
.2 Description of work, total costs, work schedule and projected workforce curve.
.3 Flow chart of health and safety responsibility.
.4 Physical and material layout of the construction site.
.5 First aid and first-line treatment standards.
.6 Identification of site-specific hazards.
.7 Risk assessment for the tasks to be carried out, including preventive measures and procedures for applying them.
.8 Training requirements.
.9 Procedures in case of accident or injury.
.10 Written commitment from all parties to comply with safety plan.
.11 Construction site inspection schedule based on preventive measures.
.12 Identification of preventive measures for health and safety of employees and/or public at worksite as indicated in article 1.9 - *Specific requirements for health and safety of occupants and public*.

.3 Contractor must draw up an effective emergency plan based on the characteristics and constraints of the site and its surroundings. Submit the emergency plan to all parties concerned in accordance with provisions of article 1.2.9 of this section. Emergency plan must include:
.1 Evacuation procedure.
.2 Identification of resources (police, firefighters, ambulance services, etc.).
.3 Identification of persons in charge at the site.
.4 Identification of those with first-aid training.
.5 Training required for those responsible for applying the plan.
.6 Communication organizational chart (including person responsible for the site and Departmental Representative).
.7 Any other information needed, in the light of the site characteristics.

.4 Departmental Representative may provide observations in writing where deficiencies or concerns in the safety plan are noted and may request resubmission to correct deficiencies and eliminate concerns.

.5 In addition to the safety plan, during the course of the work the Contractor shall prepare and submit to the Departmental Representative specific written procedures for any work having a high risk factor of accident (for example: demolition procedure, specific installation procedure, hoisting plan, procedure for entering a confined space, procedure for interrupting electric power, etc.) or when requested by the Departmental Representative.

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

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

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

.9 Ensure all inspections (daily, periodic, annual, etc.) for hoisting devices for persons or materials which are required by current standards are carried out and be able to provide copy of inspection certificates to Departmental Representative upon request.
.10 At any time that defect or risk of accident is suspected, Departmental Representative is entitled to order immediate shutdown of equipment and to choose a specialist to perform a second inspection.
.11 Departmental Representative must be consulted regarding location for storing gas cylinders and tanks on construction site.

1.7 Responsability

.1 No matter the size of the construction site or the number of workers present, designate a competent person to supervise and take responsibility for health and safety. Take all necessary measures to ensure health and safety of persons and property at or in immediate vicinity of worksite and likely to be affected by any of the work.
.2 Take all necessary measures to ensure application of and compliance with safety and health requirements of contract documents, applicable federal and provincial regulations and standards as well as the site-specific safety plan, complying without delay with any order or correction notice issued by the *Commission des normes, de l'équité, de la santé et de la sécurité du travail*.
.3 Keep worksite clean and in good order throughout the course of the work.
.4 Contractor is responsible for health and safety of persons and for protection of property on worksite and, for areas adjacent to worksite, for protection of persons and the environment to the extent that they are affected by work.
.5 Contractor shall clearly define limits of construction site by physical means and respect all specific regulatory requirements applicable in this regard. Submit means chosen to define limits of construction site to Departmental Representative for approval.

1.8 Communications and posting

.1 Make all necessary arrangements to ensure effective communication of health and safety information at the site. As they arrive on site, all workers must be informed of their rights and obligations pertaining to the site-specific safety plan. Contractor must insist on their right to refuse to perform work which they feel may threaten their own health, safety or physical integrity or that of other persons on site. Contractor shall keep on site and update a written record of all information transmitted with signatures of all affected workers.
.2 Post following information and documents in location readily accessible to all workers:
  .1 Notice of site opening.
  .2 Identification of principal contractor.
  .3 Company policy with respect to occupational safety and health.
  .4 Site-specific safety plan.
  .5 Emergency plan.
  .6 Data sheets for all hazardous material used at this site.

.7 Minutes of site committee meetings.
.8 Names of site committee representatives.
.9 Names of those with first-aid training.
.10 Action reports and correction notices issued by the *CNESST*.

1.9 Specific requirements for health and safety of occupants and the public

.1 Refer to Section 01 35 13.
.2 Although occupants and the public will not have direct access to Contractor's worksite, Contractor shall apply all measures provided for in safety plan to protect health and safety of employees and/or the public present on site.

1.10 Unforeseen circumstances

.1 Whenever a source of danger not defined in the specifications or identified in the preliminary site inspection arises as a result of or in the course of the work, Contractor shall immediately suspend work, take appropriate temporary measures to protect the workers and the public and notify Departmental Representative, both verbally and in writing. Then the Contractor must modify or update the site-specific safety program in order to resume work in safe conditions.

1.11 Inspection of site and correction of hazardous situations

1. Inspect worksite and complete the site inspection sheet at least once a day.
2. Immediately take all necessary measures to correct any lapses from legislative or regulatory requirements and any hazards identified by a government inspector, the Departmental Representative, the site health and safety coordinator, or during routine inspections.
3. Submit to Departmental Representative written confirmation of all measures taken to correct lapses and hazardous situations.
4. Work cessation: Give safety officer or, where there is no safety officer, person assigned to health and safety responsibilities, full authority to order interruption and resumption of work as and when deemed necessary or desirable in the interests of health and safety. This person shall always act so that the safety and health of the public and site workers and environmental protection take precedence over cost and scheduling considerations.
5. Departmental Representative or Representative's agent may order cessation of work if Contractor fails to make required corrections to conditions deemed non-compliant in matters pertaining to health and safety.
6. Without limiting scope of articles 1.7 and 1.8 of this section, Departmental Representative may, at any time, order cessation of work if, in opinion of Representative, there is any hazard or threat to the health or safety of site personnel or the public or to the environment.

1.12 Work performed by external contractors

7. If it is anticipated that work will be performed by external contractor not engaged by Contractor, Contractor shall take necessary steps to protect health and safety of external contractors not having contractual link with Contractor but having been mandated by Departmental Representative to perform certain work. In return, these external contractors shall submit to authority of the Contractor (Principal Contractor). Subordination agreement shall be signed by Contractor and by each external contractor to this effect and submitted to Departmental Representative prior to start of work by each contractor (refer to Section 01 35 29.06-A1, "SUBORDINATION AGREEMENT WITH RESPECT TO HEALTH AND SAFETY").

1.13 Powder-actuated devices

.1 The use of power hammers and other explosive-actuated devices is prohibited.

1.14 Special requirements – scaffolding

.1 Foundation:
  .1 Scaffolding shall be installed on a solid foundation so that it does not slip or rock.
  .2 Contractor wishing to install scaffolding on a roof, overhang, canopy or awning shall submit calculations and loads to Departmental Representative and shall obtain permission from Departmental Representative before beginning installation.

.2 Assembly, bracing and mooring:
  .1 All scaffolding shall be assembled, braced and moored in accordance with manufacturer's instructions and provisions of the *Safety Code for the construction industry*.
  .2 Where a situation requires removal of parts of the scaffolding (e.g. cross braces), Contractor shall submit an assembly procedure, signed and sealed by an engineer, certifying that scaffolding assembled in this manner will allow work to be done safely, given the loads to which it will be subjected.
  .3 For scaffolding where the span between two supports exceeds three (3) metres, Contractor shall provide an assembly plan signed and sealed by an engineer.

.3 Protection against falls during assembly:
  .1 Workers working at heights shall be protected against falls at all times during assembly.
  .2 Before work begins, Contractor shall submit procedure to Departmental Representative indicating the protective measures to be used and, if applicable, identifying the anchor points for the safety cables or moorings. Procedure shall be in accordance with sections 3.9.4.5, 2.9.1 and 2.10.12 of the *Safety Code for the construction industry*.

.4 Platforms:
  .1 Scaffolding platforms shall be designed and installed in accordance with the *Safety Code for the construction industry*.
  .2 If planks are used, they shall be approved and stamped in accordance with section 3.9.8 of the *Safety Code for the construction industry*.
  .3 Platforms shall cover the entire surface protected by the guardrails.

.4 The above notwithstanding, scaffolding four (4) sections or six (6) metres high or higher shall have a full platform covering the entire surface of the putlogs every three (3) metres or fraction thereof, and the components of this platform shall not be moved at any time to create an intermediate landing.

.5 Guardrails:
- .1 A guardrail shall be installed on every landing.
- .2 Cross braces shall not be considered to be guardrails.
- .3 Where scaffolding four (4) sections or six (6) metres high or higher requiring full platforms is used, guardrails shall be installed on each landing at the start of work and shall remain in place until the work is completed.

.6 Access:
- .1 Contractor shall ensure that access to the scaffolding does not compromise worker safety.
- .2 Where the platforms of the scaffolding are constructed of planks, ladders must be installed so that planks extending beyond the platform do not block the way up or down.
- .3 Notwithstanding the provisions of the *Safety Code for the construction industry*, stairs shall be installed on all scaffolding that has six (6) or more rows of uprights or is six sections (6) or nine (9) metres high or higher.

.7 Protection of public and occupants:
- .1 Contractor shall identify boundaries of work area and erect barricades to limit access to authorized workers only.
- .2 Contractor shall install covered walkways, nets, or other similar devices to protect public and occupants from falling objects.

.8 Use of public thoroughfares:
- .1 Where it is necessary to encroach on a public thoroughfare, Contractor shall obtain and pay costs of all authorizations and permits required by authorities have jurisdiction.
- .2 Contractor shall install and pay costs of signage, barricades and other devices needed to ensure the safety and security of the public and the Contractor's own installations.

1.15 Lifting of materials

.1 Lifting devices shall be positioned so that loads are not carried over workers, occupants or public.

.2 Contractor shall submit to Departmental Representative work procedure, signed and sealed by engineer and showing, among others, position of crane, sketch of trajectory of transported loads, length of mast and lifting plan for handling of loads above occupied buildings. If necessary, Departmental Representative can require evening and weekend work.

.3 All mobile cranes manufactured after January 1, 1980 shall be equipped with an overload protection device.

.4 All cable mobile cranes manufactured after January 1, 1970, except if they are to be used for purposes other than lifting loads, shall be equipped with a two-blocking situation protection device. Cable mobile cranes manufactured prior to January 1, 1970 shall be equipped with this device by no later than December 31, 2006

.5 Contractor shall submit mechanical inspection certificate for each lifting device to Departmental Representative. Inspections shall have been performed immediately prior to delivery of equipment to worksite.

.6 For all winch installations, Contractor shall provide Departmental Representative with installation method recommended by manufacturer and, if not available, Contractor shall provide installation procedure signed and sealed by an engineer. Installation procedure shall take into account allowable load capacity, number, weight and placement of counterweights, and any other detail that could affect capacity and stability of equipment.

.7 In addition to mechanical inspection certificate, keep annual inspection certificate and logbook in cab of every crane and truck crane.

.8 Barricade entire lift area to prevent entry by unauthorized persons.

.9 Contractor shall obtain and pay cost of all permits required to close public thoroughfare temporarily to comply with requirement stipulated in preceding paragraph or for any other reason related to safety of workers, occupants or public.

.10 Contractor shall carefully inspect all slings and other lifting accessories and ensure that those in poor condition are destroyed or scrapped.

.11 Lift compressed-gas cylinders using basket specifically designed for this purpose.

1.16 Lockout-Tagout

.1 For all work on electrically energized equipment or on equipment that may be started accidentally, Contractor shall draw up and implement a lockout-tagout procedure and complete a *Request for Electrical Isolation* form provided by the building manager.

.2 Before starting lockout-tagout procedure of equipment on an occupied site, Contractor shall coordinate work with site representative if interruption of power sources might affect site occupants or operations on site.

.3 Contractor shall designate qualified person to be responsible for lockout-tagout and shall ensure that this person prepares lockout-tagout data sheet for each piece of equipment involved. Lockout-tagout data sheet shall be submitted to Departmental Representative at least forty-eight (48) hours before commencement of work. Departmental Representative shall have site representative review data sheet if work is to take place in an existing building. Data sheets for lockout-tagout shall contain at least the following information:

- .1 description of work to be performed;
- .2 identification, description and location of circuit and/or piece of equipment to lockout-tagout;
- .3 identification of energy sources that feed the equipment;
- .4 identification of each cutout point;
- .5 sequence of lockout-tagout and 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 person who prepared data sheet.

If required by Departmental Representative, Contractor shall record all this information on the site representative's form.

.4 At time of lockout-tagout, the person who is responsible shall date the sheet and ensure that the workers involved in work on the circuit/piece of equipment subject to lockout-tagout write their names on the data sheet and sign it.

.5 This list, while not exhaustive, provides some examples for which the use of the form is obligatory:
  .1 Main building power feeders.
  .2 Feeder supply panels and sub-panels.
  .3 Bus ducts.
  .4 Motor control centres.
  .5 Emergency power circuits.
  .6 Fire alarm and fire protection equipment.
  .7 Mechanical protective equipment (sump pump, etc.).
  .8 Alarm circuit for building services, including all heating, ventilation, and air conditioning equipment.
  .9 Circuits supplying more than one (1) piece of equipment.
  .10 Circuits affecting one (1) single piece of equipment used in a cooling or heating system.

.6 Notwithstanding the previous paragraphs, in an emergency, the Contractor shall obtain a verbal guarantee of isolation and immediately thereafter put the request for electrical isolation or transfer in writing.

.7 The procedure requested in paragraph .1 above shall comply with the publication entitled *Le cadenassage*" published by the *Association paritaire pour la santé et la sécurité du travail secteur construction (ASP Construction)*.

.8 Supervisors and all workers concerned must have completed ASP Construction's "Cadenassage" course (514 355-6190 or 1 800 361-2061) or an equivalent course offered by others.

.9 For all work which must absolutely be performed on live equipment, identify these situations in writing, determine the safety measures, including the personal protective equipment, that will be implemented, and obtain a permit to work under tension.

1.17 Electrical work

.1 Contractor shall ensure that all electrical work is performed by qualified personnel in accordance with provincial regulations governing qualifications and vocational training.

.2 Contractor shall respect all requirements of CSA Z462, *Workplace Electrical Safety*.

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

.4 Contractor shall respect all requirements prescribed under the "Lockout-Tagout" heading in this section.

.5 Contractor shall advise Departmental Representative in writing concerning all work which cannot be done with de-energized equipment and obtain Representative's authorization. Contractor must demonstrate to Departmental Representative that it is impossible to do work with de-energized equipment and provide all information necessary to request and obtain a permit to perform energized electrical work (indicate work procedures, arc flash hazard analysis, protective perimeter, protective equipment, etc.) before commencing work, excluding exceptions indicated in CSA Z462.

.6 The permit for energized electrical work shall contain at least the following information:
  .1 Description of circuit, equipment, and location.
  .2 Justification for need to work in energized condition.
  .3 Description of safe work practices to apply.
  .4 Results of shock hazard analysis.
  .5 Limits of protective perimeter for electric shocks.
  .6 Results of arc flash hazard analysis.
  .7 Description of arc flash boundary.
  .8 Description of required personal protective equipment.

.9 Description of means of limiting access to unqualified persons.
.10 Proof that information session has taken place.
.11 Approval signature for energized electrical work (by person in authority or by owner).

.7 If, for operational requirements of site occupants, site representative requires that Contractor perform energized electrical work, Contractor shall obtain all information required to request and obtain work permit for energized electrical work (indicate working procedures, arc flash hazard analysis, protective perimeter, protective equipment, etc.) and have it signed by site representative or Departmental Representative before commencing work.

1.18 Prevention of violence

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

1.19 Hot work

.1 Hot works means any work where a flame is used or where a source of ignition may be produced (e.g. riveting, welding, cutting, grinding, burning and heating.
.2 Before beginning work involving hot work, Contractor shall obtain PSPC “Hot Work Permit” (ELF 367) from Departmental Representative.
.3 Working portable fire extinguisher suitable to fire risk shall be available and easily accessible within radius of five (5) metres of any flame, spark source or intense heat.
.4 Appoint individual to perform continuous fire rounds for at least one (1) hour after end of shift. Individual shall countersign permit and submit it to person in charge of the worksite (or a representative) following the one-hour period.
.5 Storage of propane cylinders shall comply with CSA B149.2, *Propane Storage and Handling Code*, and meet specific conditions outlined in this document. Cylinders shall be stored outdoors, in a safe location, away from unauthorized handling, in storage cabinet designed for this purpose. Always keep cylinders securely upright and locked; storage unit shall be located where no vehicles are allowed unless cylinders are protected by barriers or equivalent.
.6 All cylinders used or stored on worksite shall be equipped with collar designed to protect valve.
.7 Filling cylinders on worksite is prohibited unless a procedure which is compliant with CSA B149.2 has been approved and authorized by the Departmental Representative.
.8 Welding and cutting: For welding and cutting activities, Contractor shall ensure that following conditions are met in addition to those mentioned above:
.1 Welding and cutting work shall be performed in accordance with subdivisions 3.13. (*Compressed gas supply*), and 3.14 *(Welding and cutting*) of the *Safety Code for the construction industry*.
.2 Welding and cutting devices are extremely dangerous in terms of fire risk on worksites. Take following precautions when this type of work is being carried out:
.1 Store compressed gas cylinders on fireproof surface and ensure that space is well ventilated.

.2 Store oxygen cylinders at least six (6) metres from cylinders containing flammable gas (e.g. acetylene) and from combustible materials such as oil and grease, unless separated by partition of non-combustible material, as specified in section 3.13.4 of the *Safety code for the construction industry*.
.3 Install fireproof fabric where overhead welding presents risk from falling sparks.
.4 Store cylinders away from heat sources.
.5 Do not store cylinders near stairs, exits, corridors or elevators.
.6 To avoid risk of explosive reaction, do not allow acetylene to come into contact with metals such as silver, mercury, copper, and brass alloys containing more than 65% copper.
.7 Check that electric arc welding equipment has required voltage rating and is grounded.
.8 Make sure that power cables on electric welding equipment are not damaged.
.9 Place welding equipment on a level surface sheltered from elements.
.10 Remove or protect combustible materials located near the welding site.
.11 Never weld or cut closed containers.
.12 Take protective measures when welding or cutting near pipes, tanks or other containers containing flammable substances.
.13 Do not perform any cutting, welding or open-flame work on vessels, reservoirs, pipes or other containers in which flammable or explosive substances may have been stored unless:
.1 air samples which have been taken indicate that work can be done safely; or
.2 suitable measures have been taken to ensure worker safety.

1.20 Asbestos exposure

It is not anticipated that the work covered by these specifications involves the manipulation of materials containing asbestos; however, if Contractor or Departmental Representative or Representative's agent discovers materials which are suspected of containing asbestos, Contractor shall immediately stop work and advise Departmental Representative. If further investigation demonstrates that materials do contain asbestos, prior to starting any work likely to emit asbestos dust, Contractor shall:

.1 provide a written procedure for the work, identifying the risk level of work (low, moderate, high), as defined in subdivision 3.23 of the *Safety code for the construction industry* and taking into account all requirements of this subdivision;
.2 submit certificates to demonstrate that all workers involved in the work have received training on asbestos hazards and on the procedure required in the preceding paragraph;
.3 demonstrate that the materials and equipment required to respect the procedure and to safely conduct the work are on hand.

1.21 Fungal contamination

It is not anticipated that the work covered by these specifications involves the manipulation of materials contaminated by mould; however, if Contractor or Departmental Representative or Representative's agent discovers materials suspected of being contaminated by mould, Contractor shall immediately stop work and advise Departmental Representative. If further investigation reveals that materials do contain mould, Contractor shall, prior to starting any work where workers are likely to be in contact with materials contaminated by mould:

.1 provide a written procedure for the work which meets all requirements of the *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 (https://www.cca-acc.com/wp-content/uploads/2019/02/Mould-guidelines2018.pdf);

.2 demonstrate that the materials and equipment required to respect procedure and to safely conduct work are on hand.

1.22 Exposure to silica

For any interior or exterior work generating silica dust, Contractor shall respect the following requirements, in addition to those in the *Safety code for the construction industry*:

.1 Work in wet environment or use tools with inflow of water to reduce dustiness or, alternatively, collect dust at source and retain with a high-efficiency filter to avoid releasing it into the environment.
.2 Clean surfaces and tools with water, but never with compressed air.
.3 Sand and strip surfaces using abrasive containing less than 1% silica (also called amorphous silica).
.4 Install shields or other containment devices to prevent silica dust from migrating beyond the work zone and to protect other workers and the public.
.5 Wear individual respiratory and ocular protection equipment during all operations that could generate silica dust, in accordance with the requirements of the *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 hands and face before drinking, eating, or smoking.

1.23 Sandblasting

Prior to starting any sandblasting work, Contractor shall:

.1 provide a written procedure for the work that meets the requirements of subdivision 3.20. of the *Safety code for the construction industry*;
.2 demonstrate that the materials and equipment required to respect the procedure and to safely conduct the work are on hand;
.3 use abrasive containing less than 1% silica for all sanding and sandblasting work.

1.24 Lead-based paint removal

Prior to all work where workers are liable to be handling materials containing lead-based paint or other substances containing lead, Contractor shall:

.1 provide a written procedure for this work which respects all the requirements of the *Safety code for the construction industry*, as well as the requirements indicated in the document *Guideline: Lead on Construction Projects* published by the Ontario Ministry of Labour (https://collections.ola.org/mon/25008/311062.pdf). In the event of a discrepancy between the Québec regulation and the Ontario document, apply the more stringent requirement;

.2 demonstrate that the materials and equipment required to respect the procedure and to safely conduct the work are on hand.

1.25 Exposure to animal droppings

.1 Prior to all work where workers are likely to come in contact with materials contaminated by animal droppings, Contractor shall:

.1 provide a written procedure for the work which respects all of the requirements of the *Safety code for the construction industry*, as well as the requirements indicated in the document entitled "*Des fientes de pigeons dans votre lieu de travail: méfiez-vous*" (Pigeon droppings in your workplace: Beware") published by the *CNESST* (https://arpac.org/wp-content/uploads/2018/04/fientes-pigeons.pdf);

.2 demonstrate that the materials and equipment required to respect the procedure and to safely conduct the work are on hand.

1.26 Respiratory protection

.1 Contractor shall 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 CAN/CSA Z94.4, *Selection, use, and care of respirators*. If requested, submit fit-testing certificates to Departmental Representative.

1.27 Fall protection

.1 Plan and organize work to eliminate fall risk at source of danger or ensure collective protection to minimize use of personal protective equipment. When personal fall protection is required, workers must use safety harness conforming to CSA Z259.10. Safety belts are not acceptable for use as fall protection.

.2 Persons using elevating platform (scissors, telescopic mast, articulated mast, rotative mast, etc.) must have received training for this equipment.

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

.4 Delineate limits of danger zone around each elevating platform.

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

.6 Every person working within two (2) metres of a fall hazard of three (3) metres or more shall use a safety harness in accordance with regulatory requirements, except where a guard rail or other device offers equivalent safety.

.7 Notwithstanding regulatory requirements, Departmental Representative may require installation of a guard rail or the use of a safety harness for specific situations presenting a fall risk of less than three (3) metres.

1.28 Cleaning

.1 Among others, Contractor shall comply with Workplace Hazardous Materials Information System (WHMIS) regulations and, in particular, ensure that material safety data sheets for all hazardous materials in use are kept at all times in the building where products are stored, that they are up-to-date at time of purchase of products, and that each container, whether small and large, is properly labelled. Contractor shall demonstrate to satisfaction of Departmental Representative that all employees have successfully completed a WHMIS training course.

.2 Contractor to ensure that incompatible chemical products are stored so that they do not come into contact with each other.

.3 Ensure that workers wear gloves suited to the use of the cleaning products.

.4 Take necessary steps to protect public from slipping while floors are being washed.

.5 Ensure that workers wear suitable gloves when performing exterior cleaning work if there is any risk of contamination from biological materials (droppings, birds' nests, etc.).

.6 During exterior cleaning work, notify Departmental Representative when droppings from birds and other animals are discovered so that Representative can indicate measures to be undertaken.

End of Section

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SUBORDINATION AGREEMENT WITH RESPECT TO HEALTH AND SAFETY

Project: _____ Address: _____

EXTERNAL CONTRACTOR

I hereby agree to submit myself to the authority of [insert hereafter the name of the principal contracting firm] _____, which is the principal contractor for the project indicated above for the entire duration of the project on the worksite. Accordingly, I acknowledge that I have familiarized myself with the safety plan of the principal contractor and that I agree:

- to inform my employees of the content of the safety plan of the principal contractor and to ensure that this content is respected at all times;
- to provide a safety plan which is specific to the activities which I will be performing within the framework of this project;
- to inform the principal contractor of my intended operations on the worksite and to obtain the contractor's approval before proceeding with the work;
- to follow the directives concerning health and safety provided by the representative of the principal contractor on the worksite.

Name: _____

Exterior contractor's firm: _____

Description of work to be performed on the worksite: _____

Approximate dates of the work (start/completion): _____

Signature: _____

Date: _____

PRINCIPAL CONTRACTOR

I hereby agree to allow [insert hereafter the name of external contractor's firm) _____ to perform work within the scope of the project indicated above and, as the principal contractor, to take the required measures to protect the health and safety of the workers who are on the worksite. Should this contractor repeatedly refuse or fail to comply with my directives, I agree to inform the Departmental Representative for PSPC and to provide documentary proof of the actions which I undertook with respect to the contractor.

Name: _____

Principal contractor's firm: _____

Signature: _____

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PART 1 - GENERAL

1.1 Regulations, codes and standards

.1 National codes applicable to this project:
  .1 National Building Code of Canada 2015.
  .2 National Fire Code of Canada 2015.
  .3 National Plumbing Code of Canada 2015.
  .4 National Energy Code of Canada for Buildings 2015.
  .5 Canadian Electrical Code 2015.

.2 Perform the work in accordance with National Building Code of Canada (NBC) 2015 and all other applicable federal, provincial and local codes. In the event of a discrepancy or contradiction, the most stringent requirement shall apply.

.3 Perform the work to meet all of the requirements of:
  .1 the contract documents;
  .2 the specified standards and codes as well as all other referenced documents.

.4 If no specific date or edition is provided, meet the most-recent standards in force at the time of the bidding. Where a standard is referenced in the NBC, meet the requirements of the edition indicated in the most recent version of or modification to the NBC except that, where a later version of a standard contains requirements which less stringent, the more stringent requirement shall apply.

.5 The contractor shall conform to the *Act respecting labour relations, vocational training and workforce management in the construction industry* of the province of Quebec.

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PART 1 - GENERAL

1.1 Inspection and testing

.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 required by Departmental Representative or authorities having jurisdiction.
.3 If Contractor covers or permits to be covered work that has been designated for tests, inspections or approvals before such is made, Contractor shall uncover this work, have inspections or tests satisfactorily completed and make good this work.
.4 Up to the time of final acceptance of work, Departmental Representative may order testing or inspection of any part of work which is suspected to be not in accordance with contract documents.
.5 If defects are revealed during inspection and/or testing, Departmental Representative may require additional inspection and/or testing to ascertain full degree of defects. Correct defects and irregularities as advised by and at no cost to Departmental Representative. Pay costs for re-testing and re-inspection.

1.2 Independent inspection and testing agencies

.1 Unless specifically indicated otherwise, engage independent testing and inspection agencies required in contract documents and/or by the authorities having jurisdiction or by regulations, and pay costs.
    .1 Initiate call for proposals from at least three (3) agencies for each type of test or inspection; for purposes of performing required testing and inspections, these agencies shall be accredited by organizations which have developed testing standards and procedures and by authorities having jurisdiction and shall be approved by Departmental Representative. For this purpose, provide list of such agencies to Departmental Representative, who reserves right to add one or more additional agencies to list for purpose of obtaining proposals.
.2 Provide equipment required for executing inspection and testing by appointed agencies.
.3 Employment of inspection/testing agencies does not relax responsibility of Contractor to perform work in accordance with contract documents.
.4 If defects are revealed during inspection and/or testing, appointed agency may require additional inspection and/or testing to ascertain full degree of defects. Correct defects and irregularities as advised, at no cost to Departmental Representative. Pay costs for re-testing and re-inspection.

1.3 Access to work

.1 Allow inspection/testing agencies access to work, providing coordination with CSC, and to off-site manufacturing and fabrication plants.
.2 Co-operate with agencies and provide reasonable access to such facilities.

1.4 Procedures

.1 Notify appropriate agency and Departmental Representative in advance of requirement for tests, in order that attendance arrangements can be made.
.2 Submit samples, equipment and materials required for testing as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to avoid causing 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.
.4 Provide Departmental Representative with minimum twenty-four (24) hours notice of need for visit to verify work. Contractor shall provide such notice each time that verification visit is requested or required, especially when verification must take place before work is covered.
.5 When tests require advance preparation (e.g. opening system to find alarm, installing protection, obtaining communications equipment or keys, etc.), these tasks shall be completed before time scheduled by Departmental Representative or agency for testing. Unless otherwise specified by Departmental Representative, time indicated on notice requesting visit is time at which testing is to commence. No delay resulting from failure of Contractor to provide adequate coordination will be tolerated.

1.5 Rejected work

.1 Remove defective components judged as failing to conform to contract documents and rejected by the Departmental Representative because of poor workmanship, use of defective materials or products, or damage, whether incorporated into completed work or not. Replace or re-execute in accordance with contract documents.
.2 Make good without delay work of other contractors damaged by such removals or replacements.
.3 If, in opinion of Departmental Representative, it is not expedient to correct defective work or work not performed in accordance with contract documents, Departmental Representative may deduct from contract price difference in value between work performed and work called for by the contract documents.

1.6 Reports

.1 Provide Departmental Representative with five (5) copies of inspection and test reports.
.2 Also, provide copies of these reports to subcontractor responsible for work which was subject to inspection or testing, as well as to manufacturer or fabricator of the equipment/materials being inspected or subjected to testing, where applicable.

1.7 Tests and mix designs

.1 Provide test reports and mix designs as may be requested.

1.8 Mock-ups

.1 Prepare mock-ups for work specifically requested in specifications. Requirements in this section shall apply to work for all sections which require mock-ups to be provided.
.2 Construct mock-ups where indicated in applicable section.
.3 Prepare mock-ups for review by Departmental Representative with reasonable promptness and in orderly sequence so as not to cause any delay in work.
.4 Failure to prepare mock-ups in ample time is not considered sufficient reason for an extension of contract time, and no claim for extension by reason of such default will be allowed.
.5 Each specification section identifies whether mock-up may remain as part of finished work or if it is to be removed.
.6 Mock-ups judged unacceptable shall be rebuilt as directed until acceptable standard has been achieved and approved.
.7 Mock-ups shall constitute demonstration of procedures and operations to be performed for project and shall be constructed by the same workers who will be performing this work.
.8 Mock-ups shall illustrate techniques and methods and shall serve as reference standard for specified work.

1.9 Mill tests

.1 Submit mill test certificates in accordance with sections of specifications or as required by authorities having jurisdiction.

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PART 1 - GENERAL

1.1 Installation, maintenance and removal of temporary work

.1 Unless more stringent requirement applies, design and build all temporary work to CSA S269.1.
.2 Provide temporary installations, services and protection required so that the work can commence without delay. Maintain these for the entire duration of the work.
.3 Once work has been completed, and unless otherwise indicated, remove these temporary installations from worksite and repair any work which is affected by removal of these installations.

1.2 Temporary electrical power and lighting

.1 During construction work, Departmental Representative will pay costs of temporary supply of electrical power required for lighting and for operation of mechanical tools, up to a maximum of 230 volts at 30 amperes.
.2 Notwithstanding the above, Contractor is responsible for verifying proximity of outlets and making any needed modifications.
.3 Make all required connections, coordinate connection work with Departmental Representative, and pay all costs of connection, installation, maintenance and disconnection.
.4 Supply of temporary electrical power for operation of cranes and other electrical equipment requiring power supply in excess of parameters indicated above is responsibility of Contractor.
.5 Provide and maintain temporary lighting required for duration of the construction work and guard service. Illuminance level on floors and in stairwells shall not be less than 162 lux.

1.3 Temporary heating

.1 Unless more stringent requirement applies, temperature in areas where construction work is in progress shall be no less than 10 degrees Celsius.
.2 Permanent heating system for building or for certain portions of it may be used when possible. In such circumstances, assume responsibility for any damage caused to system.
.3 Departmental Representative shall pay costs of temporary services when existing building equipment is used as heat source.
.4 When permanent heating system has been used during work, replace filters and clean system once work has been completed.
.5 In areas where existing heating system cannot be used, supply and install suitable temporary heating system to be used during construction work, service and maintain it, and supply fuel required to operate it.
.6 Heating equipment used inside building must be vented to exterior and operate without an exposed flame. Use of space heaters which discharge fumes into work areas is prohibited.
.7 Ventilate heated areas effectively and ensure that combustion and exhaust gases are discharged to exterior of building.

.8 If adequate protection and heating are not provided during construction work, assume responsibility for any resulting damage to work.
.9 Temporary heating and ventilation equipment required on worksite shall, while not being limited to the following:
  .1 facilitate performance of work;
  .2 protect work and materials from humidity and cold;
  .3 prevent condensation of humidity on surfaces;
  .4 provide ambient temperature and humidity levels as needed for proper storage, installation and drying of materials;
  .5 provide sufficient ventilation to comply with public health requirements concerning safety in work zones.

1.4 Temporary ventilation

.1 Provide proper ventilation of work areas, and ensure that combustion and exhaust gases, as well as emissions of volatile substances, are evacuated to exterior of building in manner which complies with public health requirements concerning safety in work zones.
.2 Permanent ventilation system for building or for certain portions of it may be used when possible. In such circumstances, assume responsibility for any damage which is caused to system.
.3 Departmental Representative shall pay costs of temporary services when existing building equipment is used to provide ventilation.
.4 When permanent ventilation system has been used during work, replace filters and clean system once work has been completed.
.5 In areas where existing ventilation system cannot be used, supply and install suitable temporary ventilation system to be used during construction work, service and maintain it, and supply power needed to operate it.
.6 Ventilation equipment used on building interior must evacuate to exterior.

1.5 Temporary telephones

.1 Contractor shall supply and install temporary telephones required for own use and shall pay cost of these. Cellular telephone may be used if authorized by Director.

1.6 Fire protection

.1 For duration of the work, supply, install and maintain temporary firefighting equipment required by concerned insurance companies and by applicable codes, regulations and laws.
.2 It is prohibited to make open fires and burn waste materials on site.

End of Section

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PART 1 - GENERAL

1.1 Field offices

.1 For duration of work, provide, fit out and keep clean one or more field offices with adequate lighting, heating and ventilation and of sufficient size to permit contract documents to be stored and examined and to allow Contractor's employees to perform their daily activities.
.2 Provide material and installations required for purposes of administering first aid.
.3 As needed, subcontractors may provide and fit out their own field offices, at their expense. Direct location of these offices.
.4 Submit complete fitting-out proposal compliant with architectural site plan.
.5 Refer also to General Conditions for all additional requirements concerning field offices.

1.2 On-site parking

.1 Obtain from Departmental Representative all required information concerning availability of parking spaces near worksite.

1.3 Scaffolding

.1 Supply, install and maintain scaffolding, swing staging, ramps, ladders, platforms, temporary stairs and other similar installations; ensure that these remain inaccessible to inmates and that they are always secured in place.
.2 Except where more restrictive requirements have been indicated, design and erect scaffolding to CSA S269.2.

1.4 Hoisting

.1 Supply, install, maintain and operate hoists and cranes required for moving workers, equipment and materials. Make necessary financial arrangements with subcontractors concerning use of this equipment.
.2 Hoists and cranes shall be operated by qualified operators.
.3 Provide CSC with seventy-two (72) hours notice of arrival of cranes and other hoisting equipment.
.4 Operators shall be subjected to security screening.

1.5 Chutes and containers

.1 Install containers required for off-site transport of debris which cannot be recycled or re-used. Obtain approval of Departmental Representative for location for this equipment. If needed, remove windows where this equipment is located, block access with plywood door, and reinstall once use has been completed.
.2 Containers and all vehicles which cannot be subjected to a search must wait for an official count before they can leave the site.
.3 Provide CSC with forty-eight (48) hours advance notice of the delivery and removal of any container or vehicle which cannot be subjected to a search.

1.6 Public circulation

.1 Supply, install and maintain necessary signage, barriers, mechanical signals, lights and lanterns, and keep required traffic flaggers in place to enable work to be performed safely and to ensure protection of public.

1.7 Storage and allowable loads

.1 Workers shall perform work within the limits indicated in the contract documents concerning their activities and movements. Do not clutter the premises unreasonably with equipment and materials.
.2 Do not load or allow loading of any part of the work with a weight or force that could compromise its integrity.

1.8 Storage of equipment, materials and tools

.1 Provide and maintain, in clean and orderly condition, lockable weatherproof sheds for storage of equipment, materials and tools.
.2 Contractor shall encourage on-site storage.

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PART 1 - GENERAL

1.1 Guard rails and barricades

.1 Supply and install secure, rigid guard rails and barricades around any exterior work which is accessible to inmates, and in any other area as required by authorities having jurisdiction.
.2 Notwithstanding the presence of these temporary facilities, provide sufficient clearance to permit pedestrian and vehicular circulation.

1.2 Protective enclosures

.1 Supply and install protective enclosures in all areas where safety of workers and protection of users, property and work risk being compromised.
.2 For purposes of guidance, but without limiting the scope of this work, supply and install protective enclosures above building entries and exits, pedestrian and vehicular passages and existing components adjacent to the work which require protection.
.3 Design protective enclosures to prevent any risk of injury or damage which might result from falling objects, materials and debris, and to be adequate to support safely the workers, the tools, equipment and materials which might be placed on them.

1.3 Protection of existing utilities

.1 Take all required measures to protect utility lines which are to remain in service from damage and interruptions in service, and interrupt and, where necessary, reconnect all lines which are to be relocated, abandoned or removed, as the case may be, to the satisfaction of the Departmental Representative and/or the authorities having jurisdiction.

1.4 Weather enclosures

.1 Supply enclosures which are weathertight and will also keep out intruders and vermin; install them in all unfinished openings in the building envelope and over technical shafts and other openings in floors and roofs.
.2 Close off floor areas where walls are not finished, seal off other openings, and separate the work area inside the building from the exterior.
.3 Erect insulated shelters or enclosures with a thermal resistance of at least RSI 2.12 where needed or as indicated by Departmental Representative:
    .1 construct shelters or enclosures which block off the opening completely, using 92 mm metal studs at 400 mm o.c., covered with 16 mm thickness gypsum-board panels on the inside and with 12 mm thickness exterior-grade plywood panels on the exterior, with sealed joints and a continuous sheet of 8-mil thickness polyethylene with overlapping edges; fill space between the studs with glass-fibre wool of sufficient thickness to provide specified thermal resistance;
    .2 seal perimeter and junctions with other materials to provide screens which are completely impervious to air and water.

1.5 Dust-tight screens

.1 Supply and install dust-tight screen or partitions to localize dust generating activities and to provide protection for public, workers and finished areas of work.
.2 Before commencing work, install dust tight partitions and protection for equipment and obtain approval of Departmental Representative.
.3 Maintain and relocate protection until such work is complete.
.4 Even if the drawings do not show every existing component which requires protection, or every location where a temporary partition must be installed, it remains the responsibility of the Contractor to ensure the tightness of all areas where such protection would normally be required to provide a dust-tight condition and, where required, a seal against water, humidity, sound, fire, smoke and noxious gases.
.5 In the absence of a more restrictive requirement in the documents, enclose and isolate areas adjacent to the zone in which the work will be performed, as follows:
    .1 Erect dust-tight, fire-resistant screens in all required locations and/or as shown on drawings. Seal perimeter and junctions with other materials to obtain a seal which is completely dust-tight and which provides the required fire-resistance rating.
    .2 For all doors which lead to rooms which are not affected by the work, within the worksite, seal perimeter of the doors with adhesive-backed plastic film tape.
    .3 Where work will be performed inside occupied rooms, cover equipment and work surfaces with polyethylene. Seal well to prevent any dust penetration. Clean before leaving the worksite.

1.6 Protection of equipment and finishes

.1 Provide protection for completed and partially completed building finishes and equipment during performance of work.
.2 Be responsible for damage incurred due to lack of or improper protection.

End of Section

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PART 1 – GENERAL

1.1 Reference standards

.1 Comply with standards of listed bodies, in whole or in part, as indicated in specifications.
.2 If compliance with standards applicable to certain products or systems is in doubt, Departmental Representative reserves the right to verify compliance by having tests performed.
.3 If products or systems are found to comply with contract documents, Departmental Representative will pay costs of the testing; if they do not comply, Contractor will pay costs.

1.2 Quality

.1 Products, materials, equipment, fixtures and articles (referred to as “products” throughout specifications) incorporated in work shall be new, not damaged or defective, and of best quality (compatible with specifications) for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.
.2 Defective products, whenever identified prior to completion of work, will be rejected, regardless of previous inspections. Inspection does not relieve contractor of responsibility but is a precaution against oversight or error Contractor will remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.
.3 Should any dispute arise as to quality or fitness of products, decision rests strictly with Departmental Representative based upon requirements of contract documents.
.4 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout work.
.5 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 receiving notice of authorization to begin the work, review product delivery requirements and availability and anticipate foreseeable supply delays and possible need for substitutions. If delays in supply of products are foreseeable or if specified products are no longer available, 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 of foreseeable delays or of problems associated with product availability and should it subsequently appear that work may be delayed for such reasons, Departmental Representative reserves right to substitute more readily available products of similar character, at no increase in contract price.

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, lumber on flat, solid supports and keep clear of ground. Slope to shed moisture.
.7 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.
.8 Remove and replace damaged products at own expense and to satisfaction of Departmental Representative.

1.5 Transport

.1 Pay costs of transportation of products required in performance of work.
.2 Unless indicated otherwise, Department Representative shall pay costs of transporting products provided by Representative.

1.6 Manufacturer’s instructions

.1 Unless documents specify more restrictive requirements, 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 may 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.

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 of workers deemed incompetent, careless or insubordinate, or whose presence on worksite has become intolerable.

1.8 Fastenings

.1 Unless indicated otherwise, provide metal fastenings and accessories in same texture, colour and finish as adjacent materials.
.2 Prevent electrolytic action between dissimilar metals and materials.
.3 Use noncorrosive 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. Plugs made of wood or any other organic material are not acceptable.
.5 Keep exposed fastenings to a minimum, space evenly and install neatly.
.6 Fastenings which cause palling or cracking of material to which anchorage is made are not acceptable.

1.9 Product substitutions

.1 When plans or specifications refer to names of manufacturers, makes or brand names, these serve as basis for contract and for purpose of establishing precise characteristics of required elements. In certain cases, where specifically indicated, products have been selected to meet need of Department Representative for standardization; in such cases, no equivalent will be acceptable. In other cases, request for approval of equivalent product or alternative proposal may be submitted in accordance with procedures described in Instructions to Bidders and as follows:
    .1 Contractor is responsible for establishing that product or method is equivalent to that designated in specifications; where applicable, proof shall involve submittal of certified copy of report from recognized and pre-approved laboratory; where product is concerned, submit detailed technical data sheet, comparable detailed technical data sheet to permit proposed product to be compared to specified product, and sample of proposed product together with request for equivalence.
    .2 Provide reasons for request for equivalence, proof of standards compliance together with supporting test reports and proposed warranties offered.
    .3 No request for substitution will be considered when submitted beyond prescribed deadline or if required information is incomplete or missing or if it is submitted after awarding of contract.
    .4 Review of request for approval of equivalent or of alternative proposal shall be based on every characteristic which the Departmental Representative considers pertinent to the project; characteristics considered during comparison will not be limited to those contained in description of product in specifications.
    .5 Decision of Departmental Representative is final; if request is accepted, decision will be communicated to all bidders in an addendum.
    .6 Pay costs and make all necessary modifications when proposed product or method is different from one on which specification was based.

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PART 1 - GENERAL

1.1 General performance requirements

.1 Safety
- .1 The Contractor agrees to assume all responsibilities normally assigned to "principal contractor" in accordance with *Act respecting occupational health and safety* (R.S.Q., c. S-2.1) and *Safety Code for the construction industry* (c. S-2.1, r.4). Contractor shall respect federal, provincial and municipal legislation and agree, in event of discrepancy among these, to apply most stringent one.
- .2 Except where more stringent requirements apply, perform all work in accordance with laws, standards, regulations and safety code in effect including, in particular, the *Safety Code for the construction* industry, National Building Code Canada (especially Part 8 - Safety Measures at Construction Sites) as modified by Chapter 1 of the Quebec Construction Code, and the National Fire Code of Canada (especially Section 2.14 - Demolition Sites, Section 2.8 - Emergency Measures, and the articles of Appendix A that apply to these sections).
- .3 Submit safety plans prescribed by applicable laws, codes, standards and regulations, have them approved by authorities having jurisdiction, and enforce them.
- .4 The demolition or modification of work containing spray-applied or trowel-applied asbestos can be hazardous to health. Should material resembling spray- or trowel-applied asbestos be encountered in course of demolition work, stop work and notify Departmental Representative immediately. Do not recommence work until written instructions have been received from Departmental Representative.
- .5 Comply also with requirements of the 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 considered by Employment and Social Development Canada and Health Canada to be acceptable.
- .6 Volatile products:
  - .1 Contractor shall take appropriate measures during use of products which are volatile or which may emit odours, vapours or gases.
  - .2 In addition, Contractor shall:
    - .1 ensure that all containers have WHMIS label;
    - .2 have in possession material safety data sheet for each controlled product;
    - .3 have provided personnel with training required by legislation and be able to provide evidence of this;
    - .4 provide adequate ventilation during use of these products, materials and processes so that workers on the worksite are not indisposed.
- .7 Unless otherwise indicated, it is prohibited to use dynamiting during demolition work.

.2 Inspection
- .1 Together with Departmental Representative, inspect worksite and take note of existing conditions, location and extent of work which is to be cut out, demolished, removed or salvaged, left in place and protected and/or patched. Also, take note of elements subject to damage or movement during work.
- .2 After uncovering elements of work, inspect them and identify any conditions which may hinder performance of the work.
- .3 Commence work only once all identified deficiencies have been corrected.
- .4 Commencement of work shall signify acceptance of existing conditions.

.3 Coordination
- .1 Ensure that workers cooperate among themselves in performance of work. Provide close and continual supervision of their work.
- .2 Assume responsibility for the coordination and installation of penetrations, sleeves and accessories.

.4 Concealment of components
- .1 Unless otherwise specified, conceal pipes, ducts and electrical wiring in floor, wall and ceiling construction of finished areas.
- .2 Before covering components, bring any abnormal conditions to attention of Departmental Representative. Perform installation as instructed by Departmental Representative.

.5 Location of fixtures
- .1 Positions shown for fixtures, outlets and other electrical and mechanical installations are approximate only.
- .2 Inform Departmental Representative of any problem which may result from positioning of a fixture, and perform installation as instructed by the Departmental Representative.
- .3 Architectural drawings do not show all of mechanical and electrical components to be installed in walls, partitions and ceilings. Consult mechanical/electrical drawings for quantity and approximate location of equipment. Precise positioning of equipment shall conform to indications on architectural drawings; where this information has not been provided, or where contradiction between architectural drawings and mechanical/electrical drawings, obtain required details concerning precise positioning of equipment from Departmental Representative.

.6 Existing public and private utilities
- .1 Before beginning work, obtain precise locations of the existing gas, water, sewer, electrical and telephone lines and any other utility service which may be encountered or which may require updating by performance of work from Departmental Representative and/or authority or utility concerned by these utility services.
- .2 Every utility service line, including those which were concealed and their presence previously unknown, shall be verified, and presence of every line which is still in service although it was supposed to be out of service and of every line which was not known to be present, shall be promptly brought to attention of Departmental Representative.
- .3 Take all required measures so that lines to remain in service are protected from all damage and any interruption in service, and so that service provided by any line which is to be diverted, cancelled or removed is suspended and, as needed, re-established to the satisfaction of Departmental Representative and/or concerned authorities.

.4 Protect, divert or maintain in service all functioning utility lines. If lines are uncovered during course of work, cap them in manner approved by concerned authorities, place markers to indicate their position, and keep record of their locations.

.5 When connections need to be made to existing service or utility networks, perform this work at times determined by the concerned local authorities, and cause as little disruption as possible to normal use of premises, to building users and to pedestrian and vehicular circulation.

.7 Protection of work in progress

.1 Provide adequate protection to completed work and to work in progress. Work which is damaged or modified as a consequence of failure to conform to required protection measures shall be replaced or repaired without cost, in accordance with the Departmental Representative's instructions.

1.2 Drilling, cutting and patching

.1 Documents and items to be submitted

.1 Submit written request in advance of drilling, cutting and modification work which affects:

.1 structural integrity of elements of project;
.2 integrity of moisture-resistant and weather-exposed elements;
.3 efficiency, maintenance or safety of operational elements;
.4 visual qualities of sight-exposed elements;
.5 work of Departmental Representative or another contractor.

.2 Include in request:

.1 identification of project;
.2 location and description of affected work;
.3 statement on necessity for drilling, cutting or patching work;
.4 description of proposed work and products to be used;
.5 alternative to drilling, cutting and patching work;
.6 effect of work on that of Departmental Representative or another contractor;
.7 written permission of affected separate contractor;
.8 date and time work will be executed.

.2 Performance of work

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

.2 When cutting, boring, drilling and other similar work affecting structure of building requires locating of reinforcement or conduits using X-ray equipment, hire and pay costs of specialized firm to perform this analysis.

.3 Perform drilling, cutting, adjustment and patching work as well as any excavation and backfilling work required to complete work.

.4 Adjust various parts together to provide proper integration with rest of work.

.5 Uncover work to permit performance of other work which, for whatever reason, should have been performed before work was covered.

.6 Remove and replace defective and non-conforming work.
.7 Take samples from installed work when required for testing purposes.
.8 Provide openings in non-structural elements of work for penetrations of mechanical and electrical work.
.9 Execute work by methods to avoid damage to other work, and which will provide proper surfaces to receive patching and finishing.
.10 Employ original installer to perform drilling, cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.
.11 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed without prior approval.
.12 Unless specifically indicated otherwise, restore work with new products in accordance with requirements of contract documents.
.13 Fit work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
.14 At penetration of fire-rated wall, ceiling, or floor construction, completely seal voids with fire-stopping and smoke-sealing material, for full thickness of the construction element.
.15 Refinish surfaces to match adjacent finishes. Refinish continuous surfaces to nearest intersection. Refinish assemblies by refinishing entire unit.
.16 When drilling, cutting and patching work is not all indicated on drawings or described in specifications although it is nonetheless required for completion of work or to conform to intention and spirit of contract, it must still be performed as if it had been indicated and described in them.

1.3 Requirements concerning allocation of drilling work

.1 Instructions below shall be followed only when sections of technical specifications do not contain more specific indications concerning allocation of drilling work. As required, Contractor shall take into account full range of requirements and shall coordinate drilling work so that each and every situation is included in the contract price.
.2 Contractor is required to perform all drilling work required by this contract. The specialized mechanical and electrical subcontractors for whom this drilling work is required shall provide information with respect to locations where it is required.
.3 Contractor may allocate drilling work to specialized mechanical and electrical subcontractors for whom this drilling work is required, when:
  .1 drilling will be performed through elements which are not loadbearing,
  .2 no dimension of the opening exceeds 175 mm,
  .3 openings will be made in a surface other than a roof, an exterior wall or a foundation wall and which has a thickness of no more than 150 mm, and
  .4 they are intended solely for passing a pipe (plumbing, heating, fire protection, etc.), a conduit (electrical, fire-alarm system, intrusion-alarm system, computer system, communications system, etc.), a ventilation duct or a cabling sheath.
.4 Openings required to be provided in prefabricated elements must be made at the factory, during the fabrication process. Obtain information from the specialized mechanical and electrical subcontractors who require these openings, and coordinate positioning of these openings with manufacturer of these prefabricated elements.

1.4 Requirements concerning allocation of sealant work

.1 Instructions below shall be followed only when the sections of technical specifications do not contain more specific indications concerning allocation of sealant work. As required, Contractor shall take into account full range of requirements and shall coordinate sealant work so that each and every situation is included in the contract price.
.2 Contractor is required to perform all sealant work required in this contract.
.3 Contractor may allocate sealant work to the specialized mechanical and electrical subcontractors who have openings which require sealing, in cases where:
  .1 these openings have been made in a surface other than a roof, an exterior wall or a foundation wall, and
  .2 they are intended solely for passing a pipe (plumbing, heating, fire protection, etc.), a conduit (electrical, fire-alarm system, intrusion-alarm system, computer system, communications system, etc.), a ventilation duct or a cabling sheath.

1.5 Work in existing buildings

.1 Before beginning work and in a timely manner to avoid delaying the work, inspect condition of premises in presence of Departmental Representative.
.2 Details shown in documents are based only on spot surveys performed on building, and no comprehensive survey of existing conditions was performed. If any difference whatsoever between conditions shown in documents and existing conditions is discovered during course of work, advise Departmental Representative immediately and obtain instructions from this person.
.3 Determine also whether existing work is in suitable condition to receive the new work. To this end, verify actual condition of existing work to be preserved once it has been uncovered; when necessary, prepare list of anomalies, non-conformities and required corrective work, transmit it to Departmental Representative, and obtain instructions from this person.
.4 Do not commence modification work for existing portions until Departmental Representative has given authorization and until all preparatory work required to separate involved area from adjacent areas has been completed.
.5 As soon as Departmental Representative has given authorization, perform work promptly and without interruption until it is completed, so that work zone is occupied for as short a time as possible.
.6 Provide minimum forty-eight (48) hours notice to Departmental Representative and obtain authorization from this person before undertaking welding and cutting, boring and other work which creates noise or generates a flame, sparks or smoke.
.7 Notify Departmental Representative of perforating method and schedule for this work. Do not proceed with this work without first obtaining written authorization from Departmental Representative. Use of impact tools and equipment is prohibited without consent of Departmental Representative.
.8 Protect work to be preserved to keep patching, repair and replacement work to a minimum.
.9 Perform work so that noise level is kept to a minimum.

.10 Do not cause damage to or compromise integrity of any component to be preserved, whether by digging, drilling, boring, cutting or any other operation taking place during performance of modification of an existing component or during construction of a new component near an existing one.

.11 Cut, cap, divert or remove piping, conduits, ducts and other services which are affected by changes in the areas being modified, as shown and as required by authorities having jurisdiction, Departmental Representative and concerned utility company. Protect existing services which are to be preserved and maintain them in operation.

.12 Repair and patch surfaces which are damaged, cut, perforated or demolished to permit passage of conduits, ducts, piping and other services, as well as those which result from removal of existing services. Openings shall be sealed or stopped immediately following installation or removal of components which pass through them.

.13 Perform drilling, boring and cutting carefully, providing an opening which is neat, well-defined and of proper size for its intended use.

.14 When new work is contiguous with existing work or when it extends or overlaps this work, perform the cutting, assembly and jointing so that overall result will be uniform and homogeneous.

.15 Restore finishes and materials affected by modification work and leave everything in no less than same condition in which it was previously.

.16 Unless otherwise specified, patch existing work by replicating the same shapes, assemblies and dimensions and by using same materials as existing ones or, when it is not possible to find identical materials, propose similar product with same appearance and characteristics to Departmental Representative. No additional costs will be approved for such product substitutions.

- .1 When necessary, during demolition or removal of materials, set aside quantity of existing materials for use in those areas where patching work will be required.
- .2 Repair and paint, in the colour indicated by Departmental Representative, all surfaces (walls and ceilings) in work zone.
  - .1 In addition to repair and patching work required following demolition and stripping work and work specifically mentioned in documents, provide for repair and/or patching, as well as painting, of all existing damaged surfaces which are to be preserved. In this context, the term "damaged" shall mean any element or surface to be preserved which is deteriorated, which has a different appearance from its normal one, or which has reduced integrity or solidity with, in particular but not being limited to, cracks, holes, gaps, detachment, deposits of solid substances and any other similar visible defect.

.17 Unless otherwise specified, all work involving patching, restoration, repair and salvaging of a product shall be performed by subcontractors who are installing similar products for all of work for this contract. If, for some reason, this is not possible, obtain authorization from Departmental Representative before assigning this work to another party.

.18 Perform all preparation required on an existing surface so that it will be in suitable condition to receive new material which has been specified, in accordance with written recommendations of manufacturer of this material and instructions of the Departmental Representative.

.19 When stripping, scarifying and other methods are being used to remove finish from a surface, leave surface in suitable condition to receive new material.

End of Section

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PART 1 - GENERAL

1.1 General

.1 Conduct cleaning and disposal operations to conform to waste management plan prepared by Contractor and to local ordinances and anti-pollution laws.
.2 Store volatile waste in covered metal containers and remove from premises daily.
.3 Provide adequate ventilation during use of volatile or noxious substances. Use of building's ventilation system is not permitted for this purpose.
.4 It is prohibited to dispose of waste products or volatile materials such as mineral spirits and thinners for oil and paint by dumping them into a watercourse or a storm or sanitary sewer.
.5 It is prohibited to bury or burn trash and waste materials on the worksite.

1.2 Products

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

1.3 Cleaning during construction

.1 Ensure cleanliness of worksite and of areas beyond worksite which were soiled as a result of work. Cleaning of areas located beyond worksite shall be performed promptly and to satisfaction of Departmental Representative, failing which this cleaning will be performed by Departmental Representative and the cost of this work will be deducted from payments owed to Contractor.
.2 At least once daily, remove waste materials and debris from worksite.
.3 Provide on-site containers for collection of waste materials and debris.
.4 Dispose of worksite waste materials and trash offsite at a location agreed upon in advance and authorized by CSC.
.5 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.
.6 Sweep floors regularly.
.7 Perform daily cleaning of roads and pedestrian paths used and soiled by Contractor's vehicles and personnel.
.8 Clean interior areas prior to start of finish work and maintain areas free of dust and other contaminants during finishing operations.

.9 Cleaning of buildings occupied by users
  .1 Remove regularly waste materials and debris offsite in sealed containers, following route determined by Departmental Representative. When required, immediately clean surfaces

1.4 Final cleaning

.1 Perform final cleaning so that premises are left in clean condition, ready to be occupied in accordance with provisions for substantial completion of work or for taking early possession.
.2 Restore premises of worksite and of offsite areas soiled as a result of work to their initial state of cleanliness.
.3 Remove surplus extra materials, as well as construction tools, equipment and materials. Remove debris and waste materials.
.4 Evacuate waste materials from worksite.
.5 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of debris and waste materials.
.6 Remove grease, dust, dirt, stains, labels, fingerprints and other foreign matter from all visible finished surfaces, both interior and exterior, including glazing and other polished surfaces.
.7 Clean and polish glass, hardware and mechanical and electrical fixtures. Replace broken, scratched or disfigured glass.
.8 Remove dust, stains, marks, and scratches from decorative work and mechanical and electrical fixtures.
.9 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.
.10 Remove debris and surplus materials from technical spaces and other accessible concealed spaces.
.11 Sweep and wash clean all hard surface materials.
.12 Carefully clean equipment and fixtures.

End of Section

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PART 1 - GENERAL

1.1 Waste management goals

.1 Organize waste management so that various actions are assigned priorities that match the following 3R hierarchy, in descending order of importance: reduction at source, reuse and recycling.
.2 Items in good condition shall be reused in this project or in other Canada projects, as determined by Departmental Representative or, where appropriate, shall be sent to appropriate recycling facility, with proof of this having been done provided by Contractor.
.3 Provide Departmental Representative with documentation certifying that comprehensive measures and procedures for waste management, recycling, reuse of recyclable and reusable materials, and disposal have been implemented.
.4 Perform waste management in accordance with criteria governing environmental conservation and sustainable development.
.5 Conform to the applicable national, provincial and local standards.

1.2 Definitions

.1 Waste: Obsolete substance, material or object which cannot be recovered for purposes of reuse, recycling or some other form of recovery, and is therefore destined for disposal.
.2 Residual material: Substance, material or object which is obsolete or has been rejected for some other reason, and which can be put to use or disposed of.
.3 Residual materials from the site of construction, renovation or demolition (CRD) work: Any residual materials which result from construction, renovation or demolition work (residual wood, brick, concrete, etc.).
.4 Hazardous residual materials: Any hazardous materials which are no longer used for their original intended purpose and which must be recovered for purposes of recycling, processing or disposal.
.5 Reduction at source: Minimizing of consumption of raw materials by selecting products with recycled content and products which have been recovered for reuse, with or without reconditioning.
.6 Recovery: Collection of secondary materials for purposes of reuse, recycling or some other form of recovery.
.7 Reuse: Repeated use of a product, without modifying its properties, on the site or for another project.
.8 Recycling: The use of a secondary material within the same manufacturing process from which it originated, as a substitute for virgin material of the same type, or the introduction of material recovered from a production cycle other than the one from which it originated.
.9 Waste reclamation: Recuperation of energy stored in chemical bonds by transforming recovered materials.
.10 Elimination: Disposal of a resource without allowing it to be used as a secondary material.
.11 Source waste sorting: On-site sorting of residual materials produced on site into specially-identified containers. The containers are then redirected to the corresponding treatment facility.
.12 Treatment facility: A treatment facility is the location where material is treated, whether definitively or otherwise (recycling, recovery, landfilling, etc.).
.13 4R: Reduction at source, reuse, recycling and reclamation.

1.3 Submittals

.1 Submit required documents to Departmental Representative in accordance with Section 01 33 00 – Submittal Procedures.

.2 Prepare and submit ten (10) days prior to commencement of work a Waste Management Plan including, but not limited to, the following:
- .1 Destination of indicated waste materials.
- .2 Name, address and other coordinates of centres to be used for recovery, recycling and disposal.
- .3 Techniques and sequence for deconstruction/disassembly work.
- .4 Schedule for deconstruction/disassembly work.
- .5 Location of containers.
- .6 Safety measures.
- .7 Protection measures.
- .8 Precise location of storage areas.
- .9 Details regarding handling and removal of waste materials.
- .10 Quantities of waste materials that will be either recovered for reuse or landfilled.

.3 Submit for approval by Departmental Representative specific agreements with suppliers and subcontractors for recovery at start-up meeting and prior to awarding of any performance or materials supply contract.

.4 Supply waybills confirming dispatching of materials for recycling or disposal at applicable facilities, showing types of material, quantities leaving the site, date and time, and signed by hauler and recipient.

.5 Submit to Departmental Representative a monthly log indicating following:
- .1 Name of the hauler.
- .2 Load number.
- .3 Pick-up date and time.
- .4 Type of material.
- .5 Weight or volume of each material.
- .6 Number of associated weight vouchers or invoices.
- .7 Number of associated container(s).
- .8 Electronic copy of the receipts and weigh tickets specifying recycled quantities and landfilled quantities.
- .9 Comments and photos as needed.
- .10 Complete list of treatment facilities and their coordinates.

.6 Prior to commencement of work, Contractor may submit for approval of Departmental Representative a sample of monthly monitoring log.

.7 Submit final report which includes required supporting documents and summary of each material landfilled or diverted from landfill.

.8 Obtain letters from project recovery facilities to certify use to which each of materials was put. These certifying letters shall include the following:
  .1 Complete coordinates of recovery facility.
  .2 Name of the General Contractor and identification of project.
  .3 List of residual materials recovered by this facility
  .4 Description of method of recovery used for recuperated materials and the purpose.
  .5 Signature of representative of recovery facility.
  .6 Signature and date of approval of Departmental Representative, provided prior to commencement of the performance or purchase which is the object of agreement.

1.4 Implementation

.1 Take required steps to avoid contaminating containers used for management of waste materials.
.2 Provide on-site installations required for collection, transportation and storage of waste materials without interfering with other site activities. Provide suitable number of containers, receptacles and chutes to match frequency of collection. Sorting of waste materials may be performed on-site or at off-site sorting centre, depending on which method is best suited to project.
.3 Place storage areas for materials strategically on-site to protect them from damage or deterioration.
.4 Develop clear signage to identify each container and to facilitate sorting and placement of materials.
.5 Ensure that installations are always accessible to workers. Place containers to facilitate sorting and placement of materials.
.6 Main materials to be sorted are as follows:
  .1 Concrete waste.
  .2 Metal waste and cut-offs.
  .3 Masonry waste and cut-offs.
  .4 Gypsum waste and cut-offs.
  .5 Wood waste and cut-offs.
  .6 Glass waste.
  .7 Paper and cardboard waste.
  .8 Insulation waste.
.7 Handle hazardous materials separately. Do not count them in calculation of waste reduction percentages.
.8 Dispose of hazardous residual materials in accordance with requirements of laws and regulations in effect.
.9 The burning of untreated wood is permitted if incineration is performed by power plant capable of generating heat and/or electricity.
.10 For any other condition, combustion may not be used as a means as an alternative method for diverting waste from landfill sites.
.11 Clean excavated soil and rock may be reused on-site to the degree permitted by the operations. Clean excavated materials which are not used on-site shall be disposed of, for purposes of reuse, to third parties and shall not, in any circumstance, be disposed of by landfilling.
.12 Contaminated excavated material shall be disposed of in accordance with current laws and regulations.

PART 2 - PRODUCTS

2.1 Not applicable

.1 Not applicable

PART 3 - EXECUTION

3.1 General

.1 Perform all work in accordance with Waste Management Plan.
.2 Waste that is not reused, recycled or recovered shall be handled in accordance with applicable codes and regulations.
.3 It is prohibited to bury rubbish and waste materials.
.4 It is prohibited to discard waste of any kind in a watercourse or in a storm or sanitary sewer.
.5 Collect waste materials as the deconstruction/disassembly work proceeds.
.6 Empty the waste containers regularly.
.7 Contractor is responsible for implementing, communicating, coordinating and overseeing Waste Management Plan.
.8 Suppliers and contractors are responsible for waste materials and rubbish generated by their activities on worksite.
.9 Contractor is responsible for on-site signage, accessibility to bins, chutes and containers, and for transmitting information to workers concerning implementation of Waste Management Plan.
.10 Establish procedures to prevent any contamination of containers for materials to be recovered because waste treatment facilities may refuse contaminated containers or impose additional fees. Fees charged for sorting or for decontaminating containers shall be borne by offending subcontractor.

End of Section

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PART 1 - GENERAL

1.1 Administrative requirements

.1 Acceptance of work procedures:
- .1 Contractor's inspection:
  - .1 Conduct inspection of work, identify deficiencies and defects, and repair as required to conform to contract documents.
  - .2 Notify Departmental Representative in writing of satisfactory completion of Contractor's inspection and that corrections have been made.
  - .3 Request Departmental Representative's inspection.

- .2 Departmental Representative's inspection:
  - .1 Departmental Representative and Contractor will perform inspection of work to identify defects and deficiencies.
  - .2 Contractor to correct work accordingly.

- .3 Completion: submit written certificate, in English and/or in French to correspond to language of contract, that following have been performed:
  - .1 Work has been completed and inspected for compliance with contract documents.
  - .2 Defects and deficiencies revealed during inspections have been corrected/completed.
  - .3 Equipment, materials and systems have been tested and are fully operational.
  - .4 Training concerning operation of equipment, materials and systems has been provided to Departmental Representative's personnel.
  - .5 Work is complete and ready for final inspection.

- .4 Final inspection:
  - .1 When items mentioned above are completed, request final inspection work by Departmental Representative and Contractor.
  - .2 If work is deemed incomplete by Departmental Representative, complete outstanding items and request re-inspection.

End of Section

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PART 1 - GENERAL

1.1 Specific requirements

.1 For additional requirements relating to closeout submittals, refer to sections of specifications and, in particular, to mechanical and electrical documents,

1.2 Submittals

.1 Within fourteen (14) days following date of authorization to commence work, submit following documents to Departmental Representative:
  .1 list of documents to be submitted at end of project;
  .2 list of warranties, bonds and maintenance contracts;
  .3 list of maintenance materials, spare parts and special tools;
  .4 completed preventive maintenance form for each piece of equipment.
.2 Update, complete and re-issue lists no later than fourteen (14) days prior to anticipated date of substantial performance of work.
.3 As soon as date of substantial performance of work is known, submit list of warranties mentioned above and indicate dates of entry into force and expiry for each warranty.
.4 Submit to Departmental Representative, for review, copy of contract closeout documents no later than anticipated date of substantial performance of work. Taking into account comments of Departmental Representative, review contents of documents and submit completed and corrected version in three (3) copies no later than thirty (30) days following date of substantial performance of work.

1.3 Keys

.1 Transmit to Departmental Representative all keys loaned to Contractor to permit access to spaces affected by work; do this immediately upon completion of work in these spaces.
.2 Refer to the requirements of Section 08 71 00, Door Hardware, for the requirements concerning the final keying for the building.

1.4 Project manual

.1 Prepare this manual in French. It shall contain information concerning maintenance of work, operation of technical installations, filters, frequency of cleaning, lubrication, adjustment and verification of components and system, as well as any other similar information concerning maintenance. Have manual prepared by professionals, in simple language, so that the Departmental Representative can ensure that equipment in building is properly operated and maintained.
.2 Format:
  .1 Organize data as instructional manual.
  .2 Format: three-ring binders, commercial grade, for 216 x 279 mm (8½" x 11") sheets.
  .3 Cover page: identify each binder as "Project Manual", typed or printed, with title of project and subject matter of contents.
  .4 Arrange contents by system or logical sequence of operation, indicating section numbers in order of appearance in table of contents of specifications.

.5 Provide tabbed dividers for each separate product and system, with typed description of product and major component parts of equipment.

.6 Provide drawings with reinforced punched binder tab. Fold larger drawings to size of text pages and insert into punched pockets.

.3 Contents of each volume:

.1 Table of contents: provide title of project, names, addresses and telephone numbers of consultants and Contractor and names of their authorized representatives, schedule of products and systems indexed to contents of volume.

.2 List of warranties, bonds and maintenance contracts, duly completed.

.3 List of maintenance materials, replacement parts and special tools, duly completed.

.4 For each product or system, provide:

.1 names, addresses and telephone numbers of subcontractors and suppliers, including local sources of replacement parts;

.2 product data sheets: mark each sheet to clearly identify specific products and component parts and data applicable to installation; delete inapplicable information; include description of unit or system and component parts; give function, normal operation characteristics and limiting conditions; include performance curves and installed colour coded wiring diagrams;

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

.4 maintenance requirements: include routine procedures and guide for troubleshooting; disassembly, repair and reassembly instructions; alignment, adjusting, balancing, and checking instructions; provide servicing and lubrication schedules and list of lubricants required;

.5 test, balancing and other reports;

.6 panel board circuit directories: provide electrical service characteristics, controls and communications;

.7 Contractor's coordination drawings and installed colour-coded piping diagrams;

.8 additional requirements as specified in individual sections of specifications.

.5 For each material or finish, provide:

.1 product data sheets with catalog number, size, composition and colour and texture designations for building products, applied materials and finishes; information required for re-ordering made-to-order products;

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

.3 additional requirements as specified in individual sections of specifications.

.6 Warranties and bonds required in individual sections of specifications.

1.5 Revised shop drawings and schedules

.1 Submit separately, properly and individually folded and filed in legal-size boxes in sequence of divisions of specifications, complete set of final reviewed shop drawings and product data sheets showing changes made to drawings and changes made during construction. Submit also one (1) electronic copy of these documents on DVD media with addressable index.
  .1 Prepare boxes as work progresses, for entire duration of work.
  .2 Include table of contents for drawings in notebook form.
.2 Bind separately colour and finish schedules updated to reflect changes made during construction.

1.6 As-built documents

.1 Drawings:
  .1 Record information on set of black line opaque drawings; in bottom right corner of each drawing, in red characters at least 12 mm in height, inscribe: "AS-BUILT DRAWING"; below this indication, inscribe date and affix seal and signature of Contractor. Submit also one (1) electronic copy of these documents on DVD media with addressable index.
  .2 Use felt tip marking pens with different colour assigned to each major system; record information as work progresses; do not cover work until required information has been recorded.
  .3 Legibly mark each item to record actual construction, including:
    .1 measured depths of elements of foundation in relation to finish first floor datum;
    .2 measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements;
    .3 measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction;
    .4 field changes of dimension and detail;
    .5 changes made by change orders;
    .6 details not on original contract drawings.
    .7 references to related shop drawings and modifications.
  .4 For the mechanical and electrical drawings, submit drawings which record actual construction on AutoCAD files using AutoCAD 2000 or later version.

1.7 Spare parts and maintenance materials

.1 Quality: spare parts, maintenance materials and special tools supplied shall be new, in good operating condition and of same manufacture and quality as those used in work; when required, furnish evidence as to type, source and quality of products provided; replace defective products.
.2 Storage, handling and protection:
  .1 store spare parts, maintenance materials and special tools in manner to prevent damage or deterioration;
  .2 store in original and undamaged packaging with manufacturer’s seal and labels intact;

.3 store components subject to damage from weather in weatherproof enclosures;
.4 store paints and materials susceptible to freezing in heated and ventilated room;
.5 remove and replace damaged products to satisfaction of Departmental Representative;
.6 store materials in orderly manner to facilitate inspection and counting.

.3 Spare parts:
.1 provide spare parts in quantities indicated in individual sections of specifications;
.2 provide spare parts of same manufacture and quality as items in work;
.3 deliver, place and store spare parts in site location as directed by Departmental Representative;
.4 receive and catalogue all parts, then submit inventory listing to Departmental Representative, and include approved listings in appropriate sections of project manual;
.5 obtain receipt for delivered parts and submit prior to final payment.

.4 Maintenance materials:
.1 provide maintenance and extra materials in quantities indicated in individual sections of the specifications;
.2 provide items of same manufacture and quality as items in work;
.3 deliver, place and store in site location as directed by Departmental Representative;
.4 receive and catalogue all items, then submit inventory listing to Departmental Representative, and include approved listings in appropriate sections of project manual;
.5 obtain receipt for delivered materials and submit prior to final payment.

.5 Special tools:
.1 provide special tools in quantities indicated in individual sections of the specifications;
.2 provide items with tags identifying their associated function and equipment;
.3 deliver, place and store tools in site location as directed by Departmental Representative;
.4 receive and catalogue all tools and insert inventory listing in project manual.

1.8 Warranties and bonds

.1 Develop warranty management plan to contain information relevant to warranties.

.2 At least thirty (30) days before planned pre-warranty conference, submit warranty management plan to Departmental Representative for approval.

.3 Warranty management plan to include required actions and documents to assure that Departmental Representative receives all warranties provided for in contract

.4 Provide plan in narrative form and with sufficient detail to make it suitable for use by future maintenance and repair personnel.

.5 Warranty information made available during construction phase must be submitted to Departmental Representative for approval prior to each monthly pay estimate.

.6 Assemble approved information in binder and submit upon acceptance of the work. Organize binder as follows:
.1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.
.2 List subcontractors, suppliers and manufacturers, with name, address and telephone number of designated representative for each one.
.3 Obtain copies of 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 authorization of Departmental Representative, leave date of beginning of time of warranty until date of substantial performance is determined.

.8 Four (4) months and nine (9) months following date of acceptance of work, perform post-construction warranty inspection visits together 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 organizations of Contractor, subcontractors, manufacturers or suppliers involved.
  .2 Listing and status of delivery of certificates of warranty for extended warranty items, to include HVAC balancing, pumps, motors, transformers, commissioned systems, fire protection systems, alarm systems, sprinkler systems and lightning protection systems.
  .3 Provide list for each warranted item, equipment, feature of construction and system, indicating:
    .1 Name of item, equipment, feature of construction or system.
    .2 Model and serial numbers.
    .3 Location where installed.
    .4 Name and phone numbers of manufacturers and suppliers.
    .5 Names, addresses and telephone numbers of sources of spare parts and replacement materials/equipment.
    .6 Warranties and terms of warranty: include one (1)-year overall warranty of construction. Indicate items, equipment, features of construction and systems 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 four (4) and nine (9) month post-construction warranty inspections.
  .5 Procedure and status of tagging of items, equipment and systems covered by extended warranties.
  .6 Post copies of instructions near selected pieces 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 Departmental Representative to proceed with legal action against Contractor.

1.9 Warranty tags

.1 At time of installation, tag each warranted item, equipment or system. Provide durable, oil- and water-resistant tags approved by Departmental Representative.
.2 Attach tags with copper wire and spray with waterproof silicone coating.
.3 Leave date of acceptance blank until project is accepted for occupancy.

.4 Provide following information and indicated signatures on tags:
  .1 Type of product/material.
  .2 Model number.
  .3 Serial number.
  .4 Contract number.
  .5 Warranty period.
  .6 Signature of inspector.
  .7 Signature of Contractor.

1.10 Other documents

.1 Supply one (1) original and two (2) copies of each of following documents:
  .1 certificate of compliance from the *Commission de la santé et de la sécurité au travail du Québec*, as well as certificate attesting that Contractor has paid all required fees to this body;
  .2 any other attestation, certificate or warranty required in accordance with provincial or municipal laws and, in particular:
    .1 certificate from the *Commission de la construction du Québec*,
    .2 certificate from the *Bureau des inspecteurs des appareils sous pression*, where applicable,
    .3 cerificate from the *Bureau des examinateurs en tuyauterie*, where applicable,
    .4 certificate of compliance with the "Regulation respecting energy conservation in new buildings", where applicable;
  .3 all warranties required or needed;
  .4 all documents, drawings, materials, equipment and tools to be included in project closeout file.
.2 At the end of the work, submit also certificates from Contractor and from each subcontractor and supplier, signed by their duly authorized representatives, attesting that work has been performed in conformity with Quebec Construction Code and with all requirements of contract documents and instructions received during performance of work. Certificates originating from subcontractors and suppliers shall be submitted during month following completion of their respective work.
.3 Submit every other document required by the general conditions.

End of Section

ISSUE LOG

Issue					Date	Issued for
Issue No.	Rev.	By	Ver..	App.		
BB	00	L.O.	G.R.	A.S.	2020-11-12	100% PROGRESS
01	**00**	**L.O.**	**G.R.**	**A.S.**	**2022-01-21**	**TENDER CALL**

PART 1 - GENERAL

1.1 Condition of work to be demolished

.1 Undertake demolition of work in condition is found on day that Contractor is authorized to undertake work in given sector.
.2 Carefully remove following equipment and materials, store in well-protected location and use qualified workers to reinstall in building or on site or leave ready for installation as provided by other sections.
  .1 Items to be removed and reinstalled: not applicable.

1.2 Drawings of work for submittal

.1 If required by authorities having jurisdiction, submit drawings/diagrams and details showing sequence of demolition work.
  .1 To permit proper coordination, submit work plan and other documents required to explain sequence of demolition and related work.

1.3 Protection

.1 Prevent movement, settlement or damage to adjacent work and, in particular, to parts of buildings to remain in place. Where required, repair any work damaged by demolition work and pay costs.
.2 Provide adequate support for intended work and, if demolition work appears to present danger to rest of building or adjacent work, stop work and notify Departmental Representative.
.3 Ensure that demolition materials do not obstruct elevators, exit corridors, public areas and electrical and mechanical systems which must remain in operation.
.4 During demolition, removal and storage work, adhere strictly to laws, regulations and statutes governing protection of environment.

1.4 Demolition – Ecological disposal and recycling

.1 Definitions
  .1 Deconstruction/disassembly: Systematic, orderly and careful disassembly, piece by piece, of designated work with care taken, to extent possible, to avoid causing damage to materials designated for reuse. This physical operation involves detaching the materials from structure of which they are part, and includes tearing, pulling, cutting, unscrewing and other similar activities. Items which cannot be reused are thereafter sorted for recycling or disposal. Ultimate objective is to recover resources which may have value while, at same time, to remove them from landfilled materials which typically constitute considerable portion of waste stream. Terms “dismantling”, “disassembly” and “deconstruction” are used interchangeably in documents and all refer to process of deconstruction.
  .2 Disposal: Removal of construction and demolition waste materials, previously sorted, to landfill site or other location at discretion of Contractor, in accordance with applicable legislation. Disposal of waste materials shall be considered a last resort, to be undertaken only when not possible to reuse, recycle or salvage them.

.3 Recycling: Removal of construction and demolition waste materials, previously sorted, to recognized recycling or salvage site, which is able to provide proof that waste materials will be treated in manner to give it new form or that it will be modified so that it can be used for purpose other than its original one.

.4 Reuse: Use, for its original purpose, of construction product or material which has retained its original form. This operation includes wrapping, handling and storage, in addition to installation of items in new location, where applicable.

.2 Perform demolition and disposal operations in accordance with waste management plan prepared by Contractor, local regulations and anti-pollution legislation.

.3 Separate from all waste materials those materials which can be disposed of in ecological manner or recycled. Stockpile them carefully in appropriate area for disposal or recycling. Perform stockpiling in accordance with applicable fire-safety standards.

.4 In zone where demolition work is being performed, assign areas for collection of various materials, and coordinate selection of acceptable areas for this purpose with CSC.

.5 Transmit to Departmental Representative a list of materials considered to be unsuited to any method of ecological disposal or recycling, provide reasons to justify this decision, and obtain authorization to remove these to a landfill site.

.6 Removal of stockpiled material

.1 Remove materials of similar nature intended for same method of ecological disposal or recycling once all of these materials have been collected.

.2 Contain fibrous materials (such as batt insulation) to minimize release of airborne fibres while being transported within worksite.

.7 Environmental protection

.1 Remove materials defined as contaminated or hazardous by authorities having jurisdiction over environmental protection and remove them from worksite, taking every safety precaution required to minimize danger during removal and disposal.

.8 Keep record of off-site disposal of waste materials and materials destined for ecological disposal or recycling, and communicate following information to Departmental Representative within 24 hours:

.1 Day and time of removal.

.2 Type of materials removed.

.3 Weight and quantity of materials.

.4 Final destination of materials.

.9 Refer also to Section 01 74 19 – Construction/Demolition Waste Management and Disposal for all additional requirements and documents related to sustainable buildings and management and disposal of construction/demolition waste.

PART 2 - PRODUCTS

2.1 Not applicable.

PART 3 - EXECUTION

3.1 Preparation

.1 Inspect worksite with Departmental Representative and verify extent and location of items designated for demolition, removal or salvage, and of items to remain and be protected.
.2 Inspect worksite and determine from Departmental Representative extent and location of items designated for removal, landfilling, disposal, eco-friendly disposal, recycling and salvage and of items to remain, according to each case.
.3 Disconnect, cap, plug or divert designated mechanical and electrical installations in conformity with requirements of authorities having jurisdiction and applicable sections. Post warning signs on electrical equipment and lines which must remain energized during work in order to serve other areas.
.4 Do not cut active lines designated to remain in place.
.5 Provide rodent and vermin extermination to comply with health regulations.
.6 Locate and protect public utility services. Preserve active utilities traversing site in operating condition.
.7 Notify competent safety authorities, public utilities and Departmental Representative before commencing demolition work.

3.2 Demolition - general

.1 Demolish and remove existing work only to extent required by construction of new work and as indicated in documents.
.2 Demolish or dismantle work or elements when required to provide access to concealed elements to be modified and to allow modification work to be performed properly and efficiently. Keep such work to minimum.
.3 Ensure that dismantling of work, where required, is performed carefully and without damage in order to permit reinstallation, to extent possible, to same condition as prior to work.
.4 Do not demolish any structural element except where required by structural drawings and specifications.
.5 Remove existing equipment, services and obstacles where required for refinishing or making good of existing surfaces and put back in place as work progresses.
.6 Demolish to minimize dusting. Wet down materials as needed.
.7 At the end of each workday, leave work in safe conditions so that no part is in danger of toppling or falling. Seal off portions not subject to demolition work to protect interior at all times against intrusion.
.8 Unless otherwise specified, remove demolished materials from worksite in accordance with requirements of authorities having jurisdiction.
.9 Collect all materials defined as contaminated or hazardous by authorities having jurisdiction for environmental protection and take required safety precautions while removing them from worksite.
.10 It is prohibited to sell or burn demolition materials on the worksite.

3.3 Restoration

.1 Restore surfaces and work located outside of demolition areas to same condition as prior to commencement of work or to condition in which adjacent, unaltered surfaces are found, as indicated.

3.4 Cleaning

.1 Upon completion of work, remove waste materials, restore surfaces to original condition, and leave worksite clean.

End of Section

PART 1 - GENERAL

1.1 GENERAL CLAUSES

.1 General Clauses and Complementary General Clauses apply to works described in this section.

1.2 RELATED WORKS

N/A

1.3 REFERENCE STANDARDS

.1 Follow the requirements of the latest edition of the following codes and specifications:

.1 Do structural steel work in accordance with CSA S16:19, except where specified otherwise.

.2 Do welding in accordance with CSA W59 - 2018, except where specified otherwise.

.3 Welder certification: in accordance with CSA W47.1 - 2019.

.4 Steel Sub-Contractor to be a certified member of CWB (section 2.1) as per CSA W47.1 - 2019 standard.

1.4 SOURCE QUALITY CONTROL

.1 If required by the Departmental Representative, submit two (2) certified copies of mill reports covering chemical and physical properties of steel profiles to be used in this work.

1.5 DESIGN OF DETAILS AND CONNECTIONS

.1 Design details and connections in accordance with requirements of CSA S16:19 to resist loads, bending moments and shear stresses indicated.

.2 The Departmental Representative may require welding procedures for examination.

1.6 SHOP DRAWINGS

.1 Each shop drawing submitted shall bear the signature and stamp of a qualified professional engineer registered in the Province of Quebec.

.2 Indicate shop and erection details including cuts, notches, connections, holes, bolts and welds. Indicate welds by welding symbols defined in CSA W59 - 2018, appendix D.

.3 Sub-contractor in structural steel shall submit to the Engineer complete erection drawings showing the dimensions and locations necessary to the installation of anchor bolts, the elevations of column base plates, floors and roof. Do not start any erection before these drawings have been examined by Departmental Representative.

.4 The Departmental Representative's examination of these erection drawings is done in the sole purpose of insuring the conformity with the general concept. This examination does not imply that the submitted erection drawings are approved by the Departmental Representative.

.5 Although there has been examination and application of the "examined" seal, the Contractor remains solely responsible for errors or omissions in these drawings or for derogations in regards to the structural drawings and/or specifications. The Contractor is responsible for the verification of all dimensions on site, the fabrication procedures, construction and installation techniques and also the co-ordination of work with Sub-contractors.

.6 Do not submit shop drawings by fax or by e-mail.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Structural steel: to CSA G40.21 (C2018), grade as indicated on structural drawings. HSS to be as per ASTM A500 - 20 grade C.

.2 Anchor bolts: to CSA G40.21 (C2018).

.3 Bolts, nuts and washers: to ASTM A325-14.

.4 Welding materials: to CSA W59 - 2018.

.5 Shop paint primer: to 1-73a - 1975.

PART 3 - EXECUTION

3.1 FABRICATION

.1 Fabricate structural steel, as indicated, in accordance with CSA S16:19 and in accordance with shop drawings.

.2 Provide punched holes from 11 to 27 mm in diameter for attachment of other work. Refer to drawings for details and locations.

.3 Reinforce openings to maintain required design strength.

3.2 CONNECTION TO EXISTING WORK

.1 Verify dimensions of existing work before commencing fabrication.

3.3 SHOP PAINTING

.1 Clean, prepare surfaces and shop prime structural steel in accordance with CSA S16:19, except where members are to be encased in concrete.

3.4 MARKING

.1 Mark materials in accordance with CSA G40.20 (C2018). The use of a punch is permitted only for material with a thickness over 20 mm. If steel is to be left in unpainted condition, place marking at locations not visible from exterior after erection.

.2 Match marking: shop mark bearing assemblies and joints for fit and match.

3.5 ERECTION

.1 No structural steel element is to be installed before Departmental Representative has examined the signed and sealed shop drawings and erection drawings (see 1.6.1).

.2 Erect structural steel as indicated in accordance with CSA S16:19 and in accordance with shop drawings. Steel framework shall be erected straight and plumb within specified tolerances. Temporary bracing shall be installed and be kept in place so long as required by the safety of the work. Erection tolerances shall not exceed those specified in the CSA S16:19.

.3 Obtain written permission of the Departmental Representative prior to field cutting or altering of structural members not shown on drawings.

.4 Touch-up shop primer to bolts, rivets, welds and burned or scratched surfaces at completion of erection.

.5 Anchor bolts to be furnished by the structural steel Sub-contractor and set in place by the General Contractor. The dry pack under the column bases shall be placed by General Contractor immediately after the steel erection has been completed.

.6 Unless otherwise indicated, tighten high strength bolts to obtain a firm contact between all layers in contact (“snug tight”).

3.6 FIELD QUALITY CONTROL

.1 Inspection and testing of materials and workmanship will be carried out by testing laboratory designated by the Departmental Representative.

.2 If he finds it is required, inspections and/or testing of welds to be carried out by a specialist designated by Departmental Representative.

.3 Owner will pay cost of tests.

End of section

ISSUE LOG

Issue					Date	Issued for
Issue No.	Rev.	By	Ver.	App.		
BB	00	L.O.	G.R.	A.S.	2020-11-12	100% PROGRESS
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PART 1 - GENERAL

1.1 Coordination

.1 Coordinate work for this section with fabrications requiring metal reinforcements, such as supports, anchors, frames, bracing or other similar components, in accordance with drawings, specifications or performance criteria.
.2 Information in architectural or structural drawings, as applicable, regarding exact position, number and dimensions of structural steel members, describes work to be performed; however, Contractor is responsible for coordinating these fabrications and providing for any moving or re-sizing and for any additional steel members needed to meet requirements for metal fabrications.

1.2 Design criteria

.1 Drawings show geometry of elements, their aesthetic and general arrangement, required dimensions, and materials. While keeping within restrictions imposed herein, and subject to review by Departmental Representative, Contractor is responsible for choice of methods and procedures for fabrication, assembly, installation, fastening, dimensions of members, etc.
.2 Work closely with Departmental Representative to design and engineer elements, including any modifications or additions required to meet specified requirements and maintain visual appearance conceived for project as a whole.
.3 Contractor acknowledges that details provided in bid documents do not necessarily cover all conditions or modifications that may eventually be required. It is understood that conditions not detailed in bid documents will be developed in shop drawings in order to meet same requirements for aesthetic and technical quality and same performance requirements represented in drawings and specifications. In submitting bid to carry out work described in these specifications and shown on the drawings, Contractor acknowledges above statement and accepts that Departmental Representative shall have decision-making authority over all details concerning execution of fabrication work, whether or not such details are outlined in the drawings.

1.3 Calculation criteria

.1 Design steel frames serving to support and to connect to structure all supplied components and component assemblies to withstand vertical and horizontal loads (structural, lateral thrust, etc.) prescribed by applicable codes.
.2 Design guard rails and other assemblies to withstand vertical and horizontal loads in accordance with *National Building Code* (NBC), as amended by *Quebec Construction Code*, Chapter I – Building.
.3 Except for spacings, all dimensions indicated on drawings, unless specifically indicated otherwise, are minimum values; for spacings, indicated dimensions are maximum values.
.4 Coordinate with specialists responsible for items to be fastened and supported and obtain all data needed to determine quality, number and spacing of supports and anchors.
.5 Ensure that elements to which products in this section are fastened are capable of withstanding additional imposed loads. Never compromise structural integrity or weathertightness of an existing element. Provide any necessary reinforcements, as required.
.6 Have calculations performed, signed and sealed by a professional engineer with appropriate structural qualifications who is a member in good standing of the *Ordre des ingénieurs du Québec*.

1.4 Shop drawings

.1 Submit shop drawings in accordance with General Conditions and Divisions 00 and 01.
.2 Have all shop drawings signed and sealed by professional engineer with appropriate structural qualifications who is a member in good standing of the *Ordre des ingénieurs du Québec*.
.3 Shop drawings shall indicate or show materials, core thicknesses, web depths, finishes, assemblies, joints, types of welds, anchoring method, number of anchors, supports, reinforcements, details, and accessories, as well as their relation to adjacent elements, even if these are indicated in another section.

1.5 Product data

.1 Submit product data in accordance with Section 01 33 00.
.2 Submit product data for various specified products, including one copy to remain permanently on worksite. Product data shall include following information:
  .1 description of product characteristics and performance criteria;
  .2 installation recommendations;
  .3 ambient conditions.

1.6 Samples

.1 Submit samples in accordance with Section 01 33 00.
.2 Submit two samples measuring 300 mm x 300 mm for sheet or mesh materials, and 300 mm long for sections and formed elements, with respective finishes for each one.
.3 Submit two samples of every component for items covered in this section.

1.7 Mock-ups

.1 Submit mock-ups in accordance with Section 01 33 00.
.2 Shop produce typical mock-up of each type of repeated element, complete with required accessories, anchors and shop-applied finishes, installed in designated location; reach agreement with Departmental Representative concerning required components.
.3 Wait 24 hours before commencing work to allow Departmental Representative to inspect mock-ups.
.4 Accepted mock-up shall be minimum standard against which structure is to be built. Mock-up may form part of finished work.

1.8 Certificates

.1 Ensure that welding companies are certified in accordance with article 2.1 of CSA W47.1 for fusion welding or CSA W55.3 for resistance welding.
.2 Provide certificate stating that all welded joints are certified by the *Canadian Welding Bureau*.

1.9 Protection

.1 For exposed finished surfaces not requiring on-site finishing, cover with heavy self-adhesive protection paper or apply strippable plastic coating before shipping to worksite.

.2 Leave protective covering in place until final cleaning of building. Provide instructions for removal of protective covering.

1.10 Acceptable materials or products

.1 Where materials or products are prescribed by brand name, consult Instructions to Bidders for procedure to follow for seeking approval of alternative materials or products.

1.11 Extended warranty

.1 For the work of this section, the 12-month warranty period prescribed in the General Conditions is extended to twenty-four (24) months

PART 2 - PRODUCTS

2.1 Materials

.1 Steel plates and sections: to CAN/CSA-G40.21, Grade 300W.
.2 Steel plates: to CAN3-G40.21, Grade 260W.
.3 Steel pipes: to ASTM A53, standard weight, Schedule 40, seamless, with black finish.
.4 Steel tubing: to CAN/CSA-G40.21, Grade 300W, of profile, wall thickness and dimensions as indicated.
.5 Steel bars and rods: cold-finished to ASTM A36/A36M, profiles and dimensions as indicated.
.6 Welding materials: to CSA W59.
.7 Welding electrodes: to CSA W48 series.
.8 Bolts, anchor bolts and screws: except where stricter requirements are stated in documents,
  .1 bolts (threaded or non-threaded, with or without nut): to ASTM A307 and ASTM A325M for high-strength bolts, in required format for components to be secured, based on loads; hot-dip galvanized for exterior components or components exposed to moisture;
  .2 bolts (threaded or non-threaded, with or without nut): of Grade 304 or 316 stainless steel, to ASTM F593, in required format for components to be secured, based on loads;
  .3 exposed screws, rods, threaded inserts, nuts and other bolts for interior and exterior metal fabrications: of 304 or 316 stainless steel, countersunk or round head as indicated, of type and format indicated or required for components to be secured, based on loads.
.9 Grout: non-shrink, non-metallic, liquid, minimum compressive strength of 15 MPa, and minimum pull-out strength of 7.9 MPa at 24 hours.
.10 Neoprene blocks, 50 to 60 durometer (Shore A) hardness, to ASTM D2240, of dimensions and thickness appropriate to requirements, as indicated.
.11 Shop coat primer: to MPI #79, VOC content less than 250 g/L.
.12 Zinc primer: zinc-rich coating, to MPI #19, GPS-2, VOC content less than 250 g/L.
.13 Bituminous paint: to MPI #35, GPS-1, VOC content less than 250 g/L.
.14 Shop coat primer, alkyd base, single component, not less than 51% volume solids, VOC content less than 250 g/L, use for handrails of all stairs and ramps, as well as for steel-plate treads and landings to be coated with finish paint.

2.2 Fabrication – general

.1 Fabricate metalwork as shown on drawings and reviewed shop drawings.
.2 Fabricate metalwork square, true, straight and accurate to required size, with joints closely fitted and properly secured.
.3 Where possible, fit and shop assemble work, ready for erection.
.4 Unless otherwise indicated, use self-tapping, round-head, locking screws on items requiring assembly by screws.
.5 After fabrication, hot-dip galvanize all indicated metal fabrications and, unless specified otherwise on drawings, all exterior metal fabrications and metal fabrications exposed to excessive humidity (70% relative humidity or higher).
.6 Unless otherwise indicated, weld assemblies; if certain joints cannot be welded, notify Departmental Representative and propose a fastening solution using bolts that does not alter desired appearance in any way.
    .1 When required for reasons mentioned above, embed exposed bolts in countersunk holes, then cut them flush with nuts.
    .2 Unless otherwise indicated, exposed fasteners shall be of same material, colour and finish as components to be assembled.
.7 Ensure exposed welds are continuous for length of each joint. File or grind exposed welds to solid, smooth, continuous, uniform surface. Where spot welding is accepted or specifically indicated on drawings, grind welds and joints to level surface, dress with metal filler, then sand to solid, smooth, continuous, uniform surface.
.8 Cap exposed ends of sections, then grind or file them.
.9 Thicknesses of materials indicated on drawings shall be calculated before application of paint or zinc coating.
.10 Separate dissimilar materials using separators made of PVC or other material approved by Departmental Representative.

2.3 Finishes

.1 Galvanizing:
    .1 Hot-dip galvanize components with 610 g/m^2 zinc coating, except bolts and nuts, which may be galvanized with 460 g/m^2 zinc coating, to ASTM A123M.
    .2 For components to be installed in masonry work, hot-dip galvanize with 600 g/m^2 zinc coating for components less than 6.4 mm thickness, and with 705 g/m^2 coating for components 6.4 mm or greater thickness, to ASTM A123M.
    .3 Preparation:
        .1 Grind welds and make them imperceptible. Remove all traces of rust, and clean off all dirt, grease and oil using immersion treatments consisting of successive baths of alkaline solution, rinse, acid solution and rinse, or using metal rotary brushes on all external surfaces.
        .2 Before galvanizing, ensure that all welding, grinding, drilling and cleaning work has been completed.
        .3 Prepare drill holes, bolts and nuts so that, once galvanized, they have the appropriate dimensions to prevent damage during assembly to the galvanized finish on the threads.
    .4 After galvanization, clean surfaces of any excess zinc using the appropriate tools; touch-up places where galvanized finish has been damaged.
.2 Shop coat primer:
    .1 Shop coat prime all metal parts except galvanized parts, parts coated with a material other than finish paint, and parts to be embedded in concrete.

.2 Use primer unadulterated, as prepared by manufacturer. Apply primer to dry surfaces free of rust, scale and grease. Do not paint when temperature is lower than 7°C.
.3 Clean surfaces to be field welded; do not paint
.4 For surfaces that will be inaccessible following assembly, apply two coats of primer in different colours.
.5 Except where stricter requirements are indicated, clean surfaces to SSPC-SP2 of *Society for Protective Coatings*.
.6 With exception of component described in the following clause, shop prime all components to be primed with one coat of primer to CAN/CGSB-1.40.
.7 Shop prime handrails of all stairs and ramps, as well as steel-plate stair treads and landings to be coated with finish paint, and other indicated components, as follows:
  .1 Prepare surfaces to SSPC-SP1 and SSPC-SP2 of *Society for Protective Coatings*.
  .2 Mix components in accordance with manufacturer's instructions and let stand for prescribed time.
  .3 Apply one coat of specified primer, at rate recommended by manufacturer.
  .4 Allow to dry for time recommended by manufacturer and allow to cure for at least 7 days before delivering components to worksite.

2.4 Supports and anchors

.1 Supply and install all supporting and anchoring components indicated on drawings or normally required to ensure rigidity of system, such as supports, anchors, secondary structures, bracing and other similar items.

2.5 Service ladder with or without crinoline

.1 .1 Fabricate the service ladder in compliance with the minimum requirements formulated by CNESST.
.2 .2 Unless otherwise specified in more restrictive documents, fabricate service ladders in the following manner:
  .1 Uprights: galvanized steel angles, 50 x 50 x 6 mm thick.
  .2 Steel rungs: 25 mm diameter non-slip steel tubing or flat bars of non-slip stainless steel as indicated and dimensioned on drawings, welded to uprights at 300 mm centres. The ladder shall extend up to 600 mm above the top face of the upper level.
  .3 Safety cage (crinoline): If required, as indicated on drawings. Cage shall have a clear opening of at least 750 mm, and extend to at least 900 mm higher than the top level.
  .4 Fastening brackets: of dimensions and shapes indicated, welded to the uprights at 600 mm centres, delivered with the fastening anchors.

2.6 EQ06 to documents : Extendable safety post

.1 To be installed on the ladder leading to the roof access hatch
.2 Made of tubular galvanized steel, comprising a telescopic section of 38.1mm galvanized steel square tube with lifting handle and another section of 50.8mm square tube fixed to the ladder with stainless steel mounting bolts inserted through the assembly profile.
.3 The extendable section locks automatically in the raised position.
.4 Includes locking system and unlocking rod.
.5 Total height of 1559mm in full extension position, extending at least 900mm vertically above the upper edge of the attic hatch opening frame.
.6 Refer to drawings for details and installation location.

PART 3 - EXECUTION

3.1 Inspection

.1 Take dimensions on site to ensure that fabrication and installation adjustments are followed, that possible deflections in structures are respected, and that spacing with other construction components is maintained.
.2 Identify position, number and dimensions of steel structural members. Allow for movement or re-sizing and, where needed, provide any other additional steel member or anchorage required to produce complete work meeting design criteria.

3.2 Erection

.1 Assemble components as indicated on drawings and shop drawings reviewed by Departmental Representative.
.2 Do welding work in accordance with CSA W59, unless specified otherwise.
.3 Unless noted otherwise. erect metalwork square, plumb, straight and true, accurately fitted, with tight joints and intersections.
.4 Supply and install suitable means of anchorage, such as dowels, anchor clips, bar anchors, expansion bolts and shields, and toggles.
.5 Exposed fastening devices to match finish unless specified otherwise and to be compatible with material through which they pass.
.6 Supply and install components supporting or connecting to building structure specified in other sections in accordance with drawings and reviewed shop drawings.
.7 Make field connections with bolts to CAN/CSA-S16.1 or weld.
.8 Touch-up rivets, field welds, bolts and burned or scratched surfaces with primer after completion of erection.
.9 Touch-up galvanized surfaces with zinc-rich primer where burned by field welding.

End of Section

ISSUE LOG

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BB	00	L.O.	G.R.	A.S.	2020-11-12	100% PROGRESS
01	**00**	**L.O.**	**G.R.**	**A.S.**	**2022-01-21**	**TENDER CALL**

PART 1 - GENERAL

1.1 Product data sheets

.1 Submit product data sheets in accordance with the requirements section 01 33 00.
.2 Submit product data sheets for the various specified products, one copy of which shall be kept at all times on the worksite. Product data sheets shall include the following information:
  .1 product description and performance,
  .2 installation recommendations, and
  .3 installation conditions.

1.2 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 Each panel, piece or group of pieces of fire-retardant treated wood shall bear a ULC label which indicates the flame-spread rating and smoke developed classification.

1.3 Certification

.1 For certified wood, submit documentation from the supplier confirming that the wood described in this Section originates from forests which conform to the parameters of the FSC (Forest Stewardship Council) and, in particular, the number of the chain of custody certificate and detailed identification for each one of the certified products.
.2 For products treated with preservative or fire retardant by pressure impregnation, submit the following information which has been certified by an authorized representative of the treatment plant:
  .1 the information contained in the AWPA M2 standard and the modifications indicated in the CAN/CSA-O80 series, under the heading Supplementary requirements to the AWPA M2 standard, which apply to the prescribed treatment;
  .2 the moisture content after drying following treatment;
  .3 the acceptable types of paint, stain, and clear finishes that may be used over treated materials which are to be finished after treatment.

PART 2 - PRODUCTS

2.1 Lumber

.1 All wood described in this section shall originate from forests which conform to the parameters of the FSC (Forest Stewardship Council), an American body which certifies sustainable forest management, and shall possess FSC Chain of Custody Certification for the entire supply process, including supplier, transporter and seller.
.2 Lumber: unless otherwise indicated, softwood, S4S (surfaced on 4 sides) finish, 19% moisture content or less (S-DRY), and conforming to the following standards and rules:
  .1 CAN/CSA-O141.
  .2 NLGA Standard Grading Rules for Canadian Lumber.
.3 Furring, blocking, nailing strips, nailing bases, framing and other elements of interior rough carpentry:
  .1 Board sizes: "standard" or better grade.
  .2 Dimension sizes: "standard" light framing or better grade.
  .3 Posts and timber sizes: "standard" or better grade.

2.2 Panel products

.1 All wood described in this section shall originate from forests which conform to the parameters of the FSC (Forest Stewardship Council), an American body which certifies sustainable forest management, and shall possess FSC Chain of Custody Certification for the entire supply process, including supplier, transporter and seller.
.2 Douglas fir plywood: conforming to CSA O121, "standard construction", no added urea formaldehyde, pressure-treated for exterior rough carpentry work and for other work as indicated.
  .1 Use of Douglas fir plywood: wherever use of plywood is required, unless specifically indicated otherwise in the documents.
.3 Canadian softwood plywood: conforming to CSA O151, "standard construction", no added urea formaldehyde.
  .1 Use of Canadian softwood plywood: where specifically indicated in the documents.

2.3 Accessories

.1 Wire nails, spikes and staples conforming to CSA B111.
.2 Bolts: 12 mm diameter unless indicated otherwise, complete with nuts and washers.
.3 Proprietary fasteners: toggle bolts, expansion shields and lag bolts, lead or inorganic fibre plugs, screws, powder-actuated fasteners, recommended for purpose by manufacturer.
.4 Galvanized fasteners: galvanized to CAN/CSA-G164, with minimum 460 g/m^2 zinc coating, use galvanized fasteners for high humidity interior areas and for concealed exterior work.
.5 Stainless steel fasteners: made of type 302 or 304 stainless steel for work which is constructed of wood treated with preservative or fire retardant by pressure impregnation and is to remain exposed.

2.4 Wood preservation products

.1 Treat the materials by pressure impregnation in accordance with CAN/CSA O80, using preservative products based on chromated copper arsenate (CCA) or alkaline copper quaternary (ACQ) according to each case, to obtain a minimum net retention of 6.4 kg/m^3 of wood.
.2 Following treatment using a water-soluble preservative product, dry the material to obtain a moisture content of 19% or less.
.3 Work to be treated with a preservative product: all lumber and all panel products which are used in exterior rough carpentry work, and elsewhere as indicated.

2.5 Fire retardant products

.1 Treat the wood with fire retardant products by pressure impregnation in accordance with CAN/CSA O80.20 for lumber and CAN/CSA O80.27 for plywood, and all in accordance with ULC-S102.
.2 Following the treatment, dry the material in a wood-drying kiln to obtain a moisture content of 19% or less.
.3 Work to be treated with a fire retardant product: all indicated lumber and panelling products.

PART 3 - EXECUTION

3.1 Preparation

.1 Re-treat surfaces exposed by on-site cutting, trimming or boring with liberal brush application of surface-applied wood preservative before installation.
.2 Apply wood preservative by dipping or by brush to completely saturate and maintain wet film on surface for minimum three-minute soak on lumber and one-minute soak on plywood.

3.2 Installation - General

.1 Construct work as indicated and comply at least with requirements of Part 9 of the NBC.
.2 Install members square and plumb, and true to line, levels and elevations.
.3 Construct continuous members from pieces of longest practical length.
.4 Select exposed framing for appearance. Install lumber so that grade marks and other defacing marks are concealed.
.5 In general, assemble, anchor, fasten, attach and brace all elements to ensure required degree of solidity and rigidity.

.6 Countersink bolts where necessary to provide clearance for other work.
.7 Install furring and blocking as required to space-out and support specified work.
.8 Align and plumb faces of furring and blocking to tolerance of 1:600.
.9 Install rough framing, nailing strips and trim as required to provide backing for frames and other work.
.10 Unless otherwise indicated, use plywood for all anchoring, nailing and screwing strips and bases.
    .1 Install anchoring, nailing and screwing strips and bases between studs and use angle brackets where required to secure them in place.
    .2 Coordinate with the specialized trades which are responsible for elements which require anchoring, nailing and screwing strips and bases to be provided within walls, partitions and ceilings. Cooperate with these contractors and obtain from them the required information concerning the location and sizes of the anchoring, nailing and screwing strips and bases.
    .3 Anticipate every other condition which will require continuous or individual anchoring, nailing and screwing strips and bases, as indicated. Select base size to extend at least from one metal stud to the next.

3.3 Installation of pressure-treated materials

.1 Perform treatment work in accordance with the AWPA M4 standard.
.2 Use fine sandpaper to remove deposits of chemical products from treated wood which is to be used as a base for a finishing material.
.3 During the handling and use of these products, take all precautions required by the regulatory bodies.

End of section

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PART 1 - GENERAL

1.1 General

.1 This section contains, but is not limited to, a description of the requirements for the supply and installation of a new roofing system to be installed over the existing metal ribbed roof. Note that the profile of the metal roof over the original portion of the roof is different from that installed on the more-recent addition. The work involves installing omega bars on the original portion of the building, together with a support panel and a modified bituminous membrane roofing system consisting of a base sheet and a cap sheet. Adhesives, primers, flashings, and various associated accessories will also be required.

1.2 References

.1 All materials and work shall be in accordance with the applicable requirements in the most recent edition of the *Devis* Couvertures (Roofing Specifications Handbook) of the Quebec Master Roofers Association.
.2 *Matériaux du complexe d'étanchéité* (Materials for Waterproofing Systems), Quebec Master Roofers Association, most recent edition.
.3 The modified bituminous membranes used for this project shall conform to the most recent edition of CGSB 37-GP-56M - Membrane, Modified, Bituminous, Prefabricated, and Reinforced for Roofing.
.4 The roofing systems shall meet requirements of all ULC standards and, in particular, CAN/ULC-S107 for a Class A rated roof, of CSA A123.21, System B, and of Factory Mutual FM 1-90 rating for wind uplift and fastener spacing.

1.3 Coordination

.1 Coordinate this work closely with adjacent work to provide unbroken continuity with envelope weatherproofing materials.
.2 Verify all materials coming into contact with work of this section to ensure compatibility.
.3 Related work to include installation of lifeline system fastened to steel posts anchored to existing steel structure of building. Contractor performing work for this section shall coordinate work closely with lifeline installation work.

1.4 Product data

.1 Submit product data in accordance with Section 01 33 00.
.2 Submit product data for various specified products, including one (1) copy to remain permanently on worksite. Product data shall include following information:
    .1 product characteristics and performance criteria;
    .2 installation instructions;

.3 ambient conditions.

.3 Submit attachment methods for torch-applied membranes for each part of the roof and, more specifically, for roof field area, roof perimeter area and roof corner area, showing methods required to obtain resistance to wind uplift pressure of not less than 4.31 kPa (90 psf) for roof field area.

1.5 Submittals

.1 Submit membrane roofing system test data showing compliance with wind uplift rating in accordance with FM 4470. Test results shall demonstrate that roofing system will provide resistance to wind uplift pressure of not less than 4.31 kPa (90 psf) for roof field. Installation in perimeter and corner areas shall conform to FM requirements as indicated in FM Global Property Loss Prevention Data Sheet (PLPDS) 1-29.

1.6 Samples

.1 Submit samples of materials to be used in accordance with Section 01 33 00.
.2 Do not commence work until review of samples has been completed.
.3 Submit supporting documents certifying compliance of roofing assembly with indicated standards.

1.7 Qualifications of roofing contractor

.1 Supply document issued by membrane manufacturer certifying official recognition of firm charged with performance of work for this section as an authorized installer and that, in this capacity, it has completed at least five (5) projects of similar scope within past five (5) years.
.2 Only contractors who may perform work are roofing contractors which, at time of bidding and during work, are officially recognized roofing contractors authorized by manufacturer of waterproofing materials, members in good standing of Quebec Master Roofers Association (QMRA).
.3 Ensure presence on worksite of site superintendent and at least one (1) worker with experience of no less than five (5) years. Other workers shall hold a certificate of competency required to perform roofing work.
.4 Place competent worker in charge of operating the bitumen boiler.

1.8 Field quality control

.1 Inspection of roofing work described in this section and applicable testing, including tests for uplift resistance performed to ANSI /SPRI IA-1 2015 or most recent version, shall be performed by independent inspection/quality control firm, specialized in roofing and accredited by QMRA, hired and paid by Departmental Representative. Notify roofing inspector each time presence is required in accordance with following paragraphs and ensure that inspector is present.
.2 Ensure continuous presence of roofing inspector during installation of roofing materials.

.3 Presence of roofing inspector is not required while the cleaning of the supports is being performed, including during the removal of surplus materials, accumulations of ice and/or snow, drying of surfaces and installation of sheet metal.
.4 Roofing inspection firm shall perform uplift resistance testing, at expense of Canada (Owner), to ANSI /SPRI IA-1 2015 or most recent version, twenty-four (24) hours following installation of materials which precede the installation of the cap membrane. If inadequate adhesion is found, Contractor shall pay costs of replacement of all defective areas and of performance of additional testing once repairs have been completed.

1.9 Manufacturer's representative

.1 At commencement of waterproofing work, convene meeting on worksite with representative of manufacturer of waterproofing materials.
.2 During performance of work, ensure that manufacturer's representative visits worksite at least once every two (2) days and upon request with six (6) hours notice to ensure proper performance of work to manufacturer's requirements.
.3 Allow and facilitate access at all times to worksite and to roofs by all representatives of manufacturer.
.4 Adhesive manufacturer shall ensure that roofing contractor has received proper and adequate training for application of adhesives prior to commencement of work. Provide document from adhesive manufacturer certifying that roofing contractor has required skills and training to apply adhesives for work for this contract.

1.10 Storage and handling

.1 Store materials in accordance with written instructions of manufacturers.
.2 Deliver and store all materials in original packaging.
.3 Provide and maintain dry, off-ground weatherproof storage.
.4 Store roll materials in upright position, with selvage edge up.
.5 Remove only in quantities required for same day use.
.6 Store insulation protected from daylight, weather and harmful substances.
.7 Remove from worksite materials which have been spoiled, exposed to weather or with warped, torn or crushed surfaces. Defective materials, even if already installed, shall be refused and immediately removed and replaced, no matter the area of the surface in question.
.8 Do not accumulate or allow accumulation of any materials or equipment on roofs which could compromise their structural integrity.
.9 Store primers and adhesives at required temperature for minimum twelve (12) hours prior to application.

1.11 Identification and delivery

.1 Indicate following information on material containers and packaging:
  .1 name of manufacturer and brand name;
  .2 applicable manufacturing standard to which product or material conforms;
  .3 weight, where applicable.
.2 Delivery materials in weatherproof original containers, sealed and with labels intact.
.3 Pay particular attention to insulation boards: from time of delivery to worksite, ensure that packaging is not opened, torn, perforated or otherwise damaged, and that boards are in original condition. Boards from packages which have been damaged in any manner shall be refused and removed immediately from worksite.
.4 Deliver fasteners in boxes or pails and store them in protected area until time of use. Do not oil or grease fasteners.
.5 Submit three (3) copies of purchase order to control office personnel, and include following information or documents:
  .1 number of purchase order;
  .2 name and address of supplier;
  .3 name and address of purchaser;
  .4 contract and project numbers;
  .5 designation and characteristics of each material, including type, grade, colour, category and quantity;
  .6 packing slip for liquid bitumen showing equiviscous temperature, flash point and finished blowing temperature.
  .7 the shipping instructions;
  .8 the point of delivery.

1.12 Site conditions

.1 Verify that substrates are in suitable condition to receive work described in this section. Before commencing work, verify actual condition of supports and upstands as well as levels and slopes. Where required, remove any materials which could compromise the effectiveness of the membrane.
.2 Prepare list of anomalies, discrepancies and corrective measures and transmit copy to Architect. Do not perform work until corrective measures have been undertaken. Ensure that surface to be covered are clean, smooth and dry.
.3 Do not perform work during inclement weather or on surfaces which are wet or covered with snow or ice.
.4 Suspend work when temperature is below minimum ambient application temperature recommended by QMRA and manufacturer of waterproofing materials.
.5 Use only dry materials and do not install them unless atmospheric conditions will not result in moisture penetration between membrane layers
.6 Before commencing work, ensure that temperature and moisture content of support conform or exceed manufacturer’s requirements.
.7 Commencement of all or portions of work shall constitute acceptance of condition of support.

1.13 Fire prevention

In addition to paying particular attention to every potential fire risk and to eliminating these immediately at source, Contractor shall respect requirements of QMRA and the following:

.1 For each torch, keep on roof a cartridge-operated fire extinguisher or stored pressure fire extinguisher, rechargeable type, with hose and shut-off nozzle of suitable size, ULC labelled for ABC class protection, placed within 10 m of torch.

.2 Maintain fire watch for at least one (1) hour following end of each workday.

.3 Keep products containing solvents away from open flame and sources of excessive heat.

.4 Where use of asphalt kettles is required,

.1 Locate kettles safely, at exterior of building or on non-combustible surface, where there is no danger or risk of igniting combustible materials located below or nearby. Consider direction of prevailing winds and placement of fans and HVAC equipment in order to prevent penetration of smoke and fumes into adjacent occupied buildings.

.2 Provide continuous monitoring during kettle operation and for at least one (1) hour following shut down. Provide metal covers that can be used to extinguish flames if the heated substance catches fire and store them adjacent to kettles. Store adjacent to kettles suitable fire fighting equipment as recommended by manufacturer, including portable fire extinguishers.

.3 Clean kettles and other equipment as frequently as needed to ensure good performance. Remove carbon buildup regularly.

.5 Do not allow accumulation of used roofing mops; store them away from building and from combustible materials.

.6 Smoking on worksite is prohibited at all times.

1.14 Warranty

.1 For the work for this section, the warranty period stipulated in the General Condition is extended to three (3) years.

.2 Provide written document, signed and issued in name of Canada, certifying that products conform to Canadian standards and are warranted for period stipulated above.

.3 Correct all defects discovered during warranty period at no cost to Owner.

.4 Quality control lab shall provide report of inspections to Canada and Departmental Representative.

PART 2 - PRODUCTS

2.1 General

.1 Except where specifically indicated otherwise in this section, all materials used for membrane installation described in this section shall be provided by same manufacturer.

2.2 Materials

.1 Support panels:
- .1 Support panels, glass-fibre reinforced gypsum, with non-asphaltic coating, moisture-resistant, with compressive strength of 6.2 MPa (900 psi), 15.9 mm thickness, 1220 mm width x 2440 mm length.
- .2 Acceptable products:
  - .1 “DensDeck Prime Roof Board with EONIC technology” by Georgia Pacific.
  - .2 “Securock Glass-Mat Roof Board” by CGC.
  - .3 “GlasRoc Roof Board” by CertainTeed.
  - .4 Equivalent product approved by addendum in accordance with Instructions to Bidders.

.2 Modified bitumen membrane:
- .1 Primer: in accordance with recommendations of membrane manufacturer for surface to be covered.
- .2 Base sheet membrane for field surface and for parapets/upstands: heat welded membrane composed of SBS modified bitumen and 180 g/m^2 non-woven polyester reinforcement, both sides covered with thermofusible plastic film.
  - .1 Physical properties:
    - .1 Thickness: minimum 3.0 mm.
    - .2 Tensile strength: 17 kN/m minimum longitudinally, et 12,5 kN/m minimum transversely, to CGSB-37.56 (9th draft).

.3 Table of properties:

Selon CSA A123.23-15, Type B, Classe 3.

Propriétés		
	AVANT le conditionnement thermique	APRÈS le conditionnement thermique
Énergie de déformation, min L/T À 23 °C ± 2 °C (73,4 °F ± 3,6 °F) À -18 °C ± 2 °C (0 °F ± 3,6 °F)	6,5/6,5 kN/m (37/37 lbf/po) 8,0/4,0 kN/m (46/23 lbf/po)	5,5/5,5 kN/m (31/31 lbf/po) 3,1/3,1 kN/m (18/18 lbf/po)
Charge maximale, min L/T À 23 °C ± 2 °C (73,4 °F ± 3,6 °F) À -18 °C ± 2 °C (0 °F ± 3,6 °F)	15/11 kN/m (86/63 lbf/po) 22/17 kN/m (126/97 lbf/po)	14/10 kN/m (80/57 lbf/po) 19/11 kN/m (108/63 lbf/po)
Allongement à la charge maximale, min L/T À 23 °C ± 2 °C (73,4 °F ± 3,6 °F) À -18 °C ± 2 °C (0 °F ± 3,6 °F)	50/60 % 30/30 %	15/50 % 7/21 %
Allongement ultime À 23 °C ± 2 °C (73,4 °F ± 3,6 °F) L/T	55/70 %	45/45 %
Stabilité dimensionnelle, max L/T	±0,5/±0,1 %	
Flexibilité à basse température, max L/T	-18/-18 °C (0/0 °F)	-18/-18 °C (0/0 °F)
Stabilité du composé à 102 °C (216 °F)	121/121 °C (250/250 °F)	
Résistance au poinçonnement	Réussi	

(Valeurs nominales)

.2 Acceptable products:

.1 “Sopralene Flam 180” by Soprema.

.2 « Torchflex TP-180-FF-Base » by IKO Industries ltée »

.3 “HPR Torch Base Sheet” by Garland.

.4 Equivalent product approved by addendum in accordance with Instructions to Bidders.

.3 Cap sheet membrane for field surface and for parapets/upstands: heat welded membrane composed of SBS modified bitumen with a 250 g/m^2 non-woven polyester reinforcement and elastomeric bitumen, , surface protected by coloured granules and undersurface covered with thermofusible plastic film, torch applied only.

.1 Physical properties:

.1 Thickness: 4 mm minimum.

.2 Tensile strength: 17 kN/m minimum longitudinally, and 16 kN/m minimum transversely, to CAN/CGSB-37.56 to CGSB-37.56 (9th draft).

.3 Colour of granules: as shown on drawings or, if this information has not been shown, as selected by the Departmental Representative from the manufacturer’s standard range of colours.

.4 Tableau of properties

Selon CSA A123.23-15, Type B, Classe 1.

Propriétés		
	AVANT le conditionnement thermique	APRÈS le conditionnement thermique
Énergie de déformation, min L/T À 23 °C ± 2 °C (73,4 °F ± 3,6 °F) À -18 °C ± 2 °C (0 °F ± 3,6 °F)	9,5/7,5 kN/m (54/43 lbf/po) 10/6 kN/m (57/34 lbf/po)	7,5/6,0 kN/m (43/34 lbf/po) 7/5,5 kN/m (40/31 lbf/po)
Charge maximale, min L/T À 23 °C ± 2 °C (73,4 °F ± 3,6 °F) À -18 °C ± 2 °C (0 °F ± 3,6 °F)	27/19 kN/m (154/108 lbf/po) 32/20 kN/m (183/114 lbf/po)	24/18 kN/m (137/103 lbf/po) 27/18 kN/m (154/103 lbf/po)
Allongement à la charge maximale, min L/T À 23 °C ± 2 °C (73,4 °F ± 3,6 °F) À -18 °C ± 2 °C (0 °F ± 3,6 °F)	55/65 % 35/35 %	45/55 % 30/35 %
Allongement ultime (initial) À 23 °C ± 2 °C (73,4 °F ± 3,6 °F) L/T	55/75 %	45/60 %
Stabilité dimensionnelle, max L/T	±0,2/±0,2 %	
Flexibilité à basse température, max L/T	-18/-18 °C (0/0 °F)	-18/-18 °C (0/0 °F)
Flexibilité à basse température après le vieillissement aux UV, max L/T	-12/-12 °C (10/10 °F)	
Stabilité du composé à 102 °C (216 °F)	121/121 °C (250/250 °F)	
Résistance au poinçonnement	Réussi	
Enrobage des granulés	Réussi	

.5

.2 Acceptable products:

.1 “Sopralene Flam 250 GR” by Soprema.

.2 “Torchflex TP-250-CAP” by IKO Industries Ltée.

.3 “StressPly IV” by Garland.

.4 Equivalent product approved by addendum in accordance with Instructions to Bidders.

.3 Accessories:

.1 Steel furring channels: continuous length omega bars with Z-275 hot-dip galvanized coating to ASTM A653M, minimum 18 gauge (1.26 mm). Bars notched or curved to conform to shape of existing roof. Top surface of omega bars to be at same height as top surface of deck of roof of addition (north side, refer to drawings).

.2 Fasteners for omega bars: to ANSI/ASME b18.6.4, dimensions to suit work, self-drilling or self-tapping, steel with anti-corrosion coating. Type: self-drilling, hexagonal head, SFS #12-14 x 1, SD3-#12x1-HW5/16-GB19/32, with corrosion resistant coating.

.3 Mechanical fasteners for attaching support panels to furring channels or to steel deck: self tapping screws, wafer head with countersinking ribs, #8-18 x 1 1/4, point type S-12, Rock-On, with corrosion resistant coating.

.4 Other mechanical fasteners: ULC approved or meeting Factory Mutual approvals standard 4470 and as recommended by manufacturer of items to be fastened, of suitable length.

.5 Fastening bars: aluminum, 3 mm wall thickness x 25 mm width with rounded edges, folded to 35 degree angle, predrilled at 150 mm o.c. to receive screws

.6 Sealant: rubber-asphalt sealing compound, to CAN/CGSB-37.29-M.

.7 Plastic cement mastic: rubber-asphalt sealing compound, to CAN/CGSB-37.29-M.

.8 Pitch pockets: prefabricated modular system filled with sealing mastic and including:
  .1 Modular pitch pocket curbs:
    .1 Prefabricated, made of gray polyester resin, 50 mm minimum height
    .2 Circular curbs split into 2 sections.
    .3 Shapes and size to suit roof penetrations.
    .4 Outer surface shall remain impervious to ice, corrosion, UV light and ponding water.
  .2 Adhesive/sealant for curb:
    .1 Single component polyether adhesive/sealant, Type S, Grade NS, Class 25, to ASTM C920, moisture curing, self-supporting and durable.
  .3 Pourable sealant:
    .1 Single component polyether adhesive/sealant, Type S, Grade NS, Class 25, to ASTM C920.
    .2 Consisting of 100% solid rubber.
    .3 Pourable, moisture curing, highly flexible, self levelling, no mixing required.
    .4 Very low VOC, will not melt or shrink, resistant to deterioration.
  .4 Install in accordance with manufacturer's instructions.

.9 Prefabricated vent flashings to replace existing vents: aluminum vent base, urethane insulation liner, removable cap, with EPDM base seal, 1.6 mm thickness, 305 mm or 457 mm high to suit existing vent piping, diameter to suit vent.
  .1 Acceptable products:
    .1 Models SJ-26-A/SJ-27-A - Removable Cap STACK JACK Flashings (Insulated) by Thaler Metal Industries.
    .2 Flash-Tite MC by Lexcor.
    .3 Preformed aluminum insulated plumbing vent, 1100 series, SKU: VA1600ISO-M by Murphco.
    .4 Replacement product approved by addendum in accordance with Instructions to Bidders.

.10 Tube-type snow guards: installed on elastomeric bitumen base, to CAN/CGSB-37.29-M.
  .1 Brackets made of 12 gauge (0.109") thickness factory painted steel, with two 32 mm (1-1/4") diameter holes.
  .2 Plastic protectors for each hole.
  .3 7 metal/wood screws, #14 x 2" with neoprene washers and corrosion coating per bracket.
  .4 Factory painted steel tubing, 1.6 mm (1/16") wall thickness x 25.4 mm (1") diameter x 1220 mm (4'-0") length with a reduced 75 mm (3") portion.
  .5 Protective caps (6/box of tube).

.11 Penthouse vents:
  .1 Construction: structural galvanized steel sheet, 20 gauge.
  .2 Louvers: storm-proof type.
  .3 Screening: built-in galvanized wire mesh, bird and rodent proof.
  .4 Finish: interior and exterior powder-coated polyester baked paint with UV protection.
  .5 Warranty: limited lifetime warranty on all manufacturing defects, five (5) years on paint and corrosion.
  .6 Compliances: CSA, CAN-3-A930M82, ASTM-A527
  .7 Dimensions: as shown on drawings.

PART 3 - EXECUTION

3.1 Protection

.1 Provide protection for walls and adjacent work in areas where materials will be hoisted or used.
.2 Use warning signs and barriers. Maintain in good order until completion of work.
.3 Clean off drips and smears of bituminous material immediately.
.4 Dispose of rainwater off roof and away from face of building.
.5 Protect roof from traffic and damage.
.6 Provide plywood-covered pathways over work to permit circulation of workers and equipment.
.7 At end of each day's work or when stoppage occurs due to inclement weather, provide protection for completed work and materials out of storage. Seal and provide suitable protection for exposed edges.

3.2 Inspection

.1 Verify adequacy of structure and work performed previously to receive work for this section. Before starting work, verify actual condition of decks, parapets, plumbing vents, mechanical and other outlets, and various levels and slopes.
.2 Prepare list of anomalies, non-conformities, and corrections to be undertaken and submit to Departmental Representative. Do not start work until correction have been completed. Ensure that surfaces to be covered are clean, smooth and dry.
.3 Start of the work or portions thereof shall be considered as acceptance of conditions for work.

3.3 Installation of omega furring channels

.1 Centre furring channels above ribs on portion of existing roof where ribs are spaced at 300 mm o.c. (original building) and as shown on drawings. Fasten channels through sheet metal of existing roof cladding and anchor to existing structural Z-bars using specified fasteners, with minimum of two (2) fasteners in each Z-bar, one on each side of the ribs of the existing metal cladding.

3.4 Installation of support panels

.1 Support panels for the original building:
  .1 Place the support panels perpendicular to the omega channels installed on top of the ribs of the existing roof cladding, stagger the joints and fasten the panels securely to the omega channels. Centre the screws carefully when fastening the supports to the channels.
  .2 At the edges, where the junction between 2 panels is located between omega channels, install joint support strips made of the same material used for the support panels, 100 mm in width and of thickness equal to the height of the omega channels. Refer to detail on drawings.
  .3 Install screws in quantity and locations shown on drawing. Illustration shows minimum quantity to be used.

.2 Support panels for the 1997 extension:
  .1 Place the support panels perpendicular to the ribs of the existing roof cladding, which will serve as the support for the panels, stagger the joints and fasten the panels securely to the ribs. Centre the screws carefully when fastening the supports to the ribs.
  .2 Install screws in quantity and locations shown on drawing. Illustration shows minimum quantity to be used.
.3 Ensure that the panels are firmly fastened at each point of attachment.

3.5 Membrane application

.1 Perform installation of waterproofing membrane and flashings in accordance with written instructions of membrane manufacturer and applicable QMRA specifications.
.2 Installation of base sheets
  .1 Installation of weldable base sheet on field surface
    .1 Apply primer in accordance with recommendations of membrane manufacturer. Apply base sheet only after primer coat is dry.
    .2 Unroll base sheet dry on support with first side lap lined up with edge of roof which is parallel to the slope, that is perpendicular to the long direction of the roof. See drawings.
    .3 Cut off corners at end laps to be covered by the next roll.
    .4 Weld base sheet directly to prepared support using propane torch. Ensure that there are no combustible materials beneath the support.
    .5 Each selvedge shall overlap along lines provided for this purpose and by 150 mm at the ends. Stagger end joints by a minimum of 300 mm.
    .6 Application to be free of wrinkles, blisters and fishmouths.
    .7 Continue end of base sheet of field surface vertically on the parapets/upstands at least 75 mm and fasten it using continuous fastening strips screwed in place at 150 mm o.c. Insert each screw in aluminium fastening bars in accordance with QMRA requirements. Apply continuous strip of base sheet over fastening bars for parapets/upstands which are at least 200 mm in width.
  .2 Base sheet over support panels of parapets/upstands
    .1 Following installation of base sheet on field surface, install base sheet on parapets/upstands.
    .2 Apply primer in accordance with recommendations of membrane manufacturer. Apply base sheet only after primer coat is dry.
    .3 Cut off corners at end laps to be covered by the next roll.
    .4 Each selvedge shall overlap along lines provided for this purpose and by 150 mm at the ends.
    .5 Weld base sheet directly to prepared support using propane torch.
    .6 Application to be free of wrinkles, blisters and fishmouths.
  .3 Coordinate installation of pitch pocket curbs around anchor posts for lifelines, where shown and in accordance with written instructions of manufacturer
  .4 At anchor posts adhere galvanized steel apron, which has been previously coated with primer, to the base sheet using an elastomeric bitumen sealant recommended by the membrane manufacturer. Cover it with a strip of heat-weldable reinforcement of a size which exceeds the outer edges of the apron by at least 150 mm, and torch weld.

.5 Inspect base sheet upon completion of installation and correct any defects.

.3 Installation of cap sheets

.1 Cap sheet on field surface

.1 Begin installation of cap sheet from lowest point of field surface.

.2 Unroll cap sheet, overlapping joints with joints of base sheet and carefully aligning the first selvedge with the first edge to side of roof which is parallel to the slope. Heat weld Install cap sheet via heat welding Heat weld cap sheet in accordance with manufacturer's instructions. Be careful not to overheat the membrane. Overlap side laps 75 mm and end laps 150 mm. Ensure complete welding of membrane, free of blisters, wrinkles and bitumen smears. Upon completion of installation, verify all overlaps and repair as needed to satisfaction of Departmental Representative.

.2 Cap sheet on parapets/upstands

.1 Once cap sheet of field surface has been installed and verified, install cap sheet on parapets/upstands.

.2 Overlaps on the cap sheet of the field surface must be at least 150 mm. The side joints must overlap by 75 mm and must be staggered by 100 mm with respect to the joints of the cap sheet on the field surface to avoid areas of excessive membrane thickness. Weld this cap sheet to the substrate including the cap sheet of the field surface. At junction points with the cap sheet, de-granulate it in accordance with the membrane manufacturer's instructions.

3.6 Sealing of openings

.1 Seal the perimeter of openings made to pass pipes, ducts and other electrical and mechanical services, using sealant recommended by the manufacturer.

.2 No penetrations are permitted in membranes and flashings along the top surface of walls except for perforations which are sealed using pitch pockets.

.3 Install pitch pocket curbs where shown on drawings and in accordance with written recommendations of manufacturers of pitch pocket curbs and membranes.

.4 No screws shall be installed below a height of 200 mm and no wiring or cables shall be installed below a height of 250 mm from the finished roof surface.

.5 Respect the minimum heights prescribed by the QMRA for parapets/upstands.

3.7 Cleaning

.1 Perform cleaning of work in accordance with General Conditions and Divisions 00 and 01.

.2 Perform cleaning to satisfaction of Departmental Representative of all surfaces of work for this section which have been soiled or splashed and repair all damage.

.3 Remove all surplus materials, debris and equipment from worksite.

End of Section

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PART 1 - GENERAL

1.1 Product data

.1 Submit product data in accordance with Section 01 33 00.
.2 Submit product data for each supplied product and keep one copy at all times on worksite. Product data shall include following information:
  .1 product characteristics and performance criteria;
  .2 installation instructions;
  .3 ambient conditions.
.3 Do not commence work until review of product data has been completed.

1.2 Samples

.1 Submit samples of materials to be used in accordance with Section 01 33 00.
.2 Submit two (2) 100 x 100 mm samples of each type of sheet metal material, colour and finish.
.3 Do not commence work until review of samples has been completed.

PART 2 - PRODUCTS

2.1 Materials

.1 Hot-dip galvanized steel sheet: commercial quality (CQ), to ASTM A653M, each face with minimum zinc coating of 275 g/m^2 (Z275 designation), to ASTM A924M and ASTM A653M, thickness as indicated but not less than 24 gauge (0.65 mm), factory-coated both faces with epoxy primer and Kynar 500 polyvinyladine fluoride coating on one face or a primer on both faces and silicon-modified polyester on one face.
  .1 Colours: four (4) coat system, such as “Metallic Series as described by CSSBI” or two (2) coat system, such as “8000+ Series by Dofasco or Stelco”, or approved equivalent, colours as indicated on drawings or, in the absence of such information, as selected by Architect from manufacturer’s standard range of colours.
  .2 Thicknesses/gauges: as noted on drawings.
.2 Pre-painted steel CH5-32 type ventilated soffits
  .1 Panel width : 813 mm
  .2 THickness : 0,457 mm (cal. 26)
  .3 Colour : QC18317 blanc
  .4 Continuous ventilation on flat portions via 3mm dia. holes at 9,5mm c/c for a 6% perforation rate.

2.2 Accessories

.1 Underlay for metal flashing: No. 15 perforated asphalt felt, to CSA A123.3-M.
.2 Cleats: of same material and temper as sheet metal, minimum 50 mm width. Thickness same as sheet metal being secured.
.3 Fasteners: of same material as the sheet metal, to CSA B111, flat-head ring-shanked roofing nails, of length and thickness suitable for metal flashing application.
.4 Joint sealants and other waterproofing products: Product No 1, in accordance with Section 079200 – Joint

Sealants, colour to match metal flashing to be selected by Architect.

.5 Plastic cement: to CGSB 37-GP-5Ma.
.6 Isolation coating: Bituminous paint to CAN/CGSB 1.108-M.
.7 Touch-up paint: as recommended by manufacturer of metal flashing and trim.

2.3 Fabrication

.1 Fabricate components as shown.
.2 Form pieces in maximum lengths of 2440 mm. Make allowance for expansion at joints.
.3 Unless indicated otherwise, form ends of sections in general to provide lock seam joints (*"type agrafé"*) *noted* or, for intermediate joints between two sections installed in the same plane, use "S"-type slip joints (*"type joint en S"*) *noted*.
.4 Hem exposed edges on underside 12 mm.
.5 Form sections square, true and accurate to size, dimensions as shown, free from distortion and other defects detrimental to appearance or performance.
.6 Form cover boxes for lightning cables using 24-gauge galvanized steel sheet, with shapes and dimensions as shown.

PART 3 - EXECUTION

3.1 Installation

.1 Install sheet metal work as indicated and in accordance with Q.M.R.A. recommendations.
.2 Use concealed fasteners except where use of exposed fasteners approved by Architect.
.3 Provide underlay for metal surfaces in contact with concrete, mortar, pressure-treated wood and dissimilar metals.
.4 Provide underlay under sheet metal. Secure in place and lap minimum 100 mm.
.5 Counterflash membrane flashings at upstands, parapets and elsewhere as shown with sheet metal flashing. In general, flash using lock seam joints forming tight fit over hook strips as shown, and seal with joint sealant.
.6 Use "S"-type slip joints for intermediate joints and seal with joint sealant.
.7 At mitred corners use lap seam joints (*"type rabattement fixé"*) noted and seal with joint sealant.
.8 Lock end joints and seal with joint sealant.
.9 Use compatible fasteners for all fastening of metal flashings with dissimilar metal materials.

End of Section

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PART 1. - GENERAL

1.1 Design criteria

.1 Roof hatches must be designed to be able to withstand snow load and wind pressure prescribed by applicable codes, as well as a temperature variation of 95 degrees C, without sustaining damage nor permanent deformations which could compromise their sealing.

1.2 Shop Drawings

.1 Submit the necessary shop drawings in accordance with the requirements of Section 01 33 00.
.2 The drawings must show the dimensions and give the description of the components and the fasteners, give the description of the frames and finishes, and illustrate the construction details.

1.3 Data sheets

.1 Submit the required technical data sheets in accordance with the requirements of section 01 33 00.
.2 Submit technical data sheets for the specified products, a copy of which must be kept on site at all times. The technical sheets must include the following information:
  .1 description of products and performances;
  .2 installation recommendations and;
  .3 Installation.conditions

1.4 Maintenance Sheets

.1 Provide instructions necessary for the maintenance of hardware parts, including all pertinent details, lists of spare parts as well as warnings against the use of harmful maintenance methods and materials, and include in the manual mentioned in section 01 78 00.

PART 2. - PRODUCTS

2.1 Materials

.1 Hot dipped galvanized steel sheet: commercial grade steel (CG) according to ASTM A653M, coated on each side with a layer of zinc at a rate of at least 275 g / m2 (designation Z275), according to ASTM A924M and ASTM A653M standards.
.2 Sealing gaskets: in extruded neoprene, flexible, fully recovering their original dimension after 50% compression.
.3 Fastening devices: standard galvanized steel screws.
.4 Sealants: according to the requirements of section 07 92 00 - Sealants for joints.

2.2 Roof Hatch

.1 Metal flanges made of preformed elements, with 14 gauge cover and 16 gauge liner, galvanized steel coated with baked enamel color chosen by Architect, insulated sandwich construction, total thickness about 30 mm.
.2 Preformed metal frames: 14 gauge, galvanized steel coated with oven baked enamel, color selected by the Architect, approximately 25 mm total thickness x 300 mm high, sandwich construction with fiberglass insulation, of dimensions allowing a free opening of the dimensions indicated, provided with a collar for fixing to the roof support.
.3 Acceptable products:
  .1 Single leaf roof hatch, "Model R from Journault Jourplex inc. "
  .2 Single leaf roof hatch, "Bolar Model A",
  .3 Single leaf roof hatch, “Model NB-50T, from Bilco Company. "
  .4 or replacement product approved by addendum in accordance with Instructions to Bidders.

PART 3. - EXECUTION

3.1 Installation

.1 Install components plumb, level and aligned.
.2 Ensure the continuity of the air barrier systems which are part of the building envelope.
.3 Fit the hatches and seal them, leaving the necessary clearances for expansion and contraction.
.4 Secure prefabricated frames to the structural frame.
.5 Secure hatches to their frame and seal them.

End of section

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PART 1 - GENERAL

1.1 General

.1 Refer to relevant sections for requirements concerning all other sealants and caulking compounds.
.2 Coordinate sealants and other compounds used in various assemblies with those prescribed in other sections. Preferably, single sealant sourced from one manufacturer should be used throughout work for all joints of same nature.

1.2 Definitions

.1 "Sealant," "sealant materials" and "sealing compound" are terms used interchangeably throughout documents, and refer to sealants as described in this section.
.2 For purposes of this section, "acoustic assembly" means any concrete block wall or partition, any continuous slab-to-slab wall or partition, any gypsum wall containing acoustic insulation, as well as any horizontal acoustic membrane made of two or more thicknesses of gypsum.

1.3 Product data

.1 Submit product data of proposed products in accordance with General Conditions and Divisions 00 and 01.
.2 Submit product data for each proposed product, including one copy to remain permanently on site. Product data must include following information:
  .1 description of products and performance;
  .2 installation recommendations;
  .3 ambient conditions.

1.4 Certificates to submit

.1 Before commencing work, submit certificate signed by sealant manufacturer:
  .1 indicating surface preparation requirements;
  .2 indicating required primers and application methods;
  .3 certifying that appropriate joint filler materials have been selected;
  .4 certifying that sealants to be used were selected from among those specified;
  .5 certifying that sealants selected are appropriate for projected use and joint design;
  .6 certifying that sealants are compatible with other materials and products with which they will be in contact;
  .7 certifying that sealants will not stain substrates;
  .8 certifying that sealants are appropriate for temperature, humidity and atmospheric conditions at time of their installation.

1.5 Samples

.1 Submit product data and samples of proposed products in accordance with General Conditions and Divisions 00 and 01.
.2 Submit two (2) samples of each colour and product type proposed.

1.6 Adhesion tests

.1 In accordance with General Conditions and Divisions 00 and 01, test adhesion of all prescribed sealants to all affected substrates following manufacturer's prescribed methods. Conduct these tests at least seven (7) days before commencing sealant application work.
.2 Provide Departmental Representative with report of these tests.

1.7 Mock-ups

.1 In accordance with General Conditions and Divisions 00 and 01, create mock-ups, as required by Departmental Representative, showing location, dimensions, profile and depth of joints, including filler material, primer and sealant.
.2 Wait 48 hours before commencing work to allow Departmental Representative time to examine mock-ups.
.3 Mock-ups may form part of finished work.

1.8 Delivery, handling and storage

.1 Deliver and store materials in original factory containers and packaging with manufacturer's seal intact. Protect materials from water, humidity and freezing; do not place them directly on ground or floor.

1.9 Safety and 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 the Labour Program of Employment and Social Development Canada.
.2 Conform to manufacturer's recommended temperatures, relative humidity, and substrate moisture content for application and curing of sealants including special conditions governing use.
.3 Take necessary steps to ensure that ventilation system provides maximum intake of outside air and maximum venting to outside during installation of sealants and caulking compounds. Vent work areas as needed using approved portable supply and exhaust fans.

1.10 Acceptable materials or products

.1 Where materials or products are prescribed by their trade name, consult Instructions to Bidders for procedure to follow for seeking approval of alternative materials or products.

1.11 Extended warranty

.1 For work covered in this Section, warranty period of twelve (12) months stipulated in General Conditions is extended to thirty-six (36) months.
.2 Provide written document prepared and signed by both manufacturer and installer, and issued in name of Canada, certifying performance of products and that properties of said products will not be altered in such a way as to affect their appearance or performance for period stipulated above.

PART 2 - PRODUCTS

2.1 Sealants and applications

.1 Product No. 1:
  .1 Single-component, non-sag, high-performance silicone sealant, colours selected by Departmental Representative.
    .1 Acceptable products:
      .1 “Adseal 4580” by Adfast;
      .2 “Spectrem 3” by Tremco;
      .3 “CWS” by Dow Corning;
      .4 or alternative product approved by addendum in accordance with Instructions to Bidders.
  .2 Typical applications:
    .1 exterior sealing and finishing joints on vertical and horizontal surfaces not exposed to traffic, such as joints between curtain-walls, windows, door frames and other metal assemblies and adjacent surfaces, particularly metal panels, masonry, sills, aprons, flashings, drip edges and other metal mouldings and channels.
    .2 interior sealing joints, on vertical and horizontal surfaces not exposed to traffic, such as joints between curtain-walls and adjacent surfaces, particularly structural steel, metal panels, masonry, gypsum board, door and window frames, sills, aprons, flashings and other metal mouldings and channels, except for joints to be filled with firestop and smoke seal systems;
    .3 interior and exterior joints between masonry elements;
    .4 interior and exterior joints in concrete work;
    .5 expansion and control joints in interior or exterior masonry;
    .6 joints between masonry and framing;
    .7 joints at support angles in masonry or exterior panels;
    .8 joints in metal flashing;
    .9 exposed interior joints located in acoustic assemblies, particularly exposed joints at perimeter of vertical and horizontal acoustic assemblies, as well as exposed joints around (and between) mechanical and electrical elements in acoustic assemblies;

    .10 miscellaneous joints required by drawings but not covered in other sections.
.2 Product No. 2:
  .1 Modified polyurethane sealant, single-component, non-sag, moisture-curing, to CAN/CGSB-19.13M, colours selected by Departmental Representative.

.2 Typical applications:
.1 interior sealing joints on vertical and horizontal surfaces not exposed to traffic, such as interior joints between windows, exterior door frames and other metal assemblies, and adjacent surfaces, particularly metal panels, masonry, gypsum board, sills, aprons, flashings and other metal mouldings and channels.

.3 Product No. 3:
.1 Single-component acrylic latex sealant, fast-setting with minimal shrinkage, to CAN/CGSB-19.17M, colours selected by Departmental Representative.
.2 Typical applications:
.1 Non-moving interior finishing joints, on vertical surfaces and horizontal surfaces not exposed to traffic, such as joints around door frames, windows and interior finishing work, as well as joints to be filled before painting.

.4 Product No. 4:
.1 Polyurethane joint sealant, three-component, self-levelling, to ASTM C920, Type M, Grade NS, Class 50, colours selected by Departmental Representative.
.2 Typical applications:
.1 Horizontal joints bearing foot traffic, such as joints in door thresholds, concrete slabs, and control joints and false joints in tiled flooring.

.5 Product No. 5:
.1 Single-component, high-modulus silicone sealant, to CAN/CGS-19.13M and ASTM C920, Type S, Grade NS, with fungicide, white.
.2 Typical applications:
.1 Interior joints in humid locations, such as joints between countertops, vanities, sinks, toilets, urinals and adjacent surfaces.

.6 Product No. 6:
.1 Non-hardening synthetic-rubber acoustical sealant, to ASTM D217 and CAN/CGSB-19.21M.
.2 Applications:
.1 Concealed interior joints in acoustic assemblies, particularly concealed joints at perimeter of vertical and horizontal acoustic assemblies, as well as concealed joints around (and between) mechanical and electrical elements in acoustic assemblies.

.7 Above descriptions of products and applications are not exhaustive. Contractor is responsible for submitting a proposal for every surface to be sealed which is not described above, and for performing preparation and application work based on systems approved by Departmental Representative and in accordance with recommendations of manufacturer of approved materials.

2.2 Backing materials

.1 Primers: As recommended by sealant manufacturer.
.2 Compressible and non-compressible preformed filler products.
  .1 General: compatible with primers and sealants, oversized by 30 to 50%.
  .2 Polyethylene, urethane, neoprene or vinyl: extruded cellular foam, 20 Shore A hardness, tensile strength of 140 to 200 kPa.
  .3 Neoprene and butyl-rubber products: solid round strips, 70 Shore A hardness, for joints in horizontal surfaces bearing foot traffic.
  .4 High-density foam products: extruded cellular PVC foam, extruded cellular polyethylene foam, 20 Shore A hardness, tensile strength of 140 to 200 kPa, extruded polyolefin foam, density 32 kg/m^3, or neoprene, of dimensions recommended by manufacturer, for exterior applications.
.3 Anti-adhesion product: press-on plastic adhesive tape that does not adhere to sealants and other compounds.

2.3 Joint cleaner

.1 Non-corrosive and non-staining cleaners, compatible with joint-forming materials and sealants and as recommended by sealant manufacturer.
.2 Primer: as recommended by manufacturer.

PART 3 - EXECUTION

3.1 Locations - General

.1 Absence of indication on drawings of all places to be sealed does not relieve Contractor of responsibility to seal all places where sealant products are normally required to obtain a continuous barrier impervious to air, water, moisture, sound, dust, smoke and deleterious gases. This clause also applies to all other sections that refer to this section with respect to supply and/or installation of sealants and other compounds.

3.2 Protection of work

.1 Protect work installed by others from soiling and any other form of contamination.

3.3 Surface preparation

.1 Examine joint sizes and material conditions to establish correct depth-to-width relationship for installation of filler materials, sealants and other sealing compounds.
.2 Clean joint bonding surfaces of harmful substances, including dust, rust, oil, grease, and other matter that may hinder performance or efficacy of work.
.3 Do not apply sealants to joint surfaces treated with sealer, curing compound, water repellent or any other coatings unless tests have been performed to ensure compatibility of materials. Remove coatings as required.
.4 Ensure joint surfaces are dry and frost free.
.5 Prime surfaces in accordance with manufacturer's directions.

3.4 Priming

.1 Where necessary to prevent staining, mask adjacent surfaces prior to priming and sealing.
.2 Prime sides of joints in accordance with sealant manufacturer's instructions immediately prior to sealing.

3.5 Backing material

.1 Apply anti-adhesion tape where required, in accordance with manufacturer's instructions.
.2 Install joint filler to achieve correct joint depth and shape, with approximately 30% compression.

3.6 Mixing

.1 Mix materials in strict accordance with sealant manufacturer's instructions.

3.7 Application

.1 Sealant:
  .1 Apply sealant in accordance with manufacturer's written instructions.
  .2 Mask edges of joint where irregular surface or sensitive joint border exists to provide neat joint.
  .3 Apply sealant in continuous beads.
  .4 Apply sealant using gun with proper size nozzle.
  .5 Use sufficient pressure to fill voids and fully seal joints.
  .6 Form surface of sealant with full bead, smooth, free from ridges, wrinkles, sags, air pockets and embedded impurities.
  .7 Tool exposed surfaces before skinning begins to provide slightly concave shape.
  .8 Remove excess compound promptly as work progresses and upon completion.
.2 Curing:
  .1 Cure sealants in accordance with sealant manufacturer's instructions.
  .2 Do not cover up sealants until proper curing has taken place.
.3 Clean-up:
  .1 Clean adjacent surfaces immediately and leave work neat and clean.
  .2 As work progresses, remove excess and droppings using recommended cleaners.
  .3 Remove masking tape after initial set of sealant.

3.8 Examination

.1 Departmental Representative shall conduct destructive tests in randomly selected places to examine components installed in joints. Provide extra materials for complete replacement over approximately 100 mm of joint length in each of approximately 10 different locations.

End of Section

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PART 1 - GENERAL

1.1 General

.1 This section includes the fall protection system for the installations of this project. Read this section and examine the related drawings together with the sections and drawings describing work which is complementary to, contingent upon, preparatory to or otherwise related to the work described below.
.2 Contractor shall provide expertise, all materials, products, equipment, tools, labour and services required to complete fully the work described in this section and/or shown on the drawings, so that the completed work precisely fulfils the intended purpose.
.3 Include all accessories and minor work which, even if not specifically mentioned in these specifications or indicated on the drawings, are required for the proper and full completion of the work in accordance with the standards to which reference is made and/or which are recognized in the industry as best trade practices.
.4 The work for this section includes more specifically, but is not limited to, the supply and installation of:
    .1 the fall protection system to be used for the maintenance of the roofs and of the equipment situated on it;
    .2 all accessories associated with and/or required to complete the installation.

1.2 Description

.1 Design components and equipment to conform to conditions, operating procedures and indications provided in this section.

1.3 Performance standards

.1 Unless otherwise indicated, design and fabricate systems and all components and perform work in accordance with CSA Z91, CAN/CSA-Z271 and all applicable legislation including the *Quebec Construction Code* and the requirements of the *CNESST*.
.2 Obtain all permits and approvals required by the authorities having jurisdiction for the window-washing equipment.

1.4 Reference

.1 Unless otherwise indicated, perform all work in accordance with CSA Z259.13, CSA Z259.16 and all other codes, standards, regulations, and laws in effect, including the requirements enforced by the *CNESST*.

1.5 Shop drawings

.1 Submit shop drawings in accordance with the requirements of Section 01 33 00.
.2 Submit shop drawings and erection drawings for fall protection systems.
    .1 Shop drawings shall show project-specific construction details.

.2 Shop drawings shall show materials, dimensions, fabrication and assembly connections, fasteners, profiles, components fastened with adhesive, products, finishes, thicknesses and hardware; where needed, show adjacent construction components.
.3 Drawings shall indicate accessible zones which are protected.
.4 Drawings shall provide list of all loads imposed on the structure and envelope of the building.
.5 Shop drawings shall be signed and sealed by a member of the OIQ with a minimum of five (5) years related experience.
.6 Submit copies of the shop drawings to the structural engineer for the building for comment and approval.

1.6 Product data

.1 Submit product data in accordance with Section 01 33 00.
.2 Submit product data for various specified products, including one copy to remain permanently on worksite. Product data shall include following information:
.1 description of product characteristics and performance criteria;
.2 installation instructions;
.3 ambient conditions.

1.7 Quality assurance

.1 Entire mandate to be carried out by a company specialized in the field which will be responsible for the design, technical details, installation and testing.
.2 Only specialized companies with a minimum of ten (10) years experience with this type of equipment are eligible to submit a bid for this work.
.3 If requested by Departmental Representative, submit list of installations of similar complexity carried out during the past five (5) years.
.4 The company carrying out the work shall have suitable products and completed operations liability insurance coverage.

1.8 Coordination

.1 Coordinate work for this section with related work.
.2 Supply anchors and other required items in timely manner for incorporation into work.
.3 Provide General Contractor with list of milestone dates requiring coordination or installation of a component of the system.

1.9 Mandate

.1 The mandate of the specialized contractor for this section shall include: the design, fabrication, installation and putting into operation of protection system for the indicated surfaces.
.2 Providing assistance for work related to this section.

1.10 Design

.1 Design of components and equipment shall be based on conditions, operating procedures and indications provided on architectural documents.
.2 Bidder shall examine all drawings and, in particular, the roof plans, the exterior elevations and the sections.
.3 Bidder shall report every error and omission discovered in the bid documents to the Departmental Representative.
.4 A contractor may submit a design which deviates from the principles set out in the architectural documents but must mention this in the bid.

1.11 Operating instructions

.1 Provide two (2) copies of a written document which describes the operation of the system. In addition to the explanatory text, the document shall include photos and drawings.
.2 This document shall also include safety guidelines.
.3 This document shall be written in both French and English.

1.12 Maintenance data and demonstration

.1 Provide operating and maintenance data for the fall protection systems as well as a list of replacement parts and incorporate these into the maintenance manual mentioned in Division 01 – General Requirements.
  .1 The operating data shall include safety guidelines and maintenance instructions.
.2 Provide the services of an instructor and present a two (2)-hour training session to teach the Owner's personnel how to use the systems.

1.13 Acceptable products and materials

.1 Where materials or products are prescribed by brand name, consult Instructions to Bidders for procedure to follow for seeking approval of alternative materials or products.

1.14 Extended warranty

.1 For the work of this section, the twelve (12)-month warranty period prescribed in the General Conditions is extended to thirty-six (36) months.
.2 Provide written document prepared and signed by both manufacturer and installer, and issued in name of Canada, certifying performance of products and that properties of said products will not be altered in such a way as to affect their appearance or performance for period stipulated above.
.3 The warranty does not cover breakdowns resulting from normal use and normal wear. The supplier assumes no liability for damage or defects resulting from strong winds, hurricanes, tornadoes, hail and ice storms, lightning, etc. or acts of vandalism.

PART 2 - PRODUCTS

2.1 Manufacturer

.1 Unless otherwise indicated, all components within a given system shall originate from a single manufacturer.

2.2 Materials

.1 Principal materials to be used: aluminum, galvanized steel and stainless steel.
.2 Steel section and plates: conforming to CSA G40.21, grades 300W and 350W.
.3 Welding materials: conforming to CSA W59.
.4 Stainless steel: conforming to ASTM A167, grade 304, finish no. 4.
.5 Certification of welding companies: conforming to W47.1.
.6 Bolts and studs: conforming to ASTM A307.
.7 Galvanizing: hot dip galvanizing, with 600 g/m² zinc coating, conforming to CSA G164.
.8 Shop applied primer paint: conforming to CAN/CGSB-1.40, red/Hot dip galvanized steel: conforming to CSA G164.
.9 Zinc primer paint coat: zinc rich paint, prepared, conforming to MPI #19 and MPI Green Performance Standard.

2.3 Manufactured units

.1 Horizontal cable lifelines, also identified on the drawings as “lifelines”: in stainless steel, fastened in a continuous manner to the cable supports.
  .1 Supply and install hot dip galvanized steel supports bolted to support plate previously installed on the building structure.
  .2 Cables shall be continuous. System shall be capable of receiving three (3) workers, and their attachment system shall be continually attached to the cable. Thus, there must be a mechanism which allows the passage, vis-à-vis each intermediate support, of the workers’ attachment systems.
  .3 Acceptable products:
    .1 “Travspring CAH by Tractel, distributed by Into”
    .2 “Roodsafe horizontal lifeline system, distributed by Équipements JPB”
    .3 “3M™ DBI-SALA® Sayfline Permanent Multi-Span Horizontal Lifeline System distributed by 3M”
    .4 equivalent replacement product approved by addendum in accordance with the Instructions to bidders.
.2 Supports for cables, also identified on the drawings as “crochets”: in galvanized steel, fastened to receptor plates as detailed on the structural documents, to support the cables; supports to accommodate continuous cables, allowing attachment systems for three (3) workers to be continually fastened to the cables, and supplied with a mechanism facing each support which permits the attachment system of the workers to pass. Supports shall be designed to be compatible with the horizontal cable lifelines.

PART 3 - EXECUTION

3.1 Installation

.1 Supply, transport, handle, hoist onto roof and install all required equipment and components.
.1 Following installation of equipment, touch up all scratched or abraded surfaces. Touch up painted components with enamel touch-up paint provided by the equipment manufacturer. Touch up damaged galvanized surfaces with zinc rich primer.

3.2 Field quality control

.1 Obtain all required approvals. Perform all demonstrations and testing required by the authorities having jurisdiction.

3.3 Adjusting

.1 Perform all corrective work, including replacement of equipment found defective during testing and demonstration of system and redo testing of equipment as needed to ensure compliance with contract documents.
.1 Perform all corrective work required by the authorities having jurisdiction to obtain required approvals.

3.4 Demonstration

.1 Once installation has been completed and at time agreed to by the concerned parties, perform operating tests on the system under maximum design live loads for all building surface conditions, in accordance with applicable standards.
.1 Once operating tests have been completed and at time determined by and in presence of Departmental Representative, demonstrate operation of entire system. Refer to article 1.12.2 of this section.

End of Section

Part 1 General

1.1 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 and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Shop Drawings:

.1 Indicate on drawings:

.1 Mounting arrangements.

.2 Operating and maintenance clearances.

.2 Shop drawings and product data accompanied by:

.1 Detailed drawings of bases, supports, and anchor bolts.

.2 Acoustical sound power data, where applicable.

.3 Points of operation on performance curves.

.4 Manufacturer to certify current model production.

.5 Certification of compliance to applicable codes.

1.2 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 Operation and maintenance manual approved by, and final copies deposited with, Departmental Representative before final inspection.

.2 Operation data to include:

.1 Control schematics for systems including environmental controls.

.2 Description of systems and their controls.

.3 Description of operation of systems at various loads together with reset schedules and seasonal variances.

.4 Operation instruction for systems and component.

.5 Description of actions to be taken in event of equipment failure.

.6 Valves schedule and flow diagram.

.7 Colour coding chart.

.3 Maintenance data to include:

.1 Servicing, maintenance, operation and trouble-shooting instructions for each item of equipment.

.2 Data to include schedules of tasks, frequency, tools required and task time.

.4 Performance data to include:

.1 Equipment manufacturer's performance datasheets with point of operation as left after commissioning is complete.

.2 Equipment performance verification test results.

.3 Special performance data as specified.

.4 Testing, adjusting and balancing reports as specified in Section 23 05 93 - Testing, Adjusting and Balancing for HVAC.

.5 Approvals:

.1 Submit 2 copies of draft Operation and Maintenance Manual for approval. Submission of individual data will not be accepted unless directed.

.2 Make changes as required and re-submit as directed.

.6 Additional data:

.1 Prepare and insert into operation and maintenance manual additional data when need for it becomes apparent during specified demonstrations and instructions.

.7 Site records:

.1 Provide 1 set of reproducible mechanical drawings. Provide sets of prints as required for each phase of work. Mark changes as work progresses and as changes occur.

.2 Transfer information to reproducibles, revising reproducibles to show work as actually installed.

.3 Use different colour waterproof ink for each service.

.4 Make available for reference purposes and inspection.

.8 As-built drawings:

.1 Prior to start of Testing, Adjusting and Balancing for HVAC, finalize production of as-built drawings.

.2 Identify each drawing in lower right hand corner in letters at least 12 mm high as follows: - " AS BUILT DRAWINGS: THIS DRAWING HAS BEEN REVISED TO SHOW MECHANICAL SYSTEMS AS INSTALLED" (Signature of Contractor) (Date).

.3 Submit to Departmental Representative for approval and make corrections as directed.

.4 Perform testing, adjusting and balancing for HVAC using as-built drawings.

.5 Submit completed reproducible as-built drawings with Operating and Maintenance Manuals.

.9 Submit copies of as-built drawings for inclusion in final TAB report.

1.3 MAINTENANCE MATERIAL SUBMITTALS

.1 Submit in accordance with Section 01 78 00 - Closeout Submittals.

.2 Provide one set of special tools required to service equipment as recommended by manufacturers.

.3 Furnish one commercial quality grease gun, grease and adapters to suit different types of grease and grease fittings.

1.4 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 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 in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

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

Part 2 Products

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 EXAMINATION

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

3.2 CLEANING

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

3.3 PROTECTION

.1 Protect equipment and systems openings from dirt, dust, and other foreign materials with materials appropriate to system.

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

.1 CSA Group (CSA)

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

1.2 DEFINITIONS

.1 Demolish: Detach items from existing construction and legally dispose of items off site, unless indicated as removed and salvaged, or removed and reinstalled.

.2 Remove: Planned deconstruction and disassembly of electrical items from existing construction including removal of conduit, junction boxes, cabling and wiring from electrical component to panel taking care not to damage adjacent assemblies designated to remain; legally dispose of items off site, unless indicated as removed and salvaged, or removed and reinstalled.

.3 Remove and Salvage: Detach items from existing construction and deliver them to Departmental Representative ready for reuse.

.4 Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.

.5 Existing to Remain: Existing items of construction that are not removed and that are not otherwise indicated as being removed and salvaged, or removed and reinstalled.

.6 Hazardous Substances: Dangerous substances, dangerous goods, hazardous commodities and hazardous products may include asbestos, mercury and lead, PCB's, poisons, corrosive agents, flammable substances, radioactive substances, or other material that can endanger human health or wellbeing or environment if handled improperly as defined by the Federal Hazardous Products Act (RSC 1985) including latest amendments.

1.3 ADMINISTRATIVE REQUIREMENTS

.1 Coordination: Coordinate work of this Section to avoid interference with work by other Sections.

1.4 SITE CONDITIONS

.1 Existing Conditions: Condition of materials identified as being salvaged or demolished are based on their observed condition [at time of site examination before tendering] [on date that tender is accepted].

.2 Discovery of Hazardous Substances: It is not expected that Hazardous Substances will be encountered in the Work; immediately notify Departmental Representative if materials suspected of containing hazardous substances are encountered and perform the following activities:

.1 Refer to Section 01 41 00- Regulatory Requirements for directives associated with specific material types.

.2 Hazardous substances will be as defined in the Hazardous Products Act.

.3 Stop work in the area of the suspected hazardous substances.

.4 Take preventative measures to limit users' and workers' exposure, provide barriers and other safety devices and do not disturb.

Part 2 Products

2.1 MATERIAL

.1 General Patching and Repair Materials: Refer to this Section for listing of patching and repair materials incidental to removal or demolition of components associated with work of this Section.

.2 HVAC Repair Materials: Use only new materials required for completion or repair matching materials damaged during performance of work of this Section; new materials are required to meet assembly or system characteristics as existing systems indicated to remain and carry CSA approval labels required by the Authority Having Jurisdiction.

Part 3 Execution

3.1 PREPARATION

.1 Protection of Existing Systems to Remain: Protect systems and components indicated to remain in place during selective demolition operations and as follows:

.1 Prevent movement and install bracing to prevent settlement or damage of adjacent services and parts of existing buildings scheduled to remain.

.2 Notify Departmental Representative and cease operations where safety of buildings being demolished, adjacent structures or services appears to be endangered and await additional instructions before resuming demolition work specified in this Section.

.3 Prevent debris from blocking drainage inlets.

.4 Protect mechanical systems that must remain in operation.

.2 Protection of Building Occupants: Sequence demolition work so that interference with the use of the building by the Departmental Representative and users is minimized and as follows:

.1 Prevent debris from endangering the safe access to and egress from occupied buildings.

.2 Notify Departmental Representative and cease operations where safety of occupants appears to be endangered and await additional instructions before resuming demolition work specified in this Section.

3.2 CLEANING

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

END OF SECTION

Part 1 General

1.1 SUMMARY

.1 TAB is used throughout this Section to describe the process, methods and requirements of testing, adjusting and balancing for HVAC.

.2 TAB means to test, adjust and balance to perform in accordance with requirements of Contract Documents and to do other work as specified in this section.

1.2 QUALIFICATIONS OF TAB PERSONNEL

.1 Submit names of personnel to perform TAB to Departmental Representative within 90 days of award of contract.

.2 Provide documentation confirming qualifications, successful experience.

.3 TAB: performed in accordance with the requirements of standard under which TAB Firm's qualifications are approved:

.1 Associated Air Balance Council, (AABC) National Standards for Total System Balance, MN-1.

.2 National Environmental Balancing Bureau (NEBB) TABES, Procedural Standards for Testing, Adjusting, Balancing of Environmental Systems.

.3 Sheet Metal and Air Conditioning Contractors' National Association (SMACNA), HVAC TAB HVAC Systems - Testing, Adjusting and Balancing.

.4 Recommendations and suggested practices contained in the TAB Standard: mandatory.

.5 Use TAB Standard provisions, including checklists, and report forms to satisfy Contract requirements.

.6 Use TAB Standard for TAB, including qualifications for TAB Firm and Specialist and calibration of TAB instruments.

.7 Where instrument manufacturer calibration recommendations are more stringent than those listed in TAB Standard, use manufacturer's recommendations.

.8 TAB Standard quality assurance provisions such as performance guarantees form part of this contract.

.1 For systems or system components not covered in TAB Standard, use TAB procedures developed by TAB Specialist.

.2 Where new procedures, and requirements, are applicable to Contract requirements have been published or adopted by body responsible for TAB Standard used (AABC, NEBB, or TABB), requirements and recommendations contained in these procedures and requirements are mandatory.

1.3 PURPOSE OF TAB

.1 Test to verify proper and safe operation, determine actual point of performance, evaluate qualitative and quantitative performance of equipment, systems and controls at design, average and low loads using actual or simulated loads

.2 Adjust and regulate equipment and systems to meet specified performance requirements and to achieve specified interaction with other related systems under normal and emergency loads and operating conditions.

.3 Balance systems and equipment to regulate flow rates to match load requirements over full operating ranges.

1.4 EXCEPTIONS

.1 TAB of systems and equipment regulated by codes, standards to satisfaction of authority having jurisdiction.

1.5 CO-ORDINATION

.1 Schedule time required for TAB (including repairs, re-testing) into project construction and completion schedule to ensure completion before acceptance of project.

.2 Do TAB of each system independently and subsequently, where interlocked with other systems, in unison with those systems.

1.6 START-UP

.1 Follow start-up procedures as recommended by equipment manufacturer unless specified otherwise.

.2 Follow special start-up procedures specified elsewhere in Division 23.

1.7 OPERATION OF SYSTEMS DURING TAB

.1 Operate systems for length of time required for TAB and as required by Departmental Representative for verification of TAB reports.

1.8 START OF TAB

.1 Notify Departmental Representative 7 days prior to start of TAB.

.2 Start TAB when building is essentially completed, including:

.3 Installation of ceilings, doors, windows, other construction affecting TAB.

.4 Application of weatherstripping, sealing, and caulking.

.5 Pressure, leakage, other tests specified elsewhere Division 23.

.6 Provisions for TAB installed and operational.

.7 Start-up, verification for proper, normal and safe operation of mechanical and associated electrical and control systems affecting TAB including but not limited to:

.1 Proper thermal overload protection in place for electrical equipment.

.2 Air systems:

.1 Filters in place, clean.

.2 Duct systems clean.

.3 Ducts, air shafts, ceiling plenums are airtight to within specified tolerances.

.4 Correct fan rotation.

.5 Fire, smoke, volume control dampers installed and open.

.6 Outlets installed, volume control dampers open.

1.9 APPLICATION TOLERANCES

.1 Do TAB to following tolerances of design values:

.1 HVAC systems: plus 10 %, minus 0 %.

1.10 ACCURACY TOLERANCES

.1 Measured values accurate to within plus or minus 2 % of actual values.

1.11 INSTRUMENTS

.1 Prior to TAB, submit to Departmental Representative list of instruments used together with serial numbers.

.2 Calibrate in accordance with requirements of most stringent of referenced standard for either applicable system or HVAC system.

.3 Calibrate within 3 months of TAB. Provide certificate of calibration to Departmental Representative.

1.12 PRELIMINARY TAB REPORT

.1 Submit for checking and approval of Departmental Representative, prior to submission of formal TAB report, sample of rough TAB sheets. Include:

.1 Details of instruments used.

.2 Details of TAB procedures employed.

.3 Calculations procedures.

.4 Summaries.

1.13 TAB REPORT

.1 Format in accordance with [referenced standard].

.2 TAB report to show results in SI units and to include:

.1 Project record drawings.

.2 System schematics.

.3 Submit 1 copie of TAB Report to Departmental Representative for verification.

1.14 VERIFICATION

.1 Reported results subject to verification by Departmental Representative.

.2 Provide personnel and instrumentation to verify up to 30 % of reported results.

.3 Number and location of verified results as directed by Departmental Representative.

.4 Pay costs to repeat TAB as required to satisfaction of Departmental Representative.

1.15 SETTINGS

.1 After TAB is completed to satisfaction of Departmental Representative, replace drive guards, close access doors, lock devices in set positions, ensure sensors are at required settings.

.2 Permanently mark settings to allow restoration at any time during life of facility. Do not eradicate or cover markings.

1.16 COMPLETION OF TAB

.1 TAB considered complete when final TAB Report received and approved by Departmental Representative.

1.17 AIR SYSTEMS

.1 Standard: TAB to most stringent of this section and TAB standards of AABC, SMACNA, ASHRAE and NEBB.

.2 Qualifications: personnel performing TAB current member in good standing of AABC or NEBB.

.3 Quality assurance: perform TAB under direction of supervisor qualified AABC or NEBB.

.4 Measurements: to include as appropriate for systems, equipment, components, controls: air velocity, static pressure, flow rate, pressure drop (or loss), temperatures (dry bulb, wet bulb, dewpoint), duct cross-sectional area, RPM, electrical power, voltage, noise, vibration.

.5 Locations of equipment measurements: to include as appropriate:

.1 Inlet of fan.

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 REFERENCE STANDARDS

.1 American National Standards Institute/Air Movement and Control Association (ANSI/AMCA)

.1 ANSI/AMCA Standard 99, Standards Handbook.

.2 ANSI/ASHRAE 51 (ANSI/AMCA 210), Laboratory Methods of Testing Fans for Aerodynamic Performance Rating.

.3 ANSI/AMCA Standard 300, Reverberant Room Method for Sound Testing of Fans.

.4 ANSI/AMCA Standard 301, Methods for Calculating Fan Sound Ratings from Laboratory Test Data.

1.2 MAINTENANCE MATERIAL SUBMITTALS

.1 Extra Materials:

.1 Submit in accordance with Section 01 78 00 - Closeout Submittals.

.1 Furnish list of individual manufacturer's recommended spare parts for equipment, include:

.1 Bearings and seals.

.2 Addresses of suppliers.

.3 List of specialized tools necessary for adjusting, repairing or replacing.

Part 2 Products

2.1 SYSTEM DESCRIPTION

.1 Performance Requirements:

.1 Catalogued or published ratings for manufactured items: obtained from tests carried out by manufacturer or those ordered by manufacturer from independent testing agency signifying adherence to codes and standards in force. Provide confirmation of testing.

.2 Capacity: as indicated on schedule.

.2 Statically and dynamically balanced. Constructed to ANSI/AMCA Standard 99.

.3 Sound ratings: comply with ANSI/AMCA Standard 301, tested to ANSI/AMCA Standard 300. Unit shall bear AMCA certified sound rating seal.

.4 Performance ratings: based on tests performed in accordance with ANSI/AMCA Standard 210, unit to bear AMCA certified rating seal.

2.2 ROOF EXHAUSTERS

.1 Direct and Centrifugal driven.

.1 Housings: spun aluminum complete with resilient mounted motor and fan.

.2 Impeller: aluminum non-overloading.

.3 12 mm mesh 2.0 mm diameter aluminum birdscreen.

.4 Automatic gasketted aluminum backdraft dampers.

.5 Disconnect switch within fan housing.

.2 Performance

.1 VE-1 : 194 l/s à 125 Pa, 0,08 bhp et 54 dBA. Motor ODP ¼ hp 115V/1ph/60Hz.

.2 VE-2 : 194 l/s à 125 Pa, 0,08 bhp et 54 dBA. Motor ODP ¼ hp 115V/1ph/60Hz.

2.3 EXAMINATION

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

.1 Visually inspect substrate in presence of Departmental Representative.

.2 Inform Departmental 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 Departmental Representative.

2.4 INSTALLATION

.1 Install in accordance with manufacturer's instructions.

2.5 ANCHOR BOLTS AND TEMPLATES

.1 Size anchor bolts to withstand seismic acceleration and velocity forces.

2.6 CLEANING

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

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

.1 CSA Group

.1 CSA C22.1-18, Canadian Electrical Code, Part 1 (24nd Edition), Safety Standard for Electrical Installations.

.2 CAN3-C235-83 (R2010), Preferred Voltage Levels for AC Systems, 0 to 50,000 V.

.2 Institute of Electrical and Electronics (IEEE)/National Electrical Safety Code Product Line (NESC)

.1 IEEE SP1122-2000, The Authoritative Dictionary of IEEE Standards Terms, 7th Edition.

1.2 DEFINITIONS

.1 Electrical and electronic terms: unless otherwise specified or indicated, terms used in these specifications, and on drawings, are those defined by IEEE SP1122.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Shop drawings:

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

.2 Submit wiring diagrams and installation details of equipment indicating proposed location, layout and arrangement, control panels, accessories, piping, ductwork, and other items that must be shown to ensure co-ordinated installation.

.3 Identify on wiring diagrams circuit terminals and indicate internal wiring for each item of equipment and interconnection between each item of equipment.

.4 Indicate of drawings clearances for operation, maintenance, and replacement of operating equipment devices.

.2 Certificates:

.1 Provide CSA certified material.

.2 Where CSA certified material is not available, submit such material to inspection authorities for approval before delivery to site.

.3 Submit test results of installed electrical systems and instrumentation.

.4 Permits and fees: in accordance with General Conditions of contract.

.5 Submit certificate of acceptance from authority having jurisdiction upon completion of Work to Departmental Representative.

1.4 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.

.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 in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

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

.3 Replace defective or damaged materials with new.

Part 2 Products

2.1 DESIGN REQUIREMENTS

.1 Operating voltages: to CAN3-C235.

.2 Motors, electric heating, control and distribution devices and equipment to operate satisfactorily at 60 Hz within normal operating limits established by above standard.

.1 Equipment to operate in extreme operating conditions established in above standard without damage to equipment.

2.2 MATERIALS AND EQUIPMENT

.1 Provide material in accordance with Section 01 61 00 - Common Product Requirements.

.2 Material to be CSA certified. Where CSA certified material not available, obtain special approval from inspection authorities before delivery to site and submit such approval as described in PART 1 - ACTION AND INFORMATIONAL SUBMITTALS.

2.3 WIRING TERMINATIONS

.1 Ensure lugs, terminals, screws used for termination of wiring are suitable for either copper or aluminum conductors.

2.4 WIRING IDENTIFICATION

.1 Identify wiring with permanent indelible identifying markings, numbered, on both ends of phase conductors of feeders and branch circuit wiring.

.2 Maintain phase sequence and colour coding throughout.

.3 Colour coding: to CSA C22.1.

.4 Use colour coded wires in communication cables, matched throughout system.

2.5 CONDUIT AND CABLE IDENTIFICATION

.1 Colour 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 Colours: 25 mm wide prime colour and 20 mm wide auxiliary colour.

Type	Prime	Auxiliary
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 Communication Systems	Green	Blue
Fire Alarm	Red	
Emergency Voice	Red	Blue
Other Security Systems	Red	Yellow

2.6 FINISHES

.1 Shop finish metal enclosure surfaces by application of rust resistant primer inside and outside, and at least two coats of finish enamel.

Part 3 Execution

3.1 EXAMINATION

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

.1 Visually inspect substrate in presence of Departmental Representative.

.2 Inform Departmental 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 Departmental Representative.

3.2 INSTALLATION

.1 Do complete installation in accordance with CSA C22.1 except where specified otherwise.

3.3 NAMEPLATES AND LABELS

.1 Ensure manufacturer's nameplates, CSA labels and identification nameplates are visible and legible after equipment is installed.

3.4 CONDUIT AND CABLE INSTALLATION

.1 If plastic sleeves are used in fire rated walls or floors, remove before conduit installation.

.2 Install cables, conduits and fittings embedded or plastered over, close to building structure so furring can be kept to minimum.

3.5 LOCATION OF OUTLETS

.1 Locate outlets in accordance with Section 26 05 32 - Outlet Boxes, Conduit Boxes and Fittings.

.2 Change location of outlets at no extra cost or credit, providing distance does not exceed 3 000 mm, and information is given before installation.

3.6 MOUNTING HEIGHTS

.1 Mounting height of equipment is from finished floor to centreline of equipment unless specified or indicated otherwise.

.2 If mounting height of equipment is not specified or indicated, verify before proceeding with installation.

.3 Install electrical equipment at following heights unless indicated otherwise.

.1 Rooftop switches: 750 mm.

3.7 FIELD QUALITY CONTROL

.1 Conduct following tests in accordance with Section 01 45 00 - Quality Control.

.1 Circuits originating from branch distribution panels.

.2 Motors, heaters and associated control equipment including sequenced operation of systems where applicable.

.3 Insulation resistance testing:

.1 Megger circuits, feeders and equipment up to 350 V with a 500 V instrument.

.2 Megger 350-600 V circuits, feeders and equipment with a 1000 V instrument.

.3 Check resistance to ground before energizing.

.2 Carry out tests in presence of Departmental Representative.

.3 Provide instruments, meters, equipment and personnel required to conduct tests during and at conclusion of project.

3.8 CLEANING

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

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

.1 CSA Group (CSA)

.1 CAN/CSA-C22.2 No.18-98 (R2003), Outlet Boxes, Conduit Boxes and Fittings.

.2 CAN/CSA-C22.2 No.65-03 (R2008), Wire Connectors (Tri-National Standard with UL 486A-486B and NMX-J-543-ANCE-03).

.2 National Electrical Manufacturers Association (NEMA)

Part 2 Products

2.1 MATERIALS

.1 Pressure type wire connectors to: CAN/CSA-C22.2 No.65, with current carrying parts of copper alloy sized to fit copper conductors as required.

.2 Bushing stud connectors: to NEMA to consist of:

.1 Connector body and stud clamp for tube or bar copper.

Part 3 Execution

3.1 INSTALLATION

.1 Remove insulation carefully from ends of conductors cables and:

.1 Apply coat of zinc joint compound on aluminum conductors prior to installation of connectors.

.2 Install mechanical pressure type connectors and tighten screws. Installation shall meet secureness tests in accordance with CAN/CSA-C22.2 No.65.

.3 Install fixture type connectors and tighten to CAN/CSA-C22.2 No.65. Replace insulating cap.

.4 Install bushing stud connectors in accordance with NEMA.

END OF SECTION

Part 1 General

1.1 PRODUCT DATA

.1 Provide product data in accordance with Section 01 33 00 - Submittal Procedures.

Part 2 Products

2.1 BUILDING WIRES

.1 Conductors: stranded for 10 AWG and larger. Minimum size: 12 AWG.

.2 Copper conductors: size as indicated, with 600 V insulation of cross-linked thermosetting polyethylene material rated RW90 XLPE, Jacketted.

Part 3 Execution

3.1 GENERAL CABLE INSTALLATION

.1 Terminate cables in accordance with Section 26 05 20 - Wire and Box Connectors - (0-1000 V).

.2 Cable Colour Coding: to Section 26 05 00 - Common Work Results for Electrical.

.3 Conductor length for parallel feeders to be identical.

.4 Lace or clip groups of feeder cables at distribution centres, pull boxes, and termination points.

.5 Branch circuit wiring for surge suppression receptacles and permanently wired computer and electronic equipment to be 2-wire circuits only, i.e. common neutrals not permitted.

.6 Provide numbered wire collars for control wiring. Numbers to correspond to control shop drawing legend. Obtain wiring diagram for control wiring.

3.2 INSTALLATION OF BUILDING WIRES

.1 Install wiring as follows:

.1 In conduit systems in accordance with Section 26 05 34 - Conduits, Conduit Fastenings and Conduit Fittings.

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

.1 CSA Group

.1 CSA C22.1-18, Canadian Electrical Code, Part 1 (24nd Edition), Safety Standard for Electrical Installations.

.2 CSA C22.2 No.41-13, Grounding and Bonding Equipment (Tri-National Standard, with NMX-J-590ANCE and UL 467).

.3 CSA C22.2 No.65-13, Wire connectors (Tri-National Standard, with UL 486A-486B NMX-J-543-ANCE).

1.2 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 connectors and terminations and include product characteristics, performance criteria, physical size, finish and limitations.

Part 2 Products

2.1 CONNECTORS AND TERMINATIONS

.1 Copper compression connectors to CSA C22.2 No.65 as required sized for conductors.

.2 Contact aid for aluminum cables where applicable.

Part 3 Execution

3.1 INSTALLATION

.1 Install stress cones, terminations, and splices in accordance with manufacturer's instructions.

.2 Bond and ground as required to CSA C22.2No.41.

END OF SECTION

Part 1 General

1.1 ACTION AND INFORMATIONAL SUBMITTALS

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

Part 2 Products

2.1 OUTLET AND CONDUIT BOXES GENERAL

.1 Size boxes in accordance with CSA C22.1.

.2 PVC boxes in accordance with CSA C22.2 no 85.

.3 For network using PVC conduits, boxes and locknuts also need to be in PVC.

Part 3 Execution

3.1 INSTALLATION

.1 Support boxes independently of connecting conduits.

.2 Fill boxes with paper, sponges or foam or similar approved material to prevent entry of debris during construction. Remove upon completion of work.

.3 For flush installations mount outlets flush with finished wall using plaster rings to permit wall finish to come within 6 mm of opening.

.4 Vacuum clean interior of outlet boxes before installation of wiring devices.

.5 Identify systems for outlet boxes as required.

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

.1 CSA Group (CSA)

- .1 CAN/CSA C22.2 No. 18-98 (R2003), Outlet Boxes, Conduit Boxes, Fittings and Associated Hardware, A National Standard of Canada.
- .2 CSA C22.2 No. 56-04, Flexible Metal Conduit and Liquid-Tight Flexible Metal Conduit.
- .3 CSA C22.2 No. 83-M1985 (R2003), Electrical Metallic Tubing.
- .4 CSA C22.2 No. 211.2-M1984 (R2003), Rigid PVC (Unplasticized) Conduit.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product data: submit manufacturer's printed product literature, specifications and datasheets.

Part 2 Products

2.1 CABLES AND REELS

.1 Provide cables on reels or coils.

- .1 Mark or tag each cable and outside of each reel or coil, to indicate cable length, voltage rating, conductor size, and manufacturer's lot number and reel number.

.2 Each coil or reel of cable to contain only one continuous cable without splices.

2.2 CONDUITS

.1 EMT conduits according to CSA C22.2 No. 83.

.2 PVC rigid conduits according to CSA C22.2 No. 211.2.

.3 Flexibles metallic conduits according to CSA C22.2 No. 56, liquidproof.

2.3 CONDUIT FASTENINGS

.1 One hole steel straps to secure surface conduits 50 mm and smaller.

- .1 Two hole steel straps for conduits larger than 50 mm.

.2 Channel type supports for two or more conduits on centre.

.3 Threaded rods, 6 mm diameter, to support suspended channels.

2.4 CONDUIT FITTINGS

.1 Fittings: to CAN/CSA C22.2 No. 18, manufactured for use with conduit specified. Coating: same as conduit.

.2 Factory built L bends; to be used where 90 degrees bends are required for 25 mm and larger conduits.

.3 Watertight connectors and couplings for EMT.

.1 Set-screws are not acceptable.

2.5 FISH CORD

.1 Polypropylene.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

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

3.2 INSTALLATION

.1 Install conduits to conserve headroom in exposed locations and cause minimum interference in spaces through which they pass.

.2 Conceal conduits except in mechanical and electrical service rooms.

.3 Surface mount conduits.

.4 Use electrical metallic tubing (EMT).

.5 Use rigid pvc conduit on rooftop.

.6 Use flexible liquidproof metal conduit for connection to motors or vibrating equipment located in humid or wet location.

.7 Minimum conduit size for lighting and power circuits: 19 mm.

.8 Bend conduit cold:

.1 Replace conduit if kinked or flattened more than 1/10th of its original diameter.

.9 Mechanically bend steel conduit over 19 mm diameter.

.10 Install fish cord in empty conduits.

.11 Remove and replace blocked conduit sections.

.1 Do not use liquids to clean out conduits.

.12 Dry conduits out before installing wire.

3.3 SURFACE CONDUITS

.1 Run parallel or perpendicular to building lines.

.2 Group conduits wherever possible on suspended or surface channels.

.3 Do not pass conduits through structural members except as indicated.

.4 Do not locate conduits less than 75 mm parallel to steam or hot water lines with minimum of 25 mm at crossovers.

3.4 CONCEALED CONDUITS

.1 Run parallel or perpendicular to building lines.

.2 Do not install horizontal runs in masonry walls.

.3 Do not install conduits in terrazzo or concrete toppings.

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

.1 CSA Group (CSA)

.1 CSA C22.2 No.42-10, General Use Receptacles, Attachment Plugs and Similar Devices.

1.2 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 wiring devices and include product characteristics, performance criteria, physical size, finish and limitations.

Part 2 Products

2.1 RECEPTACLES

.1 Duplex receptacles, CSA type 5-20 R, 125 V, 20 A, U ground, to: CSA C22.2 No.42, NEMA WD1 and NEMA WD6, with ground fault circuit interrupter with following features:

.1 White urea moulded housing.

.2 Suitable for No. 10 AWG for back and side wiring.

.3 Break-off links for use as split receptacles.

.4 Eight back wired entrances, four side wiring screws.

.5 Double wipe contacts and rivetted grounding contacts.

.6 Ground fault circuit interrupter device with interrupting capacity of 10kA.

.7 Red LED indication light for detection and open protection.

.8 «test » and « reset » buttons.

.9 Breaker trip level from 4 to 6 mA in a 0.025 sec (class A).

.2 Other receptacles with ampacity and voltage as indicated.

.3 Receptacles of one manufacturer throughout project.

2.2 COVER PLATES

.1 Cover plates for wiring devices to: CSA C22.2 No.42.1.

.2 Outlets located outdoor or in humid location will be completed with a cover plate with the following features:

.1 Need to be waterproof even when in used (with plugs in).

.2 For vertical or horizontal installation.

.3 One or two gang as per drawings.

.3 For the whole project, only use cover plates from one and only manufacturer.

Part 3 Execution

3.1 INSTALLATION

.1 Receptacles:

.1 Mount receptacles at height in accordance with Section 26 05 00 - Common Work Results for Electrical.

.2 Install GFI type receptacles as indicated.

.2 Cover plates:

.1 Do not use cover plates meant for flush outlet boxes on surface-mounted boxes.

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

.1 CSA Group (CSA)

.1 CSA C22.2 No. 5-09, Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures (Tri-national standard with UL 489, and NMX-J-266-ANCE-2010).

1.2 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 circuit breakers and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Certificates:

.1 Prior to installation of circuit breakers in either new or existing installation, Contractor must submit 2 copies of a production certificate of origin from the manufacturer. Production certificate of origin must be duly signed by factory and local manufacturer's representative certifying that circuit breakers come from this manufacturer and are new and meet standards and regulations.

.1 Production certificate of origin must be submitted to Departmental Representative for approval.

.2 Delay in submitting production of certificate of origin will not justify any extension of contract and additional compensation.

.3 Any work of manufacturing, assembly or installation to begin only after acceptance of production certificate of origin by Departmental Representative. Unless complying with this requirement, Departmental Representative reserves the right to mandate manufacturer listed on circuit breakers to authenticate new circuit breakers under the contract, and to Contractor's expense.

.4 Production certificate of origin must contain:

.1 Manufacturer's name and address and person responsible for authentication. Person responsible must sign and date certificate.

.2 Licensed dealer's name and address and person of distributor responsible for Contractor's account.

.3 Contractor's name and address and person responsible for project.

.4 Local manufacturer's representative name and address. Local manufacturer's representative must sign and date certificate.

.5 Name and address of building where circuit breakers will be installed:

.1 Project title: [_____].

.2 End user's reference number: [_____].

.3 List of circuit breakers: [_____].

Part 2 Products

2.1 BREAKERS GENERAL

.1 Moulded-case circuit breakers: to CSA C22.2 No. 5

.2 Bolt-on moulded case circuit breaker: quick- make, quick-break type, for manual and automatic operation [with temperature compensation for 40 degrees C ambient].

.3 Common-trip breakers: with single handle for multi-pole applications.

.4 Magnetic instantaneous trip elements in circuit breakers to operate only when value of current reaches setting.

.1 Trip settings on breakers with adjustable trips to range from 3-8 times current rating.

.5 Circuit breakers with interchangeable trips.

.6 Circuit breakers to have minimum 10 kA symmetrical rms interrupting capacity rating.

.7 When breakers are to be installed in an existing panel, provide model with an interrupting capacity equal or greater than the existing breakers from the same manufacturer as the panel. Those breakers will be new.

2.2 THERMAL MAGNETIC BREAKERS

.1 Moulded case circuit breaker to operate automatically by means of thermal and magnetic tripping devices to provide inverse time current tripping and instantaneous tripping for short circuit protection.

Part 3 Execution

3.1 INSTALLATION

.1 Install circuit breakers in existing panels.

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

.1 CSA Group

.1 CAN/CSA-C22.2 No.4-04 (R2009), Enclosed and Dead-Front Switches (Tri-National Standard, with ANCE NMX-J-162-2004 and UL 98).

1.2 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 disconnect switches - non-fused and include product characteristics, performance criteria, physical size, finish and limitations.

Part 2 Products

2.1 DISCONNECT SWITCHES

.1 Non-fusible disconnect switch in CSA enclosure, to CAN/CSA-C22.2 No.4 and to NEMA KS 1, size as indicated.

.2 Provision for padlocking in off switch position by 3 locks.

.3 Mechanically interlocked door to prevent opening when handle in ON position.

.4 Quick-make, quick-break action.

.5 ON-OFF switch position indication on switch enclosure cover.

.6 For outdoor uses, NEMA 4X type.

2.2 EQUIPMENT IDENTIFICATION

.1 Provide equipment identification in accordance with Section 26 05 00 - Common Work Results for Electrical.

.2 Indicate name of load controlled on size 4 nameplate.

Part 3 Execution

3.1 EXAMINATION

.1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for disconnect switches - fused and non-fused installation in accordance with manufacturer's written instructions.

.1 Visually inspect substrate.

.2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.

.3 Proceed with installation only after unacceptable conditions have been remedied.

3.2 INSTALLATION

.1 Install disconnect switches.

END OF SECTION