Archambault Institution – Finishing Kitchen

Saint-Anne-des-Plaines, QC

PUBLIC WORKS AND GOUVERNMENT SERVICES CANADA : R.067720.800
CORRECTIONNAL SERVICE CANADA : 550-2-341-3403

SPECIFICATIONS - ISSUED FOR TENDER

PART 1 OF 2

ISSUE DATE : REVISION 1 - 2016-09-29

ARCHITECTURE – DFS INC.

Ordre des architectes du Québec
3784
JEAN-FRANÇOIS FORTIN
ARCHITECTE

STRUCTURE – SDK et associés

INGÉNIEUR
Pierre-Olivier Gingras
5017792
QUÉBEC

MECHANICAL – PAGEAU MOREL et associés inc.

INGÉNIEUR
Marc-Olivier de Tilly
144773
QUÉBEC
2016-09-07

ELECTRICITY - PAGEAU MOREL et associés inc.

INGÉNIEUR · ENGINEER
Alain Boulet
44788
QUÉBEC
07/09/2016

FOOD SERVICES – BERNARD et associés

FOODSERVICE ORGANIZATIONS SOCIETY INTERNATIONAL · PROFESSIONAL MEMBER · INGÉNIEUR
164
FCSI
J. CLAUDE GUERETTE

ANNEX :

DRAWING LIST :

ARCHITECTURE

STRUCTURE

MECHANICAL

ELECTRICAL

SECURITY

FOOD SERVICES

END OF SECTION

Part 1 General

1.1 WORK BY OTHERS

.1 Co-operate with other Contractors in carrying out their respective works and carry out instructions from Departmental Representative.

.2 Co-ordinate work with that of other Contractors. If any part of the work under this Contract depends for its proper execution or result upon the work of another Contractor, report promptly to Departmental Representative, in writing, any defects which may interfere with proper execution of Work.

1.2 WORK SCHEDULE

.1 Schedule must include work performed By Shared Services Canada. Departement representative will provide SSC's work schedule. Separation of work in time and space must be maintained at all time.

1.3 FUTURE WORK

.1 Ensure that Work avoids encroachment into areas required for future work.

1.4 WORK SEQUENCE

.1 Construct Work in stages to accommodate Departmental Representative's continued use of premises during construction.

.2 Co-ordinate Progress Schedule and co-ordinate with Occupancy during construction.

.3 Required stages

.1 Prioritize completing the demolition and construction work in the designated zone of the loading dock in order to free the two existing offices for the Departmental Representative's use.

.2 Modify the limits of the work site by erecting a temporary partition in accordance with the requirements of section 01 56 00, Temporary Barriers and Enclosures. See drawings.

1.5 CONTRACTOR'S USE OF PREMISES

.1 Limit use of premises for Work, for storage and for access to allow:

.1 Partial occupancy by Departmental Representative.

.2 Work by other contractors.

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

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

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

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

.6 At completion of operations condition of existing work: equal to or better than that which existed before new work started.

1.6 PARTIAL OCCUPANCY BY DEPARTMENTAL REPRESENTATIVE

.1 Schedule and substantially complete designated portions of Work for occupancy by Departmental Representative at the Substantial Performance of entire Work of this contract.

1.7 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING

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

.2 Use only designated routes and locations existing in building for moving workers and material.

.1 Protect designated installations to approval of Departmental Representative prior to use.

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

1.8 EXISTING SERVICES

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

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

.3 Provide alternative routes for personnel, pedestrian and vehicular traffic.

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

.5 Submit schedule and obtain approval from Departmental Representative for any shut-down or closure of active service or facility including power and communications services. Adhere to approved schedule and provide notice to affected parties.

1. During all scheduled electrical shutdown, provide work plan to Departement Representative for approbation. Schedule 10 days for revision of each version of the work plan until final version is complete and approved. Electrical shutdown must be coordinated with the Institution seventy-two hours prior and may not commence before formal approval.

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

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

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

.9 Record locations of maintained, rerouted and abandoned service lines.

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

1.9 DOCUMENTS REQUIRED

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

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

Part 2 Products

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 NOT USED

.1 Not used.

END OF SECTION

Part 1 General

1.1 RELATED SECTION

.1 Section 01 35 13 - Special project procedures for Correctional Service Canada security requirements

1.2 ACCESS AND EGRESS

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

.2 The exterior delineated zone cannot be used as a parking area, it is used for deliveries and storage only.

.3 All personnel assigned to this Work must access worksite through the main entrance indicated on the drawings.

.4 Access to roofs : access roofs by the exterior of the buildings.

.5 Work outside described work area : All work carried out outside the designated work area must be performed at night between 23H and 7H. Coordinate work with Departmental Representative seven (7) days before work.

1.3 USE OF SITE AND FACILITIES

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

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

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

.4 Contractor will assign and maintain sanitary facilities for use by Contractor's personnel. Keep facilities clean.

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

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

.7 Power and lighting supply: supply the services, including the distribution ***and connections*** required for temporary power needed for lighting and tools

operation for the duration of the Work. The cost of electricity will be paid by the Owner.

1.4 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING

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

1.5 EXISTING SERVICES

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

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

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

1.6 SPECIAL REQUIREMENTS

.1 Refer to Section 01 35 13 – Special Project Procedures with Regards to Security Requirements of Correctional Services Canada (CSC) QuébecRegion).

.2 Submit schedule in accordance with Section 01 32 16.07 - Construction Progress Schedule - Bar (GANTT) Chart.

.3 Ensure Contractor's personnel employed on site become familiar with and obey regulations including safety, fire, traffic and security regulations.

.4 Keep within limits of work and avenues of ingress and egress.

1.7 SECURITY CLEARANCES

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

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

1.8 SECURITY ESCORT

.1 Personnel employed on this project must be escorted from there point of arrival at the main entrance and the designated work zone and when leaving the work zone

back to the main entrance after their shift, and also when executing work outside the main designated work zone.

.2 Submit an escort request to Departmental Representative at least 48 hours before service is needed. For requests submitted within time noted above, costs of security escort will be paid for by Departmental Representative. Cost incurred by late request will be Contractor's responsibility.

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

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

1.9 SMOKE-FREE ENVIRONMENT

.1 Contractors and construction workers are not allowed to smoke inside the correctional institutions or outside within the perimeter of a correctional institution. They are not allowed to have unauthorized tobacco products inside that perimeter.

.2 Contractors and construction workers who contravene with this policy will be asked to stop smoking immediately or to disregard all unauthorized tobacco products. If they refuse to comply, they will be directed to leave de premises.

.3 It will only be allowed to smoke outside the perimeter of the correctional institution at a location designated by the Director.

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 ADMINISTRATIVE

.1 Schedule and administer project meetings throughout the progress of the work.

.2 Prepare agenda for meetings.

.3 Distribute written notice of each meeting four days in advance of meeting date to Departmental Representative.

.4 Provide physical space and make arrangements for meetings.

.5 Representative of Contractor, Subcontractor and suppliers attending meetings will be qualified and authorized to act on behalf of party each represents.

1.2 PRECONSTRUCTION MEETING

.1 Within 15 days after award of Contract, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.

.2 Departmental Representative, Contractor, major Subcontractors, field inspectors and supervisors will be in attendance.

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

.4 Incorporate mutually agreed variations to Contract Documents into Agreement, prior to signing.

.5 Agenda to include:

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

.2 Schedule of Work: in accordance with Section 01 32 16.07 – Construction Progress Schedule – Bar Chart (GANTT).

.3 Schedule of submission of shop drawings, samples, colour chips. Submit submittals in accordance with Section 01 11 01 - General informations on the work

.4 Delivery schedule of specified equipment in accordance with 01 11 01 - General informations on the work

.5 Site security in accordance with Section 01 11 01 - General informations on the work

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

.7 Record drawings in accordance with Section 01 33 00 – Submittal Procedure.

.8 Maintenance manuals and warranties in accordance with Section 01 78 00 – Closeout Submittal.

.9 Take-over procedures and acceptance.

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

.11 Appointment of inspection and testing agencies or firms.

.12 Insurances, transcript of policies.

1.3 PROGRESS MEETINGS

.1 During course of Work and 2 weeks prior to project completion, schedule progress meetings every two weeks.

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

.3 Notify parties minimum 5 days prior to meetings.

.4 Agenda to include the following:

.1 Review, approval of minutes of previous meeting.

.2 Review of Work progress since previous meeting.

.3 Field observations, problems, conflicts.

.4 Problems which impede construction schedule.

.5 Review of off-site fabrication delivery schedules.

.6 Corrective measures and procedures to regain projected schedule.

.7 Revision to construction schedule.

.8 Progress schedule, during succeeding work period.

.9 Review submittal schedules: expedite as required.

.10 Maintenance of quality standards.

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

.12 Other business.

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 DEFINITIONS

.1 Activity: element of Work performed during course of Project. Activity normally has expected duration, and expected cost and expected resource requirements. Activities can be subdivided into tasks.

.2 Bar Chart (GANTT Chart): graphic display of schedule-related information. In typical bar chart, activities or other Project elements are listed down left side of chart, dates are shown across top, and activity durations are shown as date-placed horizontal bars. Generally, Bar Chart should be derived from commercially available computerized project management system.

.3 Baseline: original approved plan (for project, work package, or activity), plus or minus approved scope changes.

.4 Construction Work Week: Monday to Friday, inclusive, will provide five-day work week and define schedule calendar working days as part of Bar (GANTT) Chart submission.

.5 Duration: number of work periods (not including holidays or other nonworking periods) required to complete activity or other project element. Usually expressed as workdays or workweeks.

.6 Master Plan: summary-level schedule that identifies major activities and key milestones.

.7 Milestone: significant event in project, usually completion of major deliverable.

.8 Project Schedule: planned dates for performing activities and the planned dates for meeting milestones. Dynamic, detailed record of tasks or activities that must be accomplished to satisfy Project objectives. Monitoring and control process involves using Project Schedule in executing and controlling activities and is used as basis for decision making throughout project life cycle.

.9 Project Planning, Monitoring and Control System: overall system operated by Departmental Representative to enable monitoring of project work in relation to established milestones.

1.2 REQUIREMENTS

.1 Ensure Master Plan and Detail Schedules are practical and remain within specified Contract duration.

.2 Plan to complete Work in accordance with prescribed milestones and time frame.

.3 Limit activity durations to maximum of approximately 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, Interim Certificate and Final Certificate as defined times of completion are of essence of this contract.

1.3 SUBMITTALS

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

.2 Submit to Departmental Representative within 10 working days 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 5 working days of receipt of acceptance of Master Plan.

1.4 MASTER PLAN

.1 Structure schedule to allow orderly planning, organizing and execution of Work as Bar Chart (GANTT).

.2 Departmental Representative will review and return revised schedules within 5 working days.

.3 Revise impractical schedule and resubmit within 5 working days.

.4 Accepted revised schedule will become Master Plan and be used as baseline for updates

1.5 PROJECT SCHEDULE

.1 Develop detailed Project Schedule derived from Construction documents.

.2 Ensure detailed Project Schedule includes as minimum milestone and activity types as follows:

.1 Award.
.2 Shop Drawings, Samples.
.3 Permits.
.4 Mobilization.
.5 Asbestos Removal
.6 Demolition work
.7 New salb on grade
.8 Structural Steel.
.9 Siding and Roofing.
.10 Interior Architecture (Walls, Floors and Ceiling).
.11 Plumbing.
.12 Lighting.
.13 Electrical.
.14 Piping.
.15 Controls.
.16 Heating, Ventilating, and Air Conditioning.

.17 Fire Systems.
.18 Testing and Commissioning.
.19 Supplied equipment long delivery items.
.20 Works By Shared Services Canada (SSC)
.21 Operations and Maintenance Manual.
.22 Electrical Shutdown (electrical connection)
.23 Work outside Contract Zone

1.6 PROJECT SCHEDULE REPORTING

.1 Update Project Schedule on weekly basis reflecting activity changes and completions, as well as activities in progress.

.2 Include as part of Project Schedule, narrative report identifying Work status to date, comparing current progress to baseline, presenting current forecasts, defining problem areas, anticipated delays and impact with possible mitigation.

.3 WEEKLY WORK PLANIFICATION REPORT

.1 Submit on a weekly basis, during the week preceding the execution of the work in the project schedule, a report describing the planned work for the next three (3) weeks, 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.

1.7 PROJECT MEETINGS

.1 Discuss Project Schedule at regular site meetings, identify activities that are behind schedule and provide measures to regain slippage. Activities considered behind schedule are those with projected start or completion dates later than current approved dates shown on baseline schedule.

.2 Weather related delays with their remedial measures will be discussed and negotiated.

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 ADMINISTRATIVE

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

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

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

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

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

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

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

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

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

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

1.2 SHOP DRAWINGS AND PRODUCT DATA

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

.2 Submit drawings stamped and signed by a professional engineer registered or licensed in the province of Québec.

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

.4 Allow 10 days for Departmental Representative's review of each submission.

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

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

.7 Accompany submissions with transmittal letter, in duplicate, containing:
- .1 Date.
- .2 Project title and number.
- .3 Contractor's name and address.
- .4 Identification and quantity of each shop drawing, product data and sample.
- .5 Other pertinent data.

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

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

.10 Submit one (1) electronic copy of shop drawings for each requirement requested in specification Sections and as Departmental Representative may reasonably request.

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

.12 Submit one (1) electronic copy of test reports for requirements requested in specification Sections and as requested by Departmental Representative.
- .1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.
- .2 Testing must have been done within 3 years of date of contract award for project.

.13 Submit one (1) electronic copy of certificates for requirements requested in specification Sections and as requested by Departmental Representative.
- .1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.
- .2 Certificates must be dated after award of project contract complete with project name.

.14 Submit one (1) electronic copy of manufacturers instructions for requirements requested in specification Sections and as requested by Departmental Representative.
- .1 Pre-printed material describing installation of product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.

.15 Submit one (1) electronic copy of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Departmental Representative.

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

.17 Submit one (1) electronic copy of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Departmental Representative.

.18 Delete information not applicable to project.

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

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

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

.1 This review shall not mean that the Departmental Representative approves detail design inherent in shop drawings, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or omissions in shop drawings or of responsibility for meeting requirements of construction and Contract Documents.

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

1.3 SAMPLES

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

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

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

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

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

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

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

1.4 MOCK-UPS

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

1.5 PHOTOGRAPHIC DOCUMENTATION

.1 Submit electronic and hard copy of colour digital photography, fine resolution in jpg format monthly with progress statement and as directed by Departmental Representative.

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

.3 Number of viewpoints: 4 locations.
.1 Viewpoints and their location as determined by Departmental Representative.

.4 Frequency of photographic documentation: weekly as directed by Departmental Representative.

1.6 CERTIFICATES AND TRANSCRIPTS

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

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

Part 2 Products

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 NOT USED

.1 Not used.

END OF SECTION

Part 1 - GENERAL

1.1 General conditions

.1 The General Conditions of the Contract for Construction as well as the amendments and Supplemental General Conditions apply to this section.

.2 If all or part of the work described in the specifications and drawings is carried out by one or more subcontractors, the Contractor remains responsible for the quality of the work in its entirety.

1.2 Purpose

.1 To ensure that both the construction project and the institutional operations may proceed without undue disruption or hindrance and that the security of the Institution is maintained at all times.

1.3 Definitions

.1 "Contraband" means:

.1 an intoxicant, including alcoholic beverages, drugs and narcotics;

.2 a weapon or a component thereof, ammunition for a weapon, and anything that is designed to kill, injure or disable a person or that is altered so as to be capable of killing, injuring or disabling a person, when possessed without prior authorization;

.3 an explosive or a bomb or a component thereof;

.4 currency over any applicable prescribed limit $25.00, and

.5 any item not described in paragraphs (a) to (d) that could jeopardize the security of a Penitentiary or the safety of persons, when that item is possessed without prior authorization.

2 “Unauthorized Smoking Items” means all smoking items including, but not limited to, cigarettes, cigars, tobacco, chewing or snuffing tobacco, cigarette making machines, matches and lighters.

.3 "Commercial Vehicle" means any motor vehicle used for the shipment of material, equipment and tools required for the construction project.

.4 "CSC" means Correctional Service Canada.

.5 "Director" means Director or Warden of the Institution as applicable or their representative.

.6 "Construction employees" means persons working for the general contractor, the sub-contractors, equipment operators, material suppliers, testing and inspection companies and regulatory agencies.

.7 “Departmental Representative” means the Public Works and Government Services Canada (PWGSC) or the Correctional Service Canada (CSC) project manager depending on project.

.8 "Perimeter" means the fenced or walled area of the institution that restrains the movement of the inmates.

.9 "Construction zone" means the area as shown on the contract drawings where the contractor will be allowed to work. This area may or may not be isolated from the security area of the institution.

1.4 Preliminary proceedings

.1 Prior to the commencement of work, the contractor shall meet with the Director to:

.1 Discuss the nature and extent of all activities involved in the Project.

.2 Establish mutually acceptable security procedures in accordance with this instruction and the institution's particular requirements.

.2 The contractor will:

.1 Ensure that all construction employees are aware of the CSC security requirements.

.2 Ensure that a copy of the CSC security requirements is always prominently on display at the job site.

.3 Co-operate with institutional personnel in ensuring that security requirements are observed by all construction employees.

1.5 Construction employees

.1 Submit to the Director a list of the names with date of birth of all construction employees to be employed on the construction site and a security clearance form for each employee.

.2 Allow ten (10) open days for processing of security clearances. Employees will not be admitted to the Institution without a valid security clearance in place and recent picture identification such as a provincial driver's license. Security clearances obtained from other CSC institutions are not valid at the institution where the project is taking place.

.3 The Director may require that facial photographs may be taken of construction employees and these photographs may be displayed at appropriate locations in the institution or in an electronic database for identification purposes. The Director may require that Photo ID cards be provided for all construction workers. ID cards will then be left at the designated entrance to be picked up upon arrival at the institution and shall be displayed prominently on the construction employees clothing at all times while employees are at the institution.

.4 Entry to Institutional Property will be refused to any person who there may be reason to believe may be a security risk.

.5 Any person employed on the construction site will be subject to immediate removal from Institutional Property if they:

.1 appear to be under the influence of alcohol, drugs or narcotics.

.2 behave in an unusual or disorderly manner.

.3 are in possession of contraband.

1.6 Vehicles

.1 All unattended vehicles on CSC property shall have windows closed; doors and trunks

shall be locked and keys removed. The keys shall be securely in the possession of the owner or an employee of the company that owns the vehicle.

.2 The director may limit at any time the number and type of vehicles allowed on the Institution premises.

.3 Drivers of delivery vehicles for material required by the project shall not require security clearances but must remain with their vehicle the entire time that they are at the Institution. The director may require that these vehicles be escorted by Institutional staff or Commissionaires while in the Institution. All drivers are required to have security clearances

.4 If the Director permits trailers to be left inside the secure perimeter of the Institution, the trailer doors will be locked at all times. All windows will be securely locked when the trailers are left unoccupied. All trailer windows shall be covered with expanded metal mesh. All storage trailers inside and outside the perimeter must be locked when not in use.

1.7 Parking

.1 The parking area(s) to be used by construction employees will be designated by the Director. Parking in other locations will be prohibited and vehicles may be subject to removal.

1.8 Shipments

.1 All shipments of project material, equipment and tools shall be addressed to the Contractor to avoid confusion with the institution's own shipments. The contractor must have his own employees on site to receive any deliveries or shipments. CSC staff will NOT accept deliveries or shipments of any material, equipment or tools for the contractor.

1.9 Telephones

.1 There will be no installation of telephones, fax machines and computers with Internet connections permitted within the perimeter of the institution unless prior approval of the Director is received.

.2 The Director will ensure that approved telephones, fax machines and computers with Internet connections are located where they are not accessible to inmates. All computers will have an approved password preventing access to the Internet by unauthorized personnel.

.3 Wireless cellular and digital telephones, including but not limited to devices for telephone messaging, pagers, BlackBerries, telephones used as 2-way radios, are not permitted within the perimeter of the Institution unless approved by the Director. If wireless cellular telephones are permitted, the user will not permit their use by any inmate.

.4 The Director may approve but limit the use of two way radios.

1.10 Work hours

.1 Work

.1 Work hours within the Institution are: Monday to Friday from 7:00 a.m. to 16:00 . Access on work site through the main access of Établissement Archambault. Workers will end their shift by exiting the work site by the main entrance of Établissement Archambault.

.2 Deliveries of equipment or material; recovery of wasteand other activities : through the service gate from 730 a,m, to 15:30.

.3 Overwork time: access to the worksite by the main access of Établissement Archambault, is from 15:30pm to 7:00 a.m. For workers only. No delivery, material transportation, tools or anything else. Workers will end their shift by exiting the work site by the main entrance of Établissement Archambault.

.4 Work outside described work area : All work carried out outside the designated work area as described in documents must be performed at night between 23:00 and 7:00am. Coordinate work with Departmental Representative seven (7) days before work.

.2 Work will not be permitted during weekends and statutory holidays without the permission of the Director. A minimum of four days advance notice will be required to obtain the required permission. In case of emergencies or other special circumstances, this advance notice may be cancelled by the Director.

1.11 Overtime work

.1 No overtime work will be allowed without permission from the Director. A minimum forty-eight (48) hours advance notice will be required when overtime work on the construction project is necessary and approved. If overtime work is required because of an emergency such as the completion of a concrete pour or work to make the construction safe and secure, the contractor shall advise the Director as soon as this condition is known and follow the directions given by the Director. Costs to Canada for such events may be attributed to the contractor.

.2 When overtime work, weekend or statutory holiday work is required and approved by the Director, extra staff members may be posted by the Director or his designate, to maintain the security surveillance. The actual cost of this extra staff may be attributed to the contractor.

1.12 Tools and equipment

.1 Maintain on site a complete list of all tools and equipment to be used during the construction project. Make this inventory available for inspection when required. Use form SCC-0765 Tool Register.

.2 Throughout the construction project maintain an up-to-date list of tools and equipment specified above.

.3 Keep all tools and equipment under constant supervision, particularly power-driven and cartridge-driven tools, cartridges, files, saw blades, rod saws, wire, rope, ladders and any sort of lifting device.

.4 Store all tools and equipment in approved secure locations.

.5 Lock all tool boxes when not in use. Keys to remain in the possession of the employees of the contractor.

.6 Scaffolding shall be secured and locked when not erected and, when erected, shall be secured in a manner agreed upon with the director.

.7 All missing or lost tools or equipment shall be reported immediately to the Director. Use form SCC-0766 – Missing Tools Report.

.8 The Director will ensure that the security staff members carry out checks of the contractor's tools and equipment against the list provided by the contractor:

.1 At the beginning and conclusion of every construction project.

.2 Weekly, when the construction project extends longer than a one week period.

.9 Certain tools/equipment such as cartridges and hacksaw blades are highly controlled items. At the beginning of the day, the contractor will be given a quantity for one day's work. Used blades/cartridges will be returned to the Director's representative at the end of each day. Use the form for the control of prohibited tools.

.10 If propane or natural gas is used for heating the construction, the institution will require that an employee of the contractor supervise the construction site during non-working hours.

1.13 Keys

.1 Security hardware keys

.1 N/A.

.2 Other Keys

.1 The contractor will use standard construction cylinders for finish locks.

.2 The contractor will issue instructions to his employees and sub-trades, as necessary, to ensure safe custody of the set of construction keys.

.3 Upon completion of the construction, the CSC representative will, in conjunction with the lock manufacturer:

.1 Prepare an operational keying schedule.

.2 Accept the operational keys and cylinders directly from the lock manufacturer.

.3 Arrange for removal and return of the construction cores and install the operational core in all locks.

.4 Upon putting operational keys into use, the CSC construction escort shall obtain these keys as they are required from the SMO and open doors as required by the contractor. The contractor shall issue instructions to his employees advising them that all security keys shall always remain with the CSC construction escort.

1.14 Security hardware

.1 Turn over all removed security hardware to the Director of the Institution for disposal or

for safekeeping until required for re-installation.

1.15 Prescription drugs

.1 Employees of the contractor who are required to take prescription drugs during the workday shall obtain approval of the Director to bring a one day supply only into the Institution.

1.16 Smoking Restrictions

.1 Contractors and construction employees are not permitted to smoke inside correctional facilities or outdoors within the perimeter of a correctional facility and must not possess unauthorized smoking items within the perimeter of a correctional facility.

.2 Contractors and construction employees who are in violation of this policy will be requested to immediately cease smoking or dispose of any unauthorized smoking items and, if they persist, will be directed to leave the institution.

.3 Smoking is only permitted outside the perimeter of a correctional facility in an area to be designated by the Director.

1.17 Contraband

.1 Weapons, ammunition, explosives, alcoholic beverages, drugs and narcotics are prohibited on institutional property.

.2 The discovery of contraband on the construction site and the identification of the person(s) responsible for the contraband shall be reported immediately to the Director.

.3 Contractors should be vigilant with both their staff and the staff of their sub-contractors and suppliers, as the discovery of contraband may result in cancellation of the security clearance of the affected employee. Serious infractions may result in the removal of the company from the Institution for the duration of the construction project.

.4 Presence of weapons and ammunition in vehicles of contractors, sub-contractors and suppliers or employees of these will result in the immediate cancellation of security clearances for the driver of the vehicle.

1.18 Searches

.1 All vehicles and persons entering institutional property may be subject to a search.

.2 If the Director suspects, on reasonable grounds, that an employee of the contractor is in possession of contraband or unauthorized items, he may order that person to be searched.

.3 All employees entering the Institution may be subject to screening of personal effects for traces of contraband drug residue.

1.19 Access to and Removal from Institutional Property

.1 Construction personnel and commercial vehicles will not be admitted to the institution after normal working hours, unless approved by the Director.

1.20 Movement of Vehicles

.1 Escorted commercial vehicles will be allowed to enter or leave the institution through the vehicle access gate during the following hours:

.1 8:15 a.m. to 3:30 a.m.
Construction vehicles shall not leave the Institution until an inmate count is completed.

.2 The contractor shall advise the Director twenty four (24) hours in advance of the arrival on site of heavy equipment such as concrete trucks, cranes, etc.

.3 Vehicles being loaded with soil or other debris, or any vehicle considered impossible to search, must be under continuous supervision by CSC staff or Commissioners working under the authority of the Director.

.4 Commercial vehicles will only be allowed access to institutional property when their contents are certified by the Contractor or his representative as being strictly necessary to the execution of the construction project.

.5 Vehicles shall be refused access to institutional property if, in the opinion of the Director, they contain any article which may jeopardize the security of the institution.

.6 Private vehicles of construction employees will not be allowed within the security perimeter of medium or maximum security institutions without the authorization of the Director.

.7 With prior approval of the Director, a vehicle may be used in the morning and evening to transport a group of employees to the work site. This vehicle will not remain on the Institution premises for the remainder of the day.

.8 With the approval of the Director, certain equipment may be permitted to remain on the construction site overnight or over the weekend. This equipment must be securely locked, with the battery removed. The Director may require that the equipment be secured with a chain and padlock to another fixed object.

1.21 Movement of construction employees on Institution premises

.1 Subject to security requirements, the Director will permit the contractor and his employees as much freedom of action and movement as is possible.

.2 However, notwithstanding the above paragraph, the Director may:

.1 Prohibit or restrict access to any part of the institution.

.2 Require that in certain areas of the institution, either during the entire construction project or at certain intervals, construction employees only be allowed access when escorted by a member of the CSC security staff or a commissioner.

.3 During lunch and coffee/health breaks, all construction employees will remain on the construction site. Construction employees are not permitted to eat in the officer's lounge or the dining room of the institution.

1.22 Surveillance and inspection

.1 Construction activities and all related movement of personnel and vehicles will be subject to surveillance and inspection by CSC security staff members to ensure that established security requirements are met.

.2 CSC staff members will ensure that an understanding of the need to carry out surveillance and inspections, as specified above, is established among construction employees and maintained throughout the construction project.

1.23 Stoppage of work

.1 The director may order at any time that the contractor, his employees, sub-contractors and their employees not enter or leave the work site immediately due to a security situation occurring within the Institution. The contractor's site supervisor shall note the name of the CSC staff member giving this instruction, the time of the request and obey the order as quickly as possible.

The contractor shall advise the Departmental Representative of this work interruption within 24 hours.

1.24 Contact with inmates

.1 Unless specifically authorized, it is forbidden to come into contact with inmates, to talk with them, to receive objects from them or to give them objects. Any construction employee doing any of the above will be removed from the site and his security clearance revoked.

.2 It is to be noted that cameras are not allowed on CSC property.

.3 Notwithstanding the above paragraph, if the director approves of the usage of cameras, it is strictly forbidden to take pictures of inmates, of CSC staff members or of any part of the Institution other than those required as part of this contract.

1.25 Completion of construction project

.1 Upon completion of the construction project or, when applicable, when the facility is handed over to the owner, the contractor shall remove all remaining construction material, tools and equipment that are not to remain in the Institution as part of the construction contract.

Service correctionnel Canada | Correctional Service Canada | 550-02-341-3403 Établissement Archambault - Cuisine de finition

CONTRÔLE DES OUTILS PROHIBÉS

Date : _____ Lieu: _____

En vertu de l'article 1.11 du devis *01 35 13 – Sécurité au SCC*

Nom de l'agent de sécurité sur le chantier :	

Nom de la compagnie :	
Nom du contremaître responsable :	
Numéro de téléphone :	

Description de l'équipement :	

Prise d'inventaire :	Heure de la vérification	Quantités	Initiales entrepreneur	Initiales agent de sécurité
1. Au début de la journée de travail				
2. À la fin de l'avant midi				
3. Remisé dans un endroit sécurisé pendant le diner				
4. Au retour du dîner				
5. À la fin de la journée de travail :				
6. Vérifier que l'entrepreneur a quitté avec son matériel et qu'il n'est pas entreposé sur la réserve.				

Agents de sécurité sur le chantier

Nom	Prénom	Date	Heure
Signature	Je confirme avoir contrôlé tous les items de la liste avec diligence. ☐		

Retourner l'original au chargé de projet de l'établissement.

Page 1 de 1 Canada

Correctional Service Canada
Service correctionnel Canada

PUT AWAY ON FILE - CLASSER AU DOSSIER

TOOL REGISTER
REGISTRE DES OUTILS

DATE Y-A M D-J	NAME NOM	COMPANY COMPAGNIE	TOOLS OUTILS	TIME IN HEURE D'ARRIVÉE	TIME OUT HEURE DE DÉPART

CSC/SCC 765 (R-94-06) 7530-21-908-1103

Correctional Service Canada / Service correctionnel Canada

PUT AWAY ON FILE - CLASSER AU DOSSIER

MISSING TOOL REPORT / **RAPPORT SUR LES OUTILS DISPARUS**

NOTE: Reference document C.D. #573 / **NOTA: Document de référence D.C. #573**

Date Y-A M D-J | Time - Heure

Institution - Établissement: 341 - Archambault Médium

TO / À Supervisor (industries, training, etc.) - Surveillant (ateliers industriels, Formation etc.)

FROM / DE Shop/Dept. - Service des ataliers

PART I - PARTIE I

At / À _____ hrs. on / h , _____ 20 _____ the following tools or items were found missing: / on a constaté la disparition des outils ou articles suivants:

A) _____ Last used/Seen by / Utilisé ou vu pour la dernière fois par _____

B) _____ Last used/Seen by / Utilisé ou vu pour la dernière fois par _____

C) _____ Last used/Seen by / Utilisé ou vu pour la dernière fois par _____

Colour coding of above / Code de couleur de ces outils ou articles _____

Shop coding of above / Code d'atelier de ces outils ou articles: Entrepreneur chantier 550-02-341-3403 Établissement Archambault - Cuisine de finition

Other identifying marks / Autres marques permettant de reconnaître ces outils ou articles _____

I took the following action to recover above / J'ai pris les mesures suivantes afin de récupérer ces outils ou articles _____

I notified / J'ai avisé _____ in Correctional Supervisor' Office at / du bureau du Surveillant Correctionnel à _____ hrs and was informed to / h, qui m'a dit de prendre take the following action / les mesures suivantes _____

Signature of staff member / Signature de l'employé(e) ➲

PART II - PARTIE II

Above report noted. Form was passed by hand to CCO, at / J'ai pris note du rapport ci-dessus. Formule transmise en personne au COC le _____ 20 _____.

Supervisor's signature / Signature du surveillant ➲

PART III - PARTIE III

Above report noted. Form was passed to preventive security / J'ai pris note du rapport ci-dessus. Formule transmise à la sécurité préventive

Signature (CCO) - Signature du COC

PART IV - PARTIE IV

Missing tool search notices sent to all departments on / Des avis de recherche d'outils disparus ont été envoyés à toutes les sections le _____ 20 _____.

Signature of Preventive Security Officer / Signature de l'agent de sécurité préventive ➲

PART V - PARTIE V

Above tool(s) located on / Outils susmentionnés retrouvés le _____ 20 _____.

Circumstances / Circonstances _____

Shop instructor & Supervisor notified / Instructeur et surveillant d'atelier prévenus le _____ 20 _____.

Signature of Preventive Security Officer / Signature de l'agent de sécurité préventive ➲

CSC/SCC 0766 Page 1 (R-03-07) (Word Version)

DISTRIBUTION
See instructions on reverse / Voir instructions au verso

INSTRUCTIONS

Original copy flows from staff member first discovering the loss of the tool to the institutional officer designated for reporting of tool shortages to the Chief, Correctional Operations to Institutional Preventive Security Officer who circulates copies to all departments, and maintains the original on file.

L'employé qui a constaté la disparition d'un outil transmet l'exemplaire original de son rapport à l'agent de l'établissement chargé des rapports sur les outils disparus. Celui-ci transmet ce rapport au Coordonnateur(trice), Opérations correctionnelles, qui transmet l'original à l'agent de sécurité préventive de l'établissement. Ce dernier conserve l'original au dossier et en fait circuler des copies dans toutes les sections.

CSC/SCC 0766 Page 2 (R-03-07) (Word Version)

Correctional Service Canada / Service correctionnel Canada

PROTECTED B / PROTÉGÉ B — ONCE COMPLETED / UNE FOIS REMPLI

INSTITUTIONAL ACCESS
CPIC CLEARANCE REQUEST

ACCÈS À UN ÉTABLISSEMENT
DEMANDE DE VÉRIFICATION DU DOSSIER AU CIPC

PUT AWAY ON FILE – CLASSER AU DOSSIER
ADMINISTRATIVE OR OPERATIONAL FILE
DOSSIER ADMINISTRATIF OU OPÉRATIONNEL
▶ Original = 3170-12

▶ PLEASE PRINT INFORMATION CLEARLY - VEUILLEZ ÉCRIRE EN LETTRES MOULÉES

Institution – Établissement	Request received / Demande reçue le	Date (YYAA-MM-DJ)	PUT AWAY ON FILE / CLASSER AU DOSSIER ▶ 3170-12
Archambault médium			

A. PERSONAL INFORMATION – RENSEIGNEMENTS PERSONNELS

Surname / Nom de famille	Full name (no nicknames or initials) / Nom au complet (pas de surnoms ou d'initiales)	Maiden name (if applicable) / Nom de jeune fille (s'il y a lieu)

Date of birth / Date de naissance (YYAA-MM-DJ)	Place of birth – Lieu de naissance: City/Town – Ville ou municipalité	Province/State – Province ou état	Country – Pays

B. PHYSICAL DESCRIPTION – DESCRIPTION PHYSIQUE

☐ Male / Homme ☐ Female / Femme	Height – Grandeur	Weight – Poids	Eye color – Couleur des yeux	Hair color / Couleur des cheveux

C. ADDRESS – ADRESSE

Street – Rue	City/Town – Ville ou municipalité	Province	Postal Code - Code postal	Telephone number – Numéro de téléphone: Home – Domicile	Work – Bureau

Representing (name of company/organization) – Représente (nom de la compagnie ou de l'organisation)

permis de conduire:

D. GENERAL INFORMATION – RENSEIGNEMENTS GÉNÉRAUX

1.	Have you ever been convicted of a criminal offence for which you have not been granted a pardon, or an offence for which you have been granted a pardon and such a pardon has been revoked? / Avez-vous déjà été reconnu coupable d'une infraction criminelle pour laquelle on ne vous a pas octroyé un pardon ou d'une infraction pour laquelle on vous a octroyé un pardon qui a été révoqué?	☐ Yes / Oui	☐ No / Non
2.	Do you personally know of any person incarcerated in a correctional facility?: / Connaissez-vous personnellement une personne qui est incarcérée dans un établissement correctionnel? — If so, provide names - Si oui, fournir son nom :	☐ Yes / Oui	☐ No / Non
3.	Do you have any reason to believe coming into contact with this person could pose a risk to your or their personal safety? / Avez-vous des raisons de croire que le fait d'entrer en contact avec cette personne pourrait présenter un risque pour votre sécurité personnelle ou la sienne ?	☐ Yes / Oui	☐ No / Non
4.	Are you related/associated to an inmate or on an inmate's visiting list? / Êtes-vous apparenté ou associé à un détenu ou inscrit sur la liste des visiteurs d'un détenu?	☐ Yes / Oui	☐ No / Non

If you have answered YES to any of the above, please explain below. – Si vous avez répondu OUI à une des questions ci-dessus, veuillez fournir une explication ci-après.
▶

E. SIGNATURE (When sections A to E are filled out completely, please return the completed form to the institution for approval.)
(Une fois que les sections A à E ont été remplies, veuillez retourner le formulaire dûment rempli à l'établissement aux fins d'approbation.)

In making this application, I hereby give the Correctional Service of Canada my consent to use the information provided on this form to conduct such inquiries with police authorities as may be necessary to ascertain my suitability. Finally, I acknowledge that the Correctional Service of Canada has no responsibility for any harm that may come to me in the course of my activities, except where such harm is a direct result of negligence on the part of an employee(s) of the Service.
NOTE: Access may be denied for submitting false information. Passes may be issued for those receiving clearance and approval.

En soumettant la présente demande, j'autorise le Service correctionnel du Canada à se servir des renseignements fournis dans le formulaire afin de mener, auprès des services de police, toute enquête jugée nécessaire pour vérifier mon admissibilité. Par ailleurs, 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.
NOTA : Tout demandeur qui fournit de faux renseignements peut se voir refuser l'accès à l'établissement. Un laissez-passez peut être émis aux demandeurs dont la demande d'accès est approuvée.

Applicant's signature – Signature du demandeur ▶ | Date (YYAA-MM-DJ)

F. FOR OFFICE USE ONLY – RÉSERVÉ AU SCC

Reason for clearance – Motif justifiant la demande d'accès

550-02-341-3403 Établissement Archambault - Cuisine de finition

Department making the request (please print) / Unité qui soumet la demande (en lettres moulées s.v.p.)	Signature of Division Head / Signature du chef de la division	Date (YYAA-MM-DJ)
Cynthia d'Aragon Krim, Serv. techniques	▶	

☐ No criminal record / Aucun casier ☐ A possible criminal record #: / Numéro du casier judiciaire ▶ Last entry: / Dernière entrée : ▶

☐ An outstanding warrant/charge held by: / Auteur du mandat non exécuté/accusation en instance : ▶

SIGNATURES

▶ ☐ Approved / Approuvée ☐ Not approved / Non approuvée

The individual has been advised. – Le demandeur a été informé de la décision. ▶ ☐ Yes / Oui ☐ No / Non By: / Par :

Security Intelligence Officer / Agent de renseignements de sécurité	Date (YYAA-MM-DJ)	Institutional Head / Directeur de l'établissement	Date (YYAA-MM-DJ)	Visit Review Board / Comité des visites	Date (YYAA-MM-DJ)
▶		▶		▶	

CSC/SCC 1279 (R-05-12) (Word Version) XP

Correctional Service Canada / Service correctionnel Canada

PROTECTED / PROTÉGÉ **B** ONCE COMPLETED / UNE FOIS REMPLI

NOTE : Reference Document - CD 566-1
NOTA : Document de référence - DC 566-1

ELECTRONIC ITEM REGISTRY AND AUTHORIZATION

REGISTRE ET AUTORISATION DES APPAREILS ÉLECTRONIQUES

PUT AWAY ON FILE
CLASSER AU DOSSIER
▶ Original = 3280-8

Nom:

Official Visitor Name (print)
Nom du visiteur officiel (en lettres moulées)

Date (YYAA-MM-DJ)

Archambault médium
Name of Institution – Nom de l'établissement

Period of Authorization :
Durée de l'autorisation :

☐ One time only – Une fois seulement
☐ From – De _____ To – À _____

TYPE OF ELECTRONIC DEVICE – TYPE D'APPAREIL ÉLECTRONIQUE

Projet : 550-02-341-3403 Établissement Archambault - Cuisine de finition
Compagnie représentée :
Fonction dans projet :
Justification :

Tablet Tablette électronique	Make – Marque :	
	~~Cell phone # – N° de téléphone cellulaire :~~	~~( )~~
	Device serial number – N° de série de l'appareil :	
	Other – Autre :	
E-Reader Lecteur de livres numériques	Make – Marque :	
	~~Cell phone # – N° de téléphone cellulaire :~~	~~( )~~
	Device serial number – N° de série de l'appareil :	
	Other – Autre :	
Laptop Ordinateur portatif	Make – Marque :	
	~~Cell phone # – N° de téléphone cellulaire :~~	~~( )~~
	Device serial number – N° de série de l'appareil :	
	Other – Autre :	
Other Device Autre appareil	Make – Marque :	
	~~Cell phone # – N° de téléphone cellulaire :~~	~~( )~~
	Device serial number – N° de série de l'appareil :	
	Other – Autre :	

I understand that the use of electronic item(s) is related to official duties, i.e. medical purposes/other use as authorized by the Institutional Head or delegate and that inmates are **not** to have access to it.
Je comprends que l'utilisation de ces appareils électroniques est liée à mes fonctions officielles, c.-à-d. à des fins médicales/autres utilisations autorisées par le directeur de l'établissement ou son délégué et que les détenus ne peuvent **pas** y avoir accès.

I, _____ (Official Visitor's Signature) ,hereby agree to abide by the above and understand that immediate notification is required in the event that the device goes missing.

Je, _____ (Signature du visiteur officiel) , par la présente, m'engage à respecter ce qui est énoncé précédemment et à signaler immédiatement la disparition de ces appareils, s'il y a lieu.

AUTHORIZATION – AUTORISATION

▶ _____ Institutional Head Name (print) / Nom du Directeur de l'établissement (en lettres moulées) _____ Signature _____ Date (YYAA-MM-DJ)

CSC/SCC 1467 (R-2014-05)
(Word Version – Version Word)

Information may be accessible or protected as required under the provisions of the *Access to Information Act* and the *Privacy Act*.
Les renseignements peuvent être accessibles ou protégés selon ce que prescrit la *Loi sur l'accès à l'information* et la *Loi sur la protection des renseignements personnels.*

DISTRIBUTION
Copy – Copie 1 = RHQ Security – Sécurité à l'AR
Copy – Copie 2 = SIO – ARS
Copy – Copie 3 = AWO – DAO
Copy – Copie 4 = Infopoint

END OF SECTION

Partie 1 General

GENERAL NOTE: in this section the term "site" includes all the facilities located at the site where the work is taking place (construction site, buildings, access, infrastructure, parkings, bays, etc.).

1.1 RELATED REQUIREMENTS

.1 N/A.

1.2 REFERENCES

.1 Province of Québec

.1 Loi sur la santé et la sécurité du travail L.R.Q., c. S-2.1 (Act respecting occupational health and safety).

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

1.3 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Submit to Departmental representativethe site-specific prevention program, as outlined in the article "GENERAL REQUIREMENTS", at least 10 days prior to the start of work.

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

.4 Departmental representative's review of Contractor's site-specific prevention program should not be construed as approval of the program and does not reduce the Contractor's overall responsibility for construction Health and Safety during the work.

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

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

.7 Submit to Departmental representative within 24 hours an investigation report for any accident involving injury and any incident exposing a potential hazard.

The investigation report shall contain at least the following:

1. date, time and place of accident;
2. name of sub-contractor involved in the accident;
3. number of persons involved and condition of wounded;
4. witness identification;
5. detailed description of tasks performed at the time of the accident;
6. equipment being used to accomplish the tasks performed at the time of the accident;
7. corrective measures taken immediately after the accident;
8. causes of the accident;
9. preventive measures that have been put in place to prevent a similar accident.

.8 Submit to Departmental representative WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 33 00 02 81 01 - Hazardous Materials. Contractor must also keep one copy of these documents on the construction site.

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

.10 Submit to Departmental Representative an on-site Emergency Response Plan at the same time as the prevention program. The Emergency Response plan must contain the elements listed in the article “GENERAL REQUIREMENTS” of this section.

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

.1 first aid in the workplace and cardiopulmonary resuscitation;

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

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

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

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

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

.7 any other requirement of Regulations or the safety program.

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

.12 Engineer's plans and certificates of compliance: Contractor must submit to the Departmental Representative and to the CSST a copy signed and sealed by engineer of all plans and certificates of compliance required pursuant to the *Code de sécurité pour les travaux de construction* (S-2.1, r.4) (Safety code for the construction industry) or by any other legislation or regulation or by any other clause in the specifications or in the contract. The Contractor must also submit a certificate of conformity signed by an engineer once the facility for which these plans were prepared has been completed and before a person uses the facility. A copy of these documents must be available on site at all times.

1.4 FILING OF NOTICE OF CONSTRUCTION SITE OPENING

.1 Notice of construction site opening shall be submitted to the *Commission de la santé et de la sécurité du travail* (CSST) before work begins. A copy of such notice and acknowledgment of receipt from the CSST shall be submitted to Departmental Representative.

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

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

.3 The Contractor shall accept to divide and identify the construction site adequately in order to define time and space at all times throughout the course of the project.

1.5 HAZARD ASSESSMENT

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

1.6 MEETINGS

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

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

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

1.7 REGULATORY REQUIREMENTS

.1 Do the Work in accordance with Section 01 41 00 - Regulatory Requirements.

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

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

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

1.8 COMPLIANCE REQUIREMENTS

.1 Comply with the *Loi sur la santé et la sécurité du travail* (L.R.Q., c. S-2.1) (Act Respecting Occupational Health and Safety) and the *Code de sécurité pour les travaux de construction* (S-2.1, r. 4.) (Safety code for the construction industry) in addition to respecting all the requirements of this specification manual.

1.9 RESPONSIBILITIES

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

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

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

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

1.10 WORK PERFORMED BY EXTERNAL CONTRACTORS

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

.1 Cable work/telecommunication

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

1.11 GENERAL REQUIREMENTS

.1 Before undertaking the work, prepare a site-specific prevention program based on the hazards identified according to the article “HAZARD ASSESSMENT” and the article “PROJECT/SITE CONDITIONS” in this section. Apply this program in its totality from the start of the project until demobilization of all personnel from the construction site. The prevention program shall take into consideration the specific characteristics of the project and cover all the work to be executed on the construction site.

The safety program must include at least the following:

.1 company safety and health policy;

.2 description of the stages of the work;

.3 total costs, schedule and projected workforce curves;

.4 flow chart of safety and health responsibilities;

.5 physical and material layout of the construction site;

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

.7 identification of the preventive measures relative to the specific risks inherent to the worksite indicated in the article “PROJECT/SITE CONDITIONS”;

.8 identification of preventive measures for health and safety of employees and / or public works site as indicated in the article “SPECIFIC

REQUIREMENTS FOR THE HEALTH AND SAFETY OF OCCUPANTS AND PUBLIC";

.9 training requirements;

.10 procedures in case of accident/injury;

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

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

.13 emergency response plan which shall contain at least the following:

.1 construction site evacuation procedures;

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

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

.4 identification of the first-aid attendants;

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

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

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

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

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

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

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

.5 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.

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

construction site and transmitted to the Departmental Representative on demand.

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

.8 The Departmental Representative can at all times, if he suspects a malfunction or the risk of an accident, order the immediate stop of any piece of equipment and require an inspection by a specialist of his choice.

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

1.12 COMMON RISKS INHERENT TO THE WORKSITE

.1 In addition to the risks related to the tasks to be carried out, personnel responsible for the execution of the work on the construction site will be exposed to the following risks, inherent to the area where the work will be executed. Without limiting his prevention program to these, the Contractor shall also include these elements in his program.

At the worksite there is the presence of the following:

.1 materials containing asbestos;

.2 barbed wire fences;

.3 other construction sites close by;

.4 presence of prisoners (for work outside the limit of the construction site);

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

.1 The building will beoccupied, except within the limit of the worksite. Although these people won't have access to the worksite of the contarctor: the Contractor shall consider the following specific requirements for the protection of employees and / or the public:

.1 Risks of exhaust gas in the air intake of the building.

.2 Risk related to the circulation of vehicules.

.3 Dusty works.

.4 Risks of fire.

.5 Travaux nécessitant de neutraliser des dispositifs de protection-incendie;

.6 Moyens d'évacuation à modifier (porte sortie à condamner, signalisation à modifier ou autres).

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

1.14 UNFORESEEN HAZARDS

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

1.15 PERSON IN CHARGE OF HEALTH AND SAFETY

.1 If the construction site meets the requirements of article 2.5.3 of the *Code the sécurité pour les travaux de construction* (S-2.1, r.4) (Safety code for the construction industry), the Contractor needs to hire a competent person authorized as a safety officer and appoint this person full time from the beginning of the work.

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

1.16 POSTING OF DOCUMENTS

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

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

.1 notice of construction site opening;

.2 identification of principal Contractor;

.3 company OSH policy;

.4 site-specific prevention program;

.5 emergency plan;

.6 minutes of worksite committee meetings;

.7 names of worksite committee representatives;

.8 names of the first-aid attendants;

.9 action reports and correction notices issued by the CSST.

1.17 INSPECTION OF THE CONSTRUCTION SITE AND CORRECTION OF HAZARDOUS SITUATIONS

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

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

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

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

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

1.18 PREVENTION OF VIOLENCE

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

1.19 BLASTING

.1 Blasting or other use of explosives is not permitted without prior receipt of written instruction by Departmental Representative.

.2 Do blasting operations in accordance with Section [31 23 16.26 - Rock Removal].

.3 Any operation involving explosives must be carried out under the supervision of a qualified shot-firer.

.4 The purchase, carriage, storage and use of explosives must comply with all applicable federal and provincial legislation:

.1 Canada: *Explosives Act* (E-17)1, *Explosives Regulations* (C.R.C. CH. 599), Standard for Storage of Blasting Charges and Detonators, *Transportation of Dangerous Goods Act and Regulations*.

.2 Québec: *Loi sur les explosifs* (Explosives Act) (E-22), *Règlement d'application sur les explosifs* ((E-22, r.1), *Code de sécurité pour les travaux de construction* (S-2.1, r.4), (Safety code for the Construction Industry) *Règlement sur le transport des matières dangereuses* (Transportation of Dangerous Goods Regulations).

.5 Contractor shall obtain all permits required pursuant to the legislation and regulations referred to above and keep copies on hand at the construction site.

.6 Contractor shall facilitate inspection of the construction site, stored explosives and vehicles used to transport explosives by any government representatives or police officers whose jurisdiction encompasses explosives.

1.20 POWDER ACTUATED DEVICE

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

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

.3 Any other explosive-actuated device shall be used in accordance with the manufacturer's directions and applicable standards and regulations.

1.21 USE OF PUBLIC ROADS

.1 Where it is necessary to encroach on a public road for operational reasons or to ensure the security of the workers, the occupants or the public (for example: the

use of scaffolding, cranes, excavation work, etc.), the Contractor shall obtain at his own expense any authorizations and permits required by the competent authority.

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

1.22 LOCKOUT-TAGOUT

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

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

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

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

.1 description of work to carry out;

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

.3 identification of energy sources that feeds the ~~piece of~~ equipment;

.4 identification of each cutout point;

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

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

.7 method of verification of zero energy implementation;

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

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

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

1.23 ELECTRICAL WORK

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

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

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

.4 Contractor shall respect all requirements prescribed in paragraph “LOCKOUT-TAGOUT” in this section.

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

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

- description of the circuit and equipment and its location;
- justification for having to do the work in an energized condition;
- description of safe work practices to apply;
- results of the shock hazard analysis;
- limit of the protective perimeter against electric shocks;
- results of the arc flash hazard analysis;
- description of the arc flash protection boundary;
- description of the personal protective equipment required;
- description of the means to limit access to unqualified persons;
- proof that an information session has been carried out;

- approval signature of the energized electrical work (by a person in authority or by the owner).

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

1.24 ASBESTOS EXPOSURE

.1 Prior to starting any work likely to emit asbestos dust, the Contractor must:

.1 Provide a written procedure for the work, identifying the risk level of the work (low, moderate, high), as defined in section 3.23 of the Code the sécurité pour les travaux de construction S 2.1, r 4, (Safety code for the construction industry). This procedure must take into account all the requirements of that section 3.23.

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

.4 Refer to Section 02 82 00 – Asbestos Work.

1.25 RESPIRATORORY PROTECTION

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

1.26 FALL PROTECTION

1. Plan and organize work so as to eliminate the risk of fall at the source or ensure collective protection, thereby minimizing the use of personal protective equipment. When personal fall protection is required, workers must use a safety harness that complies with

CSA standard CAN/CSA Z-259.10 M90. A safety belt must not be used as fall protection.

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

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

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

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

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

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

1.27 SCAFFOLDINGS

In addition to the requirements of the *Code de sécurité pour les travaux de construction* (Safety code for the construction industry), the Contractor who uses scaffolding**s** must respect the following requirements:

Foundation

1. Scaffolding**s** shall be installed on a solid foundation so that it does not slip or rock.
2. Contractors wishing to install scaffolding**s** on a roof, overhang, canopy or awning shall submit their calculations and loads, as well as plans signed and sealed by an engineer to the Departmental Representative and obtain his authorization before beginning installation.

Assembly, bracing and mooring

1. All scaffolding**s** shall be assembled, braced and moored in accordance with the manufacturer's instructions and the provisions of the *Code de sécurité pour les travaux de construction* (Safety code for the construction industry).

2. Where a situation requires the removal of part of the scaffolding**s** (e.g., crosspieces), the Contractor shall submit to the Departmental Representative an assembly procedure signed and sealed by an engineer certifying that the scaffolding assembled in that manner will allow the work to be done safely given the loads to which it will be subject.
3. For scaffolding**s** where the span between two supports is greater than three metres, the Contractor shall provide the Departmental Representative an assembly plan signed and sealed by an engineer.

Protection against falls during assembly

1. Workers exposed to the risk of falling more than three metres shall be protected against falls at all times during assembly.

Platforms

1. Scaffolding platforms shall be designed and installed in accordance with the provisions of the *Code de sécurité pour les travaux de construction* (Safety code for the construction industry).
2. If planks are used, they shall be approved and stamped in accordance with section 3.9.8 of the *Code de sécurité pour les travaux de construction* (Safety code for the construction industry)
3. Scaffolding**s** of four sections (or six metres) high or more shall have a full platform covering the entire surface between the putlogs every three metres high or fraction thereof, and the components of that platform shall not be moved at any time to create an intermediate landing.

Guardrails

1. A guardrail shall be installed on every landing.
2. Cross braces shall not be considered as guardrails.
3. If the platforms are not covering the entire surface between the putlogs, the guardrail must be installed just above the edge of the platform so that there is no empty horizontal space between the platform and the guardrail.
4. Where scaffolding**s** has four sections (or six metres) high or more and full platforms are required, the guardrails shall be installed on each landing at the start of work and shall remain in place until the work is completed.

Access

1. The Contractor shall ensure that access to the scaffolding**s** does not compromise worker safety.
2. Where the platforms of the scaffolding**s** are comprised of planks, ladders shall be installed in such a way that planks extending beyond the platform do not block the way up or down.

3. Notwithstanding the provisions of the *Code de sécurité pour les travaux de construction* (Safety code for the construction industry), stairs shall be installed on all scaffolding**s** that have six or more rows of uprights or is six sections (or nine metres) high or higher.

Protection of the public and occupants

1. When scaffolding**s** are installed in a zone accessible to the public, the Contractor shall take the necessary measures to prevent the public from having access to them and, if applicable, to the work or storage area located in the vicinity of these scaffolding.
2. Contractor must install covered walkways, nets or other similar devices to protect workers, the public and the occupants against falling objects. The means of protection must be approved by the Departmental Representative.

Engineering plans

1. In addition to those required by the *Code de sécurité pour les travaux de construction* (Safety code for the construction industry), the Departmental Representative reserves the right to require engineering plans for other types or configurations of scaffolding**s**.
2. A plan signed and sealed by an engineer is required for all scaffolding**s** that will be covered with a canvas, a tarpaulin or any other material that has wind resistance.
3. A certificate of conformity signed by an engineer is required in all cases where an engineering plan is required ~~for the installation~~ and this, before anybody uses the facility. A copy of these documents must be available on the construction site at all times.

1.28 EXCAVATION WORK

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

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

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

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

    b. engineer's advice specifying the wall angles of the trench or excavation.

Continued on next page

Corrections à apporter au formulaire de la p. suivante :

- section « Safety measures » : changer « deposit » pour « place »

- section « Safety measures » : changer « allowed » par « allow »
- section « Safety measures » : changer « prescribes » par «prescribed »

CSST

Excavation guidelines

N° ____ of ____

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

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

Field survey

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

Working method to use

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

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

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

	Minimum	Maximum
H Depth		
Wb Width at bottom Width at top		

Safety measures

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

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

Name	Occupation	
Signature	Date	Telephone no.

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

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1.29 LIFTING LOADS WITH CRANE OR BOOM TRUCK

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

2. The hoisting plan must be signed and sealed by an engineer for the following lifting operations:
    a. lifting of concrete panels;
    b. lifting mechanical/electrical equipment on a roof or on the floor of a building;
    c. lifting of loads encroaching on the public road;
    d. lifting large dimensions or very heavy loads;
    e. all other lifting operation, in accordance with the requirements of the Departmental Representative.

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

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

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

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

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

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

MINIMUM CONTENT OF HOISTING PLAN

- Sketch indicating at a minimum, the location of the crane, the surrounding facilities, the zone covered by the hoisting operations, the pedestrian's pathways and vehicular routes, the security perimeter, etc.

- Weight of loads

- Dimensions of loads

- List of hoisting devices and weight of each
- Total weight lifted
- Maximum height of obstacles to clear
- Height of loads lifting relative to the surface of the roof (in the case of loads to be placed on roofs)
- Use of guide cables
- Type of crane used
- Crane capacity
- Boom length
- Boom angle
- Crane's radius of action
- Deployment of stabilizers
- Percentage usage of the crane's capacity
- Verification confirmation of hoisting equipment
- Identification of the crane operator and the person responsible for the hoisting operations with date and signatures

1.30 HOT WORK

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

1. Before the beginning of each shift of work and for each sector, the Contractor must obtain a "Hot Work Permit" emitted by the person responsible for the site.
2. A working portable fire extinguisher suitable to the fire risk shall be available and easily accessible within a 5 m radius from any flame, spark source or intense heat.
3. The Contractor must appoint an individual to do continuous monitoring of the fire risks for a period of one (1) hour after the end of the shift of hot work. This individual shall sign the

section for this purpose on the permit and give it to the person in charge of the construction site after the one-hour period.

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

Welding and cutting

In addition to the requirements prescribed in the preceding paragraphs, the Contractor must respect the following requirements:

1. Welding and cutting work must be carried out in accordance with the requirements of the *Code de Sécurité pour les travaux de construction, S-2.1, r.4* (Safety code for the construction industry) and CSA standard W117.2, Safety in Cutting, Welding and Allied Processes.
2. Air extraction system with filters must be used for all welding and cutting work performed inside.
3. Stop all activities producing flammable or combustible gas, vapours or dust in the vicinity of the welding or cutting work.
4. Store all compressed gas cylinder on a fireproof fabric and make sure that the room is well ventilated.
5. Store all oxygen cylinders more than 6 metres from a flammable gas cylinder (ex: acetylene) or a combustible such as oil or grease, unless the oxygen cylinder is separated from it by a wall made of non-combustible material as mentioned inthe article 3.13.4 of the *Code de sécurité pour les travaux de construction, S-2, r. 6* (Safety code for the construction industry)
6. Store the cylinders far from all heat sources.
7. Not to store the cylinders close to the staircases, exits, corridors and elevators.
8. Do not put acetylene in contact with metals such as silver, mercury, copper and alloys of brass having more than 65% copper, to avoid the risk of an explosive reaction.
9. Check that welding equipment with electric arc has the necessary tension and are grounded.
10. Ensure that the conducting wires of the electric welding equipment are not damaged.
11. Place the welding equipment on a flat ground away from the bad weather.
12. Install fireproof canvas when the welding work is done in a superposition and where there is the risk of falling sparks.
13. Move away or protect the combustible materials which are closer than 15 metres from the welding work.
14. Prohibition to weld or cut any closed container.
15. Do not perform any cutting, welding or work with a naked flame on a container, a tank, a pipe or other container containing a flammable or explosive substance unless:
    a. they have been cleaned and air samples indicating that work can be done without danger has been taken; and

b. provisions to ensure the safety of the workers have been made.

1.31 ROOFING WORK

Protection against fall from heights

1. Installation of guardrails is mandatory at all times; however, the installation of a warning line is allowed to define the limits of the work zones provided that all the requirements of the articles 2.9.4.0 and 2.9.4.1 of the *Code de sécurité pour les travaux de construction* (Safety code for the Construction Industry) are respected.
2. The guardrails must remain in place until the end of the project. The Departmental Representative will authorize their dismantling when he can confirm that all the work, inspections and corrections have been made.
3. Workers installing guardrails must wear safety harnesses.
4. Workers installing and modifying guardrails or flashing shall wear safety harnesses in the event guardrails must be moved temporarily.
5. Workers shall wear safety harnesses when receiving material and giving directions to the crane operator next to a drop.
6. Safety harnesses shall be worn when carrying out work next to a drop where collective protection is not sufficiently safe.
7. The Contractor shall provide a fastening method and safety cable system compliant with section 2.10.12 of the *Code de sécurité pour les travaux de construction (L.R.Q., S-2.1, r.4)* (Safety code for the Construction Industry) for each construction site or location.

Lifting of materials

1. For all winch installations, the Contractor shall provide the Departmental Representative with the installation method recommended by the manufacturer. If unavailable, the Contractor shall then provide an installation procedure signed and sealed by an engineer. The installation procedure must take into account load-bearing capacity, the amount, weight and location of counterweight and any other detail that may affect the capacity and stability of the device.
2. The Contractor shall carefully inspect all of the slings and lifting accessories and make sure that those in poor condition are destroyed or scrapped.
3. Compressed-gas cylinders shall be lifted with a basket specially designed for this purpose.
4. In all cases where a crane or boom truck is used, the Contractor must respect the requirements of the paragraph Lifting Loads With Crane or Boom Truck, in this section.

Protection against burns

1. Individuals assigned to the boilers shall wear long sleeves, safety glasses and a face shield when filling the boilers.
2. Individuals working with asphalt or other hot liquids shall wear gloves, long sleeves and safety glasses.

Protection against fire

1. The storage and use of propane cylinders shall comply with the standard CAN/CSA-B149.2, *Propane Storage and Handling Code*. The cylinders shall be stored outdoors, in a safe place, away from any unauthorized handling, in a storage cabinet specially designed for this purpose. The cylinders shall be securely kept upright and locked at all times in a place where no vehicles are allowed unless the cylinders are protected by barriers or similar protection.

2. The number of propane cylinders on the roof shall not exceed the number of cylinders necessary for a day's work, and cylinders shall at all times be secured upright or held in a cart designed for this purpose.

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

Material and waste management

1. On the roof, light material and sheet material shall be kept in containers or be securely fastened. In the event this requirement is disregarded in the slightest way, the Departmental Representative may disallow the storage of materials on the roof.
2. Waste shall be discarded as produced using a waste chute or appropriate containers. The Contractor shall provide the means to prevent waste from being carried away by the wind.
3. All waste must be removed from the roof at the end of shifts.
4. Unless otherwise authorized by the Departmental Representative, all waste bins must be placed at least 3 m from any structure or building.

Protection of occupants and the public

1. Contractor must install covered passageways, nets or other devices above the entrances and the exits of the building to protect the workers, the public and the occupants against falling object. The means of protection must be approved by the Departmental Representative.
2. A safety perimeter on the ground must be placed under the work zone in order to protect the workers, the public and the occupants.
3. The ground construction site, material handling area and boiler area shall be clearly sealed off to prevent occupants or the public from accessing the construction site and areas.
4. Before installing any device that may emit gas or fumes, the Contractor shall receive authorization from the person in charge of the construction site, who shall make sure that there is no risk of gas or fumes infiltrating the building's ventilation system.

1.32 INTERIOR USE OF INTERNAL COMBUSTION ENGINES

1. In addition to respecting article 3.10.17 of the *Code de sécurité pour les travaux de construction* (S-2.1, r.4) (Safety code for the Construction Industry), the Contractor must also respect the requirements described in the following paragraphs.
2. The use of a gas-powered equipment inside a building is prohibited even if the building is provided with openings.
3. The use of other equipment powered by an internal combustion engine inside a building must be submitted to the approval of the Departmental Representative.
4. For the use of any piece of equipment powered by an internal combustion engine inside a building, even if the building is provided with openings, the Contractor must install a ventilation system able to maintain the concentrations of toxic gases below the regulatory values. The stale air shall be exhausted outside the building.
    a. Before using equipment powered by an internal combustion engine, the Contractor must plan and write the following:
    b. number of fans to install;
    c. power of the fans;
    d. location of the fans;
    e. dimensions of the openings that will be open during the work.
5. During the operation of equipment with internal combustion engine, the Contractor must measure the concentrations of carbon monoxide and nitrogen oxides in the work area and at the breathing area of the workers; the concentration levels measured must be recorded in a register every 30 minutes that must be available for consultation.
6. If work is in an occupied building, the Contractor must also measure the concentrations of carbon monoxide and nitrogen oxides in the rooms next to the work area and the concentration levels measured must be recorded in a register every 30 minutes.
7. If the carbon monoxide or nitrogen oxides detector alarm goes off during the work, the Contractor must stop the work and take the corrective measures required before resuming the work.
8. A portable fire extinguisher must be available at all times in the work area during the use of equipment with internal combustion engines.
9. The equipment must be maintained at a safe distance from all combustible material.

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

1.33 TEMPORARY HEATING

1. In addition to respecting section 3.11 of the *Code de sécurité pour les travaux de construction* (S-2.1, r.4) (Safety code for the Construction Industry), the Contractor must also respect the requirements described in the following paragraphs.
2. A portable fire extinguisher must be available at all times near the heating units, no matter what type of heating is used.
3. The heating units must always be used in accordance with the manufacturer's specifications.
4. If applicable, the canvas or tarpaulins used next to the heating units must be solidly fixed so as not to be projected on the heaters, on the pipes connected to the heaters or on any other heat source.
5. The gas cylinders must be installed in a way that they are protected from vehicule and other equipment traffic.
6. For the use of heating units other than electric, the Contractor must install a carbon monoxide detector in the work area, next to the heating units and/or the workers, throughout the course of the heating period. The Contractor must immediately apply the corrective measures required to the heating units if the detector's alarm goes off.
7. The Contractor must ensure a minimum surveillance of the heating units outside the hours of work (nights and weekends). He must submit a surveillance plan to the Departmental Representative before the use of the heating units.

Part 2 PRODUCT

2.1 N/A

.1 N/A

Part 3 Execution

3.1 N/A

.1 N/A

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Part 4 ANNEX

HEALTH AND SAFETY SUBORDINATION AGREEMENT

Project:_____ **Address:** _____

EXTERNAL CONTRACTOR

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

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

Name of representative: _____

Name of business: _____

Description of work to be done on the construction site: _____

Approximate dates of work (start-end): _____

Signature: _____ Date: _____

PRINCIPAL CONTRACTOR

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

Name of representative: _____

Name of the Principal Contractor's business: _____

Signature: _____ Date: _____

Submit a completed and signed copy to PWGSC's Departmental Representative

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 Definitions

.1 Environmental Pollution and Damage: presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavourably alter ecological balances of importance to human life; affect other species of importance to humans; or degrade environment aesthetically, culturally and/or historically.

.2 Environmental Protection: prevention/control of pollution and habitat or environment disruption during construction. Control of environmental pollution and damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants.

.2 References

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

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

1.2 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Prior to commencing construction activities or delivery of materials to site, provide Environmental Protection Plan for review and approval by Departmental Representative.

.3 Ensure Environmental Protection Plan includes comprehensive overview of known or potential environmental issues to be addressed during construction.

.4 Address topics at level of detail commensurate with environmental issues and required construction tasks.

.5 Include in Environmental Protection Plan:

.1 Measures to minimize the amount of mud transported onto paved public roads by vehicles or runoff.

.2 Spill Control Plan including procedures, instructions, and reports to be used in the event of unforeseen spill of regulated substance.

.3 Non-hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris.

.4 Air pollution control plan detailing provisions to ensure that dust, debris, materials, and trash, are contained on project site.

1.3 FIRES

.1 Fires and burning of rubbish on site not permitted.

1.4 DRAINAGE

.1 Do the work in accordance with the applicable Federal, Provincial, and Municipal laws and regulations and with the requirements in the document EPA 832/R-92-005, Chapter 3.

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

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

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

1.5 SITE CLEARING AND PLANT PROTECTION

.1 Not used.

1.6 WORK ADJACENT TO WATERWAYS

.1 Not used.

1.7 POLLUTION CONTROL

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

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

.3 Prevent sandblasting and other extraneous materials from contaminating air and waterways beyond application area.
   .1 Provide temporary enclosures where indicated as directed by Departmental Representative.

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

1.8 HISTORICAL/ARCHAEOLOGICAL CONTROL

.1 Not used.

1.9 NOTIFICATION

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

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

.1 Do not take action until after receipt of written approval by Departmental Representative.

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

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

Part 2 Products

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 CLEANING

.1 Clean in accordance with Section 01 74 11 - Cleaning.

.2 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.3 Bury rubbish and waste materials on site where directed after receipt of written approval from Departmental Representative.

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

END OF SECTION

Part 1 General

1.1 REFERENCES AND CODES

.1 Perform Work in accordance with National Building Code of Canada 2010 (NBC) including amendments up to tender closing date and other codes of provincial or local application provided that in case of conflict or discrepancy, more stringent requirements apply.

.2 Meet or exceed requirements of:

.1 Contract documents.

.2 Specified standards, codes and referenced documents.

1.2 HAZARDOUS MATERIAL DISCOVERY

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

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

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

1.3 BUILDING SMOKING ENVIRONMENT

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

1.4 USE OF SERVICES

.1 Power and lighting supply:

.1 Supply the services and pay the cost for temporary power needed for lighting and tools operation for the duration of the Work.

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 INSPECTION

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

.2 Give two (2) business days notice when requesting inspection if Work is designated for special tests, inspections or approvals by Departmental Representative instructions, or law of Place of Work.

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

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

1.2 INDEPENDENT INSPECTION AGENCIES

.1 Independent Inspection/Testing Agencies will be engaged by Departmental Representative for purpose of inspecting and/or testing portions of Work. Cost of such services will be borne by the Departmental Representative.

.2 Provide equipment required for executing inspection and testing by appointed agencies.

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

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

1.3 ACCESS TO WORK

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

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

.3 Access to roofs : access roofs by the exterior of the buildings.

1.4 PROCEDURES

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

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

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

1.5 REJECTED WORK

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

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

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

1.6 REPORTS

.1 Submit four (4) copies of inspection and test reports to Departmental Representative.

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

1.7 TESTS AND MIX DESIGNS

.1 Furnish test results and mix designs as requested.

.2 Cost of tests and mix designs beyond those called for in Contract Documents or beyond those required by law of Place of Work will be appraised by Departmental Representative and may be authorized as recoverable.

1.8 MOCK-UPS

.1 Prepare mock-ups for Work specifically requested in specifications. Include for Work of Sections required to provide mock-ups.

.2 Construct in locations acceptable to Departmental Representative as specified in specific Section.

.3 Prepare mock-ups for Departmental Representative's review with reasonable promptness and in orderly sequence, to not cause delays in Work.

.4 Failure to prepare mock-ups in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.

.5 If requested, Departmental Representative will assist in preparing schedule fixing dates for preparation.

.6 Provide photographs of

.1 Viewpoints: minimum two (2) with at least one (1) taken from the side to show the whole thickness of the work.

.2 When mock-ups are made of multiple layers of materials, take step–by-step photographs before hiding materials.

.3 Submit three (3) copies of each photograph to Departmental Representative. Mock-ups may remain as part of Work.

.7 Mock-ups may remain as part of Work.

1.9 MILL TESTS

.1 Submit mill test certificates as required of specification Sections.

1.10 EQUIPMENT AND SYSTEMS

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

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 REFERENCES

.1 Canadian Standards Association (CSA International)

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

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

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

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

1.2 SUBMITTALS

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

1.3 INSTALLATION AND REMOVAL

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

.2 Remove from site all such work after use.

1.4 SCAFFOLDING

.1 Scaffolding in accordance with CAN/CSA-S269.2.

.2 Provide and maintain scaffolding, ramps, ladders, swing staging, platforms and temporary stairs necessary for the execution of the works.

1.5 HOISTING

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

.2 Hoists and cranes to be operated by qualified operator.

1.6 SITE STORAGE/LOADING

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

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

1.7 EQUIPMENT, TOOL AND MATERIALS STORAGE

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

.2 Provide and maintain, in clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials. Install these sheds on worksite, outside the protected area, where proposed by Departmental Representative.

1.8 SANITARY FACILITIES

.1 Refer to article 1.2.4 of Section 01 14 00 - Work Restrictions.

1.9 OFFICES

.1 The office U133A may be used for the construction site. Provide a sufficient number of tables and chairs, with telephone line and computer/internet for emails.

1.10 CONSTRUCTION SIGNAGE

.1 As required, provide and erect project sign on Montée Gagnon in a location designated by Departmental Representative.

1.11 CLEAN-UP

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

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

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

1.12 PROTECTION AND MAINTENANCE OF TRAFFIC

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

.2 Haul roads: constructed with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic shall be avoided.

.3 Dust control: adequate to ensure safe operation at all times.

.4 Location, grade, width, and alignment of construction and hauling roads: subject to indications on drawing 1/A01.

.5 Provide snow removal during period of Work.

.6 Remove, upon completion of work, haul roads designated by Departmental Representative.

Part 2 Products

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 NOT USED

.1 Not used.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Not used.

1.2 REFERENCES

.1 Canadian General Standards Board (CGSB)

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

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

.2 Canadian Standards Association (CSA International)

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

.3 Public Works Government Services Canada (PWGSC) Standard Acquisition Clauses and Conditions (SACC)-ID: R0202D, Title: General Conditions 'C', In Effect as of: May 14, 2004.

1.3 SUBMITTALS

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

.2 Shop drawings

.1 Provide drawings stamped and signed by a professional engineer who is a member in good standing with l'Ordre des ingénieurs du Québec (OIQ)

.2 As a minimum, submit shop drawings for temporary access construction and for the methods of temporary protection for review and approval by Departmental Representative.

.3 Product data

.1 Provide product data for the materials that will be used for the temporary barriers and enclosures for review and approval by Departmental Representative.

1.4 SAFETY CODES

.1 Except where specified otherwise, all work must be done in accordance with the Québec Construction Code - Chapter 1. Part 8 : Mesures de sécurité aux abords des chantiers, the Canadian Construction Safety Code, Section 5.6 of Division B of NFC and the applicable Règlements de Sécurité sur les chantiers de construction of the C.S.S.T.

1.5 INSTALLATION AND REMOVAL

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

.2 Remove from site all such work after use.

1.6 HOARDING (OR SITE ENCLOSURE) AND COVERED PEDESTRIAN WALKWAYS

.1 Erect and maintain around the work site and as indicated on the architectural drawings a site enclosure Omega type of 2440 mm high, using prefabricated modules with welded metal frame and metal mesh interior.

1.7 GARD RAILS AND BARRICADES

.1 Provide secure, rigid guard rails and barricades around open edges of floors and roofs. Provide barriers, tarps and gates required.

.2 Provide as required by governing authorities.

1.8 WEATHER ENCLOSURES

.1 Provide weather tight closures to unfinished door and window openings, tops of shafts and other openings in floors and roofs, interior and exterior.

.2 Close off floor areas where walls are not finished; seal off other openings; enclose building interior work for temporary heat.

.3 Design enclosures to withstand wind pressure and snow loading.

1.9 DUST TIGHT SCREENS

.1 Provide dust tight screens or insulated partitions to localize dust generating activities, and for protection of workers, finished areas of Work and the public. These dust tight screens and insulated partitions must be reviewed and approved by Departmental Representative before installation.

.2 Maintain and relocate protection until such work is complete.

1.10 ACCESS TO SITE

.1 Provide and maintain access roads, sidewalk crossings, ramps and construction runways as may be required for access to Work.

1.11 PUBLIC TRAFFIC FLOW

.1 Not used.

1.12 FIRE ROUTES

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

1.13 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTIES

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

.2 Be responsible for damage incurred.

1.14 PROTECTION OF BUILDING FINISHES

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

.2 Provide necessary screens, covers, and hoardings.

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

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

1.15 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for recycling and in some instances return to the person in charge of the Institution, in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

Part 2 Products

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 NOT USED

.1 Not used.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Not used.

1.2 REFERENCES

.1 Within text of each specifications section, reference may be made to reference standards.

.2 Conform to these reference standards, in whole or in part as specifically requested in specifications.

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

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

1.3 QUALITY

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

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

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

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

.5 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.

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

1.4 AVAILABILITY

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

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

1.5 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 and 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.

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

1.6 TRANSPORTATION

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

.2 Transportation cost of products supplied by Owner will be paid for by Departmental Representative. Unload, handle and store such products.

1.7 MANUFACTURER'S INSTRUCTIONS

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

.2 Notify Departmental Representative in writing, of conflicts between specifications and manufacturer's instructions, so that he 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 or Contract Time.

1.8 QUALITY OF WORK

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

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

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

1.9 CO-ORDINATION

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

continuous supervision.

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

1.10 CONCEALMENT

.1 In finished areas conceal pipes, ducts and wiring in floors, walls and ceilings, except where indicated otherwise.

.2 Before installation inform Departmental Representative if there is interference. Install as directed by Departmental Representative.

1.11 REMEDIAL WORK

.1 Refer to Section 01 73 00 - Execution Requirements.

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

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

1.12 LOCATION OF FIXTURES

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

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

1.13 FASTENINGS

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

.2 Prevent electrolytic action between dissimilar metals and materials.

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

.4 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wood, or any other organic material plugs

are not acceptable.

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

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

1.14 FASTENINGS - EQUIPMENT

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

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

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

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

1.15 PROTECTION OF WORK IN PROGRESS

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

1.16 EXISTING UTILITIES

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

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

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 01 33 0 – Submittals Procedures.

.2 Technical sections of specification for the requirements and limitations for cutting and patching the Work. Make sure to advise the other trades concerned.

1.2 SUBMITTALS

.1 Submit written request in advance of cutting or alteration which affects:
- .1 Structural integrity of elements of project.
- .2 Integrity of weather-exposed or moisture-resistant elements.
- .3 Efficiency, maintenance, or safety of operational elements.
- .4 Visual qualities of sight-exposed elements.
- .5 Work of Owner or separate contractor.

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

1.3 MATERIALS

.1 Required for original installation.

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

1.4 PREPARATION

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

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

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

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

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

1.5 EXECUTION

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

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

.3 Uncover Work to install ill-timed Work.

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

.5 Remove samples of installed Work for testing.

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

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

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

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

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

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

.12 At penetration of fire rated wall, ceiling, or floor construction, completely seal voids with firestopping material in accordance with Section 07 84 00 - Firestopping, full thickness of the construction element.

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

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

1.6 WASTE MANAGEMENT AND DISPOSAL

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

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 PRIORITY

.1 For Federal Government projects, Division 1 sections take precedence over technical specification sections in other divisions of the Project Specifications.

1.2 PROJECT CLEANLINESS

.1 Maintain Work in tidy condition, free from accumulation of waste products and debris, including that caused by Owner or other Contractors.

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

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

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

.5 Provide on-site containers for collection of waste materials and debris.

.6 Provide and use marked separate bins for recycling. Refer to Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

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

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

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

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

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

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

1.3 FINAL CLEANING

.1 When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.

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

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

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

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

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

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

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

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

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

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

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

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

.14 Remove dirt and other disfiguration from exterior surfaces.

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

.16 Sweep and wash clean paved areas.

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

.18 Clean roofs, downspouts, and drainage systems.

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

.20 Remove snow and ice from access to building.

1.4 WASTE MANAGEMENT AND DISPOSAL

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

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 WASTE MANAGEMENT GOALS

.1 Prior to start of Work conduct meeting with Departmental Representative to review and discuss PWGSC's Waste Management Plan and Goals.

.2 PWGSC's Waste Management Goal 75 percent of total Project Waste to be diverted from landfill sites. Provide Departmental Representative documentation certifying that waste management, recycling, reuse of recyclable and reusable materials have been extensively practiced.

.3 Accomplish maximum control of solid construction waste.

.4 Preserve environment and prevent pollution and environment damage.

1.2 RELATED SECTIONS

.1 Section 01 33 00 – Submittals Procedures.

.2 Section 01 35 29.06 – Health and Safety Requirements.

.3 Section 01 35 43 – Environmental Procedures

.4 Section 01 73 00 – Execution Requirements

.5 Section 02 41 99 – Demolition for Minor Works.

1.3 REFERENCES

.1 LEED Canadian Green Building Council (CGBC), Green Building Rating System, For New Construction and Major Renovations LEED Canada-NC, Version 1.0 - December 2004.

1.4 DEFINITIONS

.1 Class III: non-hazardous waste - construction renovation and demolition waste.

.2 Inert Fill: inert waste - exclusively asphalt and concrete.

.3 Materials Source Separation Program (MSSP): consists of series of ongoing activities to separate reusable and recyclable waste material into material categories from other types of waste at point of generation.

.4 Recyclable: ability of product or material to be recovered at end of its life cycle and re-manufactured into new product for reuse.

.5 Recycle: process by which waste and recyclable materials are transformed or collected for purpose of being transferred into new products.

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

.7 Reuse: repeated use of product in same form but not necessarily for same purpose. Reuse includes:

.1 Salvaging reusable materials from re-modelling projects, before demolition stage, for resale, reuse on current project or for storage for use on future projects.

.2 Returning reusable items including pallets or unused products to vendors.

.8 Salvage: removal of structural and non-structural materials from deconstruction/disassembly of industrial, commercial or institutional projects for purpose of reuse or recycling.

.9 Separate Condition: refers to waste sorted into individual types.

.10 Source Separation: acts of keeping different types of waste materials separate beginning from first time they became waste.

.11 Waste Audit (WA): detailed inventory of materials in building. Involves quantifying by volume/weight amounts of materials and wastes generated during construction, demolition, deconstruction, or renovation project. Indicates quantities of reuse, recycling and landfill. Refer to Schedule A.

.12 Waste Management Co-ordinator (WMC): contractor representative responsible for supervising waste management activities as well as coordinating related, required submittal and reporting requirements.

.13 Waste Reduction Workplan (WRW): written report which addresses opportunities for reduction, reuse, or recycling of materials. Refer to Schedule B. WRW is based on information acquired from WA (Schedule A).

1.5 DOCUMENTS

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

.1 Waste Audit.
.2 Waste Reduction Workplan.
.3 Material Source Separation Plan.
.4 Schedules A, B, C, D, E, completed for project.

1.6 SUBMITTALS

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

.2 Prepare and submit following prior to project start-up:

.1 Submit 2 copies of completed Waste Audit (WA): Schedule A.
.2 Submit 2 copies of completed Waste Reduction Workplan (WRW): Schedule B.
.3 Not used.
.4 Not used.
.5 Submit 2 copies of Materials Source Separation Program (MSSP) description.

.3 Submit before final payment summary of waste materials salvaged for reuse, recycling or disposal by project using deconstruction/disassembly material audit form.

.1 Failure to submit could result in hold back of final payment.

.2 Provide receipts, scale tickets, waybills, and show quantities and types of materials reused, recycled, or disposed of.

.3 For each material reused, sold or recycled from project, include amount in tonnes quantities by number, type and size of items and the destination.

.4 For each material land filled or incinerated from project, include amount in tonnes of material and identity of landfill, incinerator or transfer station.

1.7 WASTE AUDIT (WA)

.1 Conduct WA prior to project start-up.

.2 Prepare WA: Schedule A.

.3 Record, on WA - Schedule A, extent to which materials or products used consist of recycled or reused materials or products.

1.8 WASTE REDUCTION WORKPLAN (WRW)

.1 Prepare WRW prior to project start-up.

.2 WRW should include but not limited to:

.1 Destination of materials listed.

.2 Deconstruction/disassembly techniques and sequencing.

.3 Schedule for deconstruction/disassembly.

.4 Location.

.5 Security.

.6 Protection.

.7 Clear labelling of storage areas.

.8 Details on materials handling and removal procedures.

.9 Quantities for materials to be salvaged for reuse or recycled and materials sent to landfill.

.3 Structure WRW to prioritize actions and follow 3R's hierarchy, with Reduction as first priority, followed by Reuse, then Recycle.

.4 Describe management of waste.

.5 Identify opportunities for reduction, reuse, and recycling of materials. Based on information acquired from WA.

.6 Post WRW or summary where workers at site are able to review content.

.7 Set realistic goals for waste reduction, recognize existing barriers and develop strategies to overcome these barriers.

.8 Monitor and report on waste reduction by documenting total volume and cost of actual waste removed from project.

1.9 MATERIALS SOURCE SEPARATION PROGRAM (MSSP)

.1 Prepare MSSP prior to project start-up.

.2 Implement MSSP for waste generated on project in compliance with approved methods and as reviewed by Departmental Representative.

.3 Provide on-site facilities for collection, handling, and storage of anticipated quantities of reusable and recyclable materials.

.4 Provide containers to deposit reusable and recyclable materials.

.5 Locate containers in locations, to facilitate deposit of materials without hindering daily operations.

.6 Locate separated materials in areas which minimize material damage.

.7 Collect, handle, store on-site, and transport off-site, salvaged materials in separate condition.

.1 Transport to approved and authorized recycling facility.

.8 Collect, handle, store on-site, and transport off-site, salvaged materials in combined condition.

.1 Ship materials to site operating under Certificate of Approval.

.2 Materials must be immediately separated into required categories for reuse or recycling.

1.10 WASTE PROCESSING SITES

.1 Contractor must confirm to Departmental Representative the waste treatment site he chose to separate the waste materials, information on the location of the site and proof that the site is authorized by the province or other government authority to receive these materials.

.1 Province:

.2 Name:

.3 Telephone:

.4 Fax:

1.11 STORAGE, HANDLING AND PROTECTION

.1 Store, materials to be reused, recycled and salvaged in locations as directed by Departmental Representative.

.2 Unless specified otherwise, materials for removal becomes Contractor's property.

.3 Protect, stockpile, store and catalogue salvaged items.

.4 Separate non-salvageable materials from salvaged items. Transport and deliver non-salvageable items to licensed disposal facility.

.5 Protect structural components not removed for demolition from movement or damage.

.6 Support affected structures. If safety of building is endangered, cease operations and immediately notify Departmental Representative.

.7 Protect surface drainage, mechanical and electrical from damage and blockage.

.8 Separate and store materials produced during dismantling of structures in designated areas.

.9 Prevent contamination of materials to be salvaged and recycled and handle materials in accordance with requirements for acceptance by designated facilities.

.1 On-site source separation is recommended.
.2 Remove co-mingled materials to off-site processing facility for separation.
.3 Provide waybills for separated materials.

1.12 DISPOSAL OF WASTES

.1 Do not bury rubbish or waste materials.

.2 Do not dispose of waste volatile materials, mineral spirits, oil, and paint thinner into waterways, storm, or sanitary sewers.

.3 Keep records of construction waste including:

.1 Number and size of bins.
.2 Waste type of each bin.
.3 Total tonnage generated.
.4 Tonnage reused or recycled.
.5 Reused or recycled waste destination.

.4 Remove materials from deconstruction as deconstruction/disassembly Work progresses.

.5 Prepare project summary to verify destination and quantities on a material-by-material basis as identified in pre-demolition material audit.

1.13 USE OF SITE AND FACILITIES

.1 Execute work with least possible interference or disturbance to normal use of premises.

.2 Maintain security measures established by existing facility approved by Departmental Representative.

1.14 SCHEDULING

.1 Co-ordinate Work with other activities at site to ensure timely and orderly progress of Work.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 SELECTIVE DEMOLITION

.1 Reuse of Building Elements: this project has been designed to result in end of project rates for reuse of building elements as follows: do not demolish building elements beyond what is indicated on Drawings without approval by Departmental Representative's.

.1 Building Structure and Shell: 75 percent.

.2 Interior Non-Shell Elements: 75 percent.

3.2 APPLICATION

.1 Do Work in compliance with WRW.

.2 Handle waste materials not reused, salvaged, or recycled in accordance with appropriate regulations and codes.

3.3 CLEANING

.1 Remove tools and waste materials on completion of Work, and leave work area in clean and orderly condition.

.2 Clean-up work area as work progresses.

.3 Source separate materials to be reused/recycled into specified sort areas.

3.4 DIVERSION OF MATERIALS

.1 From following list, separate materials from general waste stream and stockpile in separate piles or containers, as reviewed by Departmental Representative, and consistent with applicable fire regulations.

.1 Mark containers or stockpile areas.

.2 Provide instruction on disposal practices.

.2 On-site sale of salvaged, recovered, reusable, and recyclable materials is not permitted.

.3 Demolition Waste:

Material Type	Recommended Diversion %	Actual Diversion %
Acoustic Tile	50	
Acoustical Insulation	100	

Material Type	Recommended Diversion %	Actual Diversion %
Doors and Frames	100	
Electrical Equipment	80	
Furnishings	80	
Mechanical Equipment	100	
Metals	100	
Rubble	100	
Wood (uncontaminated)	100	
Other		

.4 Construction Waste:

Material Type	Recommended Diversion %	Actual Diversion %
Cardboard	100	
Plastic Packaging	100	
Rubble	100	
Steel	100	
Wood (uncontaminated)	100	
Other		

3.5 WASTE AUDIT (WA):

.1 Schedule A – Waste Audit (WA)

(1) Material Category	(2) Material Quantity Unit	(3) Estimated Waste %	(4) Total Quantity of Waste (unit)	(5) Generation Point	(6) % Recycled	(7) % Reused
Wood and Plastics Material Description Off-cuts Warped Pallet Forms Plastic Packaging Cardboard Packaging Other						
Doors and Windows						

(1) Material Category	(2) Material Quantity Unit	(3) Estimated Waste %	(4) Total Quantity of Waste (unit)	(5) Generatio n Point	(6) % Recycled	(7) % Reused
Material Description Painted Frames Glass Wood Metal Other						

3.6 Waste Reduction Workplan (WRW)

.1 Schedule B

(1) Material Category	(2) Person(s) Respon-sible	(3) Total Quantity of Waste (unit)	(4) Reused Amount (units) Projected	Actual	(5) Recycled Amount (unit) Projected	Actual	(6) Material(s) Destina-tion
Wood and Plastics Material Description Chutes Warped Pallet Forms Plastic Packag ing Card-board Packag ing Other							
Doors and Windows Material Description Painted Frames Glass Wood Metal Other							

3.7 CANADIAN GOVERNMENTAL DEPARTMENTS CHIEF RESPONSIBILITY FOR THE ENVIRONMENT

.1 Schedule E - Government Chief Responsibility for the Environment:

Québec	Ministère de l'Environnement et de la Faune, Siège social 150, boul, René-Lévesque Est Québec QC G1R 4Y1	418-643-3127 800-561-1616	418-646-5974
	Conseil de la conservation et de l'environnement 800, place d'Youville, 19e étage Québec QC G1R 3P4	418-643-3818	

END OF SECTION

Part 1 Généralités

1.1 REFERENCES

.1 Canadian Environmental Protection Act (CEPA)
- .1 SOR/2008-197, Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations.

1.2 ADMINISTRATIVE REQUIREMENTS

.1 Pre-warranty Meeting:
- .1 Convene meeting one (1) week prior to contract completion with contractor's representative and Departmental Representative to:
  - .1 Verify Project requirements.
  - .2 Review manufacturer's installation instructions and warranty requirements.
- .2 Departmental Representative to establish communication procedures for:
  - .1 Notifying construction warranty defects.
  - .2 Determine priorities for type of defects.
  - .3 Determine reasonable response time.
- .3 Contact information for bonded and licensed company for warranty work action: provide name, telephone number and address of company authorized for construction warranty work action.
- .4 Ensure contact is located within local service area of warranted construction, is continuously available, and is responsive to inquiries for warranty work action.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Two (2) weeks prior to Substantial Performance of the Work, submit to the Departmental Representative, four (4) final copies of operating and maintenance manuals in English and French.

.3 Provide spare parts, maintenance materials and special tools of same quality and manufacture as products provided in Work.

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

1.4 FORMAT

.1 Organize data as instructional manual.

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

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

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

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

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

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

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

.9 Provide 1:1 scaled CAD files in dwg format on CD.

1.5 CONTENTS - PROJECT RECORD DOCUMENTS

.1 Table of Contents for Each Volume: provide title of project;

- .1 Date of submission; names.
- .2 Addresses, and telephone numbers of Consultant and Contractor with name of responsible parties.
- .3 Schedule of products and systems, indexed to content of volume.

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

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

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

.5 Typewritten Text: as required to supplement product data.
- .1 Provide logical sequence of instructions for each procedure, incorporating

manufacturer's instructions specified in Section 01 45 00 - Quality Control.

1.6 AS -BUILT DOCUMENTS AND SAMPLES

.1 Maintain, in addition to requirements in General Conditions, at site for Departmental Representative one record copy of:
- .1 Contract Drawings.
- .2 Specifications.
- .3 Addenda.
- .4 Change Orders and other modifications to Contract.
- .5 Reviewed shop drawings, product data, and samples.
- .6 Field test records.
- .7 Inspection certificates.
- .8 Manufacturer's certificates.

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

.3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual.
- .1 Label each document "PROJECT RECORD" in neat, large, printed letters.

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

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

1.7 RECORDING INFORMATION ON PROJECT RECORD DOCUMENTS

.1 Record information on set of black line opaque drawings, and in copy of Project Manual, provided by Departmental Representative.

.2 Use felt tip marking pens, maintaining separate colours for each major system, for recording information.

.3 Record information concurrently with construction progress.
- .1 Do not conceal Work until required information is recorded.

.4 Contract Drawings and shop drawings: mark each item to record actual construction, including:
- .1 Measured depths of elements of foundation in relation to finish first floor datum.
- .2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.

.3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
.4 Field changes of dimension and detail.
.5 Changes made by change orders.
.6 Details not on original Contract Drawings.
.7 References to related shop drawings and modifications.

.5 Specifications: mark each item to record actual construction, including:
.1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.
.2 Changes made by Addenda and change orders.

.6 Other Documents: maintain manufacturer's certifications, inspection certifications, field test records, required by individual specifications sections.

.7 Provide digital photos, if requested, for site records.

1.8 EQUIPMENT AND SYSTEMS

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

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

.3 Include installed colour coded wiring diagrams.

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

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

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

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

.8 Include sequence of operation by controls manufacturer.

.9 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

.10 Provide installed control diagrams by controls manufacturer.

.11 Provide Contractor's co-ordination drawings, with installed colour coded piping diagrams.

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

.13 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

.14 Include test and balancing reports as specified in Section 01 45 00 - Quality Control and 01 91 13 - General Commissioning (Cx) Requirements.

.15 Additional requirements: as specified in individual specification sections.

1.9 MATERIALS AND FINISHES

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

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

.3 Moisture-protection and weather-exposed products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

.4 Additional requirements: as specified in individual specifications sections.

1.10 MAINTENANCE MATERIALS

.1 Spare Parts:
- .1 Provide spare parts, in quantities specified in individual specification sections.
- .2 Provide items of same manufacture and quality as items in Work.
- .3 Deliver to site at location as directed; place and store.
- .4 Receive and catalogue items.
  - .1 Submit inventory listing to Departmental Representative.
  - .2 Include approved listings in Maintenance Manual.
- .5 Obtain receipt for delivered products and submit prior to final payment.

.2 Extra Stock Materials:
- .1 Provide maintenance and extra materials, in quantities specified in individual specification sections.
- .2 Provide items of same manufacture and quality as items in Work.
- .3 Deliver to site at location as directed; place and store.
- .4 Receive and catalogue items.
  - .1 Submit inventory listing to Departmental Representative.
  - .2 Include approved listings in Maintenance Manual.
- .5 Obtain receipt for delivered products and submit prior to final payment.

.3 Special Tools:
- .1 Provide special tools, in quantities specified in individual specification section.
- .2 Provide items with tags identifying their associated function and equipment.
- .3 Deliver to site at location as directed; place and store.
- .4 Receive and catalogue items.
  - .1 Submit inventory listing to Departmental Representative.
  - .2 Include approved listings in Maintenance Manual.

1.11 DELIVERY, STORAGE AND HANDLING

.1 Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.

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

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

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

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

1.12 WARRANTIES AND BONDS

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

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

.3 Warranty management plan to include required actions and documents to assure that Departmental Representative receives warranties to which it is entitled.

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

.5 Submit, warranty information made available during construction phase, to Departmental Representative for approval prior to each monthly pay estimate.

.6 Assemble approved information in binder, submit upon acceptance of work and organize binder as follows:
- .1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.
- .2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.
- .3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten (10) days after completion of applicable item of work.
- .4 Verify that documents are in proper form, contain full information, and are notarized.
- .5 Co-execute submittals when required.
- .6 Retain warranties and bonds until time specified for submittal.

.7 Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial Performance is determined.

.8 Conduct joint four (4) month and nine (9) month warranty inspection, measured from time of acceptance, by Departmental Representative.

.9 Include information contained in warranty management plan as follows:
- .1 Roles and responsibilities of personnel associated with warranty process, including points of contact and telephone numbers within the organizations of Contractors, subcontractors, manufacturers or suppliers involved.
- .2 Listing and status of delivery of Certificates of Warranty for extended warranty items, to include roofs, HVAC balancing, pumps, motors, transformers and commissioned systems such as fire protection, alarm systems, sprinkler systems and lightning protection systems.
- .3 Provide list for each warranted equipment, item, feature of construction or system indicating:
  - .1 Name of item.
  - .2 Model and serial numbers.
  - .3 Location where installed.
  - .4 Name and phone numbers of manufacturers or suppliers.
  - .5 Names, addresses and telephone numbers of sources of spare parts.
  - .6 Warranties and terms of warranty: include one-year overall warranty of construction. Indicate items that have extended warranties and show separate warranty expiration dates.
  - .7 Cross-reference to warranty certificates as applicable.
  - .8 Starting point and duration of warranty period.

.9 Summary of maintenance procedures required to continue warranty in force.

.10 Cross-Reference to specific pertinent Operation and Maintenance manuals.

.11 Organization, names and phone numbers of persons to call for warranty service.

.12 Typical response time and repair time expected for various warranted equipment.

.4 Contractor's plans for attendance at four (4) and (9) month post-construction warranty inspections.

.5 Procedure and status of tagging of equipment covered by extended warranties.

.6 Post copies of instructions near selected 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 the Departmental Representative to proceed with action against Contractor.

1.13 WARRANTY TAGS

.1 Tag, at time of installation, each warranted item. Provide durable, oil and water resistant tag approved by Departmental Representative.

.2 Attach tags with copper wire and spray with waterproof silicone coating.

.3 Leave date of acceptance until project is accepted for occupancy.

.4 Indicate following information on tag:
- .1 Type of product/material.
- .2 Model number.
- .3 Serial number.
- .4 Contract number.
- .5 Warranty period.
- .6 Inspector's signature.
- .7 Construction Contractor.

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 ADMINISTRATIVE REQUIREMENTS

.1 Demonstrate operation and maintenance of equipment and systems to Owner's personnel two weeks prior to date of substantial performance.

.2 Owner: provide list of personnel to receive instructions, and co-ordinate their attendance at agreed-upon times.

.3 Preparation:

.1 Verify conditions for demonstration and instructions comply with requirements.

.2 Verify designated personnel are present.

.3 Ensure equipment has been inspected and put into operation.

.4 Ensure testing, adjusting, and balancing has been performed in accordance with Section 01 91 13 - General Commissioning (Cx) Requirements and equipment and systems are fully operational.

.4 Demonstration and Instructions:

.1 Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, and maintenance of each item of equipment at agreed upon times, at the equipment location.

.2 Instruct personnel in phases of operation and maintenance using operation and maintenance manuals as basis of instruction.

.3 Review contents of manual in detail to explain aspects of operation and maintenance.

.4 Prepare and insert additional data in operations and maintenance manuals when needed during instructions.

.5 Time Allocated for Instructions: ensure amount of time required for instruction of each item, equipment or system.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Submit schedule of time and date for demonstration of each item of equipment and each system two weeks prior to designated dates, for Departmental Representative's approval.

.3 Submit reports within one week after completion of demonstration, that demonstration and instructions have been satisfactorily completed.

.4 Give time and date of each demonstration, with list of persons present.

.5 Provide copies of completed operation and maintenance manuals for use in demonstrations and instructions.

1.3 QUALITY ASSURANCE

.1 When specified in individual Sections requiring manufacturer to provide authorized representative to demonstrate operation of equipment and systems:

.1 Instruct Owner's personnel.

.2 Provide written report that demonstration and instructions have been completed.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 SUMMARY

.1 Section Includes:

.1 General requirements relating to commissioning of project's components and systems, specifying general requirements to PV of components, equipment, sub-systems, systems, and integrated systems.

.2 Acronyms:

.1 AFD - Alternate Forms of Delivery, service provider.

.2 BMM - Building Management Manual.

.3 Cx - Commissioning.

.4 EMCS - Energy Monitoring and Control Systems.

.5 O M - Operation and Maintenance.

.6 PI - Product Information.

.7 PV - Performance Verification.

.8 TAB - Testing, Adjusting and Balancing.

1.2 GENERAL

.1 Cx is a planned program of tests, procedures and checks carried out systematically on systems and integrated systems of the finished Project. Cx is performed after systems and integrated systems are completely installed, functional and Contractor's Performance Verification responsibilities have been completed and approved. Objectives:

.1 Verify installed equipment, systems and integrated systems operate in accordance with contract documents and design criteria and intent.

.2 Ensure appropriate documentation is compiled into the BMM.

.3 Effectively train O M staff.

.2 Contractor assists in Cx process, operating equipment and systems, troubleshooting and making adjustments as required.

.1 Systems to be operated at full capacity under various modes to determine if they function correctly and consistently at peak efficiency. Systems to be interactively with each other as intended in accordance with Contract Documents and design criteria.

.2 During these checks, adjustments to be made to enhance performance to meet environmental or user requirements.

.3 Design Criteria: as per client's requirements or determined by designer. To meet Project functional and operational requirements.

.4 AFD managed projects the term Departmental Representative in Cx specifications to be interpreted as AFD Service Provider.

1.3 COMMISSIONING OVERVIEW

.1 Section 01 91 31 - Commissioning (Cx) Plan.

.2 For Cx responsibilities refer to Section 01 91 31 - Commissioning (Cx) Plan.

.3 Cx to be a line item of Contractor's cost breakdown.

.4 Cx activities supplement field quality and testing procedures described in relevant technical sections.

.5 Cx is conducted in concert with activities performed during stage of project delivery. Cx identifies issues in Planning and Design stages which are addressed during Construction and Cx stages to ensure the built facility is constructed and proven to operate satisfactorily under weather, environmental and occupancy conditions to meet functional and operational requirements. Cx activities includes transfer of critical knowledge to facility operational personnel.

.6 Departmental Representative will issue Interim Acceptance Certificate when:

.1 Completed Cx documentation has been received, reviewed for suitability and approved by Departmental Representative.

.2 Equipment, components and systems have been commissioned.

.3 O M training has been completed.

1.4 NON-CONFORMANCE TO PERFORMANCE VERIFICATION REQUIREMENTS

.1 Should equipment, system components, and associated controls be incorrectly installed or malfunction during Cx, correct deficiencies, re-verify equipment and components within the unfunctional system, including related systems as deemed required by Departmental Representative, to ensure effective performance.

.2 Costs for corrective work, additional tests, inspections, to determine acceptability and proper performance of such items to be borne by Contractor. Above costs to be in form of progress payment reductions or hold-back assessments.

1.5 PRE-CX REVIEW

.1 Before Construction:

.1 Review contract documents, confirm by writing to Departmental Representative.

.1 Adequacy of provisions for Cx.

.2 Aspects of design and installation pertinent to success of Cx.

.2 During Construction:

.1 Co-ordinate provision, location and installation of provisions for Cx.

.3 Before start of Cx:

.1 Have completed Cx Plan up-to-date.

.2 Ensure installation of related components, equipment, sub-systems, systems is complete.

.3 Fully understand Cx requirements and procedures.

.4 Have Cx documentation shelf-ready.

.5 Understand completely design criteria and intent and special features.

.6 Submit complete start-up documentation to Departmental Representative.

.7 Have Cx schedules up-to-date.

.8 Ensure systems have been cleaned thoroughly.

.9 Complete TAB procedures on systems, submit TAB reports to Departmental Representative for review and approval.

.10 Ensure "As-Built" system schematics are available.

.4 Inform Departmental Representative in writing of discrepancies and deficiencies on finished works.

1.6 CONFLICTS

.1 Report conflicts between requirements of this section and other sections to Departmental Representative before start-up and obtain clarification.

.2 Failure to report conflict and obtain clarification will result in application of most stringent requirement.

1.7 ACTION AND INFORMATIONAL SUBMITTALS

.1 Request in writing to Departmental Representative for changes to submittals and obtain written approval at least 8 weeks prior to start of Cx.

.2 Submit proposed Cx procedures to Departmental Representative where not specified and obtain written approval at least 8 weeks prior to start of Cx.

.3 Provide additional documentation relating to Cx process required by Departmental Representative.

1.8 COMMISSIONING DOCUMENTATION

.1 Refer to Section 01 91 33 - Commissioning (Cx) Forms: Installation Check Lists and Product Information (PI) / Performance Verification (PV) Forms for requirements and instructions for use.

.2 Departmental Representative to review and approve Cx documentation.

.3 Provide completed and approved Cx documentation to Departmental Representative.

1.9 COMMISSIONING SCHEDULE

.1 Provide detailed Cx schedule as part of construction schedule.

.2 Provide adequate time for Cx activities prescribed in technical sections and commissioning sections including:

.1 Approval of Cx reports.

.2 Verification of reported results.

.3 Repairs, retesting, re-commissioning, re-verification.

.4 Training.

1.10 COMMISSIONING MEETINGS

.1 Convene Cx meetings following project meetings as specified herein.

.2 Purpose: to resolve issues, monitor progress, identify deficiencies, relating to Cx.

.3 Continue Cx meetings on regular basis until commissioning deliverables have been addressed.

.4 At 60% construction completion stage. Departmental Representative to call a separate Cx scope meeting to review progress, discuss schedule of equipment start-up activities and prepare for Cx. Issues at meeting to include:

.1 Review duties and responsibilities of Contractor and subcontractors, addressing delays and potential problems.

.2 Determine the degree of involvement of trades and manufacturer's representatives in the commissioning process.

.5 Thereafter Cx meetings to be held until project completion and as required during equipment start-up and functional testing period.

.6 Meeting will be chaired by Contractor or it’s Cx Agent, who will record and distribute minutes.

.7 Ensure subcontractors and relevant manufacturer representatives are present at 60% and subsequent Cx meetings and as required.

1.11 STARTING AND TESTING

.1 Contractor assumes liabilities and costs for inspections. Including disassembly and re-assembly after approval, starting, testing and adjusting, including supply of testing equipment.

1.12 WITNESSING OF STARTING AND TESTING

.1 Provide 14 days notice prior to commencement.

.2 Departmental Representative to witness of start-up and testing.

.3 .3 Contractor's Cx Agent to be present at tests performed and documented by sub-trades, suppliers and equipment manufacturers.

1.13 MANUFACTURER'S INVOLVEMENT

.1 Factory testing: manufacturer to:

.1 Coordinate time and location of testing.

.2 Provide testing documentation for approval by Departmental Representative.

.3 Arrange for Departmental Representative to witness tests.

.4 Obtain written approval of test results and documentation from Departmental Representative before delivery to site.

.2 Obtain manufacturers installation, start-up and operations instructions prior to start-up of components, equipment and systems and review with Departmental Representative

.1 Compare completed installation with manufacturer's published data, record discrepancies, and review with manufacturer.

.2 Modify procedures detrimental to equipment performance and review same with manufacturer before start-up.

.3 Integrity of warranties:

.1 Use manufacturer's trained start-up personnel where specified elsewhere in other divisions or required to maintain integrity of warranty.

.2 Verify with manufacturer that testing as specified will not void warranties.

.4 Qualifications of manufacturer's personnel:

.1 Experienced in design, installation and operation of equipment and systems.

.2 Ability to interpret test results accurately.

.3 To report results in clear, concise, logical manner.

1.14 PROCEDURES

.1 Verify that equipment and systems are complete, clean, and operating in normal and safe manner prior to conducting start-up, testing and Cx.

.2 Conduct start-up and testing in following distinct phases:

.1 Included in delivery and installation:

.1 Verification of conformity to specification, approved shop drawings and completion of PI report forms.

.2 Visual inspection of quality of installation.

.2 Start-up: follow accepted start-up procedures.

.3 Operational testing: document equipment performance.

.4 System PV: include repetition of tests after correcting deficiencies.

.5 Post-substantial performance verification: to include fine-tuning.

.3 Correct deficiencies and obtain approval from Departmental Representative after distinct phases have been completed and before commencing next phase.

.4 Document require tests on approved PV forms.

.5 Failure to follow accepted start-up procedures will result in re-evaluation of equipment by an independent testing agency selected by Departmental Representative. If results reveal that equipment start-up was not in accordance with requirements, and resulted in damage to equipment, implement following:

.1 Minor equipment/systems: implement corrective measures approved by Departmental Representative.

.2 Major equipment/systems: if evaluation report concludes that damage is minor, implement corrective measures approved by Departmental Representative.

.3 If evaluation report concludes that major damage has occurred, Departmental Representative shall reject equipment.

.1 Rejected equipment to be remove from site and replace with new.

.2 Subject new equipment/systems to specified start-up procedures.

1.15 START-UP DOCUMENTATION

.1 Assemble start-up documentation and submit to Departmental Representative for approval before commencement of commissioning.

.2 Start-up documentation to include:

.1 Factory and on-site test certificates for specified equipment.

.2 Pre-start-up inspection reports.

.3 Signed installation/start-up check lists.

.4 Start-up reports,

.5 Step-by-step description of complete start-up procedures, to permit Departmental Representative to repeat start-up at any time.

1.16 OPERATION AND MAINTENANCE OF EQUIPMENT AND SYSTEMS

.1 After start-up, operate and maintain equipment and systems as directed by equipment/system manufacturer.

.2 With assistance of manufacturer develop written maintenance program and submit Departmental Representative for approval before implementation.

.3 Operate and maintain systems for length of time required for commissioning to be completed.

.4 After completion of commissioning, operate and maintain systems until issuance of certificate of interim acceptance.

1.17 TEST RESULTS

.1 If start-up, testing and/or PV produce unacceptable results, repair, replace or repeat specified starting and/or PV procedures until acceptable results are achieved.

.2 Provide manpower and materials, assume costs for re-commissioning.

1.18 START OF COMMISSIONING

.1 Notify Departmental Representative at least 21 days prior to start of Cx.

.2 Start Cx after elements of building affecting start-up and performance verification of systems have been completed.

1.19 INSTRUMENTS / EQUIPMENT

.1 Submit to Departmental Representative for review and approval:

.1 Complete list of instruments proposed to be used.

.2 Listed data including, serial number, current calibration certificate, calibration date, calibration expiry date and calibration accuracy.

.2 Provide the following equipment as required:

.1 2-way radios.

.2 Ladders.

.3 Equipment as required to complete work.

1.20 COMMISSIONING PERFORMANCE VERIFICATION

.1 Carry out Cx:

.1 Under accepted simulated operating conditions, over entire operating range, in all modes.

.2 On independent systems and interacting systems.

.2 Cx procedures to be repeatable and reported results are to be verifiable.

.3 Follow equipment manufacturer's operating instructions.

.4 EMCS trending to be available as supporting documentation for performance verification.

1.21 WITNESSING COMMISSIONING

.1 Departmental Representative to witness activities and verify results.

1.22 AUTHORITIES HAVING JURISDICTION

.1 Where specified start-up, testing or commissioning procedures duplicate verification requirements of authority having jurisdiction, arrange for authority to witness procedures so as to avoid duplication of tests and to facilitate expedient acceptance of facility.

.2 Obtain certificates of approval, acceptance and compliance with rules and regulation of authority having jurisdiction.

.3 Provide copies to Departmental Representative within 5 days of test and with Cx report.

1.23 COMMISSIONING CONSTRAINTS

.1 Since access into secure or sensitive areas will be very difficult after occupancy it is necessary to complete Cx of occupancy, weather, and seasonal sensitive equipment and systems in these areas before issuance of the Interim Certificate, using, if necessary, simulated thermal loads.

1.24 EXTRAPOLATION OF RESULTS

.1 Where Cx of weather, occupancy, or seasonal-sensitive equipment or systems cannot be conducted under near-rated or near-design conditions, extrapolate part-load results to design conditions when approved by Departmental Representative in accordance with equipment manufacturer's instructions, using manufacturer's data, with manufacturer's assistance and using approved formulae.

1.25 EXTENT OF VERIFICATION

.1 Elsewhere:

.1 Provide manpower and instrumentation to verify up to 30 % of reported results, unless specified otherwise in other sections.

.2 Number and location to be at discretion of Departmental Representative.

.3 Conduct tests repeated during verification under same conditions as original tests, using same test equipment, instrumentation.

.4 Review and repeat commissioning of systems if inconsistencies found in more than 20% of reported results.

.5 Perform additional commissioning until results are acceptable to Departmental Representative.

1.26 REPEAT VERIFICATIONS

.1 Assume costs incurred by Departmental Representative for third and subsequent verifications where:

.1 Verification of reported results fail to receive Departmental Representative's approval.

.2 Repetition of second verification again fails to receive approval.

.3 Departmental Representative deems Contractor's request for second verification was premature.

1.27 SUNDRY CHECKS AND ADJUSTMENTS

.1 Make adjustments and changes which become apparent as Cx proceeds.

.2 Perform static and operational checks as applicable and as required.

1.28 DEFICIENCIES, FAULTS, DEFECTS

.1 Correct deficiencies found during start-up and Cx to satisfaction of Departmental Representative.

.2 Report problems, faults or defects affecting Cx to Departmental Representative in writing. Stop Cx until problems are rectified. Proceed with written approval from Departmental Representative.

1.29 COMPLETION OF COMMISSIONING

.1 Upon completion of Cx leave systems in normal operating mode.

.2 Except for warranty and seasonal verification activities specified in Cx specifications, complete Cx prior to issuance of Interim Certificate of Completion.

.3 Cx to be considered complete when contract Cx deliverables have been submitted and accepted by Departmental Representative.

1.30 ACTIVITIES UPON COMPLETION OF COMMISSIONING

.1 When changes are made to baseline components or system settings established during Cx process, provide updated Cx form for affected item.

1.31 TRAINING

.1 In accordance with Section 01 91 41 - Commissioning (Cx) - Training.

1.32 MAINTENANCE MATERIALS, SPARE PARTS, SPECIAL TOOLS

.1 Supply, deliver, and document maintenance materials, spare parts, and special tools as specified in contract.

1.33 OCCUPANCY

.1 Cooperate fully with Departmental Representative during stages of acceptance and occupancy of facility.

1.34 INSTALLED INSTRUMENTATION

.1 Use instruments installed under Contract for TAB and PV if:

.1 Accuracy complies with these specifications.

.2 Calibration certificates have been deposited with Departmental Representative.

.2 Calibrated EMCS sensors may be used to obtain performance data provided that sensor calibration has been completed and accepted.

1.35 PERFORMANCE VERIFICATION TOLERANCES

.1 Application tolerances:

.1 Specified range of acceptable deviations of measured values from specified values or specified design criteria. Except for special areas, to be within +/- 10% of specified values.

.2 Instrument accuracy tolerances:

.1 To be of higher order of magnitude than equipment or system being tested.

.3 Measurement tolerances during verification:

.1 Unless otherwise specified actual values to be within +/- 2% of recorded values.

1.36 OWNER'S PERFORMANCE TESTING

.1 Performance testing of equipment or system by Departmental Representative will not relieve Contractor from compliance with specified start-up and testing procedures.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 SUMMARY

.1 Section Includes:

.1 Description of overall structure of Cx Plan and roles and responsibilities of Cx team.

1.2 REFERENCES

.1 American Water Works Association (AWWA)

.2 National Fire Protection Association (NFPA)

.1 NFPA-13, Installation of Sprinkler Systems Handbook.

.2 NFPA-14, Automatic Sprinkler Systems Handbook.

.3 Public Works and Government Services Canada (PWGSC)

.1 PWGSC - Commissioning Guidelines CP.4 -3rd edition.

.4 Underwriters' Laboratories of Canada (ULC)

1.3 GENERAL

.1 Provide a fully functional facility:

.1 Systems, equipment and components meet user's functional requirements before date of acceptance, and operate consistently at peak efficiencies and within specified energy budgets under normal loads.

.2 Facility user and O M personnel have been fully trained in aspects of installed systems.

.3 Optimized life cycle costs.

.4 Complete documentation relating to installed equipment and systems.

.2 Term "Cx" in this section means "Commissioning".

.3 Use this Cx Plan as master planning document for Cx:

.1 Outlines organization, scheduling, allocation of resources, documentation, pertaining to implementation of Cx.

.2 Communicates responsibilities of team members involved in Cx Scheduling, documentation requirements, and verification procedures.

.3 Sets out deliverables relating to O M, process and administration of Cx.

.4 Describes process of verification of how built works meet design requirements.

.5 Produces a complete functional system prior to issuance of Certificate of Occupancy.

.6 Management tool that sets out scope, standards, roles and responsibilities, expectations, deliverables, and provides:

.1 Overview of Cx.

.2 General description of elements that make up Cx Plan.

.3 Process and methodology for successful Cx.

.4 Acronyms:

.1 Cx - Commissioning.

.2 BMM - Building Management Manual.

.3 EMCS - Energy Monitoring and Control Systems.

.4 MSDS - Material Safety Data Sheets.

.5 PI - Product Information.

.6 PV - Performance Verification.

.7 TAB - Testing, Adjusting and Balancing.

.8 WHMIS - Workplace Hazardous Materials Information System.

.5 Commissioning terms used in this Section:

.1 Bumping: short term start-up to prove ability to start and prove correct rotation.

.2 Deferred Cx - Cx activities delayed for reasons beyond Contractor's control due to lack of occupancy, weather conditions, need for heating/cooling loads.

1.4 DEVELOPMENT OF 100% CX PLAN

.1 Cx Plan to be 95% completed before added into Project Specifications.

.2 Cx Plan to be 100% completed within 8 weeks of award of contract to take into account:

.1 Approved shop drawings and product data.

.2 Approved changes to contract.

.3 Contractor's project schedule.

.4 Cx schedule.

.5 Contractor's, sub-contractor's, suppliers' requirements.

.6 Project construction team's and Cx team's requirements.

.3 Submit completed Cx Plan to Departmental Representative and obtain written approval.

1.5 REFINEMENT OF CX PLAN

.1 During construction phase, revise, refine and update Cx Plan to include:

.1 Changes resulting from Client program modifications.

.2 Approved design and construction changes.

.2 Revise, refine and update every 6 weeks during construction phase. At each revision, indicate revision number and date.

.3 Submit each revised Cx Plan to Departmental Representative for review and obtain written approval.

.4 Include testing parameters at full range of operating conditions and check responses of equipment and systems.

1.6 COMPOSITION, ROLES AND RESPONSIBILITIES OF CX TEAM

.1 Departmental Representative to maintain overall responsibility for project and is sole point of contact between members of commissioning team.

.2 Project Manager will select Cx Team consisting of following members:

.1 PWGSC Design Quality Review Team: during construction, will conduct periodic site reviews to observe general progress.

.2 PWGSC Quality Assurance Commissioning Manager: ensures Cx activities are carried out to ensure delivery of a fully operational project including:

.1 Review of Cx documentation from operational perspective.

.2 Review for performance, reliability, durability of operation, accessibility, maintainability, operational efficiency under conditions of operation.

.3 Protection of health, safety and comfort of occupants and O M personnel.

.4 Monitoring of Cx activities, training, development of Cx documentation.

.5 Work closely with members of Cx Team.

.3 Departmental Representative is responsible for:

.1 Organizing Cx.

.2 Monitoring operations Cx activities.

.3 Witnessing, certifying accuracy of reported results.

.4 Witnessing and certifying TAB and other tests.

.5 Developing BMM.

.6 Ensuring implementation of final Cx Plan.

.7 Performing verification of performance of installed systems and equipment.

.8 Implementation of Training Plan.

.4 Construction Team: contractor, sub-contractors, suppliers and support disciplines, is responsible for construction/installation in accordance with contract documents, including:

.1 Testing.

.2 TAB.

.3 Performance of Cx activities.

.4 Delivery of training and Cx documentation.

.5 Assigning one person as point of contact with Consultant and PWGSC Cx Manager for administrative and coordination purposes.

.5 Contractor's Cx agent implements specified Cx activities including:

.1 Demonstrations.

.2 Training.

.3 Testing.

.4 Preparation, submission of test reports.

.6 Property Manager: represents lead role in Operation Phase and onwards and is responsible for:

.1 Receiving facility.

.2 Day-To-Day operation and maintenance of facility.

1.7 CX PARTICIPANTS

.1 Employ the following Cx participants to verify performance of equipment and systems:

.1 Installation contractor/subcontractor:

.1 Equipment and systems except as noted.

.2 Equipment manufacturer: equipment specified to be installed and started by manufacturer.

.1 To include performance verification.

.3 Specialist subcontractor: equipment and systems supplied and installed by specialist subcontractor.

.4 Specialist Cx agency:

.1 Possessing specialist qualifications and installations providing environments essential to client's program but are outside scope or expertise of Cx specialists on this project.

.5 Client: responsible for intrusion and access security systems.

.6 Ensure that Cx participant:

.1 Could complete work within scheduled time frame.

.2 Available for emergency and troubleshooting service during first year of occupancy by user for adjustments and modifications outside responsibility of O M personnel, including:

.1 Modify ventilation rates to meet changes in off-gassing.

.2 Changes to heating or cooling loads beyond scope of EMCS.

.3 Changes to EMCS control strategies beyond level of training provided to O M personnel.

.4 Redistribution of electrical services.

.5 Modifications of fire alarm systems.

.6 Modifications to voice communications systems.

.7 Provide names of participants to Departmental Representative and details of instruments and procedures to be followed for Cx 3 months prior to starting date of Cx for review and approval.

1.8 EXTENT OF CX

.1 Cx Structural and Architectural Systems:

.1 Equipment:

.1 Kitchen equipment installed under contract.

.2 Commission mechanical systems and associated equipment:

.1 Plumbing systems:

.1 Domestic CWS and HWS.

.2 Regular sanitary waste systems.

.2 HVAC and exhaust systems:

.1 HVAC systems.

.2 General exhaust systems.

.3 Fire and life safety systems:

.1 Special fire suppression systems

.2 Wet pipe sprinkler systems.

.4 IAQ environmental control systems:

.1 Indoor conditions in areas listed herein:

.3 Commission electrical systems and equipment:

.1 Low voltage below 750 V:

.1 Low voltage equipment.

.2 Low voltage distribution systems.

.2 Lighting systems:

.1 Lighting equipment.

.2 Distribution systems.

.3 Emergency lighting systems, including battery packs.

.4 Fire exit emergency signage.

.3 Fire alarm systems, equipment:

.1 Annunciators.

.2 Control panels.

.3 Fire alarm battery banks.

.4 Other systems and equipment:

.1 Intrusion and access security and safety systems as follows:

1.9 DELIVERABLES RELATING TO O M PERSPECTIVES

.1 General requirements:

.1 Compile English or French documentation.

.2 Documentation to be computer-compatible format ready for inputting for data management.

.2 Provide deliverables:

.1 Warranties.

.2 Project record documentation.

.3 Inventory of spare parts, special tools and maintenance materials.

.4 Maintenance Management System (MMS) identification system used.

.5 WHMIS information.

.6 MSDS data sheets.

.7 Electrical Panel inventory containing detailed inventory of electrical circuitry for each panel board. Duplicate of inventory inside each panel.

1.10 DELIVERABLES RELATING TO THE CX PROCESS

.1 General:

.1 Start-up, testing and Cx requirements, conditions for acceptance and specifications form part of relevant technical sections of these specifications.

.2 Definitions:

.1 Cx as used in this section includes:

.1 Cx of components, equipment, systems, subsystems, and integrated systems.

.2 Factory inspections and performance verification tests.

.3 Deliverables: provide:

.1 Cx Specifications.

.2 Startup, pre-Cx activities and documentation for systems, and equipment.

.3 Completed installation checklists (ICL).

.4 Completed product information (PI) report forms.

.5 Completed performance verification (PV) report forms.

.6 Results of Performance Verification Tests and Inspections.

.7 Description of Cx activities and documentation.

.8 Description of Cx of integrated systems and documentation.

.9 Tests of following witnessed by PWGSC Design Quality Review Team:

.10 Tests performed by Owner.

.11 Training Plans.

.12 Cx Reports.

.13 Prescribed activities during warranty period.

.4 Departmental Representative to witness and certify tests and reports of results provided to Departmental Representative.

.5 Departmental Representative to participate.

1.11 PRE-CX ACTIVITIES AND RELATED DOCUMENTATION

.1 Items listed in this Cx Plan include the following:

.1 Pre-Start-Up inspections: by Departmental Representative prior to permission to start up and rectification of deficiencies to Departmental Representative's satisfaction.

.2 Departmental Representative to use approved check lists.

.3 Departmental Representative will monitor some of these pre-start-up inspections.

.4 Include completed documentation with Cx report.

.5 Conduct pre-start-up tests: conduct pressure, static, flushing, cleaning, and "bumping" during construction as specified in technical sections. To be witnessed and certified by Departmental Representative and does not form part of Cx specifications.

.6 Departmental Representative will monitor some of these inspections and tests.

.7 Include completed documentation in Cx report.

.2 Pre-Cx activities - MECHANICAL:

.1 Plumbing systems:

.1 "Bump" each item of equipment in its "stand-alone" mode.

.2 Complete pre-start-up checks and complete relevant documentation.

.3 After equipment has been started, test related systems in conjunction with control systems on a system-by-system basis.

.2 HVAC equipment and systems:

.1 "Bump" each item of equipment in its "stand-alone" mode.

.2 At this time, complete pre-start-up checks and complete relevant documentation.

.3 After equipment has been started, test related systems in conjunction with control systems on a system-by-system basis.

.4 Perform TAB on systems. TAB reports to be approved by Departmental Representative.

.3 EMCS:

.1 EMCS trending to be available as supporting documentation for performance verification.

.2 Perform point-by-point testing in parallel with start-up.

.3 Carry out point-by-point verification.

.4 Demonstrate performance of systems, to be witnessed by Departmental Representative prior to start of 30 day Final Acceptance Test period.

.5 Perform final Cx and operational tests during demonstration period and 30 day test period.

.6 Only additional testing after foregoing have been successfully completed to be "Off-Season Tests".

.3 Pre-Cx activities - LIFE SAFETY SYSTEMS

.1 Include equipment and systems identified above.

.2 Reports of test results to be witnessed and certified by Departmental Representative before verification.

.4 Pre-Cx activities - ELECTRICAL:

.1 Low voltage distribution systems under 750 V:

.1 Requires independent testing agency to perform pre- energization and post-energization tests.

.2 Lighting systems:

.1 Emergency lighting systems:

.1 Tests to include verification of lighting levels and coverage, initially by disrupting normal power.

.3 Fire alarm systems: test after other safety and security systems are completed. Testing to include a complete verification in accordance with ULC requirements. Departmental Representative has witnessed and certified report, demonstrate devices and zones to Departmental Representative.

.4 Low voltage systems: these include:

.1 Clock, communications, low voltage lighting control systems and data communications systems.

.2 Special systems such as Simultaneous Translation systems, MPs Call systems, Messenger Call systems.

.5 Security, surveillance and intrusion alarm systems: to include verification by Departmental Representative.

.6 Lightning protection systems.

.7 Watchman's tour systems.

1.12 START-UP

.1 Start up components, equipment and systems.

.2 Equipment manufacturer, supplier, installing specialist sub-contractor, as appropriate, to start-up, under Contractor's direction, equipment and systems:

.3 Departmental Representative to monitor some of these start-up activities.

.1 Rectify start-up deficiencies to satisfaction of Departmental Representative.

.4 Performance Verification (PV):

.1 Approved Cx Agent to perform.

.1 Repeat when necessary until results are acceptable to Departmental Representative.

.2 Use procedures modified generic procedures to suit project requirements.

.3 Departmental Representative to witness and certify reported results using approved PI and PV forms.

.4 Departmental Representative to approve completed PV reports and provide to Departmental Representative.

.5 Departmental Representative reserves right to verify up to 30% of reported results at random.

.6 Failure of randomly selected item shall result in rejection of PV report or report of system startup and testing.

1.13 CX ACTIVITIES AND RELATED DOCUMENTATION

.1 Perform Cx by specified Cx agency using procedures developed by Departmental Representative and approved by Departmental Representative.

.2 Departmental Representative to monitor Cx activities.

.3 Upon satisfactory completion, Cx agency performing tests to prepare Cx Report using approved PV forms.

.4 Departmental Representative to witness, certify reported results of, Cx activities and forward to Departmental Representative.

.5 Departmental Representative reserves right to verify a percentage of reported results at no cost to contract.

1.14 CX OF INTEGRATED SYSTEMS AND RELATED DOCUMENTATION

.1 Cx to be performed by specified Cx specialist, using procedures developed by Departmental Representative and approved by Departmental Representative.

.2 Tests to be witnessed by Departmental Representative and documented on approved report forms.

.3 Upon satisfactory completion, Cx specialist to prepare Cx Report, to be certified by Departmental Representative and submitted toDepartmental Representative for review.

.4 Departmental Representative reserves right to verify percentage of reported results.

.5 Integrated systems to include:

.1 HVAC and associated systems forming part of integrated HVAC systems.

.2 Environmental space conditions.

.3 Fire alarm systems.

.4 Voice communications systems.

.5 Emergency lighting systems.

.6 Identification:

.1 In later stages of Cx, before hand-over and acceptance Departmental Representative, Contractor and Cx Manager to co-operate to complete inventory data sheets and provide assistance to PWGSC in full implementation of MMS identification system of components, equipment, sub-systems, systems.

1.15 INSTALLATION CHECK LISTS (ICL)

.1 Refer to Section 01 91 33 - Commissioning (Cx) Forms: Installation Check Lists and Product Information (PI) / Performance Verification (PV) Forms.

1.16 PRODUCT INFORMATION (PI) REPORT FORMS

.1 Refer to Section 01 91 33 - Commissioning (Cx) Forms: Installation Check Lists and Product Information (PI) / Performance Verification (PV) Forms.

1.17 PERFORMANCE VERIFICATION (PV) REPORT

.1 Refer to Section 01 91 33 - Commissioning (Cx) Forms: Installation Check Lists and Product Information (PI) / Performance Verification (PV) Forms.

1.18 DELIVERABLES RELATING TO ADMINISTRATION OF CX

.1 General:

.1 Because of risk assessment, complete Cx of occupancy, weather and seasonal-sensitive equipment and systems in these areas before building is occupied.

1.19 CX SCHEDULES

.1 Prepare detailed critical path Cx Schedule and submit to Departmental Representative for review and approval same time as project Construction Schedule. Include:

.1 Milestones, testing, documentation, training and Cx activities of components, equipment, subsystems, systems and integrated systems, including:

.1 Design criteria, design intents.

.2 Pre-TAB review: 28 days after contract award, and before construction starts.

.3 Cx agents' credentials: 60 days before start of Cx.

.4 Cx procedures: 3 months after award of contract.

.5 Cx Report format: 3 months after contract award.

.6 Discussion of heating/cooling loads for Cx: 3 months before start-up.

.7 Submission of list of instrumentation with relevant certificates: 21 days before start of Cx.

.8 Notification of intention to start TAB: 21 days before start of TAB.

.9 TAB: after successful start-up, correction of deficiencies and verification of normal and safe operation.

.10 Notification of intention to start Cx: 14 days before start of Cx.

.11 Notification of intention to start Cx of integrated systems: after Cx of related systems is completed 14 days before start of integrated system Cx.

.12 Identification of deferred Cx.

.13 Implementation of training plans.

.14 Cx reports: immediately upon successful completion of Cx.

.2 Detailed training schedule to demonstrate no conflicts with testing, completion of project and hand-over to Property Manager.

.3 6 months in Cx schedule for verification of performance in all seasons and wear conditions.

.2 After approval, incorporate Cx Schedule into Construction Schedule.

.3 Consultant, Contractor, Contractor's Cx agent, and Departmental Representative will monitor progress of Cx against this schedule.

1.20 CX REPORTS

.1 Submit reports of tests, witnessed and certified by Departmental Representative to Departmental Representative who will verify reported results.

.2 Include completed and certified PV reports in properly formatted Cx Reports.

.3 Before reports are accepted, reported results to be subject to verification by Departmental Representative.

1.21 ACTIVITIES DURING WARRANTY PERIOD

.1 Cx activities must be completed before issuance of Interim Certificate, it is anticipated that certain Cx activities may be necessary during Warranty Period, including:

.1 Fine tuning of HVAC systems.

.2 Adjustment of ventilation rates to promote good indoor air quality and reduce deleterious effects of VOCs generated by off-gassing from construction materials and furnishings.

.3 Full-scale emergency evacuation exercises.

1.22 TRAINING PLANS

.1 Refer to Section 01 91 41 - Commissioning (Cx) - Training

1.23 FINAL SETTINGS

.1 Upon completion of Cx to satisfaction of Departmental Representative lock control devices in their final positions, indelibly mark settings marked and include in Cx Reports.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 SUMMARY

.1 Section Includes:

.1 Commissioning forms to be completed for equipment, system and integrated system.

1.2 INSTALLATION/START-UP CHECK LISTS

.1 Include the following data:

.1 Product manufacturer's installation instructions and recommended checks.

.2 Special procedures as specified in relevant technical sections.

.3 Items considered good installation and engineering industry practices deemed appropriate for proper and efficient operation.

.2 Equipment manufacturer's installation/start-up check lists are acceptable for use. As deemed necessary by Departmental Representative supplemental additional data lists will be required for specific project conditions.

.3 Use check lists for equipment installation. Document check list verifying checks have been made, indicate deficiencies and corrective action taken.

.4 Installer to sign check lists upon completion, certifying stated checks and inspections have been performed. Return completed check lists to Departmental Representative. Check lists will be required during Commissioning and will be included in Building Maintenance Manual (BMM) at completion of project.

.5 Use of check lists will not be considered part of commissioning process but will be stringently used for equipment pre-start and start-up procedures.

1.3 PRODUCT INFORMATION (PI) REPORT FORMS

.1 Product Information (PI) forms compiles gathered data on items of equipment produced by equipment manufacturer, includes nameplate information, parts list, operating instructions, maintenance guidelines and pertinent technical data and recommended checks that is necessary to prepare for start-up and functional testing and used during operation and maintenance of equipment. This documentation is included in the BMM at completion of work.

.2 Prior to Performance Verification (PV) of systems complete items on PI forms related to systems and obtain Departmental Representative's approval.

1.4 PERFORMANCE VERIFICATION (PV) FORMS

.1 PV forms to be used for checks, running dynamic tests and adjustments carried out on equipment and systems to ensure correct operation, efficiently and function independently and interactively with other systems as intended with project requirements.

.2 PV report forms include those developed by Contractor records measured data and readings taken during functional testing and Performance Verification procedures.

.3 Prior to PV of integrated system, complete PV forms of related systems and obtain Departmental Representative's approval.

1.5 CHANGES AND DEVELOPMENT OF NEW REPORT FORMS

.1 When additional forms are required, but are not available from Departmental Representative develop appropriate verification forms and submit to Departmental Representative for approval prior to use.

.1 Additional commissioning forms to be in same format as provided by Departmental Representative

1.6 COMMISSIONING FORMS

.1 Use Commissioning forms to verify installation and record performance when starting equipment and systems.

.2 Strategy for Use:

.1 Departmental Representative provides Contractor project-specific Commissioning forms with Specification data included.

.2 Contractor will provide required shop drawings information and verify correct installation and operation of items indicated on these forms.

.3 Confirm operation as per design criteria and intent.

.4 Identify variances between design and operation and reasons for variances.

.5 Verify operation in specified normal and emergency modes and under specified load conditions.

.6 Record analytical and substantiating data.

.7 Verify reported results.

.8 Form to bear signatures of recording technician and reviewed and signed off by Departmental Representative.

.9 Submit immediately after tests are performed.

.10 Reported results in true measured SI unit values.

.11 Provide Departmental Representative with originals of completed forms.

.12 Maintain copy on site during start-up, testing and commissioning period.

.13 Forms to be both hard copy and electronic format with typed written results in Building Management Manual in accordance with Section 01 91 51 - Building Management Manual (BMM).

1.7 LANGUAGE

.1 To suit the language profile of the awarded contract.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 SUMMARY

.1 Section Includes:

.1 This Section specifies roles and responsibilities of Commissioning Training.

1.2 TRAINEES

.1 Trainees: personnel selected for operating and maintaining this facility. Includes Facility Manager, building operators, maintenance staff, security staff, and technical specialists as required.

.2 Trainees will be available for training during later stages of construction for purposes of familiarization with systems.

1.3 INSTRUCTORS

.1 Departmental Representative will provide:

.1 Descriptions of systems.

.2 Instruction on design philosophy, design criteria, and design intent.

.2 Contractor and certified factory-trained manufacturers' personnel: to provide instruction on the following:

.1 Start-Up, operation, shut-down of equipment, components and systems.

.2 Control features, reasons for, results of, implications on associated systems of, adjustment of set points of control and safety devices.

.3 Instructions on servicing, maintenance and adjustment of systems, equipment and components.

.3 Contractor and equipment manufacturer to provide instruction on:

.1 Start-up, operation, maintenance and shut-down of equipment they have certified installation, started up and carried out PV tests.

1.4 TRAINING OBJECTIVES

.1 Training to be detailed and duration to ensure:

.1 Safe, reliable, cost-effective, energy-efficient operation of systems in normal and emergency modes under all conditions.

.2 Effective on-going inspection, measurements of system performance.

.3 Proper preventive maintenance, diagnosis and trouble-shooting.

.4 Ability to update documentation.

.5 Ability to operate equipment and systems under emergency conditions until appropriate qualified assistance arrives.

1.5 TRAINING MATERIALS

.1 Instructors to be responsible for content and quality.

.2 Training materials to include:

.1 "As-Built" Contract Documents.

.2 Operating Manual.

.3 Maintenance Manual.

.4 Management Manual.

.5 TAB and PV Reports.

.3 Project Manager, Commissioning Manager and Facility Manager will review training manuals.

.4 Training materials to be in a format that permits future training procedures to same degree of detail.

.5 Supplement training materials:

.1 Transparencies for overhead projectors.

.2 Multimedia presentations.

.3 Manufacturer's training videos.

.4 Equipment models.

1.6 SCHEDULING

.1 Include in Commissioning Schedule time for training.

.2 Deliver training during regular working hours, training sessions to be 3 hours in length.

.3 Training to be completed prior to acceptance of facility.

1.7 RESPONSIBILITIES

.1 Be responsible for:

.1 Implementation of training activities,

.2 Coordination among instructors,

.3 Quality of training, training materials,

.2 Departmental Representative will evaluate training and materials.

.3 Upon completion of training, provide written report, signed by Instructors, witnessed by Departmental Representative.

1.8 TRAINING CONTENT

.1 Training to include demonstrations by Instructors using the installed equipment and systems.

.2 Content includes:

.1 Review of facility and occupancy profile.

.2 Functional requirements.

.3 System philosophy, limitations of systems and emergency procedures.

.4 Review of system layout, equipment, components and controls.

.5 Equipment and system start-up, operation, monitoring, servicing, maintenance and shut-down procedures.

.6 System operating sequences, including step-by-step directions for starting up, shut-down, operation of valves, dampers, switches, adjustment of control settings and emergency procedures.

.7 Maintenance and servicing.

.8 Trouble-shooting diagnosis.

.9 Inter-Action among systems during integrated operation.

.10 Review of O M documentation.

.3 Provide specialized training as specified in relevant Technical Sections of the construction specifications.

1.9 VIDEO-BASED TRAINING

.1 Manufacturer's videotapes to be used as training tool with Departmental Representative's review and written approval 3 months prior to commencement of scheduled training.

.2 On-Site training videos:

.1 Videotape training sessions for use during future training.

.2 To be performed after systems are fully commissioned.

.3 Organize into several short modules to permit incorporation of changes.

.3 Production methods to be professional quality.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 SUMMARY

.1 Section Includes:

.1 This section is limited to portions of the Building Management Manual (BMM) provided to Departmental Representative by Contractor.

.2 Acronyms:

.1 BMM - Building Management Manual.

.2 Cx - Commissioning.

.3 HVAC - Heating, Ventilation and Air Conditioning.

.4 PI - Product Information.

.5 PV - Performance Verification.

.6 TAB - Testing, Adjusting and Balancing.

.7 WHMIS - Workplace Hazardous Materials Information System.

1.2 GENERAL REQUIREMENTS

.1 Standard letter size paper 216 mm x 279 mm.

.2 Methodology used to facilitate updating.

.3 Drawings, diagrams and schematics to be professionally developed.

.4 Electronic copy of data to be in a format accepted and approved by Departmental Representative.

1.3 APPROVALS

.1 Prior to commencement, co-ordinate requirements for preparation, submission and approval with Departmental Representative.

1.4 GENERAL INFORMATION

.1 Provide Departmental Representative the following for insertion into appropriate Part and Section of BMM:

.1 Complete list of names, addresses, telephone and fax numbers of contractor, sub-contractors that participated in delivery of project - as indicated in Section 1.2 of BMM.

.2 Summary of architectural, structural, fire protection, mechanical and electrical systems installed and commissioned - as indicated in Section 1.4 of BMM.

.1 Including sequence of operation as finalized after commissioning is complete as indicated in Section 2.0 of BMM.

.3 Description of building operation under conditions of heightened security and emergencies as indicated in Section 2.0 of BMM.

.4 System, equipment and components Maintenance Management System (MMS) identification - Section 2.1 of BMM..

.5 Information on operation and maintenance of architectural systems and equipment installed and commissioned - Section 2.0 of BMM.

.6 Information on operation and maintenance of fire protection and life safety systems and equipment installed and commissioned - Section 2.0 of BMM.

.7 Information on operation and maintenance of mechanical systems and equipment installed and commissioned - Section 2.0 of BMM.

.8 Operating and maintenance manual - Section 3.2 of BMM.

.9 Final commissioning plan as actually implemented.

.10 Completed commissioning checklists.

.11 Commissioning test procedures employed.

.12 Completed Product Information (PI) and Performance Verification (PV) report forms, approved and accepted by Departmental Representative.

.13 Commissioning reports.

1.5 CONTENTS OF OPERATING AND MAINTENANCE MANUAL

.1 Departmental Representative to review and approve format and organization within 12 weeks of award of contract.

.2 Include original manufactures brochures and written information on products and equipment installed on this project.

.3 Record and organize for easy access and retrieval of information contained in BMM.

.4 Include completed PI report forms, data and information from other sources as required.

.5 Inventory directory relating to information on installed systems, equipment and components.

.6 Approved project shop-drawings, product and maintenance data.

.7 Manufacturer's data and recommendations relating: manufacturing process, installation, commissioning, start-up, O M, shutdown and training materials.

.8 Inventory and location of spare parts, special tools and maintenance materials.

.9 Warranty information.

.10 Inspection certificates with expiration dates, which require on-going re-certification inspections.

.11 Maintenance program supporting information including:

.1 Recommended maintenance procedures and schedule.

.2 Information to removal and replacement of equipment including, required equipment, points of lift and means of entry and egress.

1.6 LIFE SAFETY COMPLIANCE (LSC) MANUAL

.1 Samples of LSC Manual will be available from Departmental Representative.

.2 Content of Manual:

.1 All possible Emergency situations modes including: presence of fire and smoke, power failure, lose of water or pressure, chemical spills and refrigerant release.

.2 HVAC emergencies failures.

.3 Intrusion and security breach.

.4 Emergency provisions for natural disasters, bomb threats and other disruptive situations.

.5 Dedicated emergency generators for high security projects, medical facilities and computer systems.

.6 Emergency control procedures for fire, power and major equipment failure.

.7 Emergency contacts and numbers.

.8 Manual to be readily available and comprehensible to non- technical readers.

1.7 SUPPORTING DOCUMENTATION FOR INSERTION INTO SUPPORTING APPENDICES

.1 Provide Departmental Representative supporting documentation relating to installed equipment and system, including:

.1 General:

.1 Finalized commissioning plan.

.2 WHMIS information manual.

.3 Approved "as-built" drawings and specifications.

.4 Procedures used during commissioning.

.5 Cross-Reference to specification sections.

.2 Architectural and structural:

.1 Inspection certificates, construction permits.

.2 Roof anchor log books.

.3 PV reports.

.3 Fire prevention, suppression and protection:

.1 Test reports.

.2 Smoke test reports.

.3 PV reports.

.4 Mechanical:

.1 Installation permits, inspection certificates.

.2 Piping pressure test certificates.

.3 Ducting leakage test reports.

.4 TAB and PV reports.

.5 Charts of valves and steam traps.

.6 Copies of posted instructions.

.5 Electrical:

.1 Installation permits, inspection certificates.

.2 TAB and PV reports.

.3 Electrical work log book.

.4 Charts and schedules.

.5 Locations of cables and components.

.6 Copies of posted instructions.

.2 Assist Departmental Representative with preparation of BMM.

1.8 LANGUAGE

.1 English and French Language to be in separate binders.

1.9 USE OF CURRENT TECHNOLOGY

.1 Use current technology for production of documentation. Emphasis on ease of accessibility at all times, maintain in up-to-date state, compatibility with user's requirements.

.2 Obtain Departmental Representative's approval before starting Work.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

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 REFERENCES

.1 CSA S350, Code of Practice for Safety in Demolition of Structures.

1.3 DRAWINGS OF DEMOLITION WORKS

.1 Submit for approval drawings, sketches or other relevant details showing the order of dismantling and all shoring elements.

.2 Drawings must be sealed and stamped by a Professional Engineer.

1.4 PROTECTION MEASURES

.1 Take all precautions to prevent all settlement or movement of adjacent structures, buildings, roads, sidewalks, etc. to remain. Provide all required shoring or else. The Contractor shall repair all structures damaged during demolition.

.2 Shore related works and stop demolition works, advise the Departmental representative if demolition works affect the stability of the remaining works and present a definite danger.

PART 2 PRODUCTS

Not applicable

PART 3 EXECUTION

3.1 PREPARATION

.1 Inspect construction site to establish existing conditions and verify with the Departmental representative and Owner's Representative existing structures that are to be removed and the ones that are to remain.

3.2 REMOVAL

.1 In accordance with the latest security standards and Codes, temporarily support all structures to be removed and all adjoining structures prior to any demolition work.

.2 Remove structures indicated on drawings.

.3 Concrete or masonry rubble should not be used as backfill material.

.4 At the end of each working day make sure of the stability of all structures.

.5 Enclose and protect from weather all structures that are to remain.

.6 Take all precautions in order to minimize dust created by demolition process.

.7 Maintain negative pressure in the room during the demolition of the slab on grade.

3.3 RUBBISH HANDLING

.1 Eliminate all useless material that cannot be recuperated or reutilized off the construction site in compliance with local authorities.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 02 41 17 – Structure Demolition.

.2 Section 02 82 00 – Work in the Presence of Asbestos

1.2 REFERENCES

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

.2 U.S. Environmental Protection Agency (EPA)/Office of Water
- .1 EPA 832/R-92-005, Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures and 01 74 21 - Construction/Demolition Waste Management Disposal.

.2 Sustainable Design Submittals:
- .1 Construction Waste Management:
  - .1 Submit project Waste Management Plan highlighting recycling and salvage requirements.
  - .2 Submit calculations on end-of-project recycling rates, salvage rates, and landfill rates demonstrating that 75% of construction wastes were recycled or salvaged.

1.4 SITE CONDITIONS

.1 Review "Designated Substance Report" and take precautions to protect environment.

.2 If material resembling spray or trowel-applied asbestos or other designated substance listed as hazardous be encountered, stop work, take preventative measures, and notify Departmental Representative immediately.
- .1 Proceed only after receipt of written instructions have been received from Departmental Representative.

.3 Notify Departmental Representative before disrupting building access or services.

Part 2 Products

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 EXAMINATION

.1 Inspect site with Departmental Representative and verify extent and location of items designated for removal, disposal, alternative disposal, recycling, salvage and items to remain.

.2 Locate and protect utilities. Preserve active utilities traversing site in operating condition.

.3 Notify and obtain approval of utility companies before starting demolition.

.4 Disconnect, cap, plug or divert, as required, existing public utilities within the property where they interfere with the execution of the work, in conformity with the requirements of the authorities having jurisdiction. Mark the location of these and previously capped or plugged services on the site and indicate location (horizontal and vertical) on the record drawings. Support, shore up and maintain pipes and conduits encountered.

.1 Immediately notify Departmental Representative and utility company concerned in case of damage to any utility or service, designated to remain in place.

.2 Immediately notify the Departmental Representative should uncharted utility or service be encountered, and await instruction in writing regarding remedial action.

3.2 PREPARATION

.1 Protection of In-Place Conditions:

.1 Prevent movement, settlement, or damage to adjacent structures, utilities and parts of building to remain in place. Provide bracing and shoring required.

.2 Keep noise, dust, and inconvenience to occupants to minimum.

.3 Protect building systems, services and equipment.

.4 Provide temporary dust screens, covers, railings, supports and other protection as required.

.5 Do Work in accordance with Section 01 35 29.06 - Health and Safety Requirements.

.2 Demolition/Removal:

.1 Remove items as indicated.
.2 Removal of Pavements, Curbs and Gutters:
.1 Square up adjacent surfaces to remain in place by saw cutting or other method approved by Departmental Representative.
.2 Protect adjacent joints and load transfer devices.
.3 Protect underlying and adjacent granular materials.
.3 Remove parts of existing building to permit new construction.
.4 Put zone of work in negative pressure during demolition work of the concrete slab.
.5 Trim edges of partially demolished building elements to tolerances as defined by Departmental Representative to suit future use.
.6 Repair existing surfaces to remain next to demolish items.

3.3 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
.1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

.3 Refer to demolition drawings and specifications for items to be salvaged for reuse.

.4 Waste Management: separate waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

END OF SECTION

PART 1: GENERAL INFORMATION

1.1 SUMMARY

.1 As a part of the project R.067720.800 (Archambault Institution - Finishing kitchen), we present the safe work procedures and specific requirements pertaining to the execution of work with asbestos-containing materials.

.2 The work description provided is for information purposes only. For quantities, the Contractor shall refer to the plans and specifications of the professionals.

.3 Typical work involving presence of asbestos includes:

- In as many places as necessary and where required, conduct the removal of piping and insulation containing asbestos that is present on the elbows and other irregular sections of the pipe sections to be demolished by the method " wrap and scrap ". This work should be performed according to the requirements for a moderate-risk work - "Wrap and scrap" as described in this document.

- In as many places as necessary and where required, proceed to the collection of vermiculite insulation debris on surfaces and patch the openings on the outside perimeter walls. This work should be performed according to the requirements for a moderate-risk work as described in this document.

- In as many places as necessary and where required, proceed to the removal of structures or elements in contact with the walls of the outer perimeter. This work should be performed according to the requirements for a moderate-risk work as described in this document.

- Establish a reduced-high-risk work area for the removal of door U133H. This work should be performed according to the requirements for a lightened high-risk work as described in this document.

- Establish high risk work areas for the removal of the concrete block walls between axes x1 and x3 and between axes x01 and x03. This work should be performed according to the requirements for a high-risk work site as described in this document.

1.2 RELATED REQUIREMENTS

.1 The Contractor will be required to ensure that the foreman in charge of decontamination is present at all times during the execution of this work, for both the supervision operations with his own employees as well as with other parties.

.2 For the entire duration of the work, the Contractor shall see to the integrity of the owner's equipment and, in case of breakage (e.g.: water leak), the Contractor will assume the repair work. In the event that the repairs are not made within the time frame deemed reasonable by the owner, the owner will assume the repair work and the costs shall be borne by the Contractor responsible for the damages.

.3 The Contractor and his workers must comply with any other rules (e.g.: access to the site...) required by the Departmental Representative.

.4 The Contractor shall take into consideration that some of the work will need to be performed at height.

.5 The Contractor shall provide for the installation of additional lighting.

.6 Other than the ones appointed by the Contractor to work with asbestos-containing materials, every worker that requires access to contaminated sites must have received prior training on work methods and procedures on entering and exiting the work site, as well as on measures and means of dust control.

1.3 REFERENCES

.1 Identification of asbestos-containing materials was carried out with the mandate entrusted to MHV Services d'hygiène industrielle inc. (rapport P15-3293 - Inspection et prélèvement d'échantillons de matériaux susceptibles de contenir de l'amiante - Établissement Archambault -– Cuisine de finition du 11 août 2015).

.2 All work performed in the presence of asbestos must be accomplished in accordance with the most recent laws, regulations, codes and ordinances applicable and in force at the time of performance of the contract. The following standards and recommendations shall be observed for any work involving the handling of materials containing these products:

- Act Respecting Occupational Health and Safety (LSST, Chapter S-2.1)
- Occupational Health and Safety Regulations (S-2.1, r.13)
- Quebec Safety Code for the Construction Industry (S-2.1, r.4)
- CSA Z94.4-11 Selection, Care and Use of Respirators
- Canada Labour Code, Part II, X and XIV
- PWGSC Departmental policy (DP057) - Asbestos management

.3 More specifically for asbestos and according to Article 2.4.1 of the *Safety Code for the Construction Industry*, the Contractor shall submit to the Commission de la santé et de la sécurité du travail (CSST) a written notice about the opening of the construction site at least 10 days before the commencement of operations on the site. The Contractor shall also submit to the CNESST a written notice of the closing of the site at least 10 days before the scheduled end of the work on the site, unless the site is open for less than one month, in which case the notice must be sent at least 10 days before the commencement of operations on the site.

The Quebec Safety Code for the Construction Industry specifies that the information which must be provided in this notice, including the nature of the project, the methods and processes used, as well as proof of the existence of a training program are in compliance with Article 3.23.7 of the Safety Code.

.4 The work covered is classified according to section 3.23.2 of the Quebec Safety Code for the Construction Industry, which determines the level of risk depending on the type of asbestos, friability of materials and nature of work to be executed.

.5 Therefore, the Contractor shall comply with the requirements of the Quebec Safety Code for the Construction Industry related to the work that may emit asbestos dust in addition to the specific requirements of this section.

1.4 DEFINITIONS

.1 ASBESTOS: the fibrous form of mineral silicates belonging to rock-forming minerals of the serpentine group, that is, chrysotile, and the amphibole group, that is, actinolite, amosite, anthophyllite, crocidolite, tremolite or any mixture containing one or more of those minerals.

.2 OCCUPIED AREA: any part of the building or site which is not part of the contaminated work area.

.3 AIR LOCK: construction allowing the entry and exit of personnel, of material and equipment between a contaminated area and an uncontaminated area, without any trace of air exchange or movement between the two areas.

.4 BREATHABLE ASBESTOS FIBER: asbestos fiber with a diameter of less than 3 microns and a length to diameter ratio greater than 3:1. Only fibers longer than 5 microns will be taken into account for measurement purposes.

.5 ASBESTOS-CONTAINING MATERIAL: material where the concentration in asbestos is of at least 0.1%.

.6 FIABLE MATERIAL: material that can be crumbled, pulverized, or reduced to powder by hand when dry or that is crumbled, pulverized, or reduced to powder.

.7 NON FRIABLE MATERIAL: material that, when dry, cannot be crumbled, pulverized or reduced to powder by hand.

.8 PLM: Polarizing Light Microscopy analysis to determine the type and level of asbestos according to the analytical method n° 243-1 of the Institut de recherche Robert-Sauvé en santé et en sécurité du travail.

.9 TEM: Transmission Electron Microscopy performed to determine the presence of breathable fibers according to the NIOSH 7402 analytical method or to determine the presence of asbestos in material with the ELAP 198.4analytical method.

.10 PCM: Phase Contract Microscopy analysis performed in order to count total breathable fibers according to the analytical method n° 244-3 of the Institut de recherche Robert-Sauvé en santé et en sécurité du travail.

.11 ROLL-UP DOOR: A door consisting of two superimposed plastic membranes, one being attached at the top left side, the other at the top right side. These shall be equipped with weights at the bottom so that the doors always close shut when in use. This minimizes infiltration of dust into the occupied areas.

.12 ASBESTOS DUST: airborne asbestos particles or particles that are deposited and susceptible of becoming airborne in ambient air.

.13 EXTRACTION SYSTEM: A system capable of maintaining a negative pressure in a work area from which the air is extracted and then evacuated to the outside through a series of high-efficiency filters (HEPA). The vacuum system must provide at least four air changes per hour and should be able to maintain a differential pressure between 0.001 and 0.004 kPa between the work area and adjacent areas.

.14 DOP TEST: verification of the efficiency of a HEPA filter using dioctyl phthalate.

.15 AUTHORIZED VISITOR: owner, project manager or Departmental Representative and any official government agency representative.

.16 CONTAMINATED AREA: site where the work performed results or may result in the suspension of materials or dust containing asbestos.

1.5 SUBMITALS

.1 At least 10 days before the commencement of the work, the Contractor must submit the following documents:

- Notice of commencement of construction work involving the presence of asbestos in accordance with Article 2.4.1. of the Construction Industry of Québec Safety Code;
- Licenses or permits necessary to perform the work;
- Accident prevention program;
- Foreman proof of on site experience and proof that workers under his jurisdiction have obtained a job number issued by the Commission de la Construction du Québec to work on a construction site;
- For each worker, a certification of attendance of a health and safety course on construction sites;
- A certificate stating that the workers have received adequate training about risks, and safe work practices when working with asbestos-containing materials;
- Proof of WHMIS certification for each worker;
- Provide a copy of the certificate of training on respiratory protection for workers, including the fit test;
- Material safety data sheets and/or technical sheets of products used on site (sealant, glue, encapsulate,...) for approbation;
- Provide a work plan with respect to the method used in the prevention program for work may emit asbestos dust (CSST, June 1999);
- Presentation of the design and construction plans for the decontamination air-lock areas and vacuum systems for each work area provided for assessment and approval by the Departmental Representative as well as by the firm responsible for overseeing the work.;
- Steps to take in case of an emergency;
- Submit a timetable for the owner at least ten days before implementation. Any revision shall be submitted to the project manager at least forty-eight hours before the application.

.2 The Contractor must submit to the project manager or his representant certificates of DOP leakage tests for vacuum units and vacuum cleaners used on site. **Testing and certification shall be carried out on site after receipt of the equipment**

.3 The Contractor shall provide the Customer with a hazardous waste manifest for the waste transported to the authorized site. The word “asbestos” must be stated on the slips.

1.6 QUALITY ASSURANCE

.1 All work performed in the presence of asbestos must be in accordance with the most recent laws, regulations, codes and ordinances applicable and in force at the time of performance of the contract. Where there is discrepancy between this section and other sections of these specifications or regulatory agencies, the most stringent requirements apply.

.2 HEALTH AND SAFETY

.1 Respiratory protection

.1 Workers will be provided with a respirator appropriate to the level of asbestos exposure in the work area.

- Respiratory protection must be half-mask equipped with a high-efficiency filter (HEPA) for moderate-risk work.
- Respiratory protection must be a powered air purifying full-face mask equipped with a high-efficiency filter (HEPA) for lightened high-risk work and for high-risk work.

.2 All masks must be approved by the National Institute for Occupational Safety and Health (NIOSH) for protection against asbestos. Filters used must be of high-efficiency grade. A new filter must be supplied to workers on a daily basis. Filters in sufficient quantity should be placed in the clean-clothes locker room. This equipment shall be selected, fitted, used and maintained in accordance with CSA Z94.4-11 “Selection, Care and Use of Respirators.”

.3 Respiratory protection will be provided to each worker by the Contractor for its exclusive use. Before entering the work area, the mask seal should be checked. After use the mask must be cleaned and stored in a clean and sanitary location.

.4 Long beards, sideburns, or mustaches are prohibited. The Contractor will be responsible for ensuring that each worker meets this requirement before entering the work area. Any worker who does not meet this requirement will be denied access to the site.

.2 Other personal protective equipment

.1 Protective clothing must be worn by each person entering the work area. The protective clothing must be conform the

type 5 of EN ISO 13982-1 :2004+A1 :2010 – *Vêtements de protection à utiliser contre les particules solides*. It must consist of material that does not easily retain asbestos fibers and that does not allow their penetration. Disposable coveralls must be disposed of in the same way as asbestos waste. The Contractor shall provide clean protective clothing to every worker for every shift.

The clothing must cover the entire body, including the head, be tight at the wrists and ankles and cover the neck. In case of ripping, it must be replaced.

.2 Safety boots should be of rubber and equipped with non-slip soles. Other parts of the body will be protected in accordance with the requirements of the Quebec Safety Code for the Construction Industry (S-2.1, r. 4).

.3 Other body parts must be protected in accordance with requirements of the Quebec Safety Code for the Construction Industry (S-2.1, r. 4).

.3 Workers protection

.1 Before starting work, the contractor will provided to workers the necessary instructions on the use of respiratory protection, clothing and how to enter and exit the contaminated work area as well as all other information on safe work practices.

.4 Protection of visitors

.1 Anyone visiting the work area (or decontamination spaces) must be provided with a protective suit and an approved respirator.

.2 Authorized visitors will be given the necessary instructions on proper use of protective respiratory equipment, protective clothing and on procedures for entering and exiting the work area, as well as any other information pertaining to safe work practices.

.5 Prohibitions

During work, it is strictly forbidden:

.1 To use compressed air in a place where asbestos is handled or removed, except for the breathing air required for operation of a respirator;

.2 To smoke, drink, eat, or chew gum in the work area;

.3 To wear a beard or long sideburns with a respirator.

.3 SUPERVISION AND INSPECTION

.1 All work will be subject to supervision by the Departmental Representative. Charges for monitoring will be borne by the customer.

.2 Before beginning any work, an inspection of the work area will be carried out by the Departmental Representative in order to authorize the start of work under lightened high-risk and high-risk site conditions. In the case of any requests for a corrective action, they shall be performed by the Contractor prior to the beginning of the work. In addition, the Contractor shall obtain approval by the Project Manager.

.3 The work performed by the Contractor specialized in decontamination will be inspected by the Departmental Representative and air samples shall be collected in the work sector as well as in the areas adjacent to the sites in order to check the levels of total fibers in ambient air and confirm the effectiveness of the dust control means employed by the Contractor. The employees of the Contractor will be asked to collaborate for the collection of personal air samples. The sampling equipment will be worn by some workers for specific periods of time during the execution of their tasks.

.4 Costs that may result from any work stoppages by the owner, project manager or his representative, by the Departmental Representative, any representative of an official government agency and the additional air sampling required at the lack of adherence to safe working procedures will be at the expense of the contractor.

.5 Before the application of the slow drying sealing filler, a visual inspection of work areas would be conducted by the Departmental Representative to autorize the application of the slow drying sealing filler. If corrections are required by the external Departmental Representative, they must be performed by the Contractor.

.6 Before dismantling operations in high-risk work areas, the Departmental Representative will verify the concentration of total breathable fibers in the air at least 12 hours after applying the slow drying sealing filler in the work sector for high-risk indoor sites as well as in the work-clothes locker room sector for high-risk outdoor sites. For the dismantling to be allowed, the concentration must be less than 0.01 fiber per cubic centimeter. The authorization to dismantle the site will be given by the Departmental Representative.

.7 At the end of the work, complementary visual inspections will be carried out to ensure that no dust, debris, or waste remain on the surfaces due to the dismantling operations on site. In case the Contractor does not perform adequate cleaning of the site at the end of the work, the owner will run this cleaning by a third party. The Contractor shall bear the cost of this cleanup. The Contractor must return the site to a clean state.

.8 Sampling and analysis of the samples will be carried out by the Departmental Representative in accordance with analytical method no. 243-1 of Institut de recherche en santé et sécurité du travail du Québec and with the Occupational Health and Safety Regulations (S-2.1, r.13)

1.7 WASTE MANAGEMENT AND DISPOSAL

.1 All contaminated residues, debris and waste must be quickly removed from the work area. The Contractor shall proceed by bagging residues or using a vacuum equipped with a HEPA filter.

.2 Wastes will be carefully packed in bags with a minimum thickness of 6 mils. This waste includes scrap of asbestos-containing materials, disposable coveralls, rags and sponges used for cleaning, used mask cartridges, in short, any contaminated material except for the tools that should be cleaned after use.

.3 Each garbage bag or sealed barrel should be washed thoroughly with a damp cloth, a water spray or a HEPA vacuum, and each bag must be doubled in a second pre-identified bag with a minimum thickness of 6 mils before being removed from the work area.

.4 Waste and scrap must be collected daily, stored in an orderly manner and removed from the site regularly to avoid unwanted piles and sent to an authorized waste site at the expense of the Contractor.

.5 Waste must be stored in marked containers as indicated below:

Asbestos-containing material Toxic by inhalation Keep container tightly closed Do not breathe dust

(Reference to the Quebec Safety Code for the Construction Industry: S-2.1, r.4, art.3.23.13).

.6 Whenever possible, try to avoid overloading containers, especially bags.

.7 Waste should be disposed of in a landfill under the responsibility of the Contractor specialized in decontamination. The Contractor shall handle and dispose of waste in compliance with the regulations prescribed by the Government of Québec and the cities concerned.

.8 The Contractor shall notify the company that manages the authorized site that unloaded materials contain asbestos fibers and ensure that all the handling personnel has received the necessary instructions concerning waste management after landfilling.

.9 Waste handling between the work area and the container must be coordinated with the project manager.

.10 The Contractor shall provide the Customer with a hazardous waste manifest for the waste transported to the authorized site. The word “asbestos” must be stated on the slips.

1.8 EXISTING CONDITIONS

.1 Identification of asbestos-containing materials was carried out with the mandate entrusted to MHV Services d’hygiène industrielle inc. (rapport P15-3293 - Inspection et prélèvement d’échantillons de matériaux susceptibles de contenir de l’amiante - Établissement Archambault -– Cuisine de finition du 11 août 2015).

.2 Inform the Departmental Representative of the discovery of any material that may contain asbestos during the work but that was not shown in the drawings, specifications, or reports related to this work. Do not remove these materials before having been instructed by the Departmental Representative.

1.9 SCHEDULING

N/A

1.10 STAFF TRAINING

.1 A certificate stating that workers have received adequate training about risks and safe work practices when working with asbestos-containing materials is to be submitted. The requirements for training are specified in article 3.23.7 of the Quebec Safety Code for the Construction Industry. The training program, therefore, must at least contain information on:

1. General obligations of the Contractor;
2. The effects of asbestos on health;
3. Applicable standards and sampling to perform;
4. The rights and obligations of workers;
5. Collective and personal protection equipment and means;
6. Tasks to perform and equipment or tools necessary;
7. Safe work practices and procedures;
8. Prevention and control methods.

2 Knowledge of employees about asbestos, more specifically relating to work practices, protective equipment and methods, procedures for entering and exiting the construction site as well as the effects of asbestos on health, need to be reviewed before commencement of the work. Workers will then become familiar with the site and the work they will perform will be explained to them. The Contractor shall be responsible for these information sessions.

.3 Information and training on respirators must include at least the following:

9. Proper fitting of equipment;
10. Inspection and maintenance of equipment;
11. Disinfection of equipment;
12. Restrictions concerning the use of equipment.

.4 Relevant information and training must be given by a qualified and competent person. Supervision staff must also receive appropriate training.

PART 2 – PRODUCT

2.1 MATERIAL AND EQUIPMENT

.1 WETTING AGENT: A solution consisting of 50% polyoxyethylene ester and 50% polyoxyethylene ether - or any other product approved by the Departmental Representative - mixed with water in a concentration sufficient to ensure adequate penetration and wetting of asbestos-containing materials.

.2 HEPA VACUUM: A vacuum equipped with all the necessary fittings, tools, and accessories. Air intake must pass through the HEPA filter before discharge.

.3 WASTE CONTAINER: A bag, with a minimum thickness of 0.15 mm, or a tight and puncture resistant barrel, labelled in accordance with Article 3.23.13 of the Quebec Safety Code for the Construction Industry.

.4 WATERPROOF TARP: A plastic waterproofing membrane (i.e.: polyethylene) that does not retain fibers, fastened with tape in order to: protect any item present in the work area, isolate the work area, prevent leakage of water, and facilitate cleaning of certain surfaces. These tarps must be of a thickness of at least 0.15 mm and of a width that minimizes the number of joints.

.5 WASTE LABELS: A French-language warning label indicating the hazards associated with asbestos. The containers must be labelled in accordance with the Controlled Products Regulations. The label must include, in a permanent and legible manner, the following statements and representations:

Asbestos-containing material Toxic by inhalation Keep container tightly closed Do not breathe dust

.6 HIGH EFFICIENCY FILTER (HEPA): A filter capable of filtering 0.3 micron particles with an efficiency rate of at least 99.97%.

.7 CONTINUOUS PRESSURE GAUGE: An instrument designed to continuously monitor and automatically record the pressure difference between the inside and outside of the work area.

.8 DIFFERENTIAL CIRCUIT BREAKER PANEL: An electrical distribution panel equipped with a circuit breaker for protection against ground fault. It should be of sufficient capacity to supply all electrical equipment and lighting in the work area. All switches must have a protection of 3 mA. Panels shall be provided with all necessary accessories, including a power-outage warning light, a switch for checking proper operation of panel, and a reset switch. These must be installed by an electrician.

.9 POLYETHYLENE: A sheet of 0.15 mm minimum thickness.

.10 TEARPROOF POLYETHYLENE: A sheet of 0.23 mm (8 mils) thickness composed of a 0.13 mm (5 mils) woven layer and two non-woven layers of 0.05 mm (1.5 mils) of rolled polyethylene.

.11 SPRAYER: A garden sprayer or airless sprayer capable of producing a spray mist or fine droplets. Sprayer capacity used must be adapted to meet the requirements of the work to be perform.

.12 DUCT TAPE: A glass-fiber reinforced duct tape, capable of sealing polyethylene, whether wet or dry.

.13 SLOW-DRYING FILLER PRODUCT: A non-stain transparent product that disperses in water, remains tacky for at least eight (8) hours after application, and is designed to trap residual asbestos fibers. The filler product shall have a flame-spread rating and a smoke developed classification not exceeding 50.

.14 VACUUM UNIT: ventilation system consisting of a box with an opening at each end; the suction and the discharge orifice. Found within the unit, a fan that is preceded by a filtration system. This system is composed of a pre-filter located on the outside, an intermediate filter and a high-efficiency filter.

.15 PROTECTIVE CLOTHING: Work coveralls of "TYVEK" type that cover full body and head and are fitted with elastic wrists and ankles.

PARTIE 3 – EXECUTION

3.1 MODERATE-RISK WORK – « WRAP AND SCRAP »

.1 General Information

.1 The work included in section 3.1 (moderate-risk work - "wrap and scrap") must be carried out by asbestos specialist contractors.

.2 The nature of the work required under this section is defined by the execution of the removal of piping sections insulated with asbestos-containing material according to "Wrap and scrap" method. Any changes should be notified, justified and approved by the Departmental Representative.

.2 Contractor's Obligations

.1 Ensure that a foreman in charge of the work with asbestos is present at all times to supervise.

.2 Ensure that the progress of the work is on schedule and that the execution of the work is done according to the rules, regulations and requirements of this section. Work could be suspended by the Departmental Representative if one of the above conditions is not met or if he considers that there is a risk of contamination of the adjacent areas. Costs related to stopping the work and correcting the non-compliant conditions will be charged to the Contractor responsible for the work with asbestos.

.3 Ensure that every person present in the work area correctly wears his personal protective equipment and has received the proper asbestos risk, prevention methods and safe work procedures training.

.3 Work Area Preparation

.1 Access to work areas shall be limited to authorized persons only.

.2 Each work area should be delimited using signaling tape. The work area will be defined at each location where vermiculite debris is to be collected and where sealing, patching and removal of structures or element in contact with the walls of the outer perimeter is necessary.

.3 Install signs in accordance with Article 3.23.15 9 of the Quebec Safety Code for the Construction Industry at the entrance to the work area.

.4 Install a changing room in accordance with Article 3.2.11 of the Quebec Safety Code for the Construction Industry.

.5 Workers should wear protective clothing and a respiratory protection as described herein in the moderate-risk work and when the ability to move material containing asbestos exists.

.6 Some additional requirements regarding the protection may be required by the Departmental Representative depending on existing conditions.

.4 Procedures for Entering and Exiting a Work Site

.1 Entering

Before entering in work area, the worker must put on protective clothing. The clothing must cover the entire body, including the head, be tight at the wrists and ankles and cover the neck. In case of ripping, it must be replaced. The worker must put on protective clothing, inspect their respirator and put it in place to check the fit and finally slip on the safety helmet. The helmet must be worn over the cap. Once the mask installed, the worker can then enter the work area.

.2 Exiting

Before exiting the work area, the employee must perform a preliminary decontamination of the protective clothing, including the boots, helmet, and mask exterior using a vacuum cleaner equipped with a high-efficiency filter or using a damp cloth. The worker must then remove his protective clothing and dispose of as contaminated waste, in no time the worker must leave the work area with its protective clothing.

.5 Removal of Piping Covered with Asbestos-Containing Insulation

.1 All work involving asbestos-containing materials must be made exclusive places; only workers who have been identified and authorized may be allowed in the work area.

.2 Throughout the work, the Contractor shall ensure that the requirements regarding material handling and control of dust levels are strictly enforced to prevent the emission and dispersion of dust.

.3 In as many places as necessary, the Contractor may proceed with the complete removal of the pipe:

«Wrap and scrap» method

- Identify and establish the pipe sections with asbestos-containing insulation to eliminate.

- Recover and seal the pipe insulated sections with tearproof polyethylene seal and duct tape prior to their cut.

- Make the cut in the straight piping section covered with glass wool.

- Identify the packaged sections with label indicating the presence of materials containing asbestos.

- Evacuate packaged and identified sections outside the building for disposal. During this phase, the Contractor will handle carefully the sections to prevent any possible damage to the insulation.

.4 Protective clothing and other materials that have been in contact with asbestos should be disposed as contaminated waste.

.5 The operations may be suspended by the Departmental Representative if the requirements are not met. Operations will resume only when changes have been made and validated by the Departmental Representative.

.6 Work Area Cleaning

.1 All residues of contaminated materials will have to be quickly put in bags, sealed and cleaned to prevent the accumulation of waste at the work-area level. Debris must be evacuated from the site at the end of each work day.

.2 At the end of each work shift, the Contractor shall clean all surfaces in the sector where the work was performed using a vacuum cleaner equipped with a HEPA filter.

.3 All equipment used during work should be cleaned with a damp cloth or a HEPA vacuum.

3.2 MODERATE-RISK WORK

.1 General Information

.1 The work included in section 3.2 (moderate-risk work) must be carried out by asbestos specialist contractors. Any changes should be notified, justified and approved by the Departmental Representative.

.2 Section 3.2 (moderate-risk work) only addresses work generating less than 0.03 cubic meter of debris in one area such as:

- collection of vermiculite insulation debris on surfaces and patching of the openings on the outside perimeter walls
- removal of structures or element in contact with the walls of the outer perimeter.

.2 Contractor's Obligations

.1 Ensure that a foreman in charge of the work with asbestos is present at all times to supervise.

.2 Ensure that the progress of the work is on schedule and that the execution of the work is done according to the rules, regulations and requirements of this section. Work could be suspended by the Departmental Representative if one of the above conditions is not met or if he considers that there is a risk of contamination of the adjacent areas. Costs related to stopping the work and correcting the non-compliant conditions will be charged to the Contractor responsible for the work with asbestos.

.3 Ensure that every person present in the work area correctly wears his personal protective equipment and has received the proper asbestos risk, prevention methods and safe work procedures training.

.3 Work Area Preparation

.1 Access to work areas shall be limited to authorized persons only.

.2 Each work area should be delimited using signaling tape. The work area will be defined at each location where vermiculite debris is to be collected and where sealing, patching and removal of structures or element in contact with the walls of the outer perimeter is necessary.

.3 Install signs in accordance with Article 3.23.15 9 of the Quebec Safety Code for the Construction Industry at the entrance to the work area.

.4 Install a changing room in accordance with Article 3.2.11 of the Quebec Safety Code for the Construction Industry.

.5 Workers should wear protective clothing and a respiratory protection as described herein in the moderate-risk work and when the ability to move material containing asbestos exists.

.6 Some additional requirements regarding the protection may be required by the Departmental Representative depending on existing conditions.

.4 Procedures for Entering and Exiting a Work Site

.1 <u>Entering</u>

Before entering in work area, the worker must put on protective clothing. The clothing must cover the entire body, including the head, be tight at the wrists and ankles and cover the neck. In case of ripping, it must be replaced. The worker must put on protective clothing, inspect their respirator and put it in place to check the fit and finally slip on the safety helmet. The helmet must be worn over the cap. Once the mask installed, the worker can then enter the work area.

.2 <u>Exiting</u>

Before exiting the work area, the employee must perform a preliminary decontamination of the protective clothing, including the boots, helmet, and mask exterior using a vacuum cleaner equipped with a high-efficiency filter or using a damp cloth. The worker must then remove his protective clothing and dispose of as contaminated waste, in no time the worker must leave the work area with its protective clothing.

.5 Moderate-risk Work with Asbestos

.1 All work involving asbestos-containing materials must be made exclusive places; only workers who have been identified and authorized may be allowed in the work area.

.2 Throughout the work, the Contractor shall ensure that the requirements regarding material handling and control of dust levels are strictly enforced to prevent the emission and dispersion of dust.

.3 The Contractor shall detail any other measure that he intends to take to minimize the suspension of dust in the air.

.4 The operations may be suspended by the Departmental Representative if the requirements are not met. Operations will resume only when changes have been made and validated by the Departmental Representative.

.5 Clean all equipment, surfaces and structures (stoves, electrical components, etc.) in the designated area in order to completely eliminate vermiculite debris.

.6 Following cleaning, the Contractor will seal any openings or visible cracks using caulking or urethane insulation. The products and the work methods must be approved by the Departmental Representative and the CSC Representative. Sealing cracks and openings must be made to provide clean acceptable visual finish.

.6 Work Area Cleaning

.1 All residues of contaminated materials will have to be quickly put in bags, sealed and cleaned to prevent the accumulation of waste at the work-area level. Debris must be evacuated from the site at the end of each work day.

.2 At the end of each work shift, the Contractor shall clean all surfaces in the sector where the work was performed using a vacuum cleaner equipped with a HEPA filter.

.3 All equipment used during work should be cleaned with a damp cloth or a HEPA vacuum.

3.3 LIGHTENED HIGH-RISK WORK

.1 General Information

.1 The work included in section 3.3 (allege-high-risk work) must be carried out by asbestos specialist contractors. Any changes should be notified, justified and approved by the Departmental Representative.

.2 Section 3.3 (allege-high-risk work) only addresses work generating less than 0.3 cubic meter of debris in one area:

- removal of door U133H in presence of vermiculite.

.2 Contractor's Obligations

.1 Ensure that a foreman in charge of the work with asbestos is present at all times to supervise.

.2 Ensure that the progress of the work is on schedule and that the execution of the work is done according to the rules, regulations and requirements of this section. Work could be suspended by the Departmental Representative if one of the above conditions is not met or if he considers that there is a risk of contamination of the adjacent areas. Costs related to stopping the work and correcting the non-compliant conditions will be charged to the Contractor responsible for the work with asbestos.

.3 Ensure that every person present in the work area correctly wears his personal protective equipment and has received the proper asbestos risk, prevention methods and safe work procedures training.

.3 Work Area Preparation

.1 Access to work areas shall be limited to authorized persons only.

.2 Before beginning the work, ventilation and air conditioning systems must be shut down. The Contractor will coordinate this with the CSC Representative.

.3 Openings in the ventilation system, in masonry walls, or in any area communicating with outside of the work area should be cleaned with a vacuum cleaner equipped with a high-efficiency filter or with a wet sponge. The work area sides should then be covered with a 0.26 mm thick polyethylene tarp and a layer of tearproof polyethylene. All joints must be sealed with the specified tape. Fixtures and fittings, electrical/mechanical equipment and fittings, junction boxes, etc. will be covered with a 0.15 mm polyethylene tarp and all joints should be sealed with the specified tape.

.4 If it is impossible to maintain ventilation systems stopped during work, ensure that the return grids and diffusers in and near work area are completely sealed after the restart of the systems.

.5 Establish an airtight enclosure separating the work area from the rest of the building with polyethylene sheets. For the removal of doors, an enclosure must be built inside and outside the building. Erect a plank framing if needed to support the polyethylene sheets. The enclosure must be sealed using adhesive tape specified.

.6 Unless otherwise specified, protect the equipment, floor space and walls with tearproof polyethylene. Membranes will cover all floors and up to a height of about 12 inches from the bottom of the walls. The joints must be sealed using the specified adhesive tape specified.

.7 Protect cable trays with 10 mil polythene or the equivalent and seal with the specified tape.

.8 Install vacuum systems equipped with high-efficiency filters (HEPA filter). The filtered air is discharged to the outside of the building. The work area should be maintained under negative pressure ranging between 1 and 4 Pascals. Vacuum units must provide a minimum of 4 air changes/hour.

.9 The Contractor should perform leakage tests for vacuum cleaners and vacuum units used on site. **Testing and certification shall be carried out on site after receipt of the equipment.**

.10 Install, for the entire duration of the work, a gauge for continuous monitoring of the negative pressure inside the contaminated site.

.11 Install signs in accordance with Article 3.23.15 9 of the Quebec Safety Code for the Construction Industry at the entrance to the work area.

.12 Workers should wear protective clothing and a respiratory protection as described herein in the high-risk work and when the ability to move material containing asbestos exists.

.13 Emergency and fire exits of the work areas must be kept in good condition and free of obstructions; if this is not the case, other emergency exits must be provided.

.14 Use a temporary lighting system and maintain a lighting level of at least 400 lux. Use additional lighting when required.

.15 Fresh air supply, if necessary, is the responsibility of the Contractor including any modification to existing systems.

.16 All equipment necessary for the performance of all work will be provided by the Contractor.

.4 Decontamination Spaces

.1 The decontamination space must include an uncontaminated clean room that will be built between the waste transfer room and the outside of airtight enclosure. It includes two roll-up doors: one to the waste transfer room and the other at the exit of the airtight enclosure. The clean room will be used for protective clothing storage and respirators. A mirror shall be installed to allow workers to adjust their respiratory protection.

.2 The waste transfer room must have two sets of roll-up doors: one to the work area and the other towards the clean room. In this room will be cleaned of waste containers and equipment. Garbage bags will be cleaned, lined, sealed, labeled and stored temporarily before being evacuated outside the site.

.3 Decontamination spaces must be built with 2 x 4 inch beams, 24 inches apart and then covered on the inside and outside using an opaque tearproof polyethylene membrane (orange) with joints taped with reinforced duct tape. Decontamination space floors must be covered with two independently sealed layers of polyethylene membrane.

.4 Install a changing room in accordance with Article 3.2.11 of the Quebec Safety Code for the Construction Industry.

.5 Procedures for Entering and Exiting a Work Site

.1 <u>Entering</u>

Before entering in work area, the worker must put on protective clothing. The clothing must cover the entire body, including the head, be tight at the wrists and ankles and cover the neck. In case of ripping, it must be replaced. The worker must put on protective clothing, inspect their respirator and put it in place to check the fit and finally slip on the safety helmet. The helmet must be worn over the cap. Once the mask installed, the worker can then enter the work area.

.2 <u>Exiting</u>

Before exiting the work area, the employee must perform a preliminary decontamination of the protective clothing, including the boots, helmet, and mask exterior using a vacuum cleaner equipped with a high-efficiency filter or using a damp cloth. The worker must then remove his protective clothing and dispose of as contaminated waste, in no time the worker must leave the work area with its protective clothing.

The worker must wash hands and face when leaving work area. Provide a clean bucket of water out of the work area. The respirator can be removed only after being washed.

.6 Work with Asbestos

.1 Before beginning any work, an inspection of the work area will be carried out by the Departmental Representative in order to authorize the start of operations under lightened high-risk site conditions. In the case of any requests for a corrective action, they shall be performed by the Contractor prior to the beginning of the work. In addition, the Contractor shall obtain approval by the Project Manager.

.2 All work involving asbestos-containing materials must be made exclusive places; only workers who have been identified and authorized may be allowed in the work area.

.3 Throughout the work, the Contractor shall ensure that the requirements regarding material handling and control of dust levels are strictly enforced to prevent the emission and dispersion of dust.

.4 Protective clothing and other materials that have been in contact with asbestos should be disposed of as contaminated waste.

.5 During the work, if the polyethylene is damaged or torn, the repair will be made immediately. The construction operations will be suspended if the openings are found in the polyethylene and the necessary repairs have not been carried out. Operations will resume only when the repairs are completed.

.6 The Contractor shall detail any other measure that he intends to take to minimize the suspension of dust in the air.

.7 The operations may be suspended by the Departmental Representative if the requirements are not met. Operations will resume only when changes have been made and validated by the Departmental Representative.

.8 During the work, the integrity of the enclosure located inside and outside the building must be maintained.

.9 The Contractor will proceed to the removal of the doors and door frames.

.10 After removal, the Contractor will remove the maximum of vermiculite present inside the walls, beams and columns.

.11 The cleaning of the work area will be carried out by the Contractor.

.12 The Contractor will apply urethane insulation in the openings containing vermiculite insulation. When dry, the Contractor will make a clean cut of the excess urethane present.

.7 Maintenance of the Work Area

.1 The Contractor must keep the work site clean and in good order as well as free from materials, accumulated dust and debris. Travel and work zones and access to the building should be kept clean and free of debris.

.2 All residues of contaminated materials will have to be quickly put in bags, sealed and cleaned to prevent the accumulation of waste at the work-area level. Debris must be evacuated from the site at the end of each work day.

.3 Visually inspect the work area at the start and at the end of each work shift.

.4 Ensure that the walls remain in good condition for the entire duration of the work and that the polythene protection membranes remain impervious. When necessary, perform repairs immediately.

.5 At the Departmental Representative's request, run smoke tests to verify the effectiveness of the containment achieved in the enclosure.

.8 Cleaning of the Sealed Work Area

.1 Following the work, the Contractor will decontaminate the work area by cleaning all interior surfaces of the enclosure, equipment and structures (stoves, electrical components, etc.). When polyethylene sheets are used, they should be well moistened and cleaned using a HEPA vacuum cleaner.

.2 All equipment used during the work should be cleaned with a damp cloth or a HEPA vacuum. The HEPA filters should be disposed of with other asbestos waste.

.3 Following cleaning, the Contractor will seal any openings or cracks visible using a caulking or urethane insulation product. The product used and the technical work must be approved by the Departmental Representative and the Representative of CSC. Sealing cracks and openings must be carried out in order to provide an acceptable finish.

.4 Before the application of the slow drying sealing filler, a visual inspection of work area would be conducted by the Departmental Representative to authorize the application of the slow drying sealing filler. If corrections are required by the external Departmental Representative, they must be performed by the Contractor.

.5 The Contractor shall, upon approval of the Departmental Representative, apply a sealing filler on all surfaces of the work area to retain any residual fibers.

.9 Dismantling Operations

.1 At the end of the work, complementary visual inspections will be carried out to ensure that no dust, debris, or waste remain on the surfaces due to the dismantling operations on site. In addition, an audit will be performed to confirm that the removal work is fully completed as per the specifications.

3.4 HIGH-RISK WORK

.1 General Information

.1 The work included in section 3.4 (high-risk work) must be carried out by asbestos specialist contractors. Any changes should be notified, justified and approved by the Departmental Representative.

.2 Section 3.4 (high-risk work) addresses:

- Removal of two concrete block walls between axes x3 and x1 and between axes 01 and x03 in the presence of vermiculite.

.2 Contractor's Obligations

.1 Ensure that a foreman in charge of the work with asbestos is present at all times to supervise.

.2 Ensure that the progress of the work is on schedule and that the execution of the work is done according to the rules, regulations and requirements of this section. Work could be suspended by the Departmental Representative if one of the above conditions is not met or if he considers that there is a risk of contamination of the adjacent areas. Costs related to stopping the work and correcting the non-compliant conditions will be charged to the Contractor responsible for the work with asbestos.

.3 Ensure that every person present in the work area correctly wears his personal protective equipment and has received the proper asbestos risk, prevention methods and safe work procedures training.

.3 Work Area Preparation

.1 Access to the work areas shall be limited to the authorized people only.

.2 Before beginning the work, ventilation and air conditioning systems must be shut down. The Contractor will coordinate this with the CSC Representative.

.3 Openings in the ventilation system, in masonry walls, or in any area communicating with outside of the work area should be cleaned with a vacuum cleaner equipped with a high-efficiency filter or with a wet sponge. The work area sides should then be covered with a 0.26 mm thick polyethylene tarp and a layer of tearproof polyethylene. All joints must be sealed with the specified tape. Fixtures and fittings, electrical/mechanical equipment and fittings, junction boxes, etc. will be

covered with a 0.15 mm polyethylene tarp and all joints should be sealed with the specified tape.

.4 Establish an airtight enclosure separating the work area from the rest of the building with polyethylene. Erect a plank framing if needed to support the polyethylene sheets. The enclosure must be sealed using the specified adhesive tape.

.5 Unless otherwise specified, protect the equipment, floor space and walls with tearproof polyethylene. Membranes will cover all floors and up to a height of about 12 inches from the bottom of the walls. The joints must be sealed using the specified adhesive tape specified.

.6 Protect cable trays with 10 mil polythene or the equivalent and seal with the specified tape.

.7 Install vacuum systems equipped with high-efficiency filters (HEPA filter). The filtered air is discharged to the outside of the building. The work area should be maintained under negative pressure ranging between 1 and 4 pascals. The vacuum units must provide a minimum of 4 air changes/hour.

.8 The Contractor should perform leakage tests for vacuum cleaners and vacuum units used on site. **Testing and certification shall be carried out on site after receipt of the equipment**

.9 Install, for the entire duration of the work, a gauge for continuous monitoring of the negative pressure inside the contaminated site.

.10 Install signs in accordance with Article 3.23.15 9 of the Quebec Safety Code for the Construction Industry at the entrance to the work area.

.11 Workers should wear protective clothing and a respiratory protection as described herein in the high-risk work and when the ability to move material containing asbestos exists.

.12 Emergency and fire exits of the work areas must be kept in good condition and free of obstructions; if this is not the case, other emergency exits must be provided.

.13 Use a temporary lighting system and maintain a lighting level of at least 400 lux. Use additional lighting when required.

.14 The Contractor shall ensure the following materials are available in the shower stalls:

- Mild and non-irritating soap and shampoo in dispenser pumps.

.15 Fresh air supply, if necessary, is the responsibility of the Contractor including any modification to existing systems.

.16 All equipment necessary to carry out all the work required will be provided by the Contractor.

.4 Decontamination Spaces

.1 Decontamination spaces must be built with 2 x 4 inch beams, 24 inches apart and plywood panels, and then covered on the inside and outside using an opaque tearproof polyethylene membrane (orange) with joints taped with reinforced duct tape. Decontamination space floors must be covered with two independently sealed layers of polyethylene membrane. The first membrane will be a 10 mils thick polyethylene and the second membrane on top should be of the tearproof type. Membranes will cover all floors and up to a height of about 12 inches from the bottom of the walls. Membranes must be installed so as to minimize the number of joints. In addition, the Contractor shall seal the overlap of different thicknesses of polyethylene.

.2 The Contractor shall be responsible for drainage and shower water connections as well as those of the work site. Connections must be coordinated and approved by the Departmental Representative.

.3 All entries and exits of the spaces must be equipped with roll-up doors so as to minimize the circulation and dispersion of fibers and particles from one section to another of the spaces.

.4 Worker's Entry and Exit Spaces

The design of the spaces must comply with article 3.2.13 of the Quebec Safety Code for the Construction Industry. The spaces must include three (3) sections and be the only means of entry and exit for the workers on site.

The Contractor must provide the installation of two spaces of entry and exit for the workers (one for women, one for men).

<u>STREET-CLOTHES LOCKER ROOM</u>

The locker room dedicated to street clothing must be set up according to Article 3.23.16. 8° of the Quebec Safety Code for the Construction Industry.

SHOWER STALLS

The showers stalls must be set up between the street-clothes locker room and the work-clothes locker room, so that every worker passes through the shower stalls to access the street-clothes locker room. One shower stall for every six workers shall be provided as well as a supply of cold and hot water. Soap and shampoo must be available at all times inside the shower stalls.

WORK-CLOTHES LOCKER ROOM

Room used to store contaminated equipment that may remain inside the work site. This room is considered contaminated and workers must keep their respiratory protection when inside this room. A container or bag to dispose of workers' contaminated overalls when they leave the site must be provided in this room.

.5 Exit Space for Waste

The decontamination space for waste containers includes three compartments separated from one another and from the work area by roll-up doors. This space allows for the elimination of waste with no risk of contamination of adjacent sectors.

CLEANING ROOM

The cleaning room serves as a cleaning compartment for containers carrying contaminated waste. It should be noted that this room is part of the site’s contaminated area.

STORAGE ROOM

The storage room is used as a compartment where doubling the bags or containers takes place before leaving the site. It should be noted that this room is also considered contaminated.

WASTE TRANSFER ROOM

This room is where doubled and decontaminated containers are kept. Access to this room is possible only from the outside and it is considered non-contaminated.

NOTE: The transition area for waste containers can also be used for the entering and exiting of work tools and equipment as well as for their storage.

.5 Procedures for Entering and Exiting a Work Site

.1 Entering

The worker must first remove all clothing in the locker room dedicated to street clothes. A locker will be provided for each worker. They must then put on protective clothing and safety boots, inspect their respirator and put it in place to check the fit and finally slip on the safety helmet. The cap of the protective clothing must be placed over the straps of the mask. The helmet must be worn over the cap. Once the mask installed, the worker will head towards the work-clothes locker room via the shower stalls. During the entering procedure, the showers are not in operation. In the work-clothes locker room, the worker will need to put on his boots (equipped with non-slip soles) and gloves.

.2 Exiting

Before exiting the work area, the worker must perform a preliminary decontamination of the protective clothing, including boots, helmet and mask exterior using a vacuum cleaner equipped with a high-efficiency filter or using a damp cloth. Thereafter, the worker must enter the work-clothes locker room, take off all the protective clothing except the protective mask, which needs to be removed in the shower.

Disposable protective clothing shall be placed in containers dedicated to storage of asbestos waste. If reusable protective clothing is used, these should be immediately placed in containers filled with water after their removal.

Still wearing the mask, the worker must head naked to the shower where the worker will clean the outside of the mask with water while showering. If the mask contains cartridges that need replacement, they should be removed, moistened thoroughly and then placed in a container provided for this purpose. After showering, the worker may enter the street-clothes locker and put on the street clothes.

Please note that safety boots used in the work area should be left in the work-clothes locker room. These boots can be reused at the end of the work duration if they are properly cleaned.

.6 Work with Asbestos

.1 Work and tasks to be performed in the presence of asbestos-containing materials are defined by, but not limited to :

- Removal of two concrete block walls between axes x3 and x1 and between axes 01 and 03 in the presence of vermiculite.

.2 Before beginning any work, an inspection of the work area will be carried out by the Departmental Representative in order to authorize the start of operations under high-risk site conditions. In the case of any requests for a corrective action, they shall be performed by the Contractor prior to the beginning of the work. In addition, the Contractor shall obtain approval by the Project Manager.

.3 All work involving asbestos-containing materials must be made exclusive places; only workers who have been identified and authorized may be allowed in the work area.

.4 The Contractor will demolish the walls made of blocks and completely remove the vermiculite loose fill insulation present behind the two sections of concrete blocks to be demolished.

.5 The Contractor will remove the maximum amount of vermiculite present behind the beams and columns.

.6 The Contractor will apply urethane insulation in openings containing vermiculite insulation. When dry, the Contractor will make a clean cut of the excess urethane present.

.7 Throughout the work, measures to avoid the dispersion of asbestos fibers in the work area must be observed. For the duration of the work, water will be sprayed regularly in the work area to minimize the dispersion of airborne asbestos fibers. Wetting the materials and spraying water in the work area can be done with a low pressure pump or a garden hose with a sprayer. The Contractor shall detail any other measure that he intends to take to minimize the suspension of dust in the air.

.8 Throughout the duration of the work, the Contractor shall ensure that the requirements regarding material handling and control of dust levels are strictly enforced in order to prevent the emission and dispersion of dust.

.9 During the work, if the polyethylene is damaged or torn, the repair will be made immediately. The work will be suspended if openings are found in the polyethylene and the necessary repairs have not been carried out. Operations will resume only when the repairs are completed.

.10 The work will be suspended if the necessary requirements are not met. Work will resume only when changes have been made and validated.

.7 Maintenance of the Work Area

.1 The Contractor must keep the work site clean and in good order as well as free from materials, accumulated dust and debris. Travel and work zones and access to the building should be kept clean and free of debris.

.2 All residues of contaminated materials will have to be quickly put in bags, sealed and cleaned to prevent the accumulation of waste at the work-area level. Debris must be evacuated from the site at the end of each work day.

.3 Visually inspect the work area at the start and at the end of each work shift.

.4 Ensure that the walls remain in good condition for the entire duration of the work and that the polythene protection membranes remain impervious. When necessary, perform repairs immediately.

.5 At the Departmental Representative's request, run smoke tests to verify the effectiveness of the containment achieved in the enclosure.

.8 Cleaning of the Sealed Work Area

.1 Following the work, the Contractor will decontaminate the work area by cleaning all interior surfaces of the enclosure, equipment and structures (stoves, electrical components, etc.). When polyethylene sheets are used, they should be well moistened and cleaned using a HEPA vacuum cleaner.

.2 All equipment used during the work should be cleaned with a damp cloth or a HEPA vacuum. The HEPA filters should be disposed of with other asbestos waste.

.3 Following cleaning, the Contractor will seal any openings or cracks visible using a caulking or urethane insulation product. The product used and the technical work must be approved by the Departmental Representative and the Representative of CSC. Sealing cracks and openings must be carried out in order to provide an acceptable finish.

.4 Before the application of the slow-drying sealing filler, a visual inspection of work area would be conducted by the Departmental representative to authorize the application of slow drying sealing filler. If corrections are required by the external Departmental Representative, they must be performed by the Contractor.

.5 The Contractor shall, upon approval of the Departmental Representative, apply a sealing filler on all surfaces of the work area to retain any residual fibers.

.9 Dismantling Operations

.1 Before beginning the dismantling operations, the Departmental Representative will verify the concentration of total breathable fibers in the air at least 12 hours after applying the sealing filler in the work sector for high-risk indoor sites as well as in the work-clothes locker room sector for high-risk outdoor sites. For the dismantling operations to be allowed, the concentration must be less than 0.01 fiber per cubic centimeter. The authorization to dismantle the site will be given by the Departmental Representative.

.2 When the test demonstrates that such a concentration is reached, the dismantling operations can begin. Otherwise, the Contractor shall perform another complete cleaning of the work space and apply sealing filler. The concentration of total fibers in the ambient air will be evaluated again after application of the sealing filler.

NOTE: The reading of the concentration of breathable fibers of asbestos must be carried out in accordance with article 44 of the Occupational Health and Safety Regulations S-2.1, r.13.

.3 During the dismantling operations of the work space, complementary visual inspections will be carried out to ensure that no dust, debris or waste remain on the surfaces due to the dismantling operations on site. In addition, an audit will be performed to confirm that the removal work is fully completed according to the specifications.

END OF THE 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

.1	Concrete reinforcement	Section 03 20 00
.2	Cast-in-place concrete	Section 03 30 00

1.3 REFERENCE STANDARDS

.1 Unless otherwise noted, do concrete formwork in accordance with latest following standards:

.1 National Building Code.

.2 AC1 347 "Recommended Practice for concrete formwork".

.3 CAN3-A23 Series.

.4 CSA 0121.

1.4 SCOPE OF WORK

.1 Work will include all execution, necessary materials, equipment, tools, installation and services to complete all works relative to formwork for cast-in-place concrete (including concrete work indicated on mechanical/ electrical drawings), as established by drawings and defined by the present document. This includes scaffolding, braces, shores and struts, fasteners, templates, sleeves, openings, installation of anchors and steel structure bolts and installation of inserts in concrete. Installation of electrical and plumbing sleeves is included in the works of the present section.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 B.C. cedar plywood, grade "B", to CSA 0121 and CAN3-A23, with a minimum thickness of 20 mm in five (5) layers, must be used for formworks. A sheet of triplex of 6 mm thick is required for lining. Plywood may be epoxy painted (US Product Standard PS 1-66).

.2 Form release agent: chemically active release agents containing compounds

that react with free lime present in concrete to provide water insoluble soaps, preventing concrete from sticking to forms.

PART 3 - EXECUTION

3.1 TYPE, STRENGTH, STIFFNESS AND FORM ALIGNMENT

.1 Except where otherwise noted on drawings, formworks will be made of 20 mm thick plywood, without patches, for exposed horizontal surfaces.

.2 Strength and stiffness of formworks must be sufficient to support all concrete and wind loads and shall support forces caused by construction method, considering pouring speed. Ensure that finished concrete will conform to shapes, lines and dimensions of members indicated on drawings.

.3 Formworks will produce a dense concrete surface, exempt of honeycombs, depressions or bulges.

.4 Check and correct corners and shoring, horizontally and vertically, during concrete placing. For wall concrete placing, provide a control steel wire, parallel to wall plan. Assign at least one competent carpenter to continually check formwork alignment during concrete placing. Special attention to be given to alignment of exterior apparent columns and beams.

3.2 SHORING AND BRACING

.1 Formworks stability system must be continually maintained by sufficient bracing according to safety standards of rule No 1390 relative to shoring of concrete formworks.

3.3 JOINTS IN FORMWORKS

.1 All joints must be watertight so as to prevent all concrete leaks particularly at corners and joints between two plates in apparent concrete. Do not use ribbon for architectural concrete. Reduce number of joints in formwork to a minimum.

.2 Clean all sides and contact surfaces before assembling.

3.4 TONGUED-AND-GROOVED CORNERS AND DETAILS

.1 Make corners as detailed on the Departmental representative's drawings. Except otherwise noted, corners will be at right angle and not rounded.

3.5 FORMWORK CLEANING

.1 Clean all formworks before placing concrete. Completely remove sawdust, snow, ice or other foreign material by compressed air or by steam. Allow for cleaning holes in all inaccessible parts of formwork.

3.6 SLEEVES

.1 Install sleeves only where indicated on the Departmental representative's drawings or as required by mechanical/electrical Departmental representative during work.

3.7 MULTIPLE USE OF FORMWORKS

.1 Plywood and steel formworks can be re-used after all nails are removed and all contact surfaces are cleaned and restored. Conform to CAN3-A23.

3.8 DISMANTLING FORMWORK

.1 Except otherwise indicated on drawings, walls vertical formworks may be removed only when concrete is able to support its own weight but not before three days after placing concrete. If formwork dismantling is done before the 7th day after concrete placing, apply surface treatment with a protective coating against water evaporation. Refer to section 03300 for coating application.

3.9 VERTICAL TOLERANCES

.1 Relative position of vertical elements will conform to following requirements:

.1 The difference between two adjacent vertical elements will not exceed 12 mm and 25 mm between any two vertical elements.

3.10 CONCRETE DIMENSIONS

.1 Dimension variation, in relation with theoretical dimensions of any member, will not exceed the following limits: Less than 5 mm or more than10 mm.

.2 The Departmental representative may ask for formwork rectification if dimension variation exceed the limits defined in this document.

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

.1 Concrete formwork: Section 03 10 00

.2 Cast-in-place concrete: Section 03 30 00

1.3 REFERENCE STANDARDS

.1 Do reinforcing work in accordance with latest CAN3-A23.3, CAN3-A23.1 and ACI-315 and welding of reinforcing with CSA W186-M1990, except where specified otherwise.

1.5 SUBSTITUTES

.1 Substitution of different size bars permitted only upon written approval of the Departmental representative.

PART 2 - PRODUCTS

2.1 MATERIALS

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

.2 Welded steel wire fabric: to CSA G30.5.

.3 Chairs, bolsters, bar supports, spacers: to CAN3-A23.1. Chairs and supports as well as spacers to be plastified in apparent concrete.

.5 Shrinkage reinforcement in slabs and reinforcement walls to be spliced with length specified in A23.3 but no shorter than 24 bar diameter. .

2.2 FABRICATION

.1 Fabricate reinforcing in accordance with CAN3-A23.1. Bending of reinforcing bars shall be done according to the typical bending indicated on drawings.

.2 Reinforcing steel shall be fabricated within tolerances as defined by "Reinforcing Steel Manual of Standard Practice ".

.3 Ship bundles of bar reinforcement, clearly identified in accordance with barlist.

PART 3 - EXECUTION

3.1 FIELD BENDING

.1 Do not field bend reinforcing steel except where indicated or authorized by the Departmental representative.

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

.3 Replace bars which develop cracks or splits.

3.2 PLACING REINFORCEMENT

.1 Place reinforcing steel as indicated on examined shop drawings and in accordance CAN3-A23.1.

.2 Obtain the Departmental representative's approval of reinforcing steel and position.

.3 Clean all reinforcing steel prior to concreting.

.4 Maintain reinforcing steel at 100 mm from edges and undowelled joints or as indicated in the general notes on structural drawings.

.5 Reinforcing steel shall be placed exactly as shown on plans and indicated in these specifications. It shall be supported by enough chairs, bar supports or spacers and shall be firmly fastened so as to prevent any displacement until and during concrete placement in the formwork.

.6 Footing and slab-on-grade reinforcing steel shall be supported by concrete blocks or other material approved by the Departmental representative.

.7 Permissible divergence in the reinforcing steel position are:

.1 Transversely: Beams, columns, slabs, walls less than 600 mm deep: + 5 mm

.2 Longitudinaly: + 10 mm

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

.1	Concrete formwork	Section 03 10 00
.2	Concrete reinforcement	Section 03 20 00

1.3 REFERENCE STANDARDS

.1 Do cast-in-place concrete work in accordance with CSA/CAN-A23.1, and testing in accordance with CSA/CAN-A23.2, except where specified otherwise.

1.4 QUALITY CONTROL

.1 Submit proposed quality control procedures for the Departmental representative's approval.

1.5 SCOPE OF WORK

.1 Provide all necessary labour, materials, equipment and tools for supply, transport, pouring cast-in-place, curing and protection of concrete, as prescribed on drawings and defined in these specifications, including: concrete, chemical admixtures, curing compound, protection, heating and cooling.

1.6 COORDINATION

.1 Obtain from other trades all necessary information and instructions concerning surface finishing, materials and anchors which could affect work under this section.

1.7 INSPECTION

.1 Collaborate with inspector and laboratory representative to facilitate their work.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Portland cement: type GU or GU-SF, to CSA A3001.

.2 Water: to CSA/CAN-A23.1.

.3 Aggregates: to CSA/CAN-A23.1. Coarse aggregates to be normal density.

.4 Air entraining admixture: to CSA/CAN-A3000 and A23.1/A23.2.

.5 Chemical admixtures: to CSA/CAN-A3000 and A23.1/A23.2. Engineer to approve accelerating or set retarding admixtures during cold and hot weather placing.

.6 Dry pack: premixed or non premixed composition of non metallic aggregate, Portland cement with sufficient water for the mixture to retain its shape when made into a ball by hand and capable of developing compression strength of 50 MPa at 28 days.

.7 Curing compound: to CSA/CAN-A23.1.

2.2 MIXING AND DELIVERY

.1 Except with special authorization from the Departmental representative, all concrete used for this project shall be the product of an approved ready-mix-plant.

Each load of concrete shall be accompanied by a delivery ticket stating the strength of mix of the concrete, the slump, the maximum size of the coarse aggregate, the admixtures and the time when the ready-mixed concrete was loaded into the delivery truck.

Measuring, mixing and shipment practices shall conform to the latest CSA A23.1 and ASTM C94 specifications.

Each class of concrete shall have the required compressive strength at 28 days as specified on structural drawings.

.2 The water-cement ratio must be determined by taking into consideration the compressive strength at 28 days, the grading of the aggregates, the slump as well as the amount of entrained air. However, unless otherwise noted or approved by the Departmental representative, the water-cement ratio for each class of concrete shall conform to the values recommended in sections 14 and 15 of the latest A23.1 specification. In no case, shall the water-cement ratio exceed 0,60. The average of all tests for compressive strength at 28 days for each class of concrete must be greater than or equal to the required strength and not more than 10 per cent of the tests shall have values of less than the required strength.

The average of any five (5) consecutive strength tests, must be equal to or greater than the specified strength. In no case shall a single test be less than 85% of the required strength.

If the concrete should fail to meet these requirements, the Departmental representative shall have the right to order changes in the mix proportions.

In addition, he may require at the Contractor's expense, the following tests:

.1 A core specimen drilled from the structure and tested in accordance with good practice to verify the compressive strength.

.2 Load testing of the structural element in accordance with the National Building Code to ascertain if it can carry the load it was designed for.

.3 No addition of water to ready-mix concrete will be tolerated at the building-site. All concrete to which water has been added, shall be refused.

.4 A set retarding admixture may be added to the mix only when specified on the drawings or in this specification or with the Departmental representative's approval. However, when the ambient temperature is warm or when the placing of concrete conditions are difficult or delicate, the Departmental representative may require that a set-retarding agent be added to the mix in order to ease the placing of concrete.

2.3 CONCRETE MIX PROPORTIONS

.1 Approvals will not free Contractor from responsibility for manageability and final strength of each class of concrete.

.2 Contractor must change concrete mix proportions if strength, slump, air content or/and hardening do not conform to establish values.

.3 All mix proportions will provide a uniform, malleable concrete with strength, slump, air content and hardening that conform to limits indicated in the present document.

.4 Aggregates maximum size shall conform to A23.1.

.5 Strength shall be as indicated on structural drawings.

.6 Reducing water admixture, if required, will be added to mix, according to approved percentage.

PART 3 - EXECUTION

3.1 WORKMANSHIP

.1 Concrete placing shall conform to this specification and the latest CSA/CAN-A23.1 and ACI specifications. Concrete placing shall be done by qualified and experienced workmen.

.2 Do not start concrete placing before formwork and reinforcing steel have been inspected by the Departmental representative. Notify the Departmental representative at least 24 hours in advance.

.3 Place concrete with adequate mechanical equipment, in order to control the

concreting sessions.

.4 Flush all equipment used in transporting and placing of the concrete with water before and after each use. Discharge water used for this purpose outside the forms.

.5 Deposit concrete in the forms in layers not exceeding 450 mm and as near as possible to its final position to avoid segregation.

.6 Free dropping of concrete for heights exceeding 1.5 m will not be permitted. Use chutes for heights exceeding 1.5 m. Chute length shall not exceed 4.5 m. The slope shall range between 1 vertical in 3 horizontal to 1 vertical in 1 horizontal.

.7 Perform concrete placing continuously between any two construction joints. Prepare a concreting program for the day. Execute construction joints at the locations shown on the structural drawings.

Obtain the Departmental representative's approval to add or remove one or several construction joints. When concreting is finished, level the surface of the joint and clean protruding reinforcing.

Construction joints in visible concrete shall be straight, level will coincide with formwork joint and with details shown on structural drawings. In cases where joints are not shown in drawings check with the Departmental representative for appropriate location.

At the Departmental representative's request, Contractor to supply and install, at Contractor's expense, keys and dowels in construction joints not indicated on drawings.

.8 Compact concrete with internal vibrators as soon as the concrete is placed.

At least one vibrator will be required for each ready-mix truck delivering concrete. One spare vibrator shall be kept at hand in case of breakdown.

In no case shall vibrators be used to move concrete horizontally in the forms or in the chutes.

Exercise care to avoid excessive vibration, disturbing reinforcing steel, segregation or vibration of concrete that has already started its initial set.

.9 Finish horizontal surfaces such as floors, sidewalks and stairs as specified on the architectural drawings and specifications.

Level and brush surfaces that are to receive a concrete topping to remove excess water, laitance and impurities and to provide a rough surface ("wooden trowel surface").

.10 Cure all concrete for at least 7 days. Cover exposed concrete surfaces with

tarpaulins or wetted burlap and formwork shall be sprinkled frequently. For curing of slabs, Contractor may use a polyethylene membrane installed as soon as concreting is finished with a minimum of 250 mm overlap at joints.

Use curing compounds with the Departmental representative's approval. Do not use curing compound on slabs to be finished with a concrete topping or other finishing product.

Start curing treatment as soon as possible after concrete has sufficiently set, generally 4 hours after the end of the pouring session.

.11 Hot weather concrete placing

The temperature of fresh concrete placed when the outside temperature is above 27o C shall not exceed 25o C.

Concrete shall not stay in the ready-mix trucks for more than one hour. All concrete with an initial set shall be rejected.

Place concrete as fast as possible to avoid cold joints, honeycombing and other defects.

Start curing as soon as the concrete can support the weight of a man to avoid the drying of the concrete and shrinkage cracks. During the first 24 hours, the only acceptable method will be water curing.

Loosen forms and allow water to run between concrete and form.

Avoid drying of concrete between water applications. Cover all exposed concrete surfaces with tarpaulins or burlap.

Use a set-retarding admixture in the concrete only when specified or allowed by the Departmental representative.

3.2 FINISHING

.1 Finish concrete in accordance with CSA/CAN-A23.1 and with architectural or structural specifications

.2 "Non visible" concrete finishing

In case of "non visible" concrete, finishing will be smooth and uniform. If case arises, execute work as following:

.1 Repair cavities and honeycombs according to the state of the art and considering safety of structure.

.2 Cut and break surfaces to be repaired up to sound concrete.

.3 Flood surfaces to be repaired and spread mortar in successive layers.

.4 In case of 25 mm deep holes and more, use a mortar with same color and composition as concrete for repairs.

.5 Fill cavities with mortar and repair surfaces.

.6 Do not begin concrete finishing before permitting initial shrinkage.

.7 Fill formwork tie holes with mortar, after washing surface with detergent and water.

3.3 FIELD QUALITY CONTROL

.1 Inspection and testing of concrete and concrete materials will be carried out by a Testing Laboratory designated by the Departmental representative.

.2 Submit to the laboratory for testing small and coarse aggregate samples as well as the mixing formulae as per CSA/CAN-A23.2.

.3 For each pouring and for each class of concrete used, a series of three (3) standard
150 x 300 mm cylinders will be sampled as per the following table:

1 to 50 m3:	1 series
1 to 100 m3:	2 series
More than 100 m3:	2 series plus one series for each additional 100 m3 or fraction of 100 m3.

Sample will be carried out in accordance with specification A23.2-1C and 3C.

.4 Compression test shall be performed according to specification A23.2-9C. One specimen will be tested at 7 days and the two others at 28 days. One supplementary cylinder per series shall be taken during cold weather concrete placing. This cylinder shall be kept in construction site conditions and shall be tested at 7 days.

The report for the compression tests shall be submitted directly and with as little delay as possible to the Departmental representative.

.5 For each set of 3 samples taken, one slump test will be performed according to specification A23.2-5C. The concrete used for this test shall not be used in the cylinders.

.6 When air-entrained concrete is specified, one air content test will be performed for each series of 3 cylinders taken.

This test shall conform to specification A23.2-4C.

The concrete used for this purpose shall not be used in the cylinders.

.7 Owner will pay the costs of tests.

END OF SECTION

PART 1 General

1.1 REFERENCES

.1 American Concrete Institute (ACI)

.1 302.1R-04: Guide for Concrete Floor and Slab Construction.

.2 American Society for Testing and Materials (ASTM)

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

.2 ASTM C171 Standard Specification for Sheet Materials for Curing Concrete.

.3 ASTM C779 Standard Test Method for Abrasion Resistance of Horizontal Concrete Surfaces.

.3 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-25.20-95, Floor primers

.4 Canadian Standards Association (CSA)

.1 CSA-A23.1-04, Concrete - Materials and workmanship

.5 Réunion Internationale des Laboratoires D'Essais et de Recherches sur les Matériaux et les Constructions (RILEM):

.1 Rilem Test Method 11.4 Standard Measurement of Reduction of Moisture Penetration Through Horizontal Concrete Surfaces.

.6 National Floor Safety Institute (NFSI):

.1 NFSI Test Method 101-A Standard for Evaluating High-Traction Flooring Materials, Coatings, and Finishes.

1.2 SYSTEM DESCRIPTION

.1 Performance requirements : Provide polished flooring that has been selected, manufactured and installed to achieve the following :

.1 Aggregate exposure: Class A – Cream.

.2 Finished gloss : Level 3 – Semi-Gloss – 800 grit.

.3 Coefficient of friction (COF) : 0.79 min.

1.3 PERFORMANCE

.1 Submit a written certification that the different treatment products used are compatible and do not affect the properties of the flooring or those adhesives used in their installation.

1.4 DATA SHEETS

.1 Submit product data in accordance with the requirements of Section 01 33 00 – Submittal Procedure.

.2 Submit MSDSs information on Hazardous Materials Information System (WHMIS) system. WHMIS MSDSs for products processing concrete floors must comply with the requirements of Health Canada and Human Resources Development Canada - Labour, these cards must indicate the VOC content

.3 Include instructions relating to the application of treatment products for concrete floors.

.4 Provide the manufacturer's instructions when jobs require special handling, plant succession, and cleaning

1.5 MOCK-UP

.1 Construct a 10 m² sample of polished concrete floor including a control joint.

.2 Construct mock-ups at locations indicated by the Department Representative.

.3 Before starting the work, give 24 hour notice to representative of CDC for inspection of mock-ups.

.4 Once accepted, the mock-up will be the minimum quality standard to be respected for the work covered by this section. The samples will be part of the finished work.

1.6 DELIVERY, STORAGE AND HANDLING

.1 Deliver materials to job site just before time of their implementation

.2 Store materials indoors, dry, away from heavy traffic areas.

.3 Deliver and store materials so as to guard against damage.

.4 Keep materials in their original container and packaging until their implementation.

1.7 WASTE MANAGEMENT AND DISPOSAL

.1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

1.8 WORK CONDITIONS

.1 Temporary lighting

.1 A light source with a power of at least 1200 W per area of 40 square meters of surface must be provided, the source should be placed 2.5 m above the floor surface.

.2 Power source

.1 Sufficient power to operate the equipment normally used must be provided during construction.

.3 Work area

.1 The work area must be protected against rain and other adverse weather conditions.

.4 Temperature

.1 Maintain an ambient temperature of 10 ° C and a relative humidity more than 40% for a period of 7 days before implementation, during implementation and for at least 48 hours after completion.

.5 Moisture

.1 The moisture content of the concrete substrate must be within the limits prescribed by the manufacturer of the flooring.

.6 Safety

.1 Use, handling, storage and disposal of hazardous materials shall be in accordance with WHMIS requirements

.7 Ventilation

.1 Provide continuous ventilation during and after construction. Operate the ventilation system 24 hours a day while work is in progress. Also provide continuous ventilation for a period of 7 days after completion of the work.

PART 2 Products

2.1 FINISHING PRODUCTS FOR POLISHED CONCRETE ALL PRODUCTS MUST BE PART OF A SYSTEM FROM THE SAME SUPPLIER

.1 Liquid surface hardener to densify and seal the concrete chemical hardening : solution to be respectful of the environment, water-based, odorless liquid, VOC compliant, leaving no surface film

.2 Joints :semi-rigid 2-components, self-leveling, 100% solids, fast curing, joint control poly resin degree minimum Shore A hardness of 80 or more

.3 Primer oil repellent: ready to use, water-based sealer with a mixture of silane, siloxane fluoropolymers, quick drying, low odor, water and oil repellent, VOC compliant and compatible with chemically hardened ground surface

.4 Cleaning Solution: soft liquid highly concentrated to clean and revitalize the concrete containing emulsifiers, biodegradable, environmentally friendly and Certified High Traction by National Floor Safety Institute (NFSI)

.5 Stain resistant sealer: Ready to use, low odor and VOC compliant. Sealing surface consists of emulsified interleaved and coupled to the molecular level that protects concrete floor polymers against delamination, deterioration of the penetration of contaminants and effects of the dyeing process.

.6 Finish: Level 3 – Semi-Gloss - 800 grit: Abrasives "Diamond Pads" No. 30, No. 60, No. 120, No. 220, No. 400, No. 800 or as required by existing conditions.

2.2 MIXTURES

.1 Mixtures: as recommended by the manufacturer and applied in accordance with the instructions of the latter

PART 3 Execution

3.1 GENERAL

.1 Unless otherwise indicated, prepare surfaces and carry out the work of polished concrete in accordance with manufacturer’s written instructions.

3.2 SURFACE VERIFICATION

.1 Ensure that the condition of the slab is suitable for the application of treatment products, and levels are consistent with drawings.

.2 Check the strength requirements of the concrete slab:

.1 Verify that the concrete has cured for 28 days, 35 MPa strength.

.2 Verify that concrete surfaces have been finished with a steel trowel to ensure a dense and hard surface (3 passes with trowel).

.3 Application of materials constitutes an implicit acceptance of surface conditions by the Contractor.

3.3 PREPARATION OF EXISTING SLAB

.1 Following the manufacturer's recommended methods of polished concrete, ensure that the concrete substrate is clean, dry and free of all laitance, dust, dirt, grease, oil and other contaminants that could affect the finishing of concrete surfaces.

.2 Examin the surface to determine the strength of the concrete to be polished.

.3 Clean the slab thoroughly.

.1 Remove by scarification or sanding paint, mastics, oil spots (as best as possible), dirt, etc.

.2 Scrub slab with soft brush or abrasive pads.

.3 Use neutral pH detergent and rinse well.

.4 Protect adjacent areas to prevent damage by polishing machines and/or materials.

.4 Repair and fill any surface cracks. Allow the crack repairs to cure thoroughly

.5 Unless otherwise indicated, sand with Carborundum the exposed edges of concrete to give them a radius of 3 mm.

.6 Saw control joints in accordance with CSA A23.1, more than 24 hours after concrete placement.

3.4 APPLICATION

.1 Treatment and polishing floor surfaces:

.1 Provide treatment of polished concrete floor over the entire surface of the slab shown on the drawings. Provide consistent finish throughout all contiguous spaces.

.2 Apply floor finish prior to installation of furniture and equipment.

.3 Diamond polish the surfaces of the concrete floor using a machine with motorized drives as recommended by the manufacturer of the finished floor. Polishing using dry method, starting with the largest grain and so on down to the end.

.1 In order to obtain the desired level of finish, follow the manufacturer's recommendations using the grit for polishing specified for each sequence. The gloss level should match that of the nature of sample size approved.

.2 Expose the aggregate in the concrete as determined solely by the nature of sample size approved.

.3 All concrete surfaces must be as uniform as possible in appearance.

.4 Apply hardener and/or densifier as follows:

.1 First layer to 6.25 m2 / L.

.2 Second layer to 8.75 m2 / L.

.3 Follow manufacturer's recommendations for drying time between coats.

.5 Remove defects and re-polish the defective areas.

.6 Finish edges of finished floor adjacent to other materials in a clean and clear manner.

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

.3 Clean overspray. Remove sprayed material deposited on adjacent surfaces

3.5 ADJUSTMENTS

.1 Polish to a high luster areas not meeting the gloss levels depending on the sample size.

.2 Fill joints so that they are of the same level as the surface.

3.6 FINAL CLEANING

.1 Remove temporary protection and clean polished concrete prior to final inspection in accordance with Section 01 74 11 - Cleaning

.2 Scrub treated floors mechanically for seven days with soft medium pads with an approved cleaning solution.

.3 Use cleaners recommended by the manufacturers of polished concrete.

3.7 Protection

.1 Protect finished work in accordance with the manufacturer's instructions.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 05 50 00 – Metal Fabrications

1.2 RÉFÉRENCES

.1 ASTM International
- .1 ASTM A 496/A 496M-07, Standard Specification for Steel Wire, Deformed, for Concrete Reinforcement.

.2 CSA International
- .1 CAN/CSA-A82-06, Fired Masonry Brick Made From Clay or Shale.
- .2 CAN/CSA-A165 SERIES-04(R2009), CSA Standards on Concrete Masonry Units; covers: A165.1, A165.2, A165.3.
- .3 CAN/CSA-A179-04(R2009), Mortar and Grout for Unit Masonry.
- .4 CAN/CSA-A370-04(R2009), Connectors for Masonry.
- .5 CAN/CSA A371-04(R2009), Masonry Construction for Buildings.
- .6 CSA G30.18-09, Carbon Steel Bars for Concrete Reinforcement.
- .7 CSA S304.1-04(R2009), Design of Masonry Structures.

.3 Green Seal Environmental Standards (GS)
- .1 GS-11-2008, 2nd Edition, Paints and Coatings.

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

.5 South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards
- .1 SCAQMD Rule 1113-A2007, Architectural Coatings.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:
- .1 Submit manufacturer's instructions, printed product literature and data sheets for masonry products and include product characteristics, performance criteria, physical size, finish and limitations.
- .2 Submit two (2) copies of WHMIS MSDS in accordance with Section 01 35 29.06 - Health and Safety Requirements and Section 01 35 43 - Environmental Procedures.
  - .1 Indicate VOC's in g/L for epoxy coatings and galvanized protective coatings and touch-up products to be applied within building

envelope.

.3 Shop Drawings:
- .1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Québec, Canada.
- .2 Shop drawings consist of bar bending details, lists and placing drawings.
- .3 Placing drawings, indicate sizes, spacing, location and quantities of reinforcement and connectors.

.4 Samples:
- .1 Submit for review and acceptance of each unit.
- .2 Samples will be returned for inclusion into work.
- .3 Submit duplicate full size samples of each type masonry units.

.5 Sustainable Design Submittals:
- .1 Construction Waste Management:
  - .1 Submit project Waste Management Plan highlighting recycling and salvage requirements.
  - .2 Submit calculations on end-of-project recycling rates, salvage rates, and landfill rates demonstrating that 75% of construction wastes were recycled or salvaged.

1.4 DELIVERY, STORAGE AND HANDLING

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

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

.3 Storage and Handling Requirements:
- .1 Store materials off ground indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
- .2 Store and protect masonry products from nicks, scratches, and blemishes.
- .3 Replace defective or damaged materials with new.

.4 Develop a Waste Reduction Workplan related to Work of this Section and in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.5 Packaging Waste Management: remove for reuse and return by manufacturer of pallets, crates, padding and packaging materials as specified in the Waste Reduction Workplan in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

Part 2 Products

2.1 MASONRY UNITS

.1 Standard concrete block units: to CAN/CSA-A165 Series (CAN/CSA-A165.1).

.1 Classification: H/15/A/M.
.2 Size: modular and as indicated on the drawings.
.3 Special shapes: provide bull-nosed units for exposed corners. Provide purpose-made shapes for lintels and bond beams. Provide additional special shapes as indicated.

.2 Special fire resistant concrete block units: to CAN/CSA-A165 Series (CAN/CSA-A165.1) as modified below.
.1 Classification: H/15/B/M except as modified by fire resistance requirements specified below.
.2 Fire resistant characteristics: aggregate used in units and equivalent thickness of units to National Building Code of Canada 2005, for fire-resistance ratings indicated.
.3 Size: modular and as indicated on the drawings.
.4 Special shapes: provide square units for exposed corners. Provide purpose-made shapes for lintels and bond beams and provide additional shapes as indicated.

.3 Lintels : prefabricated reinforced concrete or special concrete block with reinforcement and grout.

2.2 REINFORCEMENT AND CONNECTORS

.1 Bar reinforcement: to CAN/CSA-A371 and CSA G30.18, Grade 400.

.2 Wire reinforcement: to CAN/CSA-A371 and ASTM A 496/A 496M, truss type.

.3 Connectors shall be corrosion resistant: to CAN/CSA-A370 and CSA S304.1.

2.3 MORTAR AND GROUT

.1 Mortar: to CAN/CSA-A179.

.1 Use aggregate passing 1.18 mm sieve where 6 mm thick joints are indicated.
.2 Colour: ground coloured natural aggregates or metallic oxide pigments.

.2 Mortar Type: S based on property specifications,

.3 Mortar for foundation walls, manholes, sewers, pavements, walks, patios and other exterior masonry at or below grade: type M based on property

specifications.

.4 Following applies regardless of mortar types and uses specified above:
.1 Mortar for grouted reinforced masonry: type S based on property specifications.

.5 Grout: to CAN/CSA-A179, Table 3.

2.4 ACCESSORIES

.1 Nailing Inserts: 0.5 mm minimum thickness, galvanized.

.2 Bolts: 12 mm diameter x 150 mm long with ends bent 50 mm at 90 degrees.

Part 3 Execution

3.1 EXAMINATION

.1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for product 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 masonry work in accordance with CAN/CSA-A371 except where specified otherwise.
.1 Bond: running stretcher bond with vertical joints in perpendicular alignment and centred on adjacent stretchers above and below.
.2 Coursing height: 200 mm for one block and one joint.
.3 Jointing: where exposed or where paint or other finish coating is specified to provide smooth compressed cut joints flush.

.2 Build masonry plumb, level, and true to line, with vertical joints in alignment.

.3 Layout coursing and bond to achieve correct coursing heights, and continuity of bond above and below openings, with minimum of cutting.

3.3 CONSTRUCTION

.1 Exposed masonry:
- .1 Remove chipped, cracked, and otherwise damaged units, in exposed masonry and replace with undamaged units.
- .2 Cut out for electrical switches, outlet boxes, and other recessed or built-in objects. Make cuts straight, clean, and free from uneven edges.

.2 Building-in:
- .1 Install masonry connectors and reinforcement where indicated on drawings.
- .2 Build in items required to be built into masonry.
- .3 Prevent displacement of built-in items during construction. Check plumb, location and alignment frequently, as work progresses.
- .4 Brace door jambs to maintain plumb. Fill spaces between jambs and masonry with mortar.
- .5 Install loose steel lintels over openings where indicated.

.3 Concrete block lintels:
- .1 Install reinforced concrete block lintels over openings in masonry.
- .2 End bearing: not less than 200 mm as indicated on drawings.

.4 Support of loads:
- .1 Use 12.5 MPa concrete to Section 03 30 00 - Cast-in-Place Concrete, where concrete fill is used in lieu of solid units.
- .2 Install building paper below voids to be filled with concrete; keep paper 25 mm back from faces of units.

.5 Provision for movement:
- .1 Leave 3 mm space below shelf angles.
- .2 Leave 6 mm space between top of non-load bearing walls and partitions and structural elements. Do not use wedges.
- .3 Built masonry to tie in with stabilizers, with provision for vertical movement.

.6 Interface with other work:
- .1 Cut openings in existing work as indicated.
- .2 Openings in walls: approved Departmental Representative.
- .3 Make good existing work. Use materials to match existing.

3.4 REINFORCING AND CONNECTING

.1 Install masonry connectors and reinforcement in accordance with CAN/CSA-A370, CAN/CSA-A371 and CSA S304.1 unless indicated otherwise.

.2 Prior to placing concrete, mortar or grout, obtain Departmental Representative's approval of placement of reinforcement and connectors.

3.5 BONDING AND TYING

.1 Bond walls of two or more wythes using metal connectors in accordance with CAN/CSA-A371, CSA S304.1 and as indicated.

.2 Tie masonry veneer to backing in accordance with NBC, CAN/CSA-A371, CSA S304.1 and as indicated.

3.6 REINFORCED LINTELS AND BOND BEAMS

.1 Reinforce masonry lintels and bond beams as indicated.

.2 Place and grout reinforcement in accordance with CAN/CSA-A179, CAN/CSA-A371 and CSA S304.1.

3.7 GROUTING

.1 Grout masonry in accordance with CAN/CSA-A179, CAN/CSA-A371 and CSA S304.1 and as indicated.

3.8 ANCHORS

.1 Supply and install metal anchors as indicated.

3.9 LATERAL SUPPORT AND ANCHORAGE

.1 Supply and install lateral support and anchorage in accordance with CSA S304.1 and as indicated.

3.10 SITE TOLERANCES

.1 Tolerances of CAN/CSA-A371 apply.

3.11 FIELD QUALITY CONTROL

.1 Inspection and testing will be carried out by Testing Laboratory designated by Departmental Representative.

3.12 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  .1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

.3 Waste Management: separate waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
  .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.13 PROTECTION

.1 Protect masonry and other work from marking and other damage. Protect completed work from mortar droppings. Use non-staining coverings.

.2 Repair damage to adjacent materials caused by masonry products installation.

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 REFERENCE STANDARDS

.1 Do structural steel work in accordance with CAN3-S16.1, except where specified otherwise.

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

.3 Welder certification: in accordance with ACNOR W47.1.

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

1.3 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 used in this work.

1.4 DESIGN OF DETAILS AND CONNECTIONS

.1 Design details and connections in accordance with requirements of ACNOR S16.1 to resist loads indicated.

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

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Structural steel: to CAN/CSA-G40.21, grade as indicated on structural drawings. HSS to be as per ASTM A500 grade C.

.2 Anchor bolts: to CAN/CSA-G40.21.

.3 Bolts, nuts and washers: to ASTM A325M.

.4 Welding materials: to ACNOR W59.

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

PART 3 - EXECUTION

3.1 FABRICATION

.1 Fabricate structural steel, as indicated, in accordance with CAN3-S16.1 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 CAN3-S16.1, except where members are to be encased in concrete.

3.4 MARKING

.1 Mark materials in accordance with CAN/CSA-G40.20. Do not use die stamping. 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 Erect structural steel as indicated in accordance with CAN3-S16.1 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 CAN3-S16.1.

.2 If indicated on drawings, seal members by continuous welds. Grind smooth.

.3 No welding is to be done when ambient temperature is below -18o C without the Departmental representative's approval.

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

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

.6 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.

.7 Unless otherwise indicated, tighten high strength bolts to obtain a firm contact between all layers in contact ("snug tight"). Bolts indicated on drawings to be pre-tensionned or that the connexion is indicated to be "friction type" are to be tightened with a direct tension indicator or according to the turn-of-nut method to obtain tensions in bolts as specified in clause 23.4 of S16.1 standard. Refer to clauses 23.5 and 23.6 of S16.1 standard for tightening methods.

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 The Departmental representative may require inspections and/or testing of welds to be carried out by a specialist designated by the Departmental representative.

.3 Owner will pay the cost of tests.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 04 04 99 – Masonry for Minor Works.

.2 Section 05 12 23 – Structural Steel for Buildings.

.3 Section 09 21 99 – Partitions for Minor Works.

1.2 REFERENCES

.1 ASTM International

.1 ASTM A53/A53M-07, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.

.2 ASTM A269-08, Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.

.3 ASTM A307-07b, Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.

.2 Canada Green Building Council (CaGBC)

.1 LEED Canada-NC Version 1.0-2004, LEED (Leadership in Energy and Environmental Design): Green Building Rating System Reference Package For New Construction and Major Renovations (including Addendum 2007).

.2 LEED Canada-CI Version 1.0-2007, LEED (Leadership in Energy and Environmental Design): Green Building Rating System Reference Guide For Commercial Interiors.

.3 CSA International

.1 CSA G40.20/G40.21-04(R2009), General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.

.2 CAN/CSA G164-M92(R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.

.3 CSA S16-09, Design of Steel Structures.

.4 CSA W48-06, Filler Metals and Allied Materials for Metal Arc Welding (Developed in co-operation with the Canadian Welding Bureau).

.5 CSA W59-M03(R2008), Welded Steel Construction (Metal Arc Welding) (Metric).

.4 Environmental Choice Program

.1 CCD-047-98(R2005), Architectural Surface Coatings.

.2 CCD-048-98(R2006), Surface Coatings - Recycled Water-borne.

.5 Green Seal Environmental Standards (GS)

.1 GS-11-2008, 2nd Edition, Paints and Coatings.

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

.7 The Master Painters Institute (MPI)
.1 Architectural Painting Specification Manual - current edition.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:
.1 Submit manufacturer's instructions, printed product literature and data sheets for sections, plates, pipe, tubing and bolts and include product characteristics, performance criteria, physical size, finish and limitations.
.2 Submit two (2) copies of WHMIS MSDS in accordance with Section 01 35 29.06 - Health and Safety Requirements and Section 01 35 43 - Environmental Procedures.
.1 For finishes, coatings, primers, and paints applied on site: indicate VOC concentration in g/L.

.3 Shop Drawings:
.1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Québec, Canada.
.2 Indicate materials, core thicknesses, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories.

.4 Low-Emitting Materials:
.1 Submit listing of paints and coatings used in building, comply with VOC and chemical component limits or restrictions requirements.

1.4 QUALITY ASSURANCE

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

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

1.5 DELIVERY, STORAGE AND HANDLING

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

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

.3 Storage and Handling Requirements:
.1 Store materials off ground indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
.2 Replace defective or damaged materials with new.

.4 Packaging Waste Management: remove for reuse in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

Part 2 Products

2.1 MATERIALS

.1 Steel sections and plates: to CSA G40.20/G40.21, Grade 300W.

.2 **Flat wire mesh :** to EMMA 447-99. Style 3/4-9F, wire of 3 mm nominal thickness. Diamond shaped mesh of 14.3 mm x 42.88 mm.

.3 **Rivets :** 4.8 mm steel pop rivets, by Spaenaur 301-400.

.4 **Washers :** protection washer, 13 mm OD, 4.8 mm ID, by Fastenal 1133204.

.5 Steel pipe: to ASTM A 53/A 53M extra strong, galvanized finish.

.6 Welding materials: to CSA W59.

.7 Welding electrodes: to CSA W48 Series.

.8 Bolts and anchor bolts: to ASTM A 307.

.9 Grout: non-shrink, non-metallic, flowable, 15 MPa at 24 hours.

2.2 FABRICATION

.1 Fabricate work square, true, straight and accurate to required size, with joints closely fitted and properly secured.

.2 Use self-tapping shake-proof flat headed screws on items requiring assembly by screws or as indicated.

.3 Where possible, fit and shop assemble work, ready for erection.

.4 Ensure exposed welds are continuous for length of each joint. File or grind exposed welds smooth and flush.

2.3 FINISHES

.1 Galvanizing: hot dipped galvanizing with zinc coating 600] g/m^2 to CAN/CSA-G164.

.2 Shop coat primer: in accordance with CAN/CGSB-1.40.

.3 Zinc primer: zinc rich, ready mix to CANCGSB-1.181.

2.4 ISOLATION COATING

.1 Isolate aluminum from following components, by means of bituminous paint:
- .1 Dissimilar metals except stainless steel, zinc, or white bronze of small area.
- .2 Concrete, mortar and masonry.
- .3 Wood.

2.5 SHOP PAINTING

.1 Primer: VOC limit 250 g/L maximum to GS-11.

.2 Apply one shop coat of primer to metal items, with exception of galvanized or concrete encased items.

.3 Use primer unadulterated, as prepared by manufacturer. Paint on dry surfaces, free from rust, scale, grease. Do not paint when temperature is lower than 7 degrees C.

.4 Clean surfaces to be field welded; do not paint.

2.6 SECURITY MESH

.1 Flat steel mesh welded to metal frame made of members no. 600S200-43, installed above ceilings where indicated, in accordance with the specifications and installation instructions in Publication G13-02 of the RCMP.

2.7 CHANNEL FRAMES

.1 Fabricate frames from steel, sizes of channel and opening as indicated.

.2 Weld channels together to form continuous frame for jambs and head of openings, sizes as indicated.

.3 Weld 3 mm thick steel strap anchors to channel jamb frame at 400 mm on centre.

.4 Finish: galvanized.

Part 3 Execution

3.1 EXAMINATION

.1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for metal fabrications 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.

3.2 ERECTION

.1 Do welding work in accordance with CSA W59 unless specified otherwise.

.2 Erect metalwork square, plumb, straight, and true, accurately fitted, with tight joints and intersections.

.3 Provide suitable means of anchorage acceptable to Departmental Representative such as dowels, anchor clips, bar anchors, expansion bolts and shields, and toggles.

.4 Exposed fastening devices to match finish and be compatible with material through which they pass.

.5 Supply components for work by other trades in accordance with shop drawings and schedule.

.6 Make field connections with bolts to CSA S16 or weld field connection.

.7 Deliver items over for casting into concrete and building into masonry together with setting templates to appropriate location and construction personnel.

.8 Touch-up rivets, field welds, bolts and burnt or scratched surfaces with primer after completion of:
- .1 Primer: maximum VOC limit 250 g/L to GS-11.

.9 Touch-up galvanized surfaces with zinc rich primer where burned by field welding.
- .1 Primer: maximum VOC limit 250 g/L to GS-11.

3.3 CORNER GUARDS

.1 Install corner guards in locations as indicated.

3.4 CHANNEL FRAMES

.1 Install steel channel frames to openings as indicated.

3.5 FLAT STEEL MESH

.1 Install flat steel mesh on hoprizontal metal stud 150mm gauge 18 @ 305mm c.c. above the ceilings identified on the drawings.

3.6 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  .1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

.3 Waste Management: separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
  .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.7 PROTECTION

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

.2 Repair damage to adjacent materials caused by metal fabrications installation.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 04 04 99 - Masonry for Minor Works.

.2 Section 09 21 99 – Gypsum partitions and ceiling for Minor Works.

1.2 REFERENCES

.1 CSA International
- .1 CSA B111-1974(R2003), Wire Nails, Spikes and Staples.
- .2 CSA O121-08, Douglas Fir Plywood.
- .3 CSA O141-05(R2009), Softwood Lumber.
- .4 CSA O151-09, Canadian Softwood Plywood.
- .5 CAN/CSA-O325.0-07, Construction Sheathing.
- .6 CAN/CSA-Z809-08, Sustainable Forest Management.

.2 Forest Stewardship Council (FSC)
- .1 FSC-STD-01-001-2004, FSC Principle and Criteria for Forest Stewardship.

.3 Green Seal Environmental Standards (GS)
- .1 GS-11-11, Paints and Coatings.

.4 National Lumber Grades Authority (NLGA)
- .1 Standard Grading Rules for Canadian Lumber 2008.

.5 South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards
- .1 SCAQMD Rule 1113-A2011, Architectural Coatings.

.6 Sustainable Forestry Initiative (SFI)
- .1 SFI-2010-2014 Standard.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:
- .1 Submit manufacturer's instructions, printed product literature and data sheets for rough carpentry work and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Sustainable Design Submittals:
- .1 Construction Waste Management:

.1 Submit project Waste Management Plan highlighting recycling and salvage requirements.

.2 Submit calculations on end-of-project recycling rates, salvage rates, and landfill rates demonstrating that 75% of construction wastes were recycled or salvaged.

.2 Wood Certification: submit manufacturer's Chain-of-Custody Certificate number for CAN/CSA-Z809 or FSC or SFI certified wood.

.3 Low-Emitting Materials:

.1 Submit listing of paints and coatings used in building, comply with VOC and chemical component limits or restriction requirements.

.2 Submit listing of composite wood products used in building, stating that they contain no added urea-formaldehyde resins and laminate adhesives used in building, stating that they contain no urea-formaldehyde.

1.4 MAINTENANCE MATERIALS SUBMITTALS

.1 Extra Stock Materials:

.1 Provide electrical equipment backboards for mounting electrical equipment as indicated. Use 19 mm thick plywood on 19 x 38 mm furring around spacing, perimeter and at maximum 300 mm intermediate

1.5 QUALITY ASSURANCE

.1 Lumber identification: by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.

.2 Plywood identification: by grade mark in accordance with applicable CSA standards.

.3 Plywood, OSB and wood based composite panel construction sheathing identification: by grademark in accordance with applicable CSA standards.

.4 Sustainable Standards Certification:

.1 Certified Wood: submit listing of wood products and materials used in accordance with CAN/CSA-Z809 or FSC or SFI.

1.6 DELIVERY, STORAGE AND HANDLING

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

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

.3 Storage and Handling Requirements:
- .1 Store materials off ground indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
- .2 Store and protect wood from nicks, scratches, and blemishes.
- .3 Replace defective or damaged materials with new.

.4 Develop Construction Waste Management Plan related to Work of this Section and in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.5 Packaging Waste Management: recover packaging materials as specified in Construction Waste Management Plan in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

Part 2 Products

2.1 MATERIALS

.1 Lumber: unless specified otherwise, softwood, S4S, moisture content 19% or less in accordance with following standards:
- .1 CAN/CSA-O141.
- .2 NLGA Standard Grading Rules for Canadian Lumber.
- .3 CAN/CSA-Z809 or FSC or SFI certified.

.2 Furring, blocking, nailing strips, grounds, rough bucks, cants, curbs, fascia backing and sleepers:
- .1 S2S is acceptable for concealed work.
- .2 Board sizes: "Standard" or better grade.
- .3 Dimension sizes: "Standard" light framing or better grade.
- .4 Post and timbers sizes: "Standard" or better grade.

.3 Panel Materials:
- .1 Douglas fir plywood (DFP): to CSA O121, standard construction.
  - .1 Urea-formaldehyde free.
- .2 Canadian softwood plywood (CSP): to CSA O151, standard construction.
  - .1 Urea-formaldehyde free.
- .3 Plywood, OSB and wood based composite panels: to CAN/CSA-O325.
  - .1 Urea-formaldehyde free.

.4 Wood Preservative:
- .1 All components in contact with the elastomeric membranes must not be pressure treated.
- .2 Surface-applied wood preservative: clear, copper naphthenate or 5% pentachlorophenol solution, water repellent preservative.
- .3 Pentachlorophenol use is restricted to building components that are in ground contact and subject to decay or insect attack only. Where used, pentachlorophenol-treated wood must be covered with two coats of an appropriate sealer.

.4 Structures built with wood treated with pentachlorophenol and inorganic arsenicals must not be used for storing food nor should the wood come in contact with drinking water.

2.2 ACCESSORIES

.1 Galvanized fasteners: to CAN/CSA-G164, for exterior work, interior highly humid areas and pressure-preservative and fire-retardant treated lumber.

.2 Nails, spikes and staples: to CSA B111.

.3 Bolts: 12.5 mm diameter unless indicated otherwise, complete with nuts and washers.

.4 Proprietary fasteners: toggle bolts, expansion shields and lag bolts, screws and lead or inorganic fibre plugs, recommended for purpose by manufacturer.

Part 3 Execution

3.1 EXAMINATION

.1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for rough carpentry installation in accordance with manufacturer's written instructions.
- .1 Visually inspect substrate in presence of 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 PREPARATION

.1 Treat surfaces of material with wood preservative, before installation.

.2 Apply preservative by dipping, or by brush to completely saturate and maintain wet film on surface for minimum 3-minutes soak on lumber and 1-minute soak on plywood.

.3 Re-treat surfaces exposed by cutting, trimming or boring with liberal brush application of preservative before installation.

3.3 INSTALLATION

.1 Comply with requirements of NBC, supplemented by the following paragraphs.

.2 Install furring and blocking as required to space-out and support casework, cabinets, countertop, horizontal metal bumpers, lockers, electrical equipment, plumbing equipment, toilet accessories, wall and ceiling finishes, facings, fascia, soffit, siding and other work as required.

.3 Align and plumb faces of furring and blocking to tolerance of 1:600.

.4 Install rough bucks, nailers and linings to rough openings as required to provide backing for frames and other work.

.5 Install wood cants, fascia backing, nailers, curbs and other wood supports as required and secure using galvanized fasteners.

.6 Install wood backing, dressed, tapered and recessed slightly below top surface of roof insulation for roof hopper.

.7 Install sleepers as indicated.

.8 Use caution when working with particle board. Use dust collectors and high quality respirator masks.

.9 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.

.10 Countersink bolts where necessary to provide clearance for other work.

3.4 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  .1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

.3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
  .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 04 04 99 – Masonry for Minor Works.

.2 Section 07 92 00 – Joints Sealants.

.3 Section 09 30 13 – Ceramic Tiling.

.4 Section 09 67 14 – Seamless Polyurethane Resin Floor Covering.

.5 Section 09 91 99 – Painting for Minor Works.

.6 Mechanical Services – Engineer's Drawings and Specifications.

.7 Electrical Services – Engineer's Drawings and Specifications.

1.2 REFERENCES

.1 American National Standards Institute (ANSI)

.1 ANSI/HPVA HP-1-09, Standard for Hardwood and Decorative Plywood.

.2 Architectural Woodwork Manufacturers Association of Canada (AWMAC) and Architectural Woodwork Institute (AWI)

.1 Architectural Woodwork Standards, 1st edition, (2009).

.3 Canadian General Standards Board (CGSB)
.1 CAN/CGSB-71.20-M88, Adhesive, Contact, Brushable.

.4 Canadian Standards Association (CSA International)
.1 CSA B111-74(R2003), Wire Nails, Spikes and Staples.
.2 CSA O112.4 Series-M1977(R2006), Standards for Wood Adhesives.

.5 Forest Stewardship Council (FSC)
.1 FSC Accredited Certified Bodies.

.6 National Electrical Manufacturers Association (NEMA)
.1 ANSI/NEMA LD-3-05, High-Pressure Decorative Laminates.

.7 National Hardwood Lumber Association (NHLA)
.1 Rules for the Measurement and Inspection of Hardwood and Cypress 2011.

.8 National Lumber Grades Authority (NLGA)
.1 Standard Grading Rules for Canadian Lumber 2010.

.9 South Coast Air Quality Management District (SCAQMD), California State (SCAQMD)
.1 SCAQMD Rule 1113-07, Architectural Coatings.

.2 SCAQMD Rule 1168-05, Adhesives and Sealants Applications.

.10 American National Standards Institute (ANSI) / Builders Hardware Manufacturers Association (BHMA)

.1 ANSI/BHMA A156.9-2003, Cabinet Hardware

1.3 SUBMITTALS

.1 Provide Submittal submissions: in accordance with Section 01 33 00 - Submittal Procedures.

.2 Provide shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
- .1 Indicate details of construction, profiles, jointing, fastening and other related details.
  - .1 Scales: profiles full size, details half full size.
- .2 Indicate materials, thicknesses, finishes and hardware.
- .3 Indicate locations of service outlets in casework, typical and special installation conditions and connections, attachments, anchorage and location of exposed fastenings.

.3 Provide samples in accordance with Section 01 33 00 - Submittal Procedures.
- .1 Provide triplicate samples: sample size 300 x 300 mm or 300 mm long unless specified otherwise of specified wood materials.
- .2 Provide triplicate colour samples of laminated plastic for colour selection.
- .3 Provide triplicate samples of laminated plastic joints, edging, cutouts and postformed profiles.

.4 Product data and manufacturer’s instructions.
- .1 Provide product data and manufacturer's instructions.

1.4 QUALITY ASSURANCE

.1 Lumber by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.

.2 Plywood marking in accordance with pertinent CSA and ANSI standards.

1.5 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .1 Protect millwork against dampness and damage during and after delivery.
- .2 Store millwork in ventilated areas, protected from extreme changes of temperature or humidity.

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

Part 2 Products

2.1 MATERIALS

.1 Softwood lumber: unless specified otherwise, S4S, moisture content 7 % or less in accordance with following standards:
.1 CSA O141.
.2 NLGA Standard Grading Rules for Canadian Lumber.
.3 AWMAC custom, premium grade, moisture content as specified.
.4 Forestry Stewardship Council (FSC) certified.

.2 Hardwood lumber: moisture content 7 % or less in accordance with following standards:
.1 National Hardwood Lumber Association (NHLA).
.2 AWMAC premium grade, moisture content as specified.
.3 Forestry Stewardship Council (FSC) certified.

2.2 PANEL MATERIALS

.1 Hardwood plywood: to ANSI/HPVA HP-1, hardwood core plywood and facings of MDF boards or particle boards, industrial grade.
.1 Forestry Stewardship Council (FSC) certified.
.2 Urea-formaldehyde free.
.3 Size and thicknesses as indicated on the drawings.

.2 Laminated plastic for flatwork: to NEMA LD3, Grade VGL (for vertical surfaces), Type HD, 1.2 mm thick; decorative finish based on the complete range, including texture, except metallic.

.3 Backing sheet: Grade QR, Type TS, not less than 0.5 mm thick or same thickness as face laminate.

.4 Interior liner sheet: Grade QO, Type TS, 1.15 mm thick, white colour.

.5 Solid laminated panel: phenolic resin base solid core covered with laminate to ASNI/NEMA LD3, free standing quality, performing type, 1.25 mm thick, thermofused to core.

2.3 STAINLESS STEEL.

.1 To ASTM A240 / A 240M , type 304 finish no. 4 to AISI on one side - rolled cold and soggy.
- .1 All plugs , screws, bolts and nuts, washers, etc.
- .2 Thickness (unless otherwise stated)
  - .1 2,8 mm chassis and cabinet support.
  - .2 2 mm horizontal and vertical shelf separators.
  - .3 1,6mm continuous support angle for closure above kitchen hood.

.2 Manufacturing
- .1 There shall be manufactured plumbing, alignment and angle , depending on local installation conditions and as indicated.
- .2 The equipment must be adjusted and assembled in the workshop and shipped ready to install .
- .3 Raw edges must be trimmed , smoothed and rounded before shaping.
- .4 Junctions are stainless steel , seamless look . All corners and joints are welded and polished.

2.4 ACCESSORIES

.1 Nails and staples: to CSA B111, stainless steel.

.2 Wood screws: stainless steel, type and size to suit application.

.3 Splines: the best type for application.

.4 Sealant: in accordance with Section 07 92 00 - Joint Sealants, to SCAQMD Rule 1168 - Adhesives and Sealants Applications.

.5 Laminated plastic adhesive:
- .1 Adhesive: contact adhesive to CAN/CGSB-71.20.
  - .1 Test VOC emissions to ASTM D2369 and ASTM D2832.
  - .2 Acceptable products: products in accordance with Guideline PCE-44.
  - .3 Maximum VOC limit SCAQMD Rule 1168, Adhesives and Sealants Applications, 250 g/l.
  - .4 Adhesives urea-formaldehyde free.

.6 Stainless steel moulding H-shaped.

2.5 MANUFACTURED UNITS

.1 Casework:
- .1 Fabricate caseworks to AWMAC custom quality grade.
- .2 Furring, blocking, nailing strips, grounds and rough bucks and sleepers.
  - .1 S2S is acceptable.

.2 Board sizes: "standard" or better grade.
.3 Dimension sizes: "standard" light framing or better grade.
.4 Forestry Stewardship Council (FSC) certified.
.5 Urea-formaldehyde free.

.3 Case bodies (ends, divisions and bottoms).
.1 Hardwood plywood.
.2 Thickness: 19 mm.
.3 Veneer for application of laminate.

.4 Backs:
.1 Hardwood plywood: 13 mm thick and 6 mm where concealed.
.2 Veneer: visible surface to receive laminate.

.5 Shelving:
.1 Hardwood plywood: 19 mm thick.
.2 Veneer for application of laminate.
.3 Edge banding: provide 6 mm thick composite strip on plywood edges 19 mm or thicker. Edge band with laminated white colour 3 mm PVC.

.2 Drawers:
.1 Fabricate drawers to AWMAC custom grade supplemented as follows:
.2 Sides and Backs.
.1 Hardwood plywood: 13 mm thick.

.3 Bottoms:
.1 Hardwood plywood: 6 mm thick.
.2 Veneer for application of laminate.

.4 Fronts:
.1 Hardwood plywood: 19 mm thick.
.2 Veneer for application of laminate.

.3 Casework Doors:
.1 Fabricate doors to AWMAC custom grade supplemented as follows:
.1 Hardwood plywood: 15 mm thick.
.2 Veneer for application of laminate.

2.6 FABRICATION

.1 Set nails and countersink screws apply plain wood filler to indentations, sand smooth and leave ready to receive finish.

.2 Shop install cabinet hardware for doors, shelves and drawers. Recess shelf standards unless noted otherwise.

.3 Shelving to cabinetwork to be adjustable unless otherwise noted.

.4 Provide cutouts for plumbing fixtures, inserts, appliances, outlet boxes and other fixtures.

.5 Shop assemble work for delivery to site in size easily handled and to ensure passage through building openings.

.6 Obtain governing dimensions before fabricating items which are to accommodate or abut appliances, equipment and other materials.

.7 Ensure adjacent parts of continuous laminate work match in colour and pattern.

.8 Veneer laminated plastic to core material in accordance with adhesive manufacturer's instructions. Ensure core and laminate profiles coincide to provide continuous support and bond over entire surface. Use continuous lengths up to 3000 mm. Keep joints 600 mm from sink cutouts.

.9 Form shaped profiles and bends as indicated, using postforming grade laminate to laminate manufacturer's instructions.

.10 Use straight 3 mm PVC strip for flatwork to cover exposed edge of core material. Chamfer exposed edges uniformly at approximately 20 degrees. Do not mitre laminate edges.

.11 Apply laminate backing sheet to reverse side of core of plastic laminate work.

.12 Apply laminated plastic liner sheet to interior of cabinetry where indicated.

Part 3 Execution

3.1 INSTALLATION

.1 Do architectural woodwork to Quality Standards of the Architectural Woodwork Manufacturers Association of Canada (AWMAC), except where specified otherwise.

.2 Install prefinished millwork at locations shown on drawings. Position accurately, level, plumb straight.

.3 Fasten and anchor millwork securely. Provide heavy duty fixture attachments for wall mounted cabinets.

.4 Use draw bolts in countertop joints.

.5 Scribe and cut as required to fit abutting walls and to fit properly into recesses and to accommodate piping, columns, fixtures, outlets or other projecting,

intersecting or penetrating objects.

.6 At junction of plastic laminate counter back splash and adjacent wall finish, apply small bead of sealant.

.7 Apply bituminous coating over wood framing members in contact with masonry or cementitious construction.

.8 Fit hardware accurately and securely in accordance with manufacturer's written instructions.

.9 Co-ordinate and supervise the installation of stainless steel plates and/or sheets and glazing indicated on drawings.

3.2 WELDING

.1 Method : electrical arcing, invisible joints , under an inert gas atmosphere. All welding must comply with ACNOR standards .

.2 Composition: Use a pencil stainless steel type 304 , so that the filler metal is the same composition as the welded metal.

.3 Seals: Fully welded , invisible welding, perfectly edge- polished , without cracks, discoloration or other imperfections .

.4 Finish: grinded , smooth and polished , marrying at # 4 finish on all exposed surfaces . Grind and coated with a solution of all the hidden welds inside the units or hardly visible to combat fading welding oxygenation and prevent corrosion.

.5 Unacceptable: joint covers , spot welding , riveting the flats under the joints filled or not solder and the apparent screw threads.

3.2 CLEANING

.1 Proceed in accordance with Section 01 74 11 - Cleaning.

.2 Clean millwork and cabinet work, inside cupboards and drawers and outside surfaces.

.3 Remove excess glue from surfaces.

3.3 PROTECTION

.1 Protect millwork and cabinet work from damage until interim inspection.

3.4 SCHEDULES

.1 Unless specified otherwise, the product numbers specified are from Quincaillerie Richelieu Inc., or replacement products from Hafele or other manufacturers, approved in an addenda in accordance with the requirements in the Instructions to Bidders.

.2 Drawers:

.1 One (1) set of drawer slides T21322G18.

.2 One (1) type 2 brushed nickel handle, 110 x 30 mm # 33206195, as indicated on the drawings.

.3 Swing doors for cabinets:

.1 One (1) pair of hinges with a 107^0 opening, screw type, with spring, # 95 M165180

.2 One (1) type 2 brushed nickel handle, 110 x 30 mm # 33206195, as indicated on the drawings.

.4 Cabinet shelves:

.1 Two (2) recessed shelf standards, B04071.

.2 Four (4) shelve cleats B04081 per shelve.

.5 Steel angular strike, Richelieu #202132.

FIN DE SECTION

General

1.1 RELATED SECTION

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

1.2 REFERENCES

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

.1 ASTM E96/E96M-05, Standard Test Methods for Water Vapour Transmission of Materials.

.2 Canadian Gas Association (CGA)

.1 CAN/CGA-B149.1-05, Natural Gas and Propane Installation Code Handbook.

.2 CAN/CGA-B149.2-05, Propane Storage and Handling Code.

.3 Underwriters Laboratories of Canada (ULC)

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

1.3 SUBMITTALS

.1 Product Data:

.1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit three copies of WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 33 00 - Submittal Procedure. . Indicate VOC's insulation products and adhesives.

.2 Manufacturer's Instructions:

.1 Submit manufacturer's installation instructions.

1.4 QUALITY ASSURANCE

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

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

.3 Health and Safety Requirements: do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.

1.5 WASTE MANAGEMENT AND DISPOSAL

.1 Remove from site and dispose of packaging materials at appropriate recycling facilities.

.2 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard, packaging material in appropriate on-site bins for recycling in accordance with Waste Management Plan.

Part 2 Products

2.1 INSULATION

.1 Foundation wall insulation: Extruded polystyrene to CAN/ULC-S-5701, Type IV, tongue and groove edges, 25mm thickness, minimum R value of 0, 07 m^2 ºC/W per 25 mm thick and resistance to compression of 240 kPa.

2.2 ADHESIVE

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

.1 Type: 1.

2.3 ACCESSORIES

.1 Insulation clips, fasteners, flashings and trims: as recommended by manufacturer of board insulation.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

3.2 WORKMANSHIP

.1 Install insulation after building substrate materials are dry.

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

.3 Fit insulation tight around electrical boxes, plumbing and heating pipes and ducts, around exterior doors and windows and other protrusions.

.4 Cut and trim insulation neatly to fit spaces. Butt joints tightly, offset vertical joints. Use only insulation boards free from chipped or broken edges. Use largest possible dimensions to reduce number of joints.

.5 Offset both vertical and horizontal joints in multiple layer applications.

.6 Do not enclose insulation until it has been inspected and approved by Department Representative.

3.3 EXAMINATION

.1 Examine substrates and immediately inform Department Representative in writing of defects.

.2 Prior to commencement of work ensure:

.1 Substrates are firm, straight, smooth, dry, free of snow, ice or frost, and clean of dust and debris.

3.4 PERIMETER FOUNDATION INSULATION

.1 Interior installation: install insulation panels against the interior face of peripheral wall foundations, up to level of existing rigid insulation under definitive soil level and glue them with an adhesive.

3.5 CLEANING

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

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 09 21 99 - Partitions for Minor Works.

1.2 REFERENCES

.1 Canadian Urethane Foam Contractors' Association Inc. (CUFCA)

.2 Green Seal Environmental Standards
- .1 Standard GS-11-2013, Architectural Paints.

.3 South Coast Air Quality Management District (SCAQMD), California State
- .1 SCAQMD Rule 1113-13, Architectural Coatings.

.4 Underwriters' Laboratories of Canada (ULC)
- .1 CAN/ULC-S101-07, Fire Endurance Tests of Building Construction and Materials.
- .2 CAN/ULC-S102-10, Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.
- .3 CAN/ULC-S705.1-01, Standard for Thermal Insulation - Spray Applied Rigid Polyurethane Foam, Medium Density, Material Specification.
- .4 CAN/ULC-S705.2-05, Standard for Thermal Insulation - Spray Applied Rigid Polyurethane Foam, Medium Density, Application.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:
- .1 Submit manufacturer's printed product literature, specifications and datasheet for sprayed polyurethane foam and include product characteristics, performance criteria, physical size, finish and limitations.
- .2 Submit two (2) copies WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 35 43 – Environmental Procedures and Section 01 35 29.06 – Health and Safety Requirements.

.3 Test reports
- .1 Submit certified test reports for insulation from approved independent testing laboratories, indicating compliance with specifications for specified performance characteristics and physical properties.
- .2 Submit test reports for work and materials in accordance with CAN/ULC-S101 for fire endurance and CAN/ULC-S102 for surface burning characteristics.

.4 Manufacturer's Instructions
- .1 Submit manufacturer's installation instructions and special handling criteria, installation sequence and cleaning procedures.

.5 Manufacturer's Field Reports
- .1 Submit to manufacturer's written reports within three (3) days of review, verifying compliance of Work, as described in PART 3 - FIELD QUALITY CONTROL.

.6 Sustainable Design Submittals
- .1 Construction Waste Management:
  - .1 Submit copy of Waste Management Plan for project highlighting recycling and salvage requirements.
  - .2 Provide calculations on end-of-project recycling rates, salvage rates, and landfill rates demonstrating that 75 % of construction wastes were recycled or salvaged.
- .2 Recycled Content
  - .1 Provide listing of recycled content products used, including details of required percentages or recycled content materials and products, showing their costs and percentages of post-consumer and post-industrial content, and total cost of materials for project.

1.4 QUALITY ASSURANCE

.1 Applicators to conform to CUFCA Quality Assurance Program.

.2 Qualifications:
- .1 Installer: person specializing in sprayed insulation installations experience approved by manufacturer.
- .2 Manufacturer: company with experience in producing material used for work required for this project, with sufficient production capacity to produce and deliver required units without causing delay in work.

.3 Mock-up:
- .1 Construct mock-up in accordance with Section 01 45 00 - Quality Control.
- .2 Construct mock-up 10 m^2 minimum, of sprayed insulation including one inside corner and one outside corner, door and window openings.
- .3 Mock-up may be part of finished work.
- .4 Allow 24 hours for inspection of mock-up by Departmental Representative before proceeding with sprayed insulation work.

.4 Health and Safety Requirements: worker protection:
- .1 Protect workers as recommended by CAN/ULC-S705.2 and manufacturer's recommendations:
- .2 Workers must wear gloves, respirators, dust masks, long sleeved clothing, eye protection and protective clothing when applying foam insulation.

.3 Workers must not eat, drink or smoke while applying foam insulation.

1.5 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with manufacturer's written instructions and 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 off ground indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
- .2 Store and protect prescribed materials from nicks, scratches, and blemishes.
- .3 Replace defective or damaged materials with new.

.4 Develop Construction Waste Management Plan related to Work of this Section and in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.5 Packaging Waste Management: remove packaging materials as specified in Construction Waste Management Plan, in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

1.6 SITE CONDITIONS

.1 Ventilate area to receive insulation by introducing fresh air and exhausting air continuously during and 24 hours after application to maintain nontoxic, unpolluted, safe working conditions.

.2 Provide temporary enclosures to prevent spray and noxious vapours from contaminating air beyond application area.

.3 Protect adjacent surfaces and equipment from damage by overspray, fall-out, and dusting of insulation materials.

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

Part 2 Products

2.1 MATERIALS

.1 Insulation: spray polyurethane to CAN/ULC-S705.1.

.2 Primers: in accordance with manufacturer's recommendations for surface conditions.
  .1 Maximum VOC limit 100 g/l, to GS-11 and to SCAQMD Rule 1113.

Part 3 Execution

3.1 EXAMINATION

.1 Verification of Conditions: before spraying the insulation verify conditions of substrates previously installed under other Sections or Contracts are acceptable to do the work in accordance with manufacturer's instructions.
  .1 Visually inspect surfaces/substrates 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 from Departmental Representative.

3.2 APPLICATION

.1 Apply insulation to clean surfaces in accordance with CAN/ULC-S705.2 and manufacturer's printed instructions.

.2 Use primer where recommended by manufacturer.

.3 Apply sprayed foam insulation in thickness as indicated.

3.3 FIELD QUALITY CONTROL

.1 Manufacturer's Field Services:
  .1 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

3.4 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  .1 Leave Work area clean at the end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
  .1 Remove insulation materials which were oversprayed or fell on the floor during installation and leave work ready to receive gypsum boards.

.3 Waste Management: separate waste in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

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

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 04 04 99 – Masonry for Minor Works.

.2 Section 06 08 99 – Carpentry for Minor Works.

.3 Section 07 21 29 – Sprayed Insulation – Polyurethane Foam

1.2 REFERENCES

.1 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-37.58-M86, Water proofing.

1.3 SUBMITTALS

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

.2 Product Data:

.1 Submit manufacturer's printed product literature, specifications and datasheet. The data sheets must include product characteristics, performance criteria. limitations. dimensions and finishing.

.2 Submit copies of Workplace Hazardous Materials Information System (WHMIS) Material Safety Data Sheets MSDS in accordance with Section 01 33 00 - Submittal Procedures. The Material Safety Data Sheets of the (WHMIS) must comply with the requirements of Health and safety Canada and human resources and skills Development Canada.

.3 Provide a written confirmation from the membrane manufacturer that the primers and sealants proposed are compatible with the membrane they are going to be in contact with.

1.4 DELIVERY, STORAGE AND HANDLING

.1 Store rolls upright, on original pallets or elevated platforms. Protect against bad weather or store inside at a temperature not exceeding 49 ^{0}C.

1.5 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal and the Waste Reduction Plan.

Part 2 Products

2.1 SELF ADHERING MEMBRANE AIR/ VAPOUR/ WATER BARRIER

.1 Self-adhering membrane consisting of an SBS rubberized asphalt compound, which is integrally laminated to a thermoplastic film. Membrane conceived to be installed by self-adherence to a prepared substrate as an air/vapour and water barrier. Membrane has excellent adhesion to prepared substrates of concrete, concrete block, primed steel, gypsum board and plywood. Membrane is self-sealing when penetrated or pressured with self-tapping screws.

.2 Physical properties

Colour	Blue or in accordance with manufacturer	Low Temperature Flexibility Temperature (-30^0C) (ONGC 37-GP-56 M)	Pass
Thickness	1.0 mm	Permeance to water vapour	49 ng/Pa.s.m^2
Application Temperature	5^0 C minimum	Overlaps Resistance to unsticking at 4^0C ASTM D903	Plus de 4378.4 (25.0) N/m
Service temperature	-40^0C to 70^0C	Water Absorption (ASTM D570)	0.2%
Elongation (ASTM D412 modified)	200 % minimum	Air permeance after test à 75 Pa (ASTM E-283-91)	0.0003 L/s.m^2
Tensile strength (membrane) (ASTM D412 modified)	3.4 MPa minimum	Air permeance after test à 3000 Pa (ASTM E-330-90)	No change
Tensile strength (film) (ASTM D882)	40 MPa minimum	Air permeance of assembly (ASTM E-2357)	0.005 L/s.m^2
Minimum puncture (membrane) (ASTM E154)	178 N minimum		
Water proofing CAN/CGSB-37.58-M86	Pass		

2.2 ACCESSORIES

.1 Membrane assembly, primer and sealants as recommended by the manufacturer.

Part 3 Execution

3.1 INSTALLATION

.1 Ensure that surfaces to receive membrane are free of oils, dust and are inspected before applying vapour retarder.

.2 Cure the concrete block masonry joints for at least 14 days. They must be dry before applying the membrane.

.3 Prime all surfaces to receive membrane with manufacturer's recommended primer and apply with roller or sheep wool, by brush or sprayer. Let the primer dry before applying membrane. Ensure all surfaces primed are covered by membrane the same day.

.4 Heat materials to ambient temperature to ease installation.

.5 Overlap lateral and end joints of membranes by 50 mm minimum.

.6 Align membrane, remove protection film and press firmly in place. Once the membrane has adhered, roll the whole surface including overlaps with a roller for plastic laminates to ensure total contact.

.7 At the end of each day's work, seal around openings at intersection line of membrane and substrate with manufacturer's recommended sealant.

.8 Ensure sheets form a continuous barrier. Where required, repair punctures and tears with sealant recommended by the manufacturer before covering the works.

3.2 OPENINGS AND EXTERIOR SURFACES

.1 Cut membrane according to dimensions of openings; make them overlap structural elements and seal joints.

3.3 CLEANING

.1 Proceed in accordance with Section 01 74 11 - Cleaning.

.2 Upon completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 07 92 00 – Joint Sealants.

1.2 REFERENCES

.1 American Society for Testing and Materials International, (ASTM)
- .1 ASTM C1185-08 (2012), Standard Test Methods for Sampling and Testing Non-Asbestos Fiber Cement Flat Sheet, Roofing and Siding, Shingles and Clapboards.
- .2 ASTM C1186-08 (2012) - Standard Specification for Flat Fiber-Cement Sheets.
- .3 ASTM E84-14, Standard Test Method for Surface Burning Characteristics of Building Materials.
- .4 ASTM E72-14a, Standard Test Methods for Conducting Strength Tests of Panels for Building Construction.
- .5 ASTM E119-14, Standard Test Methods for Fire Tests of Building Construction and Materials.
- .6 ASTM E136-12, Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750ûC.
- .7 ASTM E330-14, Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.

.2 Underwriters' Laboratory of Canada (ULC)
- .1 CAN/ULC S134-13, Standard Method of Exterior Wall Assemblies.

1.4 SUBMITTALS

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

.2 Shop drawings must indicate dimensions, profiles, attachment methods, anchors layout, joint positions, elevations, trim and closure pieces, fascias, metal furring, and related work.

.3 Submit duplicate 300 x 300 mm samples of facing material, of colour and profiles specified.

.4 Submit product data in accordance with Section 01 33 00 – Submittal Procedures.

1.5 SUBSTITUTION MATERIALS

.1 Provide replacement materials in accordance with Section 01 78 00 – Closeout Submittals.

.2 Provide three full-size replacement panels, packaged for each colour specified.

1.6 QUALITY ASSURANCE

.1 Manufacturer: company with experience in the production of composite cementitious panels for façades, with sufficient production capacity to produce and deliver required units without causing delay in work.

.2 Installer: person specializing in the installation of composite cementitious panels, approved by manufacturer

1.7 PROTECTION

.1 Protect pre-finished material during transportation, storage on site and installation.

.2 Material stored on site shall be stacked up on wood blocking and protected to ensure standing water doesn't stay on them.

1.8 WASTE MANAGEMENT AND DISPOSAL

.1 Work is governed by a Waste Management Plan in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal. Work of this Section must be done in accordance with that plan which will be implemented by the Construction Manager; all contractors and sub-contractors must comply with it's requirements.

1.9 WARRANTY

.1 For the Work of this Section 07 44 00, the 12 months warranty period prescribed in paragraph GC 3.13 of the General Conditions "C" is extended to 10 years.

Part 2 Products

2.1 COMPOSITE CEMENTITIOUS MODULAR PANELS

.1 Non-combustible panels, composed of a homogeneous mixture of cement, limestone power and natural organic fibres with no asbestos. Waterproofing treatment on all six sides.
.1 Thickness: 8 mm.

.2 Dimension: 3040 mm x 1220 mm and 2500 mm x 1220 mm.
.3 The fibre-cement boards shall be mass-coloured at the factory.
.4 Finish: smooth.
.5 Colour: dark gray, mass-coloured at the factory.
.6 Anchors: stainless steel rivets in colours matching the panels (4 mm x 18 mm, with head 15 mm).
.7 Test results:
Modulus of rupture: 24 Mpa (ASTM C120 and C1185).
Elasticity module: 16 Gpa (ASTM C120 and C1185).
Flexural tension: 8.0 Mpa,
Burning behaviour: nonflammable and incombustible (CAN/ULC S134, ASTM E84, E136 and NFPA 285).
NFPA Classification: Class A.
Moisture content: <0.006%.
Surface density: 15 kg/m^2.
Gross density: 1,8 g/cm^3.
Thermal expansion coefficient (ASTM E 228-95): 0,01 mm/m/°K.
Shrinkage (10 years): 1,7 mm /m of panel.
Water absorption: <0.012%.

2.2 ACCESSORIES

.1 Galvanized steel sheet elements, 1.2 mm thick minimum, composed of folded steel sheet in “L” shape to produce a “Z” or a “U” to adapt to the thickness of the insulation and thermally broken.

.2 Sub-girts of 1.12 mm thick, omega profile in accordance with the indications on the drawings.
.1 Finish: galvanized for non-exposed surfaces and pre-painted black for exposed surfaces.

.3 Enamelled sheet metal mouldings, flashing and trims, 0.65 mm thick, shaped according to the details on the drawings.

2.3 SEALANTS

.1 Refer to Section 07 92 00 – Joint Sealants.

Part 3 Execution

3.1 MANUFACTURER’S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written requirements, recommendations and specifications, including all available product technical bulletins.

3.2 PREPARATION

.1 Ensure weather and site conditions allow the installation of the panels.

.2 Protect adjacent surfaces against all damage caused by the execution of the work of this section.

.3 Protect all finished work against the infiltration of water at the end of each work day.

.4 Protect the wall covering installed for at least forty-eight (48) hours after installation.

.5 Protect the surfaces above the openings until the installation of the steel flashings and trims.

.6 Protect all conduit and pipe extremities, electrical boxes or other articles before starting the work.

3.3 INSTALLATION

.1 Install and attach sub-girts to the structural elements of the building taking into account the layout and dimensions of the boards.

.2 Install the steel trims, flashings and drip mould around the openings, starter or junction strips at point of meeting other materials as indicated on the drawings.

.3 The siding panels must be pre-cut at the factory. End panels cut on site shall be cut with an abrasive saw. Clean the cuts and impregnate with a protecting liquid in accordance with manufacturer's instructions.

.4 Install the panels from bottom to top and align the joints with the other façade components.

.5 Leave a 6 mm horizontal and vertical joint between the panels. The joints must be consistent and aligned. The horizontal joints must be protected with a metallic "L" strip.

.6 Drill 9.5 mm holes for all fasteners. Respect the minimum specified dimensions in relation to the edges of the boards. Follow the manufacturer's recommendations for the spacing of fasteners. Align the holes and fasteners horizontally and vertically in the panels.

.7 Fix the panels to the sub-girts with pre-finished head rivets. Install the rivets perpendicular to the panels so that their head rest completely flat on the surface of the panels.

.8 Caulk joints in between the panels and adjacent elements with a joint sealant in

accordance with Section 07 92 00 – Joint Sealants.

3.3 CLEANING

.1 Clean all the chips from the fasteners or from the cutting of the panels, daily.

.2 Remove excess sealant with solvent recommended by sealant manufacturer.

.3 Wash the soiled or stained siding panels with a warm water and soft detergent solution recommended by the manufacturer, using a soft and clean cloth.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 07 72 00 – Roof Accessories.

.2 Section 07 92 00 – Joint Sealants.

.3 Division 23 – Mechanical.

.4 Division 26 – Electrical.

1.2 REFERENCES

.1 Québec Master Roofers Association (AMCQ).

1.3 PERFORMANCE REQUIREMENTS

.1 Carry out required repairs to ensure a complete uninterrupted watertight, airtight and vapour-proof installation, ensuring continuity of existing membranes.

1.4 SUBMITTALS

.1 Product Data:

.1 Submit manufacturer's product data, specifications and documentation for the products prescribed in accordance with section 01 33 00 – Submittal Procedures.

1.4 QUALIFICATIONS

.1 Only qualified workers, certified in roofing work and employed by a company who has the appropriate equipment required can carry out the work.

.2 The contractor-roofer and his subcontractors must be members of the Québec Master Roofers Association and submit a proof to this effect to the Departmental Representative before starting the roofing work.

1.6 SITE CONDITIONS

.1 Use dry materials only and apply them when atmospheric conditions are not conducive to the penetration of humidity in the roofing system.

1.7 EXISTING WARRANTY

.1 All roof repair work shall be done in a manner to maintain the manufacturer's warranty.

1.8 WASTE MANAGEMENT AND DISPOSAL

.1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

Part 2 Products

2.1 GENERAL

.1 Compatibility between components to incorporate in roofing system and with the existing roofing system is essential.

2.2 MATERIALS

.1 The materials used for roof repairs shall be the same as those in the existing roof and in accordance with the indications on the drawings.

.2 The existing roof is composed of:
- .1 Soprema elastomeric bituminous membrane roofing system:
  - .1 Underlay: modified bitumen membrane, self adhesive under and thermofusion other, 180GR, glued with asphalt and nailed to parapets.
  - .2 Cap Sheet : Elastomeric bitumen membrane, heat-weldable bottom surface, color granular top surface, 250GR, torch welded
- .2 Support panel: 13 mm perlite board (Permalite by BMCA).
- .3 Sloped (1%) polystyrene insulation, minimum 19 mm thick, including the fireproof wood fibre board (BIZOFIBRE FR TYPE 2 by Fransyl).
- .4 Polyisocyanurate insulation of 64.5 mm.
- .5 Vapour barrier: perforated 2 ply bituminous felt no. 15 in hot asphalt.
- .6 Primer: Elastocol 700 for autoadhesive and Elastocol 500 for thermoweld.

.3 The materials used for the roof repairs shall result in performance equal or better than the existing.

.4 Materials used to close openings in the roof after removing of frames or equipment:
- .1 Bolted steel plate: see structure.
- .2 Repair mortar: two (2) components, quick-setting, cement-based, polymer modified, with the following characteristics:
  - .1 Density: 2000 kg/m^3 (ASTM C 185).
  - .2 Compression strength: 50 Mpa at 28 days (ASTM C 109).

.3 Reference product: Sikatop 122 Plus by Sika or approved equivalent.

Part 3 Execution

3.1 GENERAL

.1 Before starting the roof repair work, obtain approval to begin from the Construction Manager and from the Departmental Representative.

.2 Examine the support and carry out the preparatory work and install roofing materials in accordance with the recommendations of the AMCQ and the manufacturers.

.3 Strip and sweep clean surfaces to obtain a suitable substrate for the installation of the membrane.

.4 Cooperate with the appropriate trades to make waterproof joints and to ensure the continuity of sealing against water, air, vapour and thermal insulation.

.5 Repair the support, and if necessary, inform immediately the Departmental Representative in writing of any deficiencies.

3.2 SURFACE PREPARATION

.1 Remove deteriorated concrete, contaminants, oil, grease and other materials that could interfere with the adherence.

.2 Sections to repair must have at least 3 mm deep.

.3 Use a jackhammer to prepare the surface and sandblasting or other appropriate mechanical methods. Produce an aggregate breakage with a minimum surface profile of ±1.5 mm.

3.3 MIXING AND APPLICATION

.1 In accordance with the manufacturer's instructions.

3.4 ACCESSORIES

.1 Coordinate the work with section 07 72 00 – Roof accessories and the Mechanical and Electrical Divisions for the sleeves and finished supports.

.2 Install the sleeves and other accessories in accordance with the manufacturer’s recommendations.

.3 All metal work must be waterproof and installed with the required clearance to allow for thermal movement throughout the year.

3.5 CLEANING

.1 Remove asphalt from the finished surfaces.

.2 When finished surfaces are dirty because of the work of this section, contact the manufacturer of the surface involved to obtain the cleaning procedures and respect those documented instructions.

.3 Repair or replace finished surfaces that have been altered or otherwise damaged because of the work of this section.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 06 08 99 – Rough Carpentry for Minor Works.

.2 Section 07 55 00 – Roof repairs.

.3 Section 07 92 00 – Joint Sealants.

.4 Division 22 – Plumbing.

.5 Division 23 – Heating, Ventilation and Air Conditioning.

.6 Division 26 – Electrical.

1.2 REFERENCES

.1 Canadian Standards Association (CSA International)
- .1 CSA B272-93, Prefabricated self-sealing roof vent.

1.3 SUBMITTALS

.1 Shop Drawings
- .1 Provide required shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Shop drawings must show components and fastening devices, and indicate their dimensions and construction details.
- .3 Structural items, such as mechanical platforms and anchors for cables, including all connections and related fastening devices, must be conceived by a structural engineer who is a permanent member of l'Ordre des Ingénieurs du Québec. Each submitted drawing must be signed and sealed by this engineer.

.2 Product data sheets:
- .1 Submit complete product data sheets including installation instructions by manufacturer for each item.

.3 Certification after installation
- .1 After installation, provide a written certificate signed by the engineer responsible for the shop drawings, stating that all structural items were installed in compliance with signed shop drawings.

.4 Maintenance instructions
- .1 Provide maintenance instructions for each roof accessory to incorporate in the manual prescribed in Section 01 33 00 – Submittal Procedures.

1.4 WASTE MANAGEMENT AND DISPOSAL

.1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.2 Remove from site and dispose of packaging materials at appropriate recycling facilities.

Part 2 Products

2.1 MATERIALS

.1 Examine architectural, mechanical, and electrical drawings, and furnish roof accessories as required for a complete project. Items indicated on drawings are typical and do not show all specific conditions. They are there to establish a general level of acceptability for quality and performance of roofing accessories.

.2 Provide products complying with the following requirements:
- .1 Complying to CSA B272-93 (Prefabricated self-sealing roof vent);
- .2 Maintenance-free design.

.3 Removable cap stack jack flashing: Removable cap stack jack flashing 457 mm high; ’aluminum alloy 1100-0T mill finish, of 1.6 mm thick; conforming to standard CSA B272-93; with removable cap and EPDM base joint; bituminous painted deck flange; stainless steel vandal-proof cap.

.4 Flashing for hot pipe: 2 pieces, 457 mm high with integral deck flange and removable two-piece collar and matching fastenings; aluminum alloy 1100-0T mat finish, of 1,6 mm; of diameter adapted to hot pipe diameter; bituminous painted deck flange.

.5 Roof curbs: 610 mm high heavy gauge galvanized steel, continuous mitred and welded corner seams, integral base plate, pressure treated nailer, insulated with 38 mm thick rigid fibreglass board, complete with interior walls prefinished for curbs.
- .1 Insulated roof curb cover: complying to roof curb requirements and as recommended by manufacturer.

.6 Furnish other items as required, including pipe supports, duct flashings, penetrating cables flashing etc., of same quality as items specified.

.7 Walkways: recycled rubber pads, 12,7 mm x 760 mm x 1219 mm.

.8 Coordinate with appropriate architecture, mechanical and electrical sections to establish dimensions and correct locations of these items.

Part 3 Execution

3.1 INSTALLATION

.1 Coordinate with Section 07 55 05 – Roof Repairs and install roof accessories in conjunction with the modified bitumen roofing.

.2 Install by rigorously following manufacturer's instructions.

.3 Verify exact location of accessories on site in coordination with mechanical and electrical installers, by referring to applicable shop drawings and by on-site verification.

.4 Walkways: on existing roofs, carefully remove the gravel from the area to cover. Apply two layers of felt completely mop covered with the same asphalt used for the construction of the multi-ply roofing. Position the pads as a Japanese path, spacing them from 25.4 to 76.2 mm (1 to 3 in) to allow water drainage.

3.2 CLEANING

1 Upon completion of installation, remove from site all excess materials, rubbish, tools and security enclosures.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 04 04 99 – Masonry for Minor Works.

.2 Section 07 92 00 – Joint Sealants.

.3 Section 09 21 99 – Partitions for Minor Works.

.4 Fire stopping and smoke seal systems for mechanical and electrical installations.

1.2 REFERENCES

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

.2 Underwriter's Laboratories of Canada (ULC)
  .1 ULC-S115-1995, Fire Tests of Fire stop Systems.

1.3 DEFINITIONS

.1 Fire Stop Material: device intended to close off opening or penetration during fire or materials that fill openings in wall or floor assembly where penetration is by cables, cable trays, conduits, ducts and pipes and poke-through termination devices, including electrical outlet boxes along with their means of support through wall or floor openings.

.2 Single Component Fire Stop System: fire stop material that has Listed Systems Design and is used individually without use of high temperature insulation or other materials to create fire stop system.

.3 Multiple Component Fire Stop System: exact group of fire stop materials that are identified within Listed Systems Design to create on site fire stop system.

.4 Tightly Fitted; (ref: NBC Part 3.1.9.1.1 and 9.10.9.6.1): penetrating items that are cast in place in buildings of noncombustible construction or have "0" annular space in buildings of combustible construction.
  .1 Words "tightly fitted" should ensure that integrity of fire separation is such that it prevents passage of smoke and hot gases to unexposed side of fire separation.

1.4 SUBMITTALS

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

.2 Product Data:
- .1 Submit manufacturer's printed product literature, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.
- .2 Submit two (2) copies of WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 33 00 – Submittal Procedures.

.3 Shop Drawings:
- .1 Submit shop drawings to show location, proposed material, reinforcement, anchorage, fastenings and method of installation.
- .2 Construction details should accurately reflect actual job conditions.

.4 Samples:
- .1 Submit triplicate 300 x 300 mm samples showing actual fire stop material proposed for project.

.5 Quality assurance submittals: submit following in accordance with Section 01 45 00 - Quality Control.
- .1 Test reports: in accordance with CAN-ULC-S101 for fire endurance and CAN-ULC-S102 for surface burning characteristics.
  - .1 Submit certified test reports from approved independent testing laboratories, indicating compliance of applied fire stopping with specifications for specified performance characteristics and physical properties.
- .2 Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.
- .3 Manufacturer's Instructions: submit manufacturer's installation instructions and special handling criteria, installation sequence and cleaning procedures.
- .4 Manufacturer's Field Reports: submit to manufacturer's written reports within three (3) days of review, verifying compliance of Work, as described in PART 3 - FIELD QUALITY CONTROL.

1.5 QUALITY ASSURANCE

.1 Qualifications:
- .1 Installer: company specializing in fire stopping installations approved by manufacturer.

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

1.6 DELIVERY, STORAGE AND HANDLING

.1 Packing, shipping, handling and unloading:
- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Deliver, store and handle materials in accordance with manufacturer's written instructions.
- .3 Deliver materials to the site in undamaged condition and in original unopened containers, marked to indicate brand name, manufacturer and ULC markings.

.2 Storage and Protection:
- .1 Store materials indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
- .2 Replace defective or damaged materials with new.

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

1.7 ACCEPTABLE MATERIALS OR PRODUCTS

.1 Where materials are specified by trade name, refer to the Instructions to Tenderers for procedure to be followed in applying for approval of alternatives.

PART 2 PRODUCTS

2.1 GENERAL

.1 Provide fire stopping products that are compatible with one another, with the substrates forming the openings, and with the items, if any, penetrating through the fire stopping systems, under service and application conditions demonstrated by fire stopping products manufacturer based on testing and field experience.

.2 For each fire stopping system, provide components needed to install fill materials. Use only components specified by the fire stopping manufacturer and approved by the qualified testing agency for the designated fire-resistance systems.

.3 The fire stopping materials will either be sealed on site (integrated to the installation of concrete) or installed after. Provide all fire stopping materials to be sealed on site before pouring of concrete.

2.2 ACCEPTABLE MANUFACTURERS

.1 Subject to compliance with through penetration firestop systems and joint systems listed in the U.L.C Fire Resistance Directory – Volume III or UL Products Certified for Canada (cUL) Directory, provide products of the following manufacturers as identified below:
- .1 Hilti (Canada) Limited.
- .2 Tremco Sealants and Coatings.
- .3 3M Fire Protection Products.
- .4 Or other products as approved in addendum as described in Tenderer Instruction and in the directory mentioned in 2.2.1.

2.3 MATERIALS

.1 Use only firestop products that have been ULC or cUL tested for specific fire-rated construction conditions conforming to construction assembly type, penetrating item type, annular space requirements, and fire-rating involved for each separate instance.

.2 Sealed in place firestop devices for use with non-combustible and combustible plastic pipes (closed and open systems) penetrating concrete floors, the following products are acceptable:
- .1 Hilti Cast-In Place Firestop Device CP 680.
- .2 Substitute products listed in the U.L.C Fire Resistance Directory – Volume III or UL Products Certified for Canada (cUL) Directory and approved by an Addendum in accordance with the requirements in the Instructions to Bidders.

.3 Sealants and caulking materials for use with non-combustible items including steel pipe, copper pipe, rigid steel conduit and electrical metallic tubing (EMT), the following products are acceptable:
1. Hilti Intumescent Firestop Sealant FS-ONE.
2. Hilti Self-leveling Firestop Sealant CP 604.
3. Hilti Fire Foam CP 620.
4. 3M 2000 Firestop Sealant.
5. 3M Fire Barrier CP25WB.
6. Tremco Tremstop Fyre-Sil Sealant.
7. Substitute products listed in the U.L.C Fire Resistance Directory – Volume III or UL Products Certified for Canada (cUL) Directory and approved by an Addendum in accordance with the requirements in the Instructions to Bidders.

.4 Sealants and caulking materials for use with sheet metal ducts, the following products are acceptable:
- .1 Hilti Elastomeric Firestop Sealant CP 601S.
- .2 Hilti Flexible Firestop Sealant CP 606.
- .3 Hilti Intumescent Firestop Sealant FS-ONE.
- .4 Hilti Self-leveling Firestop Sealant CP 604.

.5 Substitute products listed in the U.L.C Fire Resistance Directory – Volume III or UL Products Certified for Canada (cUL) Directory and approved by an Addendum in accordance with the requirements in the Instructions to Bidders.

.5 Sealants, caulking and spray materials for use with fire-rated construction joints and other gaps, the following products are acceptable:
- .1 Hilti Firestop Joint Spray CP 672.
- .2 Hilti Elastomeric Firestop Sealant CP 601S.
- .3 Hilti Flexible Firestop Sealant CP 606.
- .4 Hilti Self-leveling Firestop Sealant CP 604.
- .5 3M 2000 Firestop Sealant.
- .6 Tremco Tremstop Fyre-Sil Sealant.
- .7 Substitute products listed in the U.L.C Fire Resistance Directory – Volume III or UL Products Certified for Canada (cUL) Directory and approved by an Addendum in accordance with the requirements in the Instructions to Bidders.

.6 Intumescent sealants and caulking materials for use with flexible cable or cable bundles, the following products are acceptable:
1. Hilti Intumescent Firestop Sealant FS-ONE.
2. Hilti Firestop Putty Stick (CP 618)
3. Hilti Fire Foam CP 620.
4. 3M Fire Barrier CP25WB.
5. Tremco Tremstop WBM Intumescent Sealant.
6. Substitute products listed in the U.L.C Fire Resistance Directory – Volume III or UL Products Certified for Canada (cUL) Directory and approved by an Addendum in accordance with the requirements in the Instructions to Bidders.

.7 Wall opening protective materials for use with cUL. / ULC listed metallic and specified nonmetallic outlet boxes, the following products are acceptable:
- .1 Hilti Firestop Putty Pad CP 617.
- .2 Substitute products listed in the U.L.C Fire Resistance Directory – Volume III or UL Products Certified for Canada (cUL) Directory and approved by an Addendum in accordance with the requirements in the Instructions to Bidders.

.8 Firestop collar or wrap devices attached to assembly around combustible plastic pipe (closed and open piping systems) tested to 50 Pa. differential, the following products are acceptable:
- .1 Hilti Firestop Collar CP 642.
- .2 Hilti Firestop Collar CP 643.
- .3 Hilti CP 645 Wrap Strips.
- .4 3M Fire Barrier Barrier PPD Plastic Pipe Device.
- .5 Substitute products listed in the U.L.C Fire Resistance Directory – Volume III or UL Products Certified for Canada (cUL) Directory and approved by an Addendum in accordance with the requirements in the Instructions to Bidders.

.9 Materials used for large size/complex penetrations made to accommodate cable trays, multiple steel and copper pipes, electrical busways in raceways, the following products are acceptable:
- .1 Hilti Firestop Mortar CP 637.
- .2 Hilti Firestop Block FS 657.
- .3 Hilti Fire Foam CP 620.
- .4 3M Firestop Foam 2001.
- .5 3M Fire Barrier Composite Sheet CS-195.
- .6 Substitute products listed in the U.L.C Fire Resistance Directory – Volume III or UL Products Certified for Canada (cUL) Directory and approved by an Addendum in accordance with the requirements in the Instructions to Bidders.

.10 Non curing, re-penetrable materials used for large size/complex penetrations made to accommodate cable trays, multiple steel and copper pipes, electrical busways in raceways, the following products are acceptable:
- .1 Hilti Firestop Block FS 657.
- .2 Substitute products listed in the U.L.C Fire Resistance Directory – Volume III or UL Products Certified for Canada (cUL) Directory and approved by an Addendum in accordance with the requirements in the Instructions to Bidders.

.11 For combustible pipes, tubing, ducts, chimneys, optical fiber cables, electrical wires and cables, totally enclosed non-combustible raceways, electrical outlet boxes and similar building services that penetrate through a fire separation provide a fire-stop system with a ‘F’ Rating as determined by ULC or cUL as indicated below:

Fire Resistance Rating of Separation	Required ULC or cUL “F” Rating of Firestopping Assembly
30 minutes	20 minutes
45 minutes	45 minutes
1 hour	45 minutes
1.5 hours	1 hour
2 hours	1.5 hours
3 hours	2 hours
4 hours	3 hours

.12 For combustible pipe penetrations through a fire separation provide a fire-stop system with a ‘F’ Rating as determined by ULC or cUL (when tested with a pressure differential of 50 Pa between exposed and unexposed sides) which is equal to the fire resistance rating of the construction being penetrated.

.13 For penetrations through a fire wall or horizontal fire separation provide a firestop system with a ‘FT’ rating as determined by ULC or cUL which is equal to the fire resistance rating of the construction being penetrated.

.14 For joints provide a fire-stop system with an Assembly Rating as determined by CAN4-S115-M, ULC-S115-M or UL 2079 which is equal to the fire resistance rating of the construction being penetrated.

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 PREPARATION

.1 Examine sizes and conditions of voids to be filled to establish correct thicknesses and installation of materials.
  .1 Ensure that substrates and surfaces are clean, dry and frost free.

.2 Prepare surfaces in contact with fire stopping materials and smoke seals to manufacturer's instructions.

.3 Maintain insulation around pipes and ducts penetrating fire separation without interruption to vapour barrier.

.4 Mask where necessary to avoid spillage and over coating onto adjoining surfaces; remove stains on adjacent surfaces.

3.3 INSTALLATION

.1 Install fire stopping and smoke seal material and components in accordance with manufacturer's certified tested system listing.

.2 Seal holes or voids made by through penetrations, poke-through termination devices, and unpenetrated openings or joints to ensure continuity and integrity of fire separation are maintained.

.3 Provide temporary forming as required and remove forming only after materials have gained sufficient strength and after initial curing.

.4 Tool or trowel exposed surfaces to neat finish.

.5 Remove excess compound promptly as work progresses and upon completion.

3.4 SEQUENCES OF OPERATION

.1 Proceed with installation only when submittals have been reviewed by Departmental Representative.

.2 Install floor fire stopping before interior partition erections.

.3 Metal deck bonding: fire stopping to precede spray applied fireproofing to ensure required bonding.

.4 Mechanical pipe insulation: certified fire stop system component.
- .1 Ensure pipe insulation installation precedes fire stopping.

3.5 FIELD QUALITY CONTROL

.1 Inspections: notify Departmental Representative when ready for inspection and prior to concealing or enclosing fire stopping materials and service penetration assemblies.

.2 Manufacturer's Field Services:
- .1 Obtain written report from manufacturer verifying compliance of Work, in handling, installing, applying, protecting and cleaning of product and submit Manufacturer's Field Reports as described in PART 1 - SUBMITTALS.
- .2 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.
- .3 Schedule site visits, to review Work, as directed in PART 1 - QUALITY ASSURANCE.

3.6 CLEANING

.1 Proceed in accordance with Section 01 74 11 - Cleaning.

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

.3 Remove temporary dams after initial set of fire stopping and smoke seal materials.

3.7 SCHEDULE

.1 Fire stop and smoke seal at:
- .1 Penetrations through fire-resistance rated masonry, concrete, and gypsum board partitions and walls.
- .2 Top of fire-resistance rated masonry and gypsum board partitions.

.3 Intersection of fire-resistance rated masonry and gypsum board partitions.
.4 Control and sway joints in fire-resistance rated masonry and gypsum board partitions and walls.
.5 Penetrations through fire-resistance rated floor slabs, ceilings and roofs.
.6 Openings and sleeves installed for future use through fire separations.
.7 Around mechanical and electrical assemblies penetrating fire separations.
.8 Rigid ducts: greater than 129 cm^2: fire stopping to consist of bead of fire stopping material between retaining angle and fire separation and between retaining angle and duct, on each side of fire separation.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 06 40 00 – Architectural Woodwork.

.2 Section 08 11 00 – Metal Doors and Frames.

.3 Section 09 21 99 – Partitions for Minor Works.

.4 Section 22 42 01 – Plumbing Specialties and Accessories.

1.2 REFERENCES

.1 American Society for Testing and Materials International, (ASTM):
- .1 ASTM C 834-05, Standard Specification for Latex Sealants..
- .2 ASTM C 919-02, Standard Practice for Use of Sealants in Acoustical Applications.
- .3 ASTM C 920-05, Standard Specification for Elastomeric Joint Sealants.

.2 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-19.13-M87, Sealing Compound, One-component, Elastomeric, Chemical Curing.
- .2 CAN/CGSB-19.17-M90, One-Component Acrylic Emulsion Base Sealing Compound.
- .3 CAN/CGSB-19.24-M90, Multi-component, Chemical Curing Sealing Compound.

.3 General Services Administration (GSA) - Federal Specifications (FS)
- .1 FS-SS-S-200-E(2)1993, Sealants, Joint, Two-Component, Jet-Blast-Resistant, Cold Applied, for Portland Cement Concrete Pavement.

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

1.4 SUBMITTALS

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

.2 Manufacturer's product data to describe.
- .1 Caulking compound.
- .2 Primers.
- .3 Sealing compound, each type, including compatibility when different sealants are in contact with each other.

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

.4 Submit triplicate samples of each type of material and colour.

.5 Cured samples of exposed sealants for each color where required to match adjacent material.

.6 Submit manufacturer's instructions in accordance with Section 01 33 00 - Submittal Procedures.
.1 Instructions to include installation instructions for each product used.

1.5 QUALITY ASSURANCE/ MOCK-UP

.1 Construct mock-up in accordance with Section 01 45 00 - Quality Control.

.2 Construct mock-up to show location, size, shape and depth of joints complete with back-up material, primer, caulking and sealant.

.3 Mock-up will be used:
.1 To judge workmanship, substrate preparation, operation of equipment and material application.

.4 Locate where indicated.

.5 Allow 24 hours for inspection of mock-up by Departmental Representative before proceeding with sealant work.

.6 When accepted, mock-up will demonstrate minimum standard of quality required for this Work. Approved mock-up may not remain as part of finished Work. Remove mock-up and dispose of materials when no longer required and when directed by Departmental Representative.

1.6 DELIVERY, STORAGE AND HANDLING

.1 Deliver, handle, store and protect materials in accordance with Section 01 61 00 - Common Product Requirements.

.2 Deliver and store materials in original wrappings and containers with manufacturer's seals and labels, intact. Protect from freezing, moisture, water and contact with ground or floor.

1.7 WASTE MANAGEMENT AND DISPOSAL

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

.2 Remove from site and dispose of packaging materials at appropriate recycling facilities.

.3 Collect and separate for disposal paper, plastic, polystyrene and corrugated cardboard packaging material in appropriate on-site bins for recycling in accordance with Waste Management Plan.

.4 Place materials defined as hazardous or toxic in designated containers.

.5 Handle and dispose of hazardous materials in accordance with the CEPA, TDGA, Regional and Municipal regulations.

.6 Unused sealant material must not be disposed of into sewer system, into streams, lakes, onto ground or in other location where it will pose health or environmental hazard.

.7 Divert unused joint sealing material from landfill to official hazardous material collections site approved by Departmental Representative.

.8 Empty plastic joint sealer containers are not recyclable. Do not dispose of empty containers with plastic materials destined for recycling.

.9 Fold up metal banding, flatten, and place in designated area for recycling.

1.8 PROJECT CONDITIONS

.1 Environmental Limitations:
- .1 Do not proceed with installation of joint sealants under following conditions:
  - .1 When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer or are below 4.4 degrees C.
  - .2 When joint substrates are wet.

.2 Joint-Width Conditions:
- .1 Do not proceed with installation of joint sealants where joint widths are less than those allowed by joint sealant manufacturer for applications indicated.

.3 Joint-Substrate Conditions:
- .1 Do not proceed with installation of joint sealants until contaminants capable of interfering with adhesion are removed from joint substrates.

1.9 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 Labour 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 Ventilate area of work as directed by Departmental Representative by use of approved portable supply and exhaust fans.

1.10 WARRANTY

.1 For the work of this Section 07 92 00 – Joint Sealants, the 12 month warranty is extended to 60 months.

.2 For each section that have caulking work, provide a warranty certifying that the sealing works are guaranteed against the lost of watertightness, cracking, spalling, lost of consistency, shrinking, sagging, bond and cohesion loss, discolouration and soiling of adjacent surfaces.

PART 2 PRODUCTS

2.1 SEALANT MATERIALS

.1 Do not use caulking that emits strong odours, contains toxic chemicals or is not certified as mould resistant in air handling units.

.2 When low toxicity caulks are not possible, confine usage to areas which off gas to exterior, are contained behind air barriers, or are applied several months before occupancy to maximize off gas time.

.3 Where sealants are qualified with primers use only these primers.

2.2 SEALANT MATERIAL DESIGNATIONS

.1 Sealants acceptable for use on this project except CAN/CGSB-19.1 and CAN/CGSB-19.18 must be listed on CGSB Qualified Products List issued by CGSB Qualification Board for Joint Sealants. Where sealants are qualified with primers use only these primers.

.2 Product no. 1:
- .1 Three components sealing compound, chemical curing, epoxidized polyurethane terpolymer to CAN/CGSB-19.24.
  - .1 Applications:
    - .1 Expansion and control joints in interior and exterior masonry.
    - .2 Joints in between outer door, window, curtain-wall and louvre and other frames and exterior masonry walls.
    - .3 Joints in prefabricated decorative concrete components.
    - .4 Joints in between masonry and framework.
    - .5 Joints at masonry angle support or exterior panels.
    - .6 Joints in between concrete structures.
    - .7 All various joints where indicated on drawings but not indicated in other Sections.
    - .8 Joints in between masonry components.

.3 Product no. 2:
- .1 Multi-components polyurethane sealing compound, self-leveling, to US Federal Specification TT-S-00227E: ASTM C920-79, Type M, Grade P, Class 25, SS-S-200D, Type H.
  - .1 Applications:
    - .1 Control or contraction joints in ceramic, granit or concrete floors.
    - .2 Horizontal joints subject to circulation, such as door sills.
    - .3 Joints in between masonry components.

.4 Product no. 3:
- .1 Silicone, one component sealing compound, average modulus, with fungicide for sanitary installations, to CAN/CGSB-19.13.
  - .1 Applications:
    - .1 Joints in between countertop and backsplash.
    - .2 Joints in between backsplash and wall.
    - .3 Joints between plumbing fixtures and other surfaces.
    - .4 Joints around mirors.
    - .5 Sealing plumbing pipe penetrations in gypsum work under decorative flange.

.5 Product no. 4:
- .1 Modified polyurethane elastomeric sealing compound, to CAN/CGSB-19.13.
  - .1 Applications:
    - .1 Joints in between interior door, glass partition or other frames and material other than gypsum.
    - .2 Joints between gypsum and metal works.

.6 Product no. 5:
- .1 Latex acrylic sealing compound, quick-drying and minimum shrinking, to CAN/CGSB-19 GP-17M.
  - .1 Applications: interior finish joint witl little mouvment.

.1 In between interior door and glass partition frames and gypsum board or plaster.
.2 Unless specified otherwise, use indoor where the sealant must be painted.
.3 Acoustic sealant for apparent works.

.7 Product no. 6:
.1 Fireproof sealing compound: in accordance with section 07 84 00 – Fire Protection.

.8 Preformed compressible and non-compressible back-up materials:
.1 Polyethylene, urethane, neoprene or vinyl foam:
.1 Extruded cell foam backer rod.
.2 Size: oversize 30 to 50%.
.2 Neoprene or butyl rubber:
.1 Round solid rod, Shore A hardness 70.
.3 High density foam:
.1 Extruded closed cell polyvinyl chloride (PVC), extruded polyethylene, closed cell, Shore A hardness 20, tensile strength 140 to 200 kPa, extruded polyolefin foam, 32 kg/m^3 density, or neoprene foam backer, size as recommended by manufacturer.
.4 Bond breaker tape:
.1 Polyethylene bond breaker tape which will not bond to sealant.
.2 Sealing around plumbing pipe penetrations in gypsum work, under decorative cover.

2.3 COLOURS

.1 As selected by Departmental Representative.

2.4 JOINT CLEANER

.1 Non-corrosive and non-staining type, compatible with joint forming materials and sealant in accordance with sealant manufacturer's written recommendations.

.2 Primer: in accordance with sealant manufacturer's written recommendations.

Part 3 Execution

3.1 PROTECTION

.1 Protect installed Work of other trades from staining or contamination.

3.2 SURFACE PREPARATION

.1 Examine joint sizes and conditions to establish correct depth to width relationship for installation of backup materials and sealants.

.2 Clean bonding joint surfaces of harmful matter substances including dust, rust, oil grease, and other matter which may impair Work.

.3 Do not apply sealants to joint surfaces treated with sealer, curing compound, water repellent, or other coatings unless tests have been performed to ensure compatibility of materials. Remove coatings as required.

.4 Ensure joint surfaces are dry and frost free.

.5 Prepare surfaces in accordance with manufacturer's directions.

3.3 PRIMING

.1 Where necessary to prevent staining, mask adjacent surfaces prior to priming and caulking.

.2 Prime sides of joints in accordance with sealant manufacturer's instructions immediately prior to caulking.

3.4 BACKUP MATERIAL

.1 Apply bond breaker tape where required to manufacturer's instructions.

.2 Install joint filler to achieve correct joint depth and shape, with approximately 30% compression.

3.5 MIXING

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

3.6 APPLICATION

.1 Sealant.
- .1 Apply sealant in accordance with manufacturer's written instructions.
- .2 Mask edges of joint where irregular surface or sensitive joint border exists to provide neat joint.
- .3 Apply sealant in continuous beads.
- .4 Apply sealant using gun with proper size nozzle.
- .5 Use sufficient pressure to fill voids and joints solid.

.6 Form surface of sealant with full bead, smooth, free from ridges, wrinkles, sags, air pockets, embedded impurities.
.7 Tool exposed surfaces before skinning begins to give slightly concave shape.
.8 Remove excess compound promptly as work progresses and upon completion.

.2 Curing.
.1 Cure sealants in accordance with sealant manufacturer's instructions.
.2 Do not cover up sealants until proper curing has taken place.

.3 Cleanup.
.1 Clean adjacent surfaces immediately and leave Work neat and clean.
.2 Remove excess and droppings, using recommended cleaners as work progresses.
.3 Remove masking tape after initial set of sealant.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 07 92 00 – Joint Sealants.

.2 Section 08 71 00 – Door Hardware.

.3 Section 08 80 50 – Glazing.

.4 Section 09 21 99 – Gypsum partitions and ceiling for Minor Works.

.5 Section 09 91 99 – Painting for Minor Works.

.6 Section 22 42 01 – Plumbing Specialties and Accessories.

1.2 REFERENCES

.1 American Society for Testing and Materials International (ASTM)
- .1 ASTM A 653/A 653M-06a, Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- .2 ASTM B 29-03, Standard Specification for Refined Lead.
- .3 ASTM B 749-03, Standard Specification for Lead and Lead Alloy Strip, Sheet and Plate Products.

.2 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-1.181-99, Ready-Mixed Organic Zinc-Rich Coating.
- .2 CGSB 41-GP-19Ma-84, Rigid Vinyl Extrusions for Windows and Doors.

.3 Canadian Standards Association (CSA International)
- .1 CSA-G40.20-04/G40.21-04, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
- .2 CSA W59-03, Welded Steel Construction (Metal Arc Welding).

.4 Canadian Steel Door Manufacturers' Association (CSDMA)
- .1 CSDMA, Recommended Specifications for Commercial Steel Doors and Frames, 2000.
- .2 CSDMA, Selection and Usage Guide for Commercial Steel Doors, 1990.

.5 National Fire Protection Association (NFPA)
- .1 NFPA 80-99, Standard for Fire Doors and Fire Windows.
- .2 NFPA 252-03, Standard Methods of Fire Tests of Door Assemblies.

.6 South Coast Air Quality Management District (SCAQMD), California State
- .1 SCAQMD Rule 1113-04, Architectural Coatings.
- .2 SCAQMD Rule 1168-05, Adhesives and Sealants Applications.

.8 Underwriters' Laboratories of Canada (ULC)
- .1 CAN/ULC-S701-01, Standard for Thermal Insulation, Polystyrene, Boards and Pipe Covering.
- .2 CAN/ULC-S702-97, Standard for Thermal Insulation, Mineral Fibre, for Buildings.
- .3 CAN/ULC-S704-01, Standard for Thermal Insulation, Polyurethane and Polyisocyanurate Boards, Faced.
- .4 CAN4-S104-M80, Standard Method for Fire Tests of Door Assemblies.
- .5 CAN4-S105-M85, Standard Specification for Fire Door Frames Meeting the Performance Required by CAN4-S104.

1.3 SYSTEM DESCRIPTION

.1 Design Requirements:
- .1 Design exterior frame assembly to accommodate to expansion and contraction when subjected to minimum and maximum surface temperature of -35 degrees C to 35 degrees C.
- .2 Maximum deflection for exterior steel entrance screens under wind load of 1.2 kPa not to exceed 1/175th of span.
- .3 Steel fire rated doors and frames: labelled and listed by an organization accredited by Standards Council of Canada in conformance with CAN4-S104 for ratings specified or indicated.
- .4 Provide fire labelled frames for openings requiring fire protection ratings. Test products in conformance with CAN4-S104 and listed by nationally recognized agency having factory inspection services.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Provide product data: in accordance with Section 01 33 00 - Submittal Procedures.

.3 Provide shop drawings: in accordance with Section 01 33 00 - Submittal Procedures.
- .1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Québec, Canada.
- .2 Indicate each type of door, material, steel core thicknesses, mortises, reinforcements, location of exposed fasteners, openings, glazed, louvred, arrangement of hardware, fire rating and finishes.
- .3 Indicate each type frame material, core thickness, reinforcements, glazing stops, location of anchors and exposed fastenings, reinforcing, fire rating and finishes.
- .4 Include schedule identifying each unit, with door marks and numbers relating to numbering on drawings and door schedule.
- .5 Submit test and engineering data, and installation instructions.

.4 Provide samples in accordance with Section 01 33 00 - Submittal Procedures.

.5 Submit one 300 x 300 mm corner sample of each type of frame.
.1 Show butt cutout, glazing stops and snap-on trim with clips.

1.5 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.

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

PART 2 PRODUCTS

2.1 MATERIALS

.1 Hot dipped galvanized steel sheet: to ASTM A 653M, ZF75, minimum base steel thickness in accordance with CSDMA Table 1 - Thickness for Component Parts, thickness 1,6mm, welded for commercial door and thickness 2,0mm, welded for door and frame of security door level 2.

.2 Reinforcement [channel]: to CSA G40.20/G40.21, Type 44W, coating designation to ASTM A 653M, ZF75.

2.2 DOOR CORE MATERIALS

.1 Honeycomb construction: uninsulated panel (interior doors)
.1 Structural small cell, 24.5 mm maximum kraft paper 'honeycomb', weight: 36.3 kg per ream minimum, density: 16.5 kg/m^2 minimum sanded to required thickness.

.2 Security door level 2 : provide continuous vertical steel plate stiffener, same gaugeas door panel install at 300mm c.c.

.2 Temperature rise rated (TRR): core composition to limit temperature rise on unexposed side of door to 250 degrees C at 60 minutes. Core to be tested as part of a complete door assembly, in accordance with CAN4-S104, covering Standard Method of Tests of Door Assemblies and listed by nationally recognized testing agency having factory inspection service.

2.3 ADHESIVES

.1 Honeycomb cores and steel components: heat resistant, spray grade, resin reinforced neoprene/rubber (polychloroprene) based, low viscosity, contact cement.
  .1 Adhesive: maximum VOC content 50 g/L.

2.4 PRIMER

.1 Rustproof touch-up prime CAN/CGSB-1.181.
  .1 Maximum VOC limit 50 g/L.

2.5 PAINT

.1 Field paint steel doors and frames in accordance with Section 09 91 99 – Painting for Minor Works. Protect weatherstrips from paint. Provide final finish free of scratches or other blemishes.
  .1 Maximum VOC emission level 50 g/L.

2.6 ACCESSORIES

.1 Door silencers: single stud rubber/neoprene type.

.2 Exterior and interior top and bottom caps: steel, flush with top of door.

.3 Fabricate glazing stops as formed channel, minimum 16 mm height, accurately fitted, butted at corners and fastened to frame sections with vandal resistant sheet metal screws.

.4 Metallic paste filler: to manufacturer's standard.

.5 Fire labels: metal riveted.

.6 Sealant: in accordance with Section 07 92 00 – Joint Sealants.
  .1 Maximum VOC limit 250 g/L.

.7 Glazing: in accordance with Section 08 80 50 - Glazing.

.8 Make provisions for glazing as indicated and provide necessary glazing stops.

2.7 FRAMES FABRICATION - GENERAL

.1 Fabricate frames in accordance with CSDMA specifications.

.2 Fabricate frames to profiles and maximum face sizes as indicated.

.3 Interior frames: 1.6 mm welded type construction for commercial door and gauge 14 welded for frame of door security level 2.

.4 Blank, reinforce, drill and tap frames for mortised, templated hardware, and electronic hardware using templates provided by finish hardware supplier. Reinforce frames for surface mounted hardware.

.1 Security door level 2: provide reinforcement on latches side : steel plate 6.4mm x 25mm x 610mm welded to door frame.

.5 Protect mortised cutouts with steel guard boxes.

.6 Prepare frame for door silencers, 3 for single door, 2 at head for double door.

.7 Manufacturer's nameplates on frames and screens are not permitted.

.8 Conceal fastenings except where exposed fastenings are indicated.

.9 Provide factory-applied touch up primer at areas where zinc coating has been removed during fabrication.

2.8 FRAME ANCHORAGE

.1 Provide appropriate anchorage to floor and wall construction.

.2 Locate each wall anchor immediately above or below each hinge reinforcement on hinge jamb and directly opposite on strike jamb.

.3 Provide 2 anchors for rebate opening heights up to 1520 mm and 1 additional anchor for each additional 760 mm of height or fraction thereof.

.4 Locate anchors for frames in existing openings not more than 150 mm from top and bottom of each jambs and intermediate at 660 mm on centre maximum.

2.9 FRAMES: WELDED TYPE

.1 Welding in accordance with CSA W59.

.2 Accurately mitre or mechanically joint frame product and securely weld on inside of profile.

.3 Cope accurately and securely weld butt joints of mullions, transom bars, centre rails and sills.

.4 Grind welded joints and corners to a flat plane, fill with metallic paste and sand to uniform smooth finish.

.5 Securely attach floor anchors to inside of each jamb profile.

.6 Weld in 2 temporary jamb spreaders per frame to maintain proper alignment during shipment.

2.10 DOOR FABRICATION - GENERAL

.1 Doors: swing type, flush, with provision for glass and/or louvre openings as indicated.

.2 Fabricate doors with longitudinal edges welded. Seams: grind welded joints to a flat plane, fill with metallic paste filler and sand to a uniform smooth finish.

.3 Blank, reinforce, drill doors and tap for mortised, templated hardware and electronic hardware.

.4 Factory prepare holes 12.7 mm diameter and larger except mounting and through-bolt holes, on site, at time of hardware installation.

.5 Reinforce doors where required, for surface mounted hardware. Provide inverted, recessed, spot welded channels to top and bottom of interior doors.

.6 Provide factory-applied touch-up primer at areas where zinc coating has been removed during fabrication.

.7 Provide fire labelled doors for those openings requiring fire protection ratings, as scheduled. Test such products in conformance with CAN4-S104 and list by nationally recognized agency having factory inspection service and construct as detailed in Follow-Up Service Procedures/Factory Inspection Manuals issued by listing agency to individual manufacturers.

.8 Manufacturer's nameplates on doors are not permitted.

2.11 DOORS: HONEYCOMB CORE CONSTRUCTION

.1 Form face sheets for interior doors from thickness 1,6mm, welded for commercial door and gauge 14, welded for door and frame of security door level 2with honeycomb core laminated under pressure to face sheets.

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 GENERAL

.1 Install labelled steel fire rated doors and frames to NFPA 80 except where specified otherwise.

.2 Install doors and frames to CSDMA Installation Guide.

3.3 FRAME INSTALLATION

.1 Set frames plumb, square, level and at correct elevation.

.2 Secure anchorages and connections to adjacent construction.

.3 Brace frames rigidly in position while building-in. Install temporary horizontal wood spreader at third points of door opening to maintain frame width. Provide vertical support at centre of head for openings over 1200 mm wide. Remove temporary spreaders after frames are built-in.

.4 Make allowances for deflection of structure to ensure structural loads are not transmitted to frames.

.5 Caulk perimeter of frames between frame and adjacent material.

3.4 DOOR INSTALLATION

.1 Install doors and hardware in accordance with hardware templates and manufacturer's instructions and Section 08 71 00 - Door Hardware.

.2 Provide even margins between doors and jambs and doors and finished floor and thresholds as follows.
- .1 Hinge side: 1.0 mm.
- .2 Latchside and head: 1.5 mm.
- .3 Finished floor and/or thresholds: 13 mm.

.3 Adjust operable parts for correct function.

.4 Install louvres.

3.5 FINISH REPAIRS

.1 Touch up with primer finishes damaged during installation.

.2 Fill exposed frame anchors and surfaces with imperfections with metallic paste

filler and sand to a uniform smooth finish.

3.6 GLAZING

.1 Install glazing for doors and frames in accordance with Section 08 80 50 - Glazing.

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 for access door components and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Shop Drawings:

.1 Submit catalogue details for each type of door illustrating profiles, dimensions and methods of assembly.

.4 Samples:

.1 Submit for review and acceptance of each unit.

.2 Samples will be returned for inclusion into work.

.3 Submit 1 of each type of hand entry access door.

.4 Submit one 300 x 300 mm corner sample of each type of body entry door.

1.2 CLOSEOUT SUBMITTALS

.1 Operation and Maintenance Data: submit operation and maintenance data for cleaning and maintenance of stainless steel finishes for incorporation into manual.

1.3 DELIVERY, STORAGE AND HANDLING

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

.2 Storage and Handling Requirements:

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

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

.3 Apply temporary protective coating to finished surfaces. Remove coating after installation.

.1 Use coatings in accordance with manufacturer's written instructions that are easily removable.

.2 Leave protective coating in place until final cleaning of building.

.4 Replace defective or damaged materials with new.

Part 2 Products

2.1 ACCESS DOORS

.1 Sizes: as follows unless indicated:

.1 For body entry: 600 x 600 mm minimum.

.2 For hand entry: 300 x 300 mm minimum.

.2 Construction: rounded safety corners, concealed hinges, screwdriver latch, anchor straps, able to open 180 degrees.

.3 Materials:

.1 Tiled or marble surfaces: stainless steel with brushed satin.

.2 Other areas: prime coated steel.

.1 Primer: VOC SCAQMD Rule 1113.

2.2 EXCLUSIONS

.1 Lay-in tile ceilings: use unobtrusive identification locators.

Part 3 Execution

3.1 EXAMINATION

.1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for access door 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 Installation: locate access doors within view of equipment and ensure equipment is accessible for operating, inspecting, adjusting, servicing without using special tools.

.1 Tiled surfaces: in accordance with Section 09 30 13 - Ceramic Tiling and 09 30 15 - Quarry and Paver Tiling.

.2 Install masonry surfaces: in accordance with Section 04 05 00 - Common Work Results for Masonry.

.3 Install gypsum board surfaces: in accordance with Section 09 21 16 - Gypsum Board Assemblies and 09 23 00 - Gypsum Plastering.

3.3 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

3.4 PROTECTION

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

.2 Repair damage to adjacent materials caused by access door installation.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 08 11 10 – Metal Doors and Frames.

.2 Section 26 05 00 – Common Work Results for Electrical.

.3 Section 26 05 34 – Conduits, Conduit Fastenings and Conduit Fittings.

1.2 REFERENCES

.1 ANSI/BHMA

.1 ANSI/BHMA A156.1-2013, American National Standard for Butts and Hinges.

.2 ANSI/BHMA A156.2-2011, Bored and Preassembled Locks and Latches.

.3 ANSI/BHMA A156.3-2014, Exit Devices.

.4 ANSI/BHMA A156.4-2013, Door Controls - Closers.

.5 ANSI/BHMA A156.6-2010, Architectural Door Trim.

.6 ANSI/BHMA A156.8-2011, Door Controls - Overhead Stops and Holders.

.7 ANSI/BHMA A156.10-2011, Power Operated Pedestrian Doors.

.8 ANSI/BHMA A156.12-2013, Interconnected Locks and Latches.

.9 ANSI/BHMA A156.13-2012, Mortise Locks and Latches Series 1000.

.10 ANSI/BHMA A156.14-2013, Sliding and Folding Door Hardware.

.11 ANSI/BHMA A156.15-2015, Release Devices - Closer Holder, Electromagnetic and Electromechanical.

.12 ANSI/BHMA A156.16-2013, Auxiliary Hardware.

.13 ANSI/BHMA A156.18-2012, Materials and Finishes.

.14 ANSI/BHMA A156.19-2013, Power Assist and Low Energy Power - Operated Doors.

.15 ANSI/BHMA A156.20-2006, Strap and Tee Hinges and Hasps.

.16 ANSI/BHMA A156.36-2010, Auxiliary Locks and Associated Products.

.2 Canadian Steel Door and Frame Manufacturers' Association (CSDMA)

.1 CSDMA/ACFPA, Recommended Dimensional Standards for Commercial Steel Doors and Frames - 2009.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:

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

.3 Samples:
- .1 Submit for review and acceptance of each unit.
- .2 Samples will be returned for inclusion into work.
- .3 Identify each sample by label indicating applicable specification paragraph number, brand name and number, finish and hardware package number.
- .4 After approval samples will be returned for incorporation in Work.

.4 Hardware List:
- .1 Submit contract hardware list.
- .2 Indicate specified hardware, including make, model, material, function, size, finish and other pertinent information.

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

.6 Manufacturer's Instructions: submit manufacturer's installation instructions.

1.4 CLOSEOUT SUBMITTALS

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

.2 Operation and Maintenance Data: submit operation and maintenance data for door hardware for incorporation into manual.

1.5 MAINTENANCE MATERIALS SUBMITTALS

.1 Extra Stock Materials:
- .1 Supply maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Tools:
  - .1 Supply 2 sets of wrenches for door closers, locksets and fire exit hardware.

1.6 QUALITY ASSURANCE

.1 Regulatory Requirements:
- .1 Hardware for doors in fire separations and exit doors certified by a Canadian Certification Organization accredited by Standards Council of Canada.

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

1.7 DELIVERY, STORAGE AND HANDLING

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

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

.3 Package items of hardware including fastenings, separately or in like groups of hardware, label each package as to item definition and location.

.4 Storage and Handling Requirements:
- .1 Store materials off ground indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
- .2 Store and protect door hardware from nicks, scratches, and blemishes.
- .3 Protect prefinished surfaces with wrapping or strippable coating.
- .4 Replace defective or damaged materials with new.

.5 Packaging Waste Management: remove as specified in Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

PART 2 PRODUCTS

2.1 HARDWARE ITEMS

.1 Use one manufacturer's products only for similar items.

2.2 DOOR HARDWARE

.1 Locks and latches:
- .1 Mortise locks and latches: to ANSI/BHMA A156.13, series 1000 mortise lock, grade 1, designed for function and keyed as stated in Hardware Schedule.
- .2 Knobs: plain design.
- .3 Roses, escutcheons: round.
- .4 Normal strikes: box type, lip projection not beyond jamb.
- .5 Cylinders: Construction type to use during work.

.2 Butts and hinges:
- .1 Butts and hinges: to ANSI/BHMA A156.1, designated by letter A and numeral identifiers, followed by size and finish, listed in Hardware Schedule.

.2 Self-closing hinges and pivots: to ANSI/BHMA A156.17, designated by letter K and numeral identifiers listed in Hardware Schedule, with suffix letter F indicating listed for used on fire doors.

.3 Exit devices: to ANSI/BHMA A156.3, type 1, function 2, conventional design.

.4 Door Closers and Accessories:
- .1 Door controls (closers): to ANSI/BHMA A156.4, designated by letter C and numeral identifiers listed in Hardware Schedule, size in accordance with ANSI/BHMA A156.4, table A1.
- .2 Door controls - overhead holders: to ANSI/BHMA A156.8, designated by letter C and numeral identifiers listed in Hardware Schedule.
- .3 Closer/holder release devices: to ANSI/BHMA A156.15, designated by letter C and numeral identifiers listed in hardware schedule.
- .4 Door coordinator: concealed for pairs of doors with overlapping astragal.

.5 Auxiliary locks and associated products: to ANSI/BHMA A156.5, designated by letter E and numeral identifiers listed in Hardware Schedule.
- .1 Dead bolt, type latch-bolt, key into keying system as noted.
- .2 Cylinders: for installation in deadlocks provided with special doors as listed in Hardware Schedule. Key into keying system as noted.

.6 Architectural door trim: to ANSI/BHMA A156.6, designated by letter J and numeral identifiers listed in Hardware Schedule.

.7 Auxiliary hardware: to ANSI/BHMA A156.16, designated by letter L and numeral identifiers listed in Hardware Schedule.

.8 Astragal: adjustable, compensating, overlapping, extruded aluminum frame, finished to match doors.

2.3 MISCELLANEOUS HARDWARE

.1 Indexed key control system: to ANSI/BHMA A156.5, designated by letter E and numeral identifiers, wall mounted system, white colour enamel paint finish.

2.4 FASTENINGS

.1 Use only fasteners provided by manufacturer. Failure to comply may void warranties and applicable licensed labels.

.2 Supply screws, bolts, expansion shields and other fastening devices required for satisfactory installation and operation of hardware.

.3 Exposed fastening devices to match finish of hardware.

.4 Where pull is scheduled on one side of door and push plate on other side, supply

fastening devices, and install so pull can be secured through door from reverse side. Install push plate to cover fasteners.

.5 Use fasteners compatible with material through which they pass.

2.5 KEYING

.1 Supply construction cores during Work. GC must insure that construction core must be compatible with core that will be provided by the Client.

Part 3 Execution

3.1 INSTALLATION

.1 Manufacturer's Instructions: comply with manufacturer's written recommendations, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

.2 Supply metal door and frame manufacturers with complete instructions and templates for preparation of their work to receive hardware.

.3 Supply manufacturers' instructions for proper installation of each hardware component.

.4 Install hardware to standard hardware location dimensions in accordance with CSDFMA Canadian Metric Guide for Steel Doors and Frames (Modular Construction).

.5 Where door stop contacts door pulls, mount stop to strike bottom of pull.

.6 Install key control cabinet.

.7 Use only manufacturer's supplied fasteners.
- .1 Use of "quick" type fasteners, unless specifically supplied by manufacturer, is unacceptable.

.8 Remove construction cores when directed by Departmental Representative.
- .1 Install permanent cores and ensure locks operate correctly.

3.2 ADJUSTING

.1 Adjust door hardware, operators, closures and controls for optimum, smooth operating condition, safety and for weather tight closure.

.2 Lubricate hardware, operating equipment and other moving parts.

.3 Adjust door hardware to ensure tight fit at contact points with frames.

3.3 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
- .1 Leave Work area clean at end of each day.
- .2 Clean hardware with damp rag and approved non-abrasive cleaner, and polish hardware in accordance with manufacturer's instructions.
- .3 Remove protective material from hardware items where present.
- .4 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

.2 Waste Management: separate waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.4 DEMONSTRATION

.1 Key Cabinet :
- .1 Lock key cabinet and turn over key to Departmental Representative.

.2 Maintenance Staff Briefing:
- .1 Brief maintenance staff regarding:
  - .1 Proper care, cleaning, and general maintenance of projects complete hardware.
  - .2 Description, use, handling, and storage of keys.
  - .3 Use, application and storage of wrenches for door closers, locksets and fire exit hardware.

.3 Demonstrate operation, operating components, adjustment features, and lubrication requirements.

3.5 PROTECTION

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

.2 Repair damage to adjacent materials caused by door hardware installation.

3.6 ABBREVIATIONS AND DEFINITIONS

.1 Finish definitions

600	PRIMER FOR PAINT

626	BRUSHED CHROME
628	ALUMINIUM
630	STAINLESS STEEL
652	BRUSHED CHROME
689	ALUMINIUM
WHITE	
BLACK	BLACK

.2 Trademark abbreviations

ABH	ARCHITECTURAL BUILDERS HARDW.
BEST	BEST ACCESS SYSTEMS
CRP	CAL-ROYAL / MOVENDO
MOV	MOVENDO CONCEPT
RRB	R R BRINK
SDC	
SER	SERTRONIC
SM	STANDARD METAL
STR	STRONGBAR

3.7 SCHEDULE

GR 01		Depot		
	3	Hinges, two ball bearing type, BB454NRP x 114 x 101	652	CRP
	1	Lockset, mortise type, heavy duty, depot function IC-SC8080-SS	626	CRP
	1	Permanent key core provided by Owner	626	BEST
	1	Wall stop S147	626	SM
	2	Mop plates K-10A x rivets x 152 x width	630	SM
GR 02		Washroom		
	3	Hinges heavy duty, non removable pin, BB52454-NRP x torx x 114 x 101	652	CRP
	1	Pull plate H413 x torx x 114 x 406	630	SM
	1	Pull handle H2856P x torx	626	STR
	1	Door closer, heavy duty, push side CR900 x SPAS900	689	CRP
	1	Kick plate push side K-10A x rivets x 254 x width	630	SM
	1	Mop plate pull side K-10A x rivets x 152 x width	630	SM
	1	Floor stop H2960S	NOIR	STR
GR 03		Personnel Washroom		
	3	Hinges, two ball bearing type, BB454NRP x 114 x 101	652	CRP
	1	Lockset, mortise type, heavy duty, depot function IC-SC8080-SS	626	CRP
	1	Permanent key core provided by Owner	626	BEST
	1	Latchset with indicator IND84	626	CRP
	1	Door closer, heavy duty, pull side CR900	689	CRP
	1	Kick plate push side K-10A x rivets x 254 x width	630	SM
	1	Mop plate pull side K-10A x rivets x 152 x width	630	SM
	1	Wall stop S147	626	SM

GR 04		Depot FP		
	3	Hinges, two ball bearing type, BB454NRP x torx x 114 x 101	652	CRP
	1	Lockset, mortise type, heavy duty, depot function IC-SC8080-SS	626	CRP
	1	Permanent key core provided by Owner	626	BEST
	1	Door closer, heavy duty, pull side CR900	689	CRP
	1	Kick plate push side K-10A x rivets x 254 x width	630	SM
	1	Mop plate pull side K-10A x rivets x 152 x width	630	SM
	1	Wall stop S147	626	SM
GR 05				
	6	Hinges heavy duty, non removable pin, BB52454-NRP x 114 x 101	652	CRP
	1	Pull plate H413 x torx x 114 x 406	630	SM
	1	Pull handle H2856P x torx	626	STR
	2	Locksets, secure, recessed 70105HM	600	RRB
	1	Floor latch for lock 70105FR		RRB
	1	Frame latch for lock 70105HBK	600	RRB
	1	Lockset, dead bolt type, double cylinder IC-SC8462	626	CRP
	2	Permanent key core provided by Owner	626	BEST
	4	Kick plates K-10A x rivets x 254 x width	630	SM
	2	Wall stops S147	626	SM
GR 06		Depot FP		
	3	Hinges heavy duty, non removable pin, BB52454-NRP x 114 x 101	652	CRP
	1	Lockset, mortise type, heavy duty, depot function IC-SC8080-SS	626	CRP
	1	Permanent key core provided by Owner	626	BEST
	1	Door closer, heavy duty, push side CR900 x SPAS900	689	CRP
	1	Kick plate push side K-10A x rivets x 254 x width	630	SM
	1	Mop plate pull side K-10A x rivets x 152 x width	630	SM
	1	Floor stop H2960S	NOIR	STR

GR 07		Depot FP		
	3	Hinges heavy duty, non removable pin, BB52454-NRP x 114 x 101	652	CRP
	1	Lockset, mortise type, heavy duty, depot function IC-SC8080-SS	626	CRP
	1	Permanent key core provided by Owner	626	BEST
	1	Door closer, heavy duty, push side CR900 x 900SPRING	689	CRP
	1	Kick plate push side K-10A x rivets x 254 x width	630	SM
	1	Mop plate pull side K-10A x rivets x 152 x width	630	SM

GR 08				
	6	Hinges heavy duty, non removable pin, BB52454-NRP x 114 x 101	652	CRP
	1	Electric lockset, lockable electrically from both sides IC-SC8082EL x	626	CRP
	2	Locksets, secure, recessed 70105HM	600	RRB
	1	Floor latch for lock 70105FR		RRB
	1	Frame latch for lock 70105HBK	600	RRB
	1	Lockset, dead bolt type, double cylinder IC-SC8462	626	CRP
	4	Permanent key cores provided by Owner	626	BEST
	2	Door closer, heavy duty, push side with holder CR900 x 900HOSPRING	689	CRP
	4	Kick plates K-10A x rivets x 254 x width	630	SM
	1	Power pack PSU100-UL		MOV
	1	Recessed current transfer SR-EPT	626	SER
	1	Magnetic contacts SER-11076W (SPDT)	BLANC	SER
	1	Monitor latch MS-16	630	SDC

The door is always unlocked in both directions, except when door 12 is open, then the lockset of door 10 is locked in both directions.

GR 09

6	Hinges heavy duty, non removable pin, BB52454-NRP x 114 x 101	652	CRP
1	Electric lockset, lockable electrically from both sides IC-SC8082EL x	626	CRP
2	Locksets, secure, recessed 70105HM	600	RRB
1	Floor latch for lock 70105FR		RRB
1	Frame latch for lock 70105HBK	600	RRB
1	Lockset, dead bolt type, double cylinder IC-SC8462	626	CRP
4	Permanent key cores provided by Owner	626	BEST
2	Door closer, heavy duty, push side with holder CR900 x 900HOSPRING	689	CRP
4	Kick plates K-10A x rivets x 254 x width	630	SM
1	Power pack PSU100-UL		MOV
1	Recessed current transfer SR-EPT	626	SER
1	Magnetic contacts SER-11076W (SPDT)	BLANC	SER
1	Monitor latch MS-16	630	SDC

The door is always unlocked in both directions, except when door 10 is open, then the lockset of door 12 is locked in both directions.

GR 10 Lock for knife cabinet.

1	Lock 1E7E4	626	BEST
1	Permanent key cores provided by Owner	626	BEST

The knife rack is provided by CSC and installed by the General Contractor. Installation of lock by General Contractor

.1 Table (Refer to architectural drawings)

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 08 11 00 – Metal Doors and Frames.

1.2 REFERENCES

.1 ASTM International
- .1 ASTM C 542-05, Standard Specification for Lock-Strip Gaskets.
- .2 ASTM D 790-07e1, Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
- .3 ASTM D 1003-07e1 Standard Test Method for Haze and Luminous Transmittance of Plastics.
- .4 ASTM D 1929-96(R2001)e1, Standard Test Method for Determining Ignition Temperature of Plastics.
- .5 ASTM D 2240-05, Standard Test Method for Rubber Property - Durometer Hardness.
- .6 ASTM E 84-10, Standard Test Method for Surface Burning Characteristics of Building Materials.
- .7 ASTM E 330-02, Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
- .8 ASTM F 1233-08, Standard Test Method for Security Glazing Materials and Systems.

.2 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-12.1-M90, Tempered or Laminated Safety Glass.
- .2 CAN/CGSB-12.2-M91, Flat, Clear Sheet Glass.
- .3 CAN/CGSB-12.3-M91, Flat, Clear Float Glass.
- .4 CAN/CGSB-12.8-97, Insulating Glass Units.
- .7 CAN/CGSB-12.12-M90, Plastic Safety Glazing Sheets.

.3 Environmental Choice Program (ECP)
- .1 CCD-045-95(R2005), Sealants and Caulking Compounds.

.4 Glass Association of North American (GANA)
- .1 GANA Glazing Manual - 2008.
- .2 GANA Laminated Glazing Reference Manual - 2009.

.5 South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards
- .1 SCAQMD Rule 1168-A2005, Adhesives and Sealants Applications.

1.3 ADMINISTRATIVE REQUIREMENTS

.1 Arrange for site visit with Departmental Representative prior to start of Work to examine existing site conditions adjacent to demolition Work.

.2 Hold project meetings every month.

.3 Ensure key personnel attend.

.4 Departmental Representative will submit written notification of change to meeting schedule established upon contract award 24 hours prior to scheduled meeting.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:
- .1 Submit manufacturer's instructions, printed product literature and data sheets for glass, sealants, and glazing accessories and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Shop Drawings:
- .1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Québec, Canada.

.4 Samples:
- .1 Submit for review and acceptance of each unit.
- .2 Samples will be returned for inclusion into work.
- .3 Submit duplicate 300 x 300 mm size samples of each product, including sealant material.

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

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

1.5 CLOSEOUT SUBMITTALS

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

.2 Operation and Maintenance Data: submit operation and maintenance data for glazing for incorporation into manual.

1.6 QUALITY ASSURANCE

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

.2 Mock-ups:
- .1 Construct mock-ups in accordance with Section 01 45 00 - Quality Control.
- .2 Construct mock-up to include glazing and perimeter air barrier and vapour retarder seal.
- .3 Mock-up will be used:
  - .1 To judge quality of work, substrate preparation, operation of equipment and material application.
- .4 Locate where directed.
- .5 Allow 24 hours for inspection of mock-up before proceeding with work.
- .6 When accepted, mock-up will demonstrate minimum standard of quality required for this work. Remove mock-up and dispose of materials when no longer required and when directed by Department Representative.

1.7 DELIVERY, STORAGE AND HANDLING

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

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

.3 Storage and Handling Requirements:
- .1 Store materials off ground indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
- .2 Store and protect glazing and frames from nicks, scratches, and blemishes.
- .3 Protect prefinished aluminum surfaces with strippable coating.
- .4 Replace defective or damaged materials with new.

.4 Packaging Waste Management: remove in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

1.8 AMBIENT CONDITIONS

.1 Ambient Requirements:
- .1 Install glazing when ambient temperature is 10 degrees C minimum. Maintain ventilated environment for 24 hours after application.
- .2 Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

Part 2 Products

2.1 MATERIALS

.1 Design Criteria:
- .1 Ensure continuity of building enclosure vapour and air barrier using glass and glazing materials as follow:
  - .1 Utilize inner light of multiple light sealed units for continuity of air and vapour seal.
- .2 Limit glass deflection to 1/200 flexural limit of glass with full recovery of glazing materials.

.2 Flat Glass:
- .1 Sheet glass: to CAN/CGSB-12.2, AA-special selected, 6 mm thick.
- .2 Safety glass (VS1): to CAN/CGSB-12.1, transparent, 6 mm thick.
  - .1 Type 2-tempered horizontally.
  - .2 Class B-float.
  - .3 Category 1.
  - .4 Edge treatment.

.3 Safety glass (VS2):
- .1 PVB laminated glass, three (3) sheet glass, overall thickness 25.4 mm.
  - .1 Glass: to CAN/CGSB 12.1, transparent, 6 mm thick.
    - .1 Type 2-tempered horizontally (thermal).
    - .2 Class B-float.
    - .3 Category 2.
    - .4 Edge treatment before thermal treatment.
  - .2 Laminated glass corridor side: 2 sheet glass bonded together with an interlayer plastic film.
  - .3 Single sheet glass on room side.
  - .4 PVB plastic interlayer, 0,78 mm thick.
  - .5 Inter-cavity space thickness: 7 mm.

.4 Armed glass (VS3) : to CAN/CGSB 12.11, 6 mm thickness.
- .1 Type 1, polished on both side (clear).
- .2 Mesh type: 3, square mesh.

.5 Sealant: in accordance with Section 07 92 00 - Joint Sealants.
- .1 VOC limit 250 g/L maximum to SCAQMD Rule 1168.
  - .1 VOC limit: 5% maximum by weight to CCD-045.
  - .2 Ensure sealant does not contain chemical restrictions to CCD-045.

2.2 ACCESSORIES

.1 Setting blocks: neoprene, 80-90 Shore A durometer hardness to ASTM D 2240, minimum 100 mm x width of glazing rabbet space minus 1.5 mm x height.

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

.3 Glazing tape:
- .1 Preformed butyl compound with integral resilient tube spacing device, 10-15 Shore A durometer hardness to ASTM D 2240; coiled on release paper; black colour.
- .2 Closed cell polyvinyl chloride foam, coiled on release paper over adhesive on two sides, maximum water absorption by volume 2 %, designed for compression of 25%, to effect an air and vapour seal.

.4 Glazing splines: resilient polyvinyl chloride, extruded shape to suit glazing channel retaining slot, colour as selected.

.5 Glazing clips: manufacturer's standard type.

.6 Lock-strip gaskets: to ASTM C 542.

.7 Mirror attachment accessories:
- .1 Stainless steel clips.
- .2 Plastic rosettes.
- .3 Mirror adhesive, chemically compatible with mirror coating and wall substrate.
- .4 Mirror frames.

Part 3 Execution

3.1 EXAMINATION

.1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for glazing installation in accordance with manufacturer's written instructions.
- .1 Verify that openings for glazing are correctly sized and within tolerance.
- .2 Verify that surfaces of glazing channels or recesses are clean, free of obstructions, and ready to receive glazing.
- .3 Visually inspect substrate in presence of Departmental Representative.
- .4 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
- .5 Proceed with installation only after unacceptable conditions have been remedied [and after receipt of written approval to proceed from Departmental Representative.

3.2 PREPARATION

.1 Clean contact surfaces with solvent and wipe dry.

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

.3 Prime surfaces scheduled to receive sealant.

.4 Trim protruding tape edge.

3.3 INSTALLATION: INTERIOR WET/DRY METHOD (TAPE AND SEALANT)

.1 Perform work in accordance with GANA Glazing Manual for glazing installation methods.

.2 Cut glazing tape to length and install against permanent stops, projecting 1.6 mm above sight line.

.3 Place setting blocks at 1/3 points, with edge block maximum 150 mm from corners.

.4 Rest glazing on setting blocks and push against tape to ensure full contact at perimeter of light or unit.

.5 Install removable stops, with spacer shims inserted between glazing and applied stops at 600 mm intervals, 6 mm below sight line.

.6 Fill gaps between light and applied stop with sealant to depth equal to bite on glazing, to uniform and level line.

.7 Trim protruding tape edge.

3.4 INSTALLATION: PLASTIC FILM

.1 Install plastic film with adhesive, applied in accordance with film manufacturer's instructions.

.2 Place without air bubbles, creases or visible distortion.

.3 Fit tight to glass perimeter with razor cut edge.

3.5 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
- .1 Leave Work area clean at end of each day.
  - .1 Remove traces of primer, caulking.
  - .2 Remove glazing materials from finish surfaces.
  - .3 Remove labels.

.4 Clean glass [and mirrors] using approved non-abrasive cleaner in accordance with manufacturer's instructions.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

.2 Waste Management: separate waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

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

3.6 PROTECTION

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

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

.1 Do not mark heat absorbing or reflective glass units.

.3 Repair damage to adjacent materials caused by glazing installation.

3.7 SCHEDULE

.1 See architectural drawings.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 04 04 99 – Masonry for Minor Works.

.2 Section 07 84 00 – Fire Stopping.

.3 Section 07 92 00 – Joint Sealants.

.4 Section 08 11 00 – Metal Doors and Frames.

.5 Section 09 91 99 – Painting for Minor Works.

.6 Division 22 – Plumbing.

.7 Division 23 – Heating, Ventilating and Air Conditioning.

.8 Division 26 – Electrical.

1.2 REFERENCES

.1 ASTM International

.1 ASTM C 1396/C 1396M-09a, Standard Specification for Gypsum Wallboard.

.2 ASTM C 475/C 475M-02(2007), Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.

.3 ASTM C 514-04(2009)e1, Standard Specification for Nails for the Application of Gypsum Board.

.4 ASTM C 645-09a, Standard Specification for Nonstructural Steel Framing Members.

.5 ASTM C 754-09a, Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.

.6 ASTM C 840-08, Standard Specification for Application and Finishing of Gypsum Board.

.7 ASTM C 954-10, Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs from 0.033 in. (0.84 mm) to 0.122 in. (2.84 mm) in Thickness.

.8 ASTM C 1002-07, Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.

.9 ASTM C 1047-10, Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.

.10 ASTM C 1178/C 1178M-08, Standard Specification for Glass Mat Water-Resistant Gypsum Backing Board.

.2 South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards

.1 SCAQMD Rule 1168-A2005, Adhesives and Sealants Applications.

.3 Underwriters' Laboratories of Canada (ULC)
.1 CAN/ULC-S102-07, Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:
.1 Submit manufacturer's instructions, printed product literature and data sheets for gypsum, framing, sealants and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Samples:
.1 Submit for review and acceptance of each unit.
.2 Samples will be returned for inclusion into work.
.3 Submit duplicate 300 x 300 mm size samples of vinyl faced gypsum board and 300 mm long samples of corner and casing beads, vinyl mouldings, shadow mould, cornice cap, textured finishes and insulating strip.

.4 Test and Evaluation Reports: submit test reports in accordance with Section 01 45 00 - Quality Control, from approved independent testing laboratory, certifying partition system complies with sound transmission rating and fire-resistance rating as specified.

1.4 DELIVERY, STORAGE AND HANDLING

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

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

.3 Storage and Handling Requirements:
.1 Store materials inside, level, under cover. Protect from weather, damage from construction operations and other causes, in accordance with manufacturer's printed instructions.
.2 Handle materials to prevent damage to edges or surfaces. Protect metal accessories and trim from being bent or damaged.
.3 Store and protect partition materials from nicks, scratches, and blemishes.
.4 Replace defective or damaged materials with new.

.4 Packaging Waste Management: recover in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

Part 2 Products

2.1 MATERIALS

.1 Performance / Design Criteria:
- .1 Partition assembly to be non-combustible construction and fire resistance rated.

.2 Non-structural Metal Framing:
- .1 Non-load bearing channel stud framing: to ASTM C 645, roll formed from 0.91 mm thickness hot dipped galvanized steel sheet, for screw attachment of gypsum board. Knock-out service holes at 460 mm centres.
- .2 Floor and ceiling tracks: to ASTM C 645, in widths to suit stud sizes, 32 mm flange height.
  - .1 Perforated deflection ceiling track with a deflection margin equal to or greater than 55 mm.
- .3 Metal channel stiffener: 19 x 1.4 mm thick cold rolled steel, coated with rust inhibitive coating.

.3 Gypsum Board:
- .1 Glass mat reinforced water-resistant , moisture-resistant High Impact resistant board : to ASTM C 1629C, type X, 16 mm thick, 1200 mm wide x maximum practical length, ends square cut, edges tapered.
- .2 Metal furring runners, hangers, tie wires, inserts and anchors.
- .3 Drywall furring channels: 0.5 mm core thickness galvanized steel channels for screw attachment of gypsum board.
- .4 Steel drill, tapping screws: to ASTM C 1002.
- .5 Casing beads, corner beads, control joints and edge trim: to ASTM C 1047, galvanized metal, 0.5 mm base thickness, perforated flanges, one piece length per location.

.4 Suspended gypsum ceiling
- .1 Material: Cold rolled steel, hot dipped galvanized finish, commercial grade
- .2 Main Tees : 38mm high with integrated reversible connector and streaked sole 38mm .
- .3 Cross Tees : 38mm tall with a fast connection and streaked sole t of 38mm .
- .4 22mm furrring profiles, 38mm sole.
- .5 Wall profiles : angle 25mm high x 38mm, continuous.
- .6 Accessories : transitions fasteners, clip fasteners, suspension cables.

2.2 ACCESSORIES

.1 Acoustical insulation: mineral wool acoustic insulation, type as recommended by manufacturer.

.2 Sealants: in accordance with Section 07 92 00 - Joint Sealants, to ASTM C 475.

.1 VOC limit 250 g/L maximum to SCAQMD Rule 1168.

.3 Insulating strip: rubberized, moisture resistant, 3 mm thick closed cell neoprene strip, 12 mm wide, with self sticking permanent adhesive on one face, lengths as required.

.4 Joint compound : to ASTM C475, asbestos free.

Part3 Execution

3.1 EXAMINATION

.1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for product installation in accordance with manufacturer's written instructions prior to partition installation.
- .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 ERECTION OF FRAMING

.1 Install steel framing members to receive screw-attached gypsum board in accordance with ASTM C 754 except where specified otherwise.

.2 Align partition tracks at floor and ceiling and secure at 600 mm on centre maximum.

.3 Place studs vertically at 400 mm on centre and maximum of 50 mm from abutting walls, and at each side of openings and corners. Position studs in tracks at floor and ceiling. Cross brace steel studs as required to provide rigid installation to manufacturer's instructions.

.4 Erect metal studding to tolerance of 1:1000.

.5 Co-ordinate simultaneous erection of studs with installation of service lines. When erecting studs ensure web openings are aligned.

.6 Include two studs extending from floor to ceiling at each side of openings wider than stud centres specified. Secure studs together, 50 mm apart using column clips or other approved means of fastening placed alongside frame anchor clips.

.7 Install heavy gauge single jamb studs at openings.

.8 Erect track at head of door/window openings and sills of sidelight/window

openings to accommodate intermediate studs. Secure track to studs at each end, in accordance with manufacturer's instructions. Install intermediate studs above and below openings in same manner and spacing as wall studs.

.9 Include 40 mm stud or furring channel secured between studs for attachment of fixtures behind lavatory basins, toilet and bathroom accessories, and other fixtures including grab bars and towel rails, attached to steel stud partitions.

.10 Install steel studs or furring channel between studs for attaching electrical and other boxes.

.11 Extend partitions to ceiling height except where indicated.

.12 Maintain clearance under beams and structural slabs to avoid transmission of structural loads to studs. Use double track slip joint.

.13 Install continuous insulating strips to isolate studs from uninsulated surfaces.

.14 Install insulating strip under studs and tracks around perimeter of sound control partitions.

3.3 ERECTION OF GYPSUM CEILING SUSPENSION.

.1 Proceed with the installation in accordance with manufacturer's written instructions.
.2 Main tees should be spaced 610mm cc. and supported by suspension cables spaced 1200mm cc. maximum by fixing the cable to the upper structure .
.3 Secondary tees shall be spaced 610mm C.C , forming a grid of 610mm x 610mm
.4 Attach metal furring to the primary and secondary tees to 400mm spacing cc.
.5 Provide wall profiles at junction of vertical walls

3.4 ERECTION OF GYPSUM BOARD AND ACCESSORIES

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

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

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

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

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

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

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

.8 Install wall furring for gypsum board wall finishes in accordance with ASTM C 840, except where specified otherwise.

.9 Install gypsum boards in direction that will minimize number of end-butt joints. Stagger end joints 250 mm minimum.

3.5 APPLICATION

.1 Apply gypsum board after bucks, anchors, blocking, sound attenuation, electrical and mechanical work are approved.

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

.3 Apply water-resistant gypsum board where indicted on drawings. Apply water-resistant sealant to edges, ends, cut-outs which expose gypsum core and to fastener heads. Do not apply joint treatment on areas to receive tile finish.

3.6 INSTALLATION

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

.2 Install casing beads around perimeter of suspended ceilings.

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

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

.5 Install access doors to electrical and mechanical fixtures specified in respective sections.
.1 Rigidly secure frames to furring or framing systems.

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

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

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

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

3.7 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  .1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

.3 Waste Management: separate waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
  .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.8 PROTECTION

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

.2 Repair damage to adjacent materials caused by partition installation.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 04 04 99 –Masonry for Minor works.

.2 Division 22 – Plumbing.

1.2 REFERENCES

.1 American National Standards Institute (ANSI)/Ceramic Tile Institute (CTI)
- .1 ANSI A108.1-99, Specification for the Installation of Ceramic Tile (Includes ANSI A108.1A-C, 108.4-.13, A118.1-.10, ANSI A136.1).
- .2 CTI A118.3-92, Specification for Chemical Resistant, Water Cleanable Tile Setting and Grouting Epoxy and Water Cleanable Tile Setting Epoxy Adhesive (included in ANSI A108.1).
- .3 CTI A118.4-92, Specification for Latex Cement Mortar (included in ANSI A108.1).
- .4 CTI A118.5-92, Specification for Chemical Resistant Furan Resin Mortars and Grouts for Tile Installation (included in ANSI A108.1).
- .5 CTI A118.6-92, Specification for Ceramic Tile Grouts (included in ANSI A108.1).

.2 American Society for Testing and Materials International (ASTM)
- .1 ASTM C 144-04, Specification for Aggregate for Masonry Mortar.
- .2 ASTM C 207-06, Specification for Hydrated Lime for Masonry Purposes.
- .3 ASTM C 847-06, Specification for Metal Lath.
- .4 ASTM C 979-05, Specification for Pigments for Integrally Coloured Concrete.

.3 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-51.34-M86(R1988), Vapour Barrier, Polyethylene Sheet for Use in Building Construction.
- .2 CGSB 71-GP-22M-78(AMEND.), Adhesive, Organic, for Installation of Ceramic Wall Tile.
- .3 CAN/CGSB-75.1-M88, Tile, Ceramic.
- .4 CAN/CGSB-25.20-95, Surface Sealer for Floors.

.4 Canadian Standards Association (CSA International)
- .1 CSA A123.3-05, Asphalt Saturated Organic Roofing Felt.
- .2 CAN/CSA-A3000-03(R2006), Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005).

.5 South Coast Air Quality Management District (SCAQMD), California State
- .1 SCAQMD Rule 1168-05, Adhesives and Sealants Applications.

.6 Terrazzo Tile and Marble Association of Canada (TTMAC)
- .1 Tile Specification Guide 09 30 00 2006/2007, Tile Installation Manual.
- .2 Tile Maintenance Guide 2000.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Provide product data in accordance with Section 01 33 00 - Submittal Procedures.
- .1 Include manufacturer's information on:
  - .1 Ceramic tile, marked to show each type, size, and shape required.
  - .2 Chemical resistant mortar and grout (Epoxy and Furan).
  - .3 Cementitious backer unit.
  - .4 Dry-set cement mortar and grout.
  - .5 Divider strip.
  - .6 Elastomeric membrane and bond coat.
  - .7 Reinforcing tape.
  - .8 Levelling compound.
  - .9 Latex cement mortar and grout.
  - .10 Commercial cement grout.
  - .11 Organic adhesive.
  - .12 Slip resistant tile.
  - .13 Waterproofing isolation membrane.
  - .14 Fasteners.

.3 Provide samples in accordance with Section 01 33 00 - Submittal Procedures.
- .1 Base tile: submit duplicate, 300 x 300 mm sample panels of each colour, texture, size, and pattern of tile.
- .2 Floor tile: submit duplicate, 300 x 300 mm sample panels of each colour, texture, size, and pattern of tile.
- .3 Trim shapes, bullnose, cap and cove including bullnose cap and base pieces at internal and external corners of vertical surfaces, each type, colour, and size.
- .4 Adhere tile samples to 11 mm thick plywood and grout joints to represent project installation.

1.4 QUALITY ASSURANCE

.1 Quality Assurance Submittals:
- .1 Manufacturer's Instructions: manufacturer's installation instructions.
- .2 Manufacturer's Field Reports: manufacturer's field reports specified.

1.5 DELIVERY, STORAGE AND HANDLING

.1 Packing, shipping, handling and unloading:

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.

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

1.6 AMBIENT CONDITIONS

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

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

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

1.7 MAINTENANCE

.1 Extra Materials:
.1 Provide maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.
.2 Provide minimum 2% of each type and colour of tile required for project for maintenance use. Store where directed.
.3 Maintenance material same production run as installed material.

Part 2 Products

2.1 WALL TILE

.1 Ceramic tile: to CAN/CGSB-75.1, Type 5, Class MR 4, 600 x 300 x 600 mm size, square edges, glazed surface, plain pattern, colour as selected by Departmental Representative. Matching cushion bullnose square edge trim to suit application.

2.2 MORTAR AND ADHESIVE MATERIALS

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

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

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

.6 Adhesives: .
- .1 Maximum VOC limit 65 g/L to SCAQMD Rule 1168.

2.3 BOND COAT

.1 Latex Cement mortar: to ANSI A108.1.

2.4 GROUT

.1 Colouring Pigments:
- .1 Pure mineral pigments, limeproof and nonfading, complying with ASTM C 979.
- .2 Colouring pigments to be added to grout by manufacturer.
- .3 Job coloured grout are not acceptable.
- .4 Use in Commercial Cement Grout, Dry-Set Grout and Latex Cement Grout.

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

2.5 ACCESSORIES

.1 Divider strips:
- .1 Zinc: 13 mm x 13 mm, complete with anchors, both sides spaced at 150 mm on centre.

.2 Transition Strips: purpose made metal extrusion; anodized aluminum type.

.3 Reducer Strips: purpose made metal extrusion; anodized aluminum type; maximum slope of 1:2.

2.6 MIXES

.1 Cement:
- .1 Scratch coat: 1 part cement, 1/5 to 1/2 parts hydrated lime to suit job conditions, 4 parts sand, 1 part water, and latex additive where required. Adjust water volume depending on water content of sand.
- .2 Slurry bond coat: cement and water mixed to creamy paste. Latex additive may be included.
- .3 Mortar bed for floors: 1 part cement, 4 parts sand, 1 part water. Adjust water volume depending on water content of sand. Latex additive may be included.
- .4 Levelling coat: 1 part cement, 4 parts sand, minimum 1/10 part latex

additive, 1 part water including latex additive.

.5 Bond or setting coat: 1 part cement, 1/3 part hydrated lime, 1 part water.

.6 Measure mortar ingredients by volume.

.2 Organic adhesive: pre-mixed.

.1 Adhesives: maximum VOC limit 65 g/L to SCAQMD Rule 1168.

.3 Mix bond and levelling coats, and grout to manufacturer's instructions.

.4 Adjust water volumes to suit water content of sand.

2.7 PATCHING AND LEVELLING COMPOUND

.1 Cement base, acrylic polymer compound, manufactured specifically for resurfacing and leveling concrete floors. Products containing gypsum are not acceptable.

.2 Have not less than the following physical properties:

.1 Compressive strength - 25 MPa.

.2 Tensile strength - 7 MPa.

.3 Flexural strength - 7 MPa.

.4 Density - 1.9.

.3 Capable of being applied in layers up to 50 mm thick, being brought to feather edge, and being trowelled to smooth finish.

.4 Ready for use in 48 hours after application.

2.8 CLEANING COMPOUNDS

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

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

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

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

3.2 WORKMANSHIP

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

.2 Apply tile or backing coats to clean and sound surfaces.

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

.4 Maximum surface tolerance 1:800.

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

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

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

.8 Make internal angles square, external angles rounded bullnosed.

.9 Use round bullnose edged tiles at termination of wall tile panels, except where panel abuts projecting surface or differing plane.

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

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

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

3.3 WALL TILE

.1 Install in accordance with TTMAC detail.

3.4 FLOOR SEALER AND PROTECTIVE COATING

.1 Apply in accordance with manufacturer's instructions.

3.5 FIELD QUALITY CONTROL

.1 Manufacturer's Field Services:

.1 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

3.6 CLEANING

.1 Proceed in accordance with Section 01 74 11 - Cleaning.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 09 21 99 – Partitions for Minor Works.

.2 Division 21 – Fire Suppression.

.3 Division 22 – Plumbing.

.4 Division 23 – Heating, Ventilating and Air Conditioning.

.5 Division 26 – Electrical.

1.2 REFERENCES

.1 ASTM International
- .1 ASTM C 635/C 635M-07, Standard Specifications for the Manufacture, Performance and Testing of Metal Suspension Systems for Acoustical Tile and Lay-In Panel Ceilings.
- .2 ASTM C 636/C 636M-08, Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels.
- .3 ASTM E 1477-98a(2008), Standard Test Method for Luminous Reflectance Factor of Acoustical Materials by Use of Integrating-Sphere Reflectometers.
- .4 ASTM E 1264, Classification for Acoustic Ceiling Product.

.2 Green Seal Environmental Standards (GS)
- .1 GS-11-2008, 2nd Edition, Paints and Coatings.

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

.4 South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards
- .1 SCAQMD Rule 1113-A2007, Architectural Coatings.

.5 Underwriter's Laboratories of Canada (ULC)
- .1 CAN/ULC-S102-2007, Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:
- .1 Submit manufacturer's instructions, printed product literature and data sheets for ceiling panels and ceiling suspension system and include product characteristics, performance criteria, physical size, finish and limitations.
- .2 Submit 2 copies of WHMIS MSDS in accordance with Section 01 35 29.06 - Health and Safety Requirements and section 01 35 43 - Environmental Procedures.

.3 Shop Drawings:
- .1 Submit drawings stamped and signed by professional engineer registered or licensed in the Province of Québec, Canada.
- .2 Submit reflected ceiling plans for special grid patterns as indicated.
- .3 Indicate lay-out, insert and hanger spacing and fastening details, splicing method for main and cross runners, change in level details, acoustical unit support at ceiling fixture, lateral bracing and accessories.

.4 Samples:
- .1 Submit for review and acceptance of each unit.
- .2 Samples will be returned for inclusion into work.
- .3 Submit duplicate full-size samples of each type acoustical units.

1.4 DELIVERY, STORAGE AND HANDLING

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

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

.3 Storage and Handling Requirements:
- .1 Store materials off ground indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
- .2 Store materials inside, level, under cover. Protect from weather, damage from construction operations and other causes, in accordance with manufacturer's printed instructions.
- .3 Handle materials to prevent damage to edges or surfaces. Protect metal accessories and trim from being bent or damaged.
- .4 Store and protect acoustic ceiling materials from nicks, scratches, and blemishes.
- .5 Replace defective or damaged materials with new.

.4 Packaging Waste Management: retrieve in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

Part 2 Products

2.1 COMPONENTS

.1 Acoustic units for suspended ceiling system TA 1 (kitchen area): to classification of standard ASTM 1264 and meeting the requirements of the Canadian Food Inspection Agency for use in food processing areas.

.2 Physical properties
- .1 Type: IV, Form: 2; Pattern: E.
- .2 Flame spread rating of 25 or less in accordance with CAN/ULC-S102.
- .3 Smoke developed 50 or less in accordance with CAN/ULC-S102.
- .4 Composition: hydroformed mineral fibres.
- .5 Surface finish: vinyl-covered non-perforated membrane, including resistance to the growth of Gram-positive and Gram-negative moulds and bacteria causing odours and stains.
- .6 Noise Reduction Coefficient (NRC) designation of 0.55.
- .7 Light Reflectance (LR) range of 0.80 to ASTM E 1477.
- .8 Edge type square.
- .9 Colour: White.
- .10 Size 610 x 1220 x 16 mm thick.

.3 Acoustic units for suspended ceiling system TA 2 (offices): to classification of standard ASTM 1264.
- .1 Physical properties
  - .1 Type: IV, Form: 2; Pattern: E.
  - .2 Flame spread rating of 25 or less in accordance with CAN/ULC-S102.
  - .3 Smoke developed 50 or less in accordance with CAN/ULC-S102.
  - .4 Composition: mineral fibre.
  - .5 Surface finish: factory applied acrylic latex, including resistance to the growth of Gram-positive and Gram-negative moulds and bacteria causing odours and stains.
  - .6 Noise Reduction Coefficient (NRC) designation of 0.70.
  - .7 Light Reflectance (LR) range of 0.90 to ASTM E 1477.
  - .8 Edge type square.
  - .9 Colour: White.
  - .10 Size 610 x 1220 x 19 mm thick.

.4 Acoustical suspension for acoustic ceilings – Kitchen area:
- .1 Exposed tee bar grid components: shop painted satin sheen, white colour. Components die cut.
  - .1 Main tee with double web, 42,8 mm high, with a rectangular bulb with pointed top and 24 mm rolled cap on exposed face.
  - .2 Cross tee with double web, 38 mm high, with a rectangular bulb; web extended to form positive interlock with main tee webs; lower flange extended and offset to provide flush intersection of 24 mm.
  - .3 Wall moulding: angle edge of 22 mm, with prefinished exposed flanges.

.2 Structural classification heavy duty, to ASTM C635.
.3 Severe environment performance to ASTM C635.
.4 Manufacturing materials: double-web hot dipped galvanized steel with aluminium cap, commercial quality. Surface prepared by chemical etching, pre-finished aluminium cope with baked-on polyester paint.
.5 Hanger wire: galvanized soft annealed steel wire, 3.6 mm diameter for access tile ceilings.
.6 Hanger inserts: purpose made.
.7 Accessories: splices, clips, wire ties, retainers and wall moulding flush, to complement suspension system components, as recommended by the system manufacturer.

.5 Acoustical Suspension acoustic ceilings – Other areas:
.1 Exposed tee bar grid components: shop painted satin sheen, white colour. Components die cut.
.1 Main tee with double web, 42,8 mm high, with pointed bulb and 24 mm rolled cap on exposed face.
.2 Cross tee with double web, 38 mm high, with a rectangular bulb; hook type extremities allowing for the removal of the tees without any tools; lower flange extended and offset to provide flush intersection of 24 mm.
.3 Wall moulding: aluminum angle edge of 22 mm, with prefinished exposed flanges.
.2 Structural classification medium duty, to ASTM C635.
.3 Humid environment: coating classification to ASTM C635 for performance in a severe environment where humidity resistant coatings are prescribed.
.4 Manufacturing materials: hot-dipped galvanized steel, commercial quality. Surface prepared by chemical etching, prefinished aluminium cope with baked-on polyester paint.
.5 Hanger wire: galvanized soft annealed steel wire, 3.6 mm diameter for access tile ceilings.
.6 Hanger inserts: purpose made.
.7 Accessories: splices, clips, wire ties, retainers and flush wall-ceiling moulding, to complement suspension system components, as recommended by system manufacturer.

.6 Performance/Design Criteria:
.1 Maximum deflection: 1/360th of span to ASTM C 635 deflection test.

2.2 ACCESSORIES

.1 Touch-up paint: in accordance with manufacturer's recommendations for surface conditions:
.1 Paint: VOC limit 250 g/L maximum to GS-11, SCAQMD Rule 1113.

Part 3 Execution

3.1 EXAMINATION

.1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for product installation in accordance with manufacturer's written instructions prior to acoustical ceiling installation.
- .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.

3.2 INSTALLATION

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

.2 Suspension System:
- .1 Erect ceiling suspension system after work above ceiling has been inspected by Departmental Representative.
- .2 Secure hangers to overhead structure using attachment methods acceptable to Departmental Representative.
- .3 Install hangers spaced at maximum 1200 mm centres and within 150 mm from ends of main tees.
- .4 Lay out centreline of ceiling both ways, to provide balanced borders at room perimeter, according to reflected ceiling plan.
- .5 Install wall moulding to provide correct ceiling height.
- .6 Completed suspension system to support superimposed loads, such as lighting fixtures, diffusers, grilles and speakers.
- .7 Support at light fixtures and diffusers with additional ceiling suspension hangers within 150 mm of each corner and at maximum 600 mm around perimeter of fixture.
- .8 Interlock cross member to main runner to provide rigid assembly.
- .9 Ensure finished ceiling system is square with adjoining walls and level within 1:1000.
- .10 Provide additional hanger wires to all main tees supporting and directly above installation bracket of vertical panels of commercial hoods .

.3 Acoustic Panels:
- .1 Install acoustical panels and tiles in ceiling suspension system.
- .2 Co-ordinate ceiling work with work of other sections such as interior lighting, fire protection communication, and intrusion and detection systems.

3.3 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  .1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

.3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
  .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.4 PROTECTION

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

.2 Repair damage to adjacent materials caused by acoustical ceiling installation.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 11 41 10 – Food Service – Walk-in Freezers and Coolers.

1.2 REFERENCES

.1 ASTM International

.1 ASTM F1303 Standard Specification for Sheet Vinyl Floor Covering with Backing.

.2 ASTM E648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source.

.3 ASTM E662 - Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials.

.4 ASTM F970 - Standard Test Method for Static Load Limit.

.5 ASTM D2047 - Standard Test Method for Static Coefficient of Friction of Polish-Coated Flooring Surfaces as Measured by the James Machine.

.2 Standard Council of Canada

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

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

.1 Material Safety Data Sheets (MSDS).

1.3 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:

.1 Submit manufacturer's printed product literature, specifications and datasheet. The data sheets must include product characteristics, performance criteria. limitations. dimensions and finishing.

.2 Include installation instructions for resilient sheet flooring.

.3 Submit two (2) copies of Workplace Hazardous Materials Information System (WHMIS) Material Safety Data Sheets MSDS in accordance with Section 01 35 29.06 – Health and Safety and section 01 35 43 – Environmental Procedures.

.1 Data sheets must indicate VOC’s in g/L of epoxy coating, zinc coating and touch-up products to be applied inside the building.

.3 Samples / Mock-ups
- .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit to Departmental Representative duplicate 600 x 600 mm samples prepared in accordance with manufacturer's specifications and producing the colours and finishes prescribed for review and acceptance.
- .3 Perform a one (1) metre welded seam between two sheets.

1.4 DELIVERY, STORAGE AND HANDLING

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

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

.3 Storage and Handling Requirements:
- .1 Store materials indoors in their original undamaged packaging, in a dry location with a temperature varying between 10 °C and 25 °C. Protect from freezing.
- .2 Store materials off ground indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area. Maintain a constant temperature for at least 3 days so products can get accustomed to the conditions where they will be installed.
- .3 Replace defective or damaged materials with new.

.4 Packaging Waste Management: remove for reuse and return by manufacturer of pallets, crates, padding and packaging materials as specified in Waste Management Plan, in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

1.5 AMBIENT CONDITIONS

.1 Comply with the manufacturer's written requirements and recommendations in all steps of the work.

.2 Installation temperature: maintain air temperature and structural base temperature at flooring installation area above 20 degrees for 48 hours before, during and 48 hours after installation.

.3 Moisture: ensure substrate is within moisture limits recommended by manufacturer.

.4 General Contractor will be responsible for protecting the finished floor against all damages by workers of other trades.

.5 Install appropriate barriers and readable signage at entries to avoid general traffic and work trades on the site during installation and cure of the floor covering.

.6 The quality of the subfloor must be approved by a qualified applicator.

1.6 WASTE MANAGEMENT AND DISPOSAL

.1 Develop Construction Waste Management Plan related to Work of this Section.

.2 Materials that cannot be reused must be treated as hazardous waste and disposed of in an appropriate manner.

.3 Place materials defined as hazardous or toxic waste, including used sealant and adhesive tubes and containers, in containers or areas designated for hazardous waste.

1.7 WARRANTY

.1 For the work of this Section, the 12-month warranty prescribed in GC 32.1 General Conditions “C” is extended to 24 months.

Part 2 Products

2.1 RESILIENT SHEET FLOORING

.1 Homogeneous resilient sheet flooring with a high vinyl content, to ASTM F1303, easily cleanable finish, with fibre glass reinforced backing, aluminum oxide throughout the mass, inlaid with silicon carbide and coloured quartz and biocides inlaid in the mass. Joints heat welded, non-slip surface, thermal shock resistant, recommended for installation in frozen spaces in accordance with the Canadian Food Inspection Agency standards.

.1 Thickness: 3.0 mm.
.2 Weight: 3.9 kg/m^2.
.3 Dimensions: 2.0 m x 15 m roll.
.4 Flammability: to CAN/ULC S102.2, Class1.
.5 Smoke developed: <450 to ASTM E 662.
.6 Static charge: 200 PSI to ASTM F 970.
.7 Slip resistance: >0.60 to ASTM D 2047.
.8 Colour: as selected by Departmental Representative.

.2 Accepted product shall be provided with a written limited 12-year warranty by the manufacturer of the flooring.

.3 Joints and mouldings shall be welded with a weld bead and the edges not welded will be caulked with a sealing compound as recommended by manufacturer.

2.2 PRIMERS AND ADHESIVES

.1 Two component polyurethane adhesive, recommended by the flooring manufacturer. Adhesive must be compatible with the substrate and approved for environmental condition of cold rooms. .

.2 Finish sealant for caulking the perimeter: as recommended by the manufacturer.

2.3 RUBBER BASEBOARD

.1 Resilient baseboards: continuous, resting on the flooring, with pre-moulded ends and outside corners.

.1 Type: rubber.
.2 Model: coved.
.3 Thickness: 3.17 mm.
.4 Height: 152 mm.
.5 Length: in lengths of at least 2400 mm.
.6 Colour: as selected by Departmental Representative from supplier's standard range.

2.4 TRANSITION MOULDING

.1 Provide a reduction moulding at the bottom of the doors.

Part 3 Execution

3.1 EXAMINATION

.1 Verification of Conditions: before starting the floor covering work, verify conditions of supports/substrates previously installed under other Sections or Contracts are acceptable and allow to execute the work in accordance with manufacturer's written instructions.

.1 Ensure surfaces are dry, free of any alkalinity, carbonization, dust and that they have a good adhesion to the support, using test methods recommended by flooring manufacturer.
.2 The surfaces to receive the flooring must be prepared in accordance with the manufacturers written instructions. Before starting the work, inspect the condition of the floor, the slopes towards the drains, installation of the new culverts, traps and other floor equipment.
.3 Corrections required must be done before beginning the installation of the flooring material.

3.2 PREPARATION

.1 Proceed to the grading of the floors, levelling of the surfaces, repair holes, trimming around the perimeter of equipment, as recommended by flooring manufacturer.

.2 Fill low spots, cracks, joints, holes and other defects with sub-floor filler patching approved by manufacturer.

.3 Apply filling materials in accordance manufacturer's recommendations.

3.3 SHEET FLOORING APPLICATION

.1 Lay flooring to produce a minimum number of seams. Seams shall be parallel to the walls of the cold rooms. Unroll the strips 24 hours before starting to glue the flooring.

.2 Cut a ½ inch edge on each side of the strips. When glued to the floor, the edges of the strip must be in contact with each other without pressure.

.3 Apply adhesive uniformly using recommended trowel in accordance with the flooring manufacturer's instructions. Do not spread more adhesive than can be covered by flooring before initial set takes place.

.4 As installation progresses and after installation roll flooring with 45 kg minimum roller to ensure full adhesion.

.5 To heat weld the seams, a 4 mm groove must be made in the flooring (do not groove into the substrate) with an approved tool to ensure an adequate weld with a 4 mm bead as recommended by manufacturer.

.6 Cut flooring around fixed or very heavy objects. Seal around the whole perimeter of the cold rooms with sealant.

.7 Weld transition moulding to the flooring at the bottom of the doors.

3.4 BASEBOARD APPLICATION

.1 Lay out base to keep number of joints at minimum.

.2 Clean substrate and prime with one coat of adhesive.

.3 Apply adhesive to back of base.

.4 Set base against wall and floor surfaces tightly by using 3 kg hand roller.

.5 Install straight and level to variation of 1:1000.

.6 Scribe and fit to door frames and other obstructions. Use premoulded end pieces at flush door frames.

.7 Cope internal corners. Use premoulded corner units for right angle external corners. Use formed straight base material for external corners of other angles.

.8 Use coved type baseboards.

3.5 CLEANING

.1 Progress cleaning: proceed in accordance with Section 01 74 11 - Cleaning.

.2 Immediately remove excess adhesive from floor, base and wall surfaces with a damp cloth before it dries.

.3 Wash with a neutral soap and clean water. Rinse with clean water.

3.6 PROTECTION

.1 Protect new floors until final inspection with Kraft paper.

.2 Prohibit traffic on floor for 48 hours after the installation, as recommended by manufacturer.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 07 92 00 – Joint Sealants.

.2 Section 09 21 99 – Partitions for Minor Works.

.3 Division 22 – Plumbing.

.4 Division 26 – Electrical.

1.2 REFERENCES

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

.1 ASTM-D1929-91A, Flammability

.2 ASTM D256-10, Standard Test Methods for Determining the Izod Pendulum Impact Resistance of Plastics

.3 ASTM D638-14, Standard Test Method for Tensile Properties of Plastics

.4 ASTM D696-03, Standard Test Method for Coefficient of Linear Thermal Expansion of Plastics Between -30°C and 30°C With a Vitreous Silica Dilatometer

.5 ASTM D732-02, Standard Test Method for Shear Strength of Plastics by Punch Tool

.6 ASTM D4060-10, Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser

.7 ASTM E84- 06, Standard Test Method for Surface Burning Characteristics of Building Materials

.2 National Fire Protection Association (NFPA).

.1 NFPA 258 Recommended Practice for Determining Smoke Generation of Solid Materials.

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

.1 Material Safety Data Sheets (MSDS).

.4 South Coast Air Quality Management District (SCAQMD), California State

.1 SCAQMD Rule 1113-04, Architectural Coatings.

.2 SCAQMD Rule 1168-05, Adhesives and Sealants Applications.

1.3 SUBMITTALS

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

.2 Provide product data in accordance with Section 01 33 00 - Submittal Procedures.

.3 Provide samples in accordance with Section 01 33 00 - Submittal Procedures.
- .1 Submit duplicate 300 x 300 mm samples of covering sheet with their installation accessories.

.4 Mock-ups
- .1 Construct mock-up on site of two panels including welded joint and moulding in presence of Departmental Representative for approval.
- .2 Approved mock-up will remain as part of the Work.
- .3 Repaint the mock-up as needed, at no cost, to approval of Departmental Representative.
- .4 Do not proceed with work before mock-up is approved by Departmental Representative.

.5 Closeout Submittals:
- .1 Provide maintenance data for wall panels for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

1.4 DELIVERY, STORAGE AND HANDLING

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

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

1.5 AMBIENT CONDITIONS

.1 Only start work after having received confirmation that the substrate is in accordance with the manufacturer’s requirements.

.2 Maintain air temperature and substrate temperature of installation area above 20 degrees for 48 hours before, during and 48 hours after installation.

1.6 MAINTENANCE

.1 Extra Materials:
- .1 Provide extra materials of wall covering, adhesives and sealants in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Provide 2% of material of each pattern, texture and colour required to maintain works in good conditions.

.3 The wall covering sheets provided must be in one piece and come frome the same production lot as the installed sheets.
.4 Deliver to Departmental Representative, upon completion of work of this section.
.5 Store where indicated by Departmental Representative.

1.7 WARRANTY

.1 For the work of this Section, the 12-month warranty prescribed in General Conditions is extended to 24 months.

1.8 QUALITY ASSURANCE

.1 Installation of the work must be done by an installer recognized by the manufacturer of the PVC Wall Panels.

Part 2 Products

2.1 MATERIALS

.1 Wall panels: PVC sheet wall finish, without plasticizer, semi-rigid, heat weldable and thermo-formable with the following physical properties:
.1 Total thickness: 2.5 mm.
.2 Dimensions: 1220 mm x 2500 mm and/or 1220 mm x 3000 mm.
.3 Weight: 2.8 kg/m^2.
.4 Supplied with a protective film which can remain in place until room is used.
.5 Maximum service temperature: 60 °C. For higher temperatures and places where exposed to open flame, use stainless steel.
.6 Approved by the Canadian Food Inspection Agency.
.7 Finish and colour: plain, satin white.

.2 Accessories for PVC wall sheets:
.1 PVC profiles of type recommended by manufacturer, “J” trim type finish, to A833.
.2 Polyurethane adhesive for damp locations: as recommended by manufacturer.
.3 Vinyl welding bead of the same colour as the wall panels.
.4 Primer and double-faced tape 2 mm x 50 mm x 25 m long, as required, by manufacturer of PVC panels.
.5 Silicone based sanitary sealant.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

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

3.2 SITE VERIFICATION OF CONDITIONS

.1 Ensure substrate surfaces are in accordance with the requirement of the manufacturer, using test methods he recommended.

3.3 PREPARATION

.1 Clean wall to receive panels.

.2 Remove ridges and bumps. Fill low spots, cracks, joints, holes and other defects with substrate filler.

.3 Prime wall surface to wall panels manufacturer's printed instructions.

.4 Ensure nothing interferes with the performance of the adhesive.

.5 All plumbing and electrical fixtures penetrating wall must be installed and secured.

3.4 INSTALLATION

.1 Maintain the blue protective film in place until installation is complete; chamfer the 4 sides of the sheet at a 30° angle.

.2 Apply adhesive before applying the 2 inches double-faced tape in the centre of the joints.

.3 Indicate measures for bending and cutting the sheet and adjust carefully, dry on wall.

.4 Clean back of sheet with an anti-static agent, apply adhesive on the sheet with the supplied trowel, install sheet leaving 1/16 inch in between the sheets and 1/8 inch from door frames or fixed furniture.

.5 Roll with a hand roller to ensure the transfer of the adhesive.

.6 To make the joints, proceed as follows and according to manufacturer's recommendations.

.1 Put a hot sealing bead with the appropriate tool and ensure that the temperature of welding iron and speed of application are adequate. Trim the surface of the bead while it is still hot.
.2 When the bead has cooled down, proceed to the final cut flush with the surface of the sheets.
.3 Seal installation where required with a sanitary sealant.

3.5 FIELD QUALITY CONTROL

.1 Manufacturer's Field Services:
.1 Provide manufacturer's field services consisting of product use recommendations and periodic site visits to verify that product installation is in accordance with his instructions.

3.6 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
.1 Leave Work area clean at end of each day.

.2 Remove excess adhesive before it dries from floor, base and wall surfaces without damage with a damp cloth.

3.4 PROTECTION

.1 Leave blue protection film in place until final inspection.

.2 Clean surface with an anti-static agent.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

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

.2 Section 07 92 00 - Joint Sealants.

1.2 REFERENCES

.1 ASTM International

.1 ASTM A496/A496M-07, Standard Specification for Steel Wire, Deformed, for Concrete Reinforcement.

.2 ASTM C-905, Standard Test Methods for Apparent Density of Chemical-Resistant Mortars, Grouts, Monolithic Surfacings, and Polymer Concretes : Density, 2,125kg/L and 193kg/L.

.3 ASTM C-307, Test Method for Tensile Strength of Chemical-Resistant Mortars, Grouts and Monolithic Surfacings: 4.6 MPa and 6.5 MPa.

.4 ASTM C-413, Test Method for Absorption of Chemical- Resistant Mortars, Grouts and Monolithic Surfacings: 018 and 0.10%.

.5 ASTM C-579, Test Method for Compressive Strength of Chemical-Resistant Mortars, Grouts and Monolithic Surfacings: : 42.8 MPa and 40 MPa.

.6 ASTM C-580, Test, Method for Flexural Strength and Modulus of Elasticity of Chemical- Resistant Mortars, Grouts and Monolithic Surfacings: 11.6 MPa and 14.7 MPa.

.7 ASTM D-2794, Standard Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation: 10.21 joules and 6.81 joules, 3mm thick, 10.21 joules.

.8 ASTM D-2240, Test Method for Rubber Property – Durometer Hardness: 80-85.

.9 ASTM D-4060, Test method for Abrasion Resistance of Organic Coatings by the Taber Abrader: Abrader CS-17, charge of 1000g, 1000 cycles, Abrasion resistance: maximum weight reduction 0.1 g and 0.15 g.

.10 ASTM D696, Test Method for Linear Thermal Expansion of Solid Materials by Thermochemical Analysis: Thermal expansion coefficient: 2.8 x 10-5 m/m□C and 1.6 x 10-5 m/m□C.

.11 ASTM D-3273, Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber: Resistance to growth of mold, 10.

.12 ASTM E96/E96M-13 - Standard Test Methods for Water Vapor Transmission of Materials.

.2 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-25.20-95, Surface Sealer for Floors.
.2 CAN/CGSB-25.21-95, Detergent-Resistant Floor Polish.
.3 CAN/CGSB-25.20-M88, Surface Sealer for Floors

.3 Green Seal Environmental Standards (GS)
.1 GS-11-2008, 2nd Edition, Paints and Coatings.

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

.5 South Coast Air Quality Management District (SCAQMD), California State
.1 SCAQMD Rule 1113-A2007, Architectural Coatings.

1.3 QUALITY ASSURANCE

.1 Single source responsibility: Obtain primary polyurethane resin floor covering and materials including primers, resin, hardening agents, finishes or sealing coat from single manufacturer. Provide secondary materials only of type recommended by manufacturer of primary materials.

1.4 ACTION AND INFORMATION SUBMITTALS

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

.2 Product data
.1 Submit required product data sheets, instructions and manufacturer's printed product literature. Product data sheets must indicate product characteristics, performance criteria, physical size, finish and limitations.
.2 Provide installation instructions for the polyurethane resin-based floor covering and sanitary baseboards.
.3 Submit two (2) copies of WHMIS MSDS – Material Safety Data Sheets in accordance with Section 01 35 29.05 – Health and Safety and Section 01 35 43 – Environmental Procedures.
.1 Data sheets must indicate VOC's in g/L of epoxy coating, zinc coating and touch-up products to be applied inside the building.

.3 Samples / Mock-ups
.1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
.2 Submit to Departmental Representative duplicate 600 x 600 mm samples on rigid panel prepared in accordance with manufacturer's specifications and producing the colours and finishes prescribed for review and acceptance. Include floor covering and baseboard.
.3 After acceptance of sample, produce a mock-up of the floor covering and the sanitary baseboard on a 9 m^2 floor surface in an inside corner of the floor surface to be covered to show the quality of workmanship of the system, including the junction between the baseboard and the flooring

and the intersection between two baseboards. Once approved the mock-up will become the standard of reference for the appearance, colour, texture, workmanship, etc., and all work must be in compliance with the mock-up.

1.5 DELIVERY, STORAGE AND HANDLING

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

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

.3 Storage and Handling Requirements:
- .1 Store materials indoors in their original undamaged packaging, in a dry location with a temperature varying between 10 °C and 25 °C. Protect from freezing.
- .2 Store materials off ground indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area. Maintain a constant temperature for at least 3 days so products can get accustomed to the conditions where they will be installed.
- .3 Replace defective or damaged materials with new.

.4 All the components must be measured and packaged in shop in mixing units that are easy to manage so as to eliminate any risk of batching errors while mixing products on-site. In no case will batching by component weight or volume be permitted on-site.

.5 Packaging Waste Management: remove for reuse and return by manufacturer of pallets, crates, padding and packaging materials as specified in Waste Reduction Workplan, in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

1.6 AMBIENT CONDITIONS

.1 Comply with the written requirements and recommendations of manufacturer in all steps of the work.

.2 Ventilation: provide continuously during and after installation. Run system 24 hours per day during installation.

.3 Installation temperature: General Contractor must supply services, including electricity, water, heating (to maintain ambient temperature between 7 °C and 30 °C) and ensure permanent lighting is installed. Seven days prior to start of work until 48 hours after they are finished, ambient temperature must not go below 18 °C and the substrate temperature below 16 °C.

.4 Moisture: ensure substrate is within moisture limits recommended by manufacturer.

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

.6 General Contractor will be responsible for protecting the finished floor against all damages by workers of other trades.

.7 Install appropriate barriers and readable signage at entries to avoid general traffic and work trades on the site during installation and cure of the floor covering.

.8 Manufacturer representative must be present on site when the workers start the installation.

1.7 WASTE MANAGEMENT AND DISPOSAL

.1 Develop Construction Waste Management Plan related to Work of this Section.

.2 Polyurethane products are hazardous products and are subject to regulations for disposal. Information on these controls can be obtained from Provincial Ministries of Environment and Regional levels of Government.

.3 Materials that cannot be reused must be treated as hazardous waste and disposed of in an appropriate manner.

.4 Place materials defined as hazardous or toxic waste, including used sealant and adhesive tubes and containers, in containers or areas designated for hazardous waste.

.5 To reduce the amount of contaminants entering waterways, sanitary/storm drain systems or into the ground the following procedures shall be strictly adhered to:

- .1 Retain cleaning water for water-based materials to allow sediments to be filtered out. In no case shall equipment be cleaned using free-draining water.
- .2 Retain cleaners, thinners, solvents and excess paint and place in designated containers and ensure proper disposal.
- .3 Retain solvent and oil-soaked rags used during painting operations for contaminant recovery, proper disposal, or appropriate cleaning and laundering.
- .4 Dispose of contaminants in an approved legal manner in accordance with hazardous waste regulations.
- .5 Empty paint cans are to be dry prior to disposal or recycling (where available).
- .6 Where paint recycling is available, collect waste materials by type and provide for delivery to recycling or collection facility.
- .7 Set aside and protect surplus and uncontaminated finish materials. Deliver to or arrange collection by organizations for verifiable reuse or remanufacturing.

.8 Close and seal tightly partly used cans of materials including sealant and adhesive containers and store protected in well-ventilated fire-safe area at moderate temperature.

1.8 IN-SITU TEST

.1 Conduct **moisture tests** and verify other conditions as required by the manufacturer before starting the work using the methods recommended by manufacturer.

.2 Submit corresponding test results to Departmental Representative 48 hours after tests are done.

.3 Beginning of installation means acceptance of the slab's existing conditions and that they are in accordance with the requirements of the manufacturer.

.4 The presence of manufacturer's representative is mandatory at the beginning, at the end and randomly during the work to verify the work procedures and approve the preconditions and the results.

1.9 WARRANTY

.1 For the work of this Section, the 12-month warranty prescribed General Conditions is extended to 24 months.

Part 2 Products

2.1 FLOORING SYSTEM

.1 Seamless non-slip flooring system, cementitious polyurethane based, thermal shock resistant at high temperature, in accordance with the Canadian Food Inspection Agency.

.2 Solid colour: CSC choice in standard manufacturer color.

2.2 MATERIALS – (UR1) FLOOR

.1 Base coat: three components cementitious polyurethane self-levelling floor screed, final thickness 6,0 mm.

.2 Finish coat: high-built UV resistant coating, without solvents, cementitious polyurethane based, 15 mils thick. Finish: Matte.

.3 Primer: no primer needed unless the examination of the condition of the slab dictates it is necessary; if such is the case use primer recommended by manufacturer.

.4 Non-slip surface: silica sand, 32 mesh (500 µm) grain size, completely saturated in the base coat at a rate of 4.84 kg/m^2.

2.3 MATERIALS – SANITARY BASEBOARD (UR2)

.1 Base coat: three components cementitious polyurethane based aggregate mortar in aqueous phase, solid colour, that can be applied on vertical surfaces, used to shape details in the baseboards or the coves.

.2 Finish coat: high-built UV resistant coating, without solvents, cementitious polyurethane based, 12 mils thick.

.3 Primer: epoxy based adhesive with 100% solid matter, applied 10 mils thick.

.4 Height of coved base: 150 mm. Docked in floor junction of 38 mm.

.5 Sanitary baseboard finish: smooth.

2.4 SCEALANT

.1 Sealant at junction of flooring and prefabricated cooler/freezer: two-component elastomeric polyurethane sealant as recommended by flooring manufacturer.

Part 3 Execution

3.1 EXAMINATION

.1 Verification of Conditions: before starting the floor covering work, verify conditions of supports/substrates previously installed under other Sections or Contracts are acceptable and allow to execute the work in accordance with manufacturer's written instructions.
- .1 Proceed to a visual inspection of the surfaces/supports in presence of the 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 PREPARATION

.1 Mechanical preparation for floors:
- .1 Shot blasting: use steel shot and self-contained abrasive blasting equipment to obtain clean, "white" concrete with uniform stipple finish.
- .2 Ensure that all slabs have surface profile ICRI CSP 3 – 5.
- .3 Remove subfloor ridges and bumps. Fill low spots, cracks, joints, holes and other defects with sub-floor filler.
- .4 Clean floor and apply concrete filler to build up slopes; trowel and float to leave smooth, hard flat surface.
- .5 Saw cut two kerfs 13 mm deep and 13 mm wide where the flooring ends, around the floor drains and along the walls for the flooring and the baseboard or as directed by manufacturer.
- .6 If applicable, cover the adjacent surfaces, fixed accessories and equipment with a tarp or other means to protect them against damage caused by projection, spill or other damages which can occur during the work.
- .7 Before applying the flooring, check the moisture of the surface of the substrate with an impedance hygrometer designed for concrete, to ASTM F710. Acceptable results shall be 4% or less according to the weight.
- .8 Pre-painted concrete surface preparation: ensure existing coating is sanded thoroughly and that surface has a completely mat finish before applying covering. If the existing coating is peeling or has improper adhesion, it must be removed before installing the new system.
- .9 Follow the recommendations of manufacturer prescribed on the technical data sheets for the preparation of concrete block walls. On painted concrete block walls, ensure that existing coating is sanded thoroughly and that surface has a completely mat finish before applying covering. If the existing coating is peeling or has improper adhesion, it must be removed before installing the new system.

3.3 INSTALLATION

.1 Floor covering.
- .1 Comply with the written installation directives of the manufacturer.
- .2 Base coat: apply one coat of cementitious polyurethane resin floor covering, 4.5 mm thick.
- .3 Sprinkle the silica sand until complete saturation to render the base coat to a final 6 mm thick.
- .4 After 24 hours of hardening, level the ridges and vacuum/clean the surplus of silica and dust. Prepare surface to receive finish coat.
- .5 Finish coat: apply finish coat to a maximum thickness of 15 mils.

.2 Sanitary baseboard
- .1 Primer for sanitary baseboards and vertical surfaces: mix the two components of the primer and apply to the prepared support in strict conformity with the process and application rate of the manufacturer. Coordinate the primer application with that of the smoothened base to ensure optimal adherence of the polyurethane coating to the support.
- .2 Apply one coat of primer on vertical surfaces of 10 mils thick.

.3 Form the sanitary baseboards and the lower part of the walls with the polyurethane mortar of 3 mm thick on vertical surfaces to a height of 150 mm and 6 mm thick on the floor. The radius of the baseboard shall be of 25 mm.

.3 Sealant installation.

.1 Install sealant at junction of flooring and prefabricated cooler/freezer. Follow manufacturer instruction.

3.4 FIELD QUALITY CONTROL

.1 Inspections and testing will be done by the testing laboratory designated by Departmental Representative.

3.5 CURE, CLEANING AND PROTECTION OF THE WORK

.1 Cure the polyurethane floor covering in accordance with manufacturer's directives, ensuring protection against all contamination during all the stages of the work prior to the complete cure of the finished floor covering. Close access to area where floor covering was applied for at least 24 hours.

.2 Protect polyurethane floor covering against all damage or wear during construction. When temporary protection is required, follow manufacturer's recommendations for the selection of protection materials and the methods for applying them. The General Contractor is responsible for the protection and cleaning of the surfaces after the final coats have been applied.

.3 Cleaning: remove the temporary protection device and clean the polyurethane floor covering before the final inspection. Use cleaning products and methods recommended by the manufacturer of the polyurethane floor covering.

.4 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.

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

.5 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 04 04 99 – Masonry for Minor Works.

.2 Section 09 21 99 – Painting for Minor Works.

1.2 REFERENCES

.1 Canada Green Building Council (CaGBC)
- .1 LEED Canada-NC Version 1.0-2004, LEED (Leadership in Energy and Environmental Design): Green Building Rating System Reference Package For New Construction and Major Renovations (including Addendum 2007).
- .2 LEED Canada-CI Version 1.0-2007, LEED (Leadership in Energy and Environmental Design): Green Building Rating System Reference Guide For Commercial Interiors.

.2 Green Seal Environmental Standards (GS)
- .1 GS-11-2008, 2nd Edition, Paints and Coatings.

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

.4 The Master Painters Institute (MPI)
- .1 Architectural Painting Specification Manual - current edition.
- .2 Maintenance Repainting Manual - current edition.

.5 South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards
- .1 SCAQMD Rule 1113-A2007, Architectural Coatings.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:
- .1 Submit manufacturer's instructions, printed product literature and data sheets for paint and coating products and include product characteristics, performance criteria, physical size, finish and limitations.
- .2 Submit 2 copies of WHMIS MSDS in accordance with Section 01 35 29.06 - Health and Safety Requirements and Section 01 35 43 - Environmental Procedures.

.3 Samples:
- .1 Submit for review and acceptance of each unit.

.2 Samples will be returned for inclusion into work.
.3 Submit duplicate 200 x 300 mm sample panels of each paint with specified paint or coating in colours, gloss/sheen and textures required to MPI Painting Specification Manual standards.

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

1.4 DELIVERY, STORAGE AND HANDLING

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

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

.3 Storage and Handling Requirements:
.1 Provide and maintain dry, temperature controlled, secure storage.
.2 Store painting materials and supplies away from heat generating devices.
.3 Store materials and equipment in well ventilated area within temperature as recommended by manufacturer.

.4 Fire Safety Requirements:
.1 Supply one 9 kg Type ABC dry chemical fire extinguisher adjacent to storage area.
.2 Store oily rags, waste products, empty containers and materials subject to spontaneous combustion in ULC approved, sealed containers and remove from site on a daily basis.
.3 Handle, store, use and dispose of flammable and combustible materials in accordance with National Fire Code of Canada requirements.

.5 Packaging Waste Management: retrieve packaging materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

1.5 SITE CONDITIONS

.1 Heating, Ventilation and Lighting:
.1 Ventilate enclosed spaces in accordance with Section 01 51 00 - Temporary Utilities.
.2 Co-ordinate use of existing ventilation system with Departmental Representative and ensure its operation during and after application of paint as required.
.3 Provide minimum lighting level of 323 Lux on surfaces to be painted.

.2 Temperature, Humidity and Substrate Moisture Content Levels:

.1 Apply paint finishes when ambient air and substrate temperatures at location of installation can be satisfactorily maintained during application and drying process, within MPI and paint manufacturer's prescribed limits.
.2 Test concrete, masonry and plaster surfaces for alkalinity as required.
.3 Apply paint to adequately prepared surfaces, when moisture content is below paint manufacturer's prescribed limits.

.3 Additional application requirements:
.1 Apply paint finish in areas where dust is no longer being generated by related construction operations or when wind or ventilation conditions are such that airborne particles will not affect quality of finished surface.
.2 Apply paint in occupied facilities during silent hours only. Schedule operations to approval of Departmental Representative such that painted surfaces will have dried and cured sufficiently before occupants are affected.

Part 2 Products

2.1 MATERIALS

.1 Supply paint materials for paint systems from single manufacturer.

.2 Conform to latest MPI requirements for painting work including preparation and priming.

.3 Materials in accordance with MPI - Architectural Painting Specification Manual and MPI - Maintenance Repainting Manual "Approved Product" listing.
.1 Use MPI listed materials having [E2] [E3] rating where indoor air quality requirements exist.
.2 Primer: VOC limit 100 g/L maximum to GS-11, SCAQMD Rule 1113.
.3 Paint: VOC limit 100 g/L maximum to GS-11, SCAQMD Rule 1113.

.4 Colours:
.1 Submit proposed Colour Schedule to Departmental Representative for review.

.5 Mixing and tinting:
.1 Perform colour tinting operations prior to delivery of paint to site, in accordance with manufacturer's written recommendations. Obtain written approval from Departmental Representative for tinting of painting materials.
.2 Use and add thinner in accordance with paint manufacturer's recommendations.
.1 Do not use kerosene or similar organic solvents to thin water-based paints.
.3 Thin paint for spraying in accordance with paint manufacturer's written recommendations.

.4 Re-mix paint in containers prior to and during application to ensure break-up of lumps, complete dispersion of settled pigment, and colour and gloss uniformity.

.6 Gloss/sheen ratings:

.1 Paint gloss is defined as sheen rating of applied paint, in accordance with following values:

	Gloss @ 60 degrees	Sheen @ 85 degrees
Gloss Level 1 - Matte Finish (flat)	Max. 5	Max. 10
Gloss Level 2 - Velvet-Like Finish	Max.10	10 to 35
Gloss Level 3 - Eggshell Finish	10 to 25	10 to 35
Gloss Level 4 - Satin-Like Finish	20 to 35	min. 35
Gloss Level 5 - Semi-Gloss Finish	35 to 70	
Gloss Level 6 - Traditional Gloss	70 to 85	
Gloss Level 7 - High Gloss Finish	More than 85	

.2 Gloss level ratings of painted surfaces as indicated.

.7 Interior painting:

.1 Concrete masonry units (blocks) – Other than Kitchen

.1 INT 4.2A - Latex Velvet-Like finish, over sealant. Primer as recommended by manufacturer.

.2 Concrete masonry units (blocks) – Kitchen Zone

.1 INT 4.2J - Waterborne epoxy finish. Primer as recommended by manufacturer.

.3 Structural Steel and Metal Fabrications: columns, beams, joists and miscellaneous metal.

.1 INT 5.1E Alkyd – Mat finish.

.4 Galvanized Metal: high contact/high traffic areas (doors, frames, railings and handrails, etc.).

.1 INT 5.3C Alkyd over cementitious primer - Latex Semi-Gloss

.5 Plaster and gypsum board: gypsum wallboard, drywall, "sheet rock" type material, etc.

.1 INT 9.2A - Latex Eggshell finish.

.6 Hardwood on cabinetwork

.1 INT 6.4G – Alkyd Varnish, Gloss finish

.8 Interior re-painting:

.1 Concrete masonry units (blocks) – Other than Kitchen

.1 RIN 4.2A - Latex Velvet-Like finish, over sealant. Primer as recommended by manufacturer.

.2 Concrete masonry units (blocks) – Kitchen Zone

.1 RIN 4.2J - Waterborne epoxy finish. Primer as recommended by manufacturer.

.3 Structural Steel and Metal Fabrications: columns, beams, joists and miscellaneous metal.

.1 RIN 5.1E Alkyd – Mat finish.

.4 Galvanized Metal: high contact/high traffic areas (doors, frames, railings and handrails, etc.).
.1 RNT 5.3C – Alkyd, Semi-Gloss finish.

.5 Plaster and gypsum board: gypsum wallboard, drywall, "sheet rock" type material, etc.
.1 RIN 9.2A - Latex Eggshell finish.

Kitchen zone is define as the following rooms: 1, 2, 3, 4, 5, 6, 6A, 11, 12, 13, 14, 16, 17, 18, 19 et 20.

Part 3 Execution

3.1 GENERAL

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

.2 Perform preparation and operations for interior painting in accordance with MPI - Architectural Painting Specifications Manual and MPI - Maintenance Repainting Manual except where specified otherwise.
.1 Level : PREMIUM GRADE.

3.2 EXAMINATION

.1 Investigate existing substrates for problems related to proper and complete preparation of surfaces to be painted. Report to Departmental Representative damages, defects, unsatisfactory or unfavourable conditions before proceeding with work.

.2 Conduct moisture testing of surfaces to be painted using properly calibrated electronic moisture meter, except test concrete floors for moisture using simple "cover patch test". Do not proceed with work until conditions fall within acceptable range as recommended by manufacturer.

3.3 PREPARATION

.1 Protection of in-place conditions:
.1 Protect existing building surfaces and adjacent structures from paint spatters, markings and other damage by suitable non-staining covers or masking. If damaged, clean and restore surfaces as directed by Departmental Representative.
.2 Protect items that are permanently attached such as Fire Labels on doors

and frames.

.3 Protect factory finished products and equipment.

.2 Surface Preparation:

.1 Remove electrical cover plates, light fixtures, surface hardware on doors, bath accessories and other surface mounted equipment, fittings and fastenings prior to undertaking painting operations. Identify and store items in secure location and re-installed after painting is completed.

.2 Move and cover furniture and portable equipment as necessary to carry out painting operations. Replace as painting operations progress.

.3 Place "WET PAINT" signs in occupied areas as painting operations progress. Signs to approval of Departmental Representative.

.4 Clean and prepare surfaces in accordance with MPI - Architectural Painting Specification Manual and MPI - Maintenance Repainting Manual specific requirements and coating manufacturer's recommendations.

.5 Prevent contamination of cleaned surfaces by salts, acids, alkalis, other corrosive chemicals, grease, oil and solvents before prime coat is applied and between applications of remaining coats. Apply primer, paint, or pretreatment as soon as possible after cleaning and before deterioration occurs.

.6 Where possible, prime non-exposed surfaces of new wood surfaces before installation. Use same primers as specified for exposed surfaces.

.1 Apply vinyl sealer to MPI #36 over knots, pitch, sap and resinous areas.

.2 Apply wood filler to nail holes and cracks.

.3 Tint filler to match stains for stained woodwork.

.7 Sand and dust between coats as required to provide adequate adhesion for next coat and to remove defects visible from a distance up to 1000 mm.

.8 Clean metal surfaces to be painted by removing rust, loose mill scale, welding slag, dirt, oil, grease and other foreign substances in accordance with MPI requirements.

.9 Touch up of shop primers with primer as specified.

3.4 APPLICATION

.1 Paint only after prepared surfaces have been accepted by Departmental Representative.

.2 Use method of application approved by Departmental Representative.

.1 Conform to manufacturer's application recommendations.

.3 Apply coats of paint in continuous film of uniform thickness.

.1 Repaint thin spots or bare areas before next coat of paint is applied.

.4 Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.

.5 Sand and dust between coats to remove visible defects.

.6 Finish surfaces both above and below sight lines as specified for surrounding surfaces, including such surfaces as tops of interior cupboards and cabinets and projecting ledges.

.7 Finish inside of cupboards and cabinets as specified for outside surfaces.

.8 Finish closets and alcoves as specified for adjoining rooms.

.9 Finish top, bottom, edges and cutouts of doors after fitting as specified for door surfaces.

.10 Mechanical/Electrical Equipment:
- .1 Paint conduits, piping, hangers, ductwork and other mechanical and electrical equipment exposed in finished areas, to match adjacent surfaces, except as indicated.
- .2 Do not paint over nameplates.
- .3 Keep sprinkler heads free of paint.
- .4 Paint fire protection piping red.
- .5 Paint disconnect switches for fire alarm system and exit light systems in red enamel.
- .6 Paint natural gas piping yellow.
- .7 Paint both sides and edges of backboards for telephone and electrical equipment before installation.
  - .1 Leave equipment in original finish except for touch-up as required, and paint conduits, mounting accessories and other unfinished items.

3.5 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
- .1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

.3 Waste Management: separate waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

.4 Place paint, stains and primer defined as hazardous or toxic waste, including tubes and containers, in containers or areas designated for hazardous waste.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 04 04 99 – Masonry for Minor Works.

.2 Section 06 40 00 – Architectural Woodwork.

.3 Section 09 67 14 – Seamless Polyurethane Resin Floor Covering.

1.2 REFERENCES

.1 American Society for Testing and Materials International (ASTM)
- .1 ASTM A 167-99, Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.

.2 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-71.20-M88, Adhesive, Contact, Brushable.

.3 Canadian Standards Association (CSA International)
- .1 CAN/CSA-B651-95, Accessible Design for the Built Environment.

1.3 SUBMITTALS

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

.2 Shop Drawings:
- .1 Indicate fabrication details, plans, elevations, hardware, and installation details.

.3 Samples:
- .1 Submit duplicate 300 x 300 mm samples of panel showing finish on both sides, two finished edges and core construction.
- .2 Submit duplicate representative samples of each hardware item, including brackets, fastenings and trim.

.4 Quality control submittals:
- .1 Manufacturer's Instructions: submit manufacturer's installation instructions and special handling criteria, installation sequence and cleaning procedures.

.5 Closeout Submittals:
- .1 Provide maintenance data for plastic laminate for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

1.4 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.

.2 Protect finished laminated plastic surfaces during shipment and installation. Do not remove until immediately prior to final inspection.

.3 Waste Management and Disposal:
- .1 Separate waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

Part 2 Products

2.1 MATERIALS

.1 Laminated, solid plastic toilet partitions attached to floor and supported by headrail

.2 Core material: laminated solid plastic (all panels): to CAN3-A172-M79, freestanding, 19 mm thick, colour and finish as selected by Departmental Representative.

.3 Laminated plastic sheet: to CAN3-0188.1-M78, general usage type, colour and finish as selected by Departmental Representative.

.4 Laminated plastic adhesive: contact cement, to CGSB-71-GP-20M.

.5 Stainless steel sheet metal: to ASTM A 167, Type 304 with satin finish.

.6 Pilaster shoe: 0.8 mm stainless steel, 75 mm high.

.7 Attachment: stainless steel tamper proof type screws and bolts.

.8 Acceptable products: Décolam, Bobrick, Hadrian or other product approved by addendum as described in Tenderer Instructions.

2.2 COMPONENTS

.1 Hinges:
- .1 Heavy duty, non-lubricating with nylon bushings.
- .2 Material/finish: chrome plated non-ferrous casting.
- .3 Swing: inward.
- .4 Return movement: gravity.
- .5 Adjustable to hold door open at any angle up to 90 degrees.
- .6 Emergency access feature.

.2 Latch set: cast stainless steel, with emergency access feature allowing quick access to shower or dressing compartment by lifting the door.

.3 Wall and connecting brackets: stainless steel extrusion or casting.

.4 Door pull: J type, suited for outswinging doors, stainless steel.

.5 Top brace: extruded aluminium, clear anodized finish, anti-seize type.

.6 Stainless steel sheet: to ASTM A167-82, type 304, brushed finish.

.7 Fasteners: stainless steel tamperproof exposed screws, type 410, for more hardness.

.8 Sealer: water resistant sealer or glue as recommended by laminate manufacturer.

.9 Black polypropylene felt imbedded on either side of the partition (view obstruction or astragal).

2.3 FABRICATION

.1 Doors, panels and screens: 19 mm thick, solid plastic laminate panels, to sizes indicated.

.2 Laminate plastic to core material with press, ensuring core and laminate profiles coincide to provide continuous support and bond over entire surface.

.3 Chamfer exposed edges uniformly at approximately 20 degrees.

2.4 FINISH

.1 Steel components must be cleaned, degreased and neutralized using a phosphate or chromate product treatment.

.2 Doors, posts, partitions and benches must be the same colour.

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 Ensure supplementary anchorage, if required, is in place.

.2 Do work in accordance with CAN/CSA-B651.

3.3 ERECTION

.1 Partition erection:
- .1 Install partitions secure, plumb and square.
- .2 Leave 12 mm space between wall and panel or end pilaster.
- .3 Anchor mounting brackets to masonry or concrete surfaces using screws and shields: to hollow walls using bolts and toggle type anchors, to steel supports with bolts in threaded holes.
- .4 Attach panel and pilaster to brackets with through type sleeve bolt and nut.
- .5 Provide for adjustment of floor variations with screw jack through steel saddles made integral with pilaster. Conceal floor fixings with stainless steel shoes.
- .6 Equip each door with hinges and latch set. Adjust and align hardware for proper function. Set door open position at 30 degrees to front.
- .7 Equip outswinging doors with door pulls on inside and outside of door in accordance with CSA-B651.
- .8 Install hardware and grab bars.

3.4 CLEANING

.1 Proceed in accordance with Section 01 74 11 - Cleaning.

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

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 04 04 99 – Masonry for Minor Works.

.2 Section 09 21 99 – Partitions for Minor Works.

1.2 REFERENCES

.1 American Society for Testing and Materials International (ASTM)
- .1 ASTM A123/A123M-13, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- .2 ASTM A 653/A 653M-13, Standard Specification for Steel Sheet, Zinc-Coated, (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

.2 Canadian Standards Association (CSA International)
- .1 CSA-G40.20-/G40.21-13, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
- .2 CSA W59-13, Welded Steel Construction (Metal Arc Welding).

.3 Green Seal Environmental Standards
- .1 Standard GS-11-2013, Architectural Paints.

.4 The Master Painters Institute (MPI)
- .1 Architectural Painting Specification Manual – Current Edition.
  - .1 MPI # 47, Alkyd, Interior, Semi-Gloss.
  - .2 MPI # 76, Quick Dry Alkyd Metal Primer.
  - .3 MPI # 81, Machinery Enamel.
  - .4 MPI # 96, Quick Dry Enamel Gloss.

.5 South Coast Air Quality Management District (SCAQMD), California State
- .1 SCAQMD Rule 1113-13, Architectural Coatings.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:
- .1 Submit manufacturer's printed product literature for wire mesh partitions or components, specifications and data sheets and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Shop Drawings:

.1 Submit drawings stamped and signed by professional engineer registered or licensed in the Province of Québec, Canada.
.2 Indicate partition panel modules and types, materials, gauges, finishes, door and other openings, hardware, fastening methods to adjacent structure, ceiling details, and assembly methods.

.4 Samples:
.1 Submit duplicate 300 x 300 mm samples of each type partition and colour and finish on actual base metal.
.2 Sample to show basic construction, door construction, hardware, and finishes.
.3 Erect trial assembly of at least two modules of each type partition, on site where directed by Departmental Representative.

.5 Sustainable Design Submittals:
.1 Construction Waste Management: submit copy of Waste Management Plan for project highlighting recycling and salvage requirements.
.2 Provide calculations on end-of-project recycling rates, salvage rates, and landfill rates demonstrating that 75 % of construction wastes were recycled or salvaged.

1.4 QUALITY ASSURANCE

.1 Mock-ups:
.1 Construct mock-ups in accordance with Section 01 45 00 - Quality Control.
.2 Erect one of each type door and two of each type partition panel.
.3 Allow 24 hours for inspection of mock-up by Departmental Representative before proceeding with work.
.4 When accepted, mock-up will demonstrate minimum standard for this work.
.5 Mock-up may remain as part of finished work.

1.5 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 off ground indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
.2 Store and protect materials from nicks, scratches, and blemishes.
.3 Replace defective or damaged materials with new.

.4 Packaging Waste Management: retrieve packaging materials in accordance with Construction Waste Management Plan and to Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

Part 2 Products

2.1 MATERIALS

.1 Partition mesh: 3.6 mm wire mesh, painted by electrolytic coating.
- .1 Welded mesh: painted wire, opening size 50 x 50 mm wire.
- .2 Galvanized steel sheet: commercial quality, to ASTM A 653/A 653M with Z275 zinc coating.

.2 Steel sections and plates: to CSA-G40.20/G40.21, type 44W.
- .1 Posts: hollow steel tubing, square 50 x 50 mm, painted, welded construction, designed to fasten to floors and walls, minimum wall thickness 2 mm.
- .2 Extension posts: 44 x 44 mm hollow steel tubing, minimum wall thickness 1.6 mm.
- .3 Angle frame: 32 x 32 x 3 mm.
- .4 Post caps: manufacturer's standard formed cap; finish to match other components.

.3 Welding materials: to CSA W59.

.4 Bolts, fasteners and fastening hardware: manufacturer's standard to suit design and application.

2.2 ACCESSORIES

.1 Master Key Systems and Padlocks: manufacturer’s standard products.

2.3 FABRICATION

.1 Panels:
- .1 Fabricate panels 2400 x 1200 mm and special sizes or shapes as required consisting of wire mesh and sheet metal as indicated, welded at 100 mm on centre to angle frame.
- .2 Mitre and weld frame corners.
- .3 Provide 20 x 6 mm flat bars across panels at third points on 2400 mm dimension.

.2 Posts:
- .1 2400 mm high with floor and ceiling plates for fixing and post cap.
- .2 Include corner, wall, door and other special posts to manufacturer's standard.

.3 Post extensions:
- .1 Length required to telescope 300 mm into post and extend posts to ceiling.
- .2 Weld ceiling plate on upper end for fixing.
- .3 Supply extension posts for every post.

.4 Swing doors: standard wire mesh doors:
- .1 Sizes as indicated.
- .2 Construct doors and transom above angle frame, wire mesh and sheet metal as indicated.
- .3 Reinforce door with 40 x 5 mm or equivalent flat bar centre rail and 20 x 6 mm or equivalent flat bar bracing from centre rail to opposite corners on hinge side.

.5 Swing doors room 5: metal panel:
- .1 Sizes as indicated.
- .2 Construct doors and transom above angle frame and corrugated sheet metal gauge 16 min..

.6 Swing door hardware:
- .1 Equip doors with stops, keeper, hasp for padlock.
- .2 Equip standard doors with 1-1/2 pair of butts.
- .3 Equip Dutch doors with 2 pairs of butts.

.7 Sliding doors:
- .1 Sizes as indicated.
- .2 Construct of angle frame and sheet metal as indicated.
- .3 Reinforce corners and at intermediate points horizontally and vertically with flat bar or angle, to manufacturer's standard design for door sizes specified.
- .4 Equip sliding doors with:
  - .1 Box type sliding door track, 135 kg capacity, fabricated from 1.6 mm thick galvanized steel.
  - .2 Hanger/trolleys, minimum 70 kg capacity each, consisting of four 54 mm dia, formed, galvanized, steel rollers, on hardened ball bearings, set in cadmium plated forged steel frame, with 16 mm diameter pendant bolt for adjustable attachment to door.
  - .3 Supply 2 hangers/trolleys per door.
  - .4 Door guides, door stops, keeper, hasp for padlock.

2.4 FINISHES

.1 After fabrication, clean and paint components with manufacturer's standard primer and 2 coats enamel finish.
- .1 Colour to be selected by Departmental Representative.
- .2 Paint materials: in accordance with Section 09 91 99 – Painting for Minor Works.

.1 Primer: maximum VOC limit 250 g/L to Standard GS-11.
.2 Enamel Finish: maximum VOC limit 50 g/L to Standard GS-11.

Part 3 Execution

3.1 EXAMINATION

.1 Verification of Conditions: verify conditions of substrates and surfaces to receive wire mesh partitions previously installed under other Sections or Contracts are acceptable for product installation in accordance with manufacturer's instructions prior to wire mesh partition installation.
- .1 Make a visual inspection of surfaces/supports 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 from Departmental Representative.

3.2 ERECTION

.1 Install mesh enclosures and doors in accordance with manufacturer's printed instructions.

.2 Erect enclosures plumb, level, straight, rigidly supported, and securely fastened to abutting surfaces, free from superimposed loads.

.3 Fix to masonry and concrete using lag bolts and shields; to hollow walls using bolts and toggle type anchors; to steel supports with bolts in threaded holes or spot welds.
- .1 Locate fasteners on interior side where possible for maximum security.

.4 Install doors and wickets and adjust for proper closing, locking and smooth operation.
- .1 Mount sliding doors on exterior side of enclosed area.

3.3 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
- .1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

.3 Waste Management: separate waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 04 04 99 – Masonry for Minor Works.

.2 Section 09 21 99 – Gypsum partitions and ceiling for Minor Works.

.3 Section 09 30 13 – Ceramic Tiles.

.4 Section 10 21 13.19 – Plastic Toilets Compartments.

1.2 REFERENCES

.1 ASTM International
- .1 ASTM A 167-99(2009), Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
- .2 ASTM B 456-03(2009), Standard Specification for Electrodeposited Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium.
- .3 ASTM A 653/A 653M-10, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- .4 ASTM A 924/A 924M-10a, Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.

.2 CSA International
- .1 CAN/CSA-B651-04(R2010), Accessible Design for the Built Environment.
- .2 CAN/CSA-G164-M92(R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:
- .1 Provide manufacturer's printed product literature and data sheets and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Shop Drawings:
- .1 Indicate size and description of components, base material, surface finish inside and out, hardware and locks, attachment devices, description of rough-in-frame, building-in details of anchors for grab bars.

.4 Samples:
- .1 Submit samples in accordance with Section 01 33 00 - Submittal

Procedures.
.2 Submit samples for each accessory included in this Section.
.3 Samples will be returned for inclusion into work if in accordance with this Section.

1.4 CLOSEOUT SUBMITTALS

.1 Submit the complete list of accessories for the project and indicate their quantity and location.

.2 Provide maintenance data for toilet and bath accessories for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

1.5 MAINTENANCE MATERIAL SUBMITTALS

.1 Tools:
.1 Provide special tools required for assembly, disassembly or removal for toilet and bath accessories in accordance with requirements specified in Section 01 78 00 - Closeout Submittals.
.2 Deliver special tools to Departmental Representative.

1.6 DELIVERY, STORAGE AND HANDLING

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

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

.3 Storage and Handling Requirements:
.1 Store materials off ground indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
.2 Store and protect toilet and bathroom accessories from nicks, scratches, and blemishes.
.3 Replace defective or damaged materials with new.

.4 Packaging Waste Management: remove for reuse and return by manufacturer of pallets, crates, padding and packaging materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

1.7 WARRANTY

.1 For the work of this Section 10 28 10, Toilet and Bath Accessories, the 12-month warranty is extended to 120 months.

Part 2 Products

2.1 MATERIALS

.1 Sheet steel: to ASTM A 653/A 653M with ZF001 designation zinc coating.

.2 Stainless steel sheet metal: to ASTM A 167, Type 304, with no. 4 finish.

.3 Sustainability Characteristics:
- .1 Laminate Adhesives.
  - .1 Urea Formaldehyde Free.

.4 Stainless steel tubing: Type 304, to ASTM A269, commercial grade, seamless welded, 1.2 mm wall thickness.

.5 Fasteners: concealed screws and bolts hot dip galvanized, exposed fasteners to match face of unit. Expansion shields fibre, lead or rubber as recommended by accessory manufacturer for component and its intended use. Fasteners must be tamperproof such as TORK Plus screws.

2.2 COMPONENTS

.1 List of accessories or approved equal by Departmental Representative; quantities and locations as indicated on the drawings.
- .1 Toilet tissue dispenser: B-2888 by Bobrick.
- .2 Paper towel dispenser: B-4262 by Bobrick.
- .3 Soap dispenser: B-4112 by Bobrick.
- .4 Paper disposal bin: surface mounted, B-279 by Bobrick.
- .5 Feminine napkin disposal bin: B-270 by Bobrick.
- .6 Tempered glass mirror: B-2908-1830 by Bobrick.
- .7 Hang-proof hook: B-981 by Bobrick.
- .8 Broom and Hook Hanger : B223x24 by Bobrick.

2.3 FABRICATION

.1 Weld and grind joints of fabricated components flush and smooth. Use mechanical fasteners only where approved.

.2 Wherever possible form exposed surfaces from one sheet of stock, free of joints.

.3 Brake form sheet metal work with 1.5 mm radius bends.

.4 Form surfaces flat without distortion. Maintain flat surfaces without scratches or dents.

.5 Back paint components where contact is made with building finishes to prevent electrolysis.

.6 Hot dip galvanize concealed ferrous metal anchors and fastening devices to CAN/CSA-G164.

.7 Shop assemble components and package complete with anchors and fittings.

.8 Deliver inserts and rough-in frames to job site at appropriate time for building-in. Provide templates, details and instructions for building in anchors and inserts.

.9 Provide steel anchor plates and components for installation on studding and building framing.

2.4 FINISHES

.1 Unless indicated otherwise on drawings, all accessories shall have the same metallic finish.

.2 Manufacturer's or brand names on face of units not acceptable.

Part 3 Execution

3.1 EXAMINATION

.1 Verification of Conditions: verify that conditions of substrates and surfaces to receive toilet and bathroom accessories previously installed under other Sections or Contracts are acceptable for product installation in accordance with manufacturer's instructions prior to toilet and bathroom accessories installation.

.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 from Departmental Representative.

3.2 INSTALLATION

.1 Install and secure accessories rigidly in place as follows:
- .1 Stud walls: install steel back-plate to stud prior to plaster or drywall finish. Provide plate with threaded studs or plugs.
- .2 Hollow masonry walls, existing plaster or drywall: use toggle bolts drilled into cell or wall cavity.
- .3 Concrete masonry walls: use bolt with lead expansion sleeve set into drilled hole.
- .4 Toilet and shower compartments: use male to female through bolts.

.2 All accessories must be installed straight and/or vertically and/or horizontally, levelled, in perfect alignment with adjacent accessory if shown on drawings, with full contact with support face.

.3 Install grab bars on built-in anchors provided by bar manufacturer.

.4 Use tamper proof screws/bolts for fasteners.

.5 Fill units with necessary supplies shortly before final acceptance of building.

.6 Install mirrors in accordance with Section 08 80 50 - Glazing.

.7 In barrier-free access washrooms, install accessories to ensure accessibility in accordance with the pertinent requirements of CAN/CSA-B651.

3.3 ADJUSTING

.1 Adjust toilet and bathroom accessories components and systems for correct function and operation in accordance with manufacturer's written instructions.

.2 Lubricate moving parts to operate smoothly and fit accurately.

3.4 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
- .1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

.3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.5 PROTECTION

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

.2 Repair damage to adjacent materials caused by toilet and bathroom accessories installation.

3.6 SCHEDULE

.1 Locate accessories where indicated and as follows. Exact locations determined by Departmental Representative.

END OF SECTION

Part 1 General

1.1 REFERENCES

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

.1 Material Safety Data Sheets (MSDS).

.2 National Fire Protection Association (NFPA)

.1 NFPA 10, Standard for Portable Fire Extinguishers.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:

.1 Submit manufacturer's printed product literature and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.

.2 Submit two copies WHMIS MSDS - Material Safety Data Sheets in accordance with Section 02 81 01 - Hazardous Materials.

.3 Provide shop drawings.

.4 Quality control submittals: submit following in accordance with Section 01 45 00 - Quality Control.

.1 Manufacturer's Instructions: submit manufacturer's installation instructions and special handling criteria, installation sequence and cleaning procedures.

.2 Manufacturer's Field Reports: submit manufacturer's written reports within 3 days of review, verifying compliance of Work, as described in PART 3, FIELD QUALITY CONTROL.

.5 Closeout Submittals:

.1 Provide operation and maintenance data for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

1.3 DELIVERY, STORAGE AND HANDLING

.1 Packing, shipping, handling and unloading:

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.

.2 Waste Management and Disposal:

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

Part 2 Products

2.1 MULTI-PURPOSE DRY CHEMICAL EXTINGUISHERS

.1 Stored pressure rechargeable type with hose and shut-off nozzle, ULC labelled for A, B and C class protection.

.1 Size 4.5 kg.

2.2 KITCHEN EXTINGUISHERS (CLASS K)

.1 Stored pressure rechargeable type ULC labelled for K class protection.

.1 Size as indicated. See kitchen consultant.

2.3 EXTINGUISHER BRACKETS

.1 Type recommended by extinguisher manufacturer.

2.4 CABINETS

.1 Semi-recessed type as indicated, constructed of 1.6 mm thick steel, 180 degrees opening door of 2.5 mm thick steel with latching device.

.2 Cabinet to maintain fire resistive rating of construction in which they occur.

.3 Cabinet door: with metal panel.

.4 Finish:

.1 Tub: prime coated.

.2 Door and frame: No.4 satin finish stainless steel.

2.5 IDENTIFICATION

.1 Identify extinguishers in accordance with recommendations of ANSI/NFPA 10, CAN/ULC-S508.

.2 Attach bilingual label to extinguishers, indicating month and year of installation. Provide space for service dates.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

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

3.2 INSTALLATION

.1 Install or mount extinguishers in cabinets or on brackets as indicated in accordance with NFPA 10.

.2 Install fire safety blankets as indicated.

3.3 FIELD QUALITY CONTROL

.1 Manufacturer's Field Services:

.1 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 06 08 99 – Rough Carpentry for Minor Works, for grounds and nailing strips.

1.2 REFERENCES

.1 CAN/CGSB-44.40-92, Steel Clothing Locker.

1.3 SHOP DRAWINGS

.1 Provide shop drawings in accordance with Section 01 33 00 - Submittal Procedures.

.2 Indicate on drawings: type and class of locker, thicknesses of metal, fabricating and assembly methods, assembled banks of lockers, tops, rods, hooks, shelves, bases, trim, numbering, filler panels, end/back panels, doors, handles, locking method, ventilation method and finishes.

1.4 SAMPLES

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

.2 Submit duplicate samples 50 mm x 50 mm of the colour and finish of the metal used.

1.5 WASTE MANAGEMENT AND DISPOSAL

.1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.2 Collect and separate plastic, paper packaging and corrugated cardboard in accordance with Waste Management Plan.

.3 Fold up metal banding, flatten and place in designated area for recycling.

Part 2 Products

2.1 MATERIALS

.1 All pieces are made from cold rolled mild sheet steel, without imperfections or contaminants on surface which could interfere with the hybrid epoxy resin rich powder finish.

.2 Acceptable products:
- .1 Groupe Sport-Inter.
- .2 Perfix.
- .3 Hadrian.

2.2 MANUFACTURED UNITS

.1 Lockers: to CAN/CGSB-44.40, Type 1- Double tier locker, standard height.
- .1 Size: 457 mm wide x 381 mm deep x 1830 mm high, steel thickness No. 14 MSG.
- .2 Assembly: flat head zinc-coated screws with hexagonal nut. Oval 5 mm head rivet, dome 8-25.
- .3 Top: sloped.
- .4 Doors: one-piece double-wall envelope construction, steel thickness No. 20 MSG, door swing left to right. Doors made with a 20-gauge exterior panel welded to a 24-gauge interior panel. The sides of the external panel are double flanged and those of the internal panel are single flanged. The panels are welded together. Honeycomb door core in a 25 mm structure and soundproof insulation linked to inside surfaces. Door recessed into frame, including recessed handle and number plate for a flush surface.
- .5 Door handle: recessed nickel-plated steel handle.
- .6 Door frame: 16-gauge vertical member moulded to form a 16 mm wide and 62 mm deep exposed groove. Top of frame at 76 mm high and 18-gauge box shaped transversal lower members welded to vertical members. Vertical members moulded to form a continuous 11 mm door strike. The vertical member of the latch shall include a welded 11-gauge hasp and a cushioned 11 mm rubber bumper. There shall be no visible fastener on the surface of the door or frame.
- .7 Frame: 24 gauge sides and back, perforated for assembly of the lockers and accessories. Moulded sides for assembly with triple thickness corners. The shelves, top and bases must be interchangeable, 22-gauge box shape moulded.
- .8 One-point locking/latching: 50 mm x 19 mm, 11-gauge hasp welded to the continuous strike in the centre of the frame and centre of the handle. Standard padlocking.
- .9 Continuous hinge: continuous 18-gauge piano hinge welded to frame and screwed or riveted to door.

.10 Number plate: black laminated resistant plastic 64 mm x 29 mm, white numbers 11 mm high. Plate recessed in the door and fixed with two rivets.

.11 Accessories: top shelve with three chrome steel simple hooks with rounded extremities and fixed at two points to the shelve.

Part 3 Execution

3.2 INSTALLATION

.1 Assemble and install lockers in accordance with manufacturer's written instructions.

.2 Securely fasten lockers to grounds and nailing strips.

.3 Install wall trim around recessed locker banks.

.4 Install filler panels (false fronts) where indicated and where obstructions occur.

.5 Install finished end panels to exposed ends of locker banks.

.6 Install locker numbers and locks.

END OF SECTION

TABLE OF CONTENTS

Part 1 General

1.1 GENERAL

.1 Refer to all items in this section, to the general conditions, to all sections in divisions 00 and 01 which apply to and form part of all sections of work.

1.2 BIDDING DOCUMENTS

.1 Visualize the complete scope of work and conditions. Carefully study jointly all written documents and drawings. These documents form an integral part of the work for section 11 40 10 - Standard Equipment.

1.3 RELATED REQUIREMENTS

.1 Refer to the schedule of mechanical and electrical loads at the section 11 40 20.

.2 Refer to the sections 11 40 20 and 11 41 10.

1.4 REFERENCES

.1 American Iron and Steel Institute (AISI)

.2 American National Standards Institute (ANSI)

.1 ANSI Z83.11-2006/CSA 1.8-2006, Gas Food Service Equipment.

.2 ANSI Z83.21-2005/CAN/CSA-C22.2 No.168-2005, Commercial Dishwashers.

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

.1 ASTM A 167-99(2004), Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.

.2 ASTM A 240/A 240M-07e1, Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels, and for General Applications.

.4 Canada Green Building Council (CaGBC)

.1 LEED Canada-NC Version 1.0-2004, LEED (Leadership in Energy and Environmental Design): Green Building Rating System Reference Package For New Construction and Major Renovations (including Addendum 2007).

.2 LEED Canada-CI Version 1.0-2007, LEED (Leadership in Energy and Environmental Design): Green Building Rating System Reference Guide For Commercial Interiors.

.5 Canadian Standards Association (CSA International)

.1 ANSI Z83.11-2006/CSA 1.8-2006, Gas Food Service Equipment.

.2 ANSI Z83.21-2005/CAN/CSA-C22.2 No.168-2005, Commercial Dishwashers.

.3 CAN/CSA B149.1-05, Natural Gas and Propane Installation Code.

.4 CAN/CSA B149.2-05, Propane Storage and Handling Code.

.5 CSA C22.2 No.109-M1981(R2004), Commercial Cooking Appliances.

.6 CAN/CSA-C22.2 No.120-M91(R2004), Refrigeration Equipment.

.7 CAN/CSA-C22.2 No.150-M89(R2004), Microwave Ovens.

.8 CSA C22.2 No.195-M1987(R2004), Motor Operated Food Processing Appliances (Household and Commercial).

.9 CAN/CSA-C388-M89(R2001, Energy Consumption Test Methods for Household Microwave Ovens.

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

.1 Material Safety Data Sheets (MSDS).

.7 The Public Health and Safety Company (NSF International)

1.5 WORK TO BE DONE

.1 The supply of all labour, materials, plant, tools, crating, transportation, delivery, uncrating and set-in-place of all work required to completely install the food service equipment specified and/or as shown on drawings and specifications.

.2 General:

.1 Verify the dimensions of units furnished by others, but recessed into or forming a part of the equipment specified. Make any necessary adjustments required for a complete installation.

.2 Provide all required access and service panels necessary for lubricating, maintenance, clean-out, verification, etc., of the equipment.

.3 Plumbing accessories: Supply all water regulating valves for connection by the Plumbing Contractor.

.4 Electrical accessories:

.1 Supply and install push button on motor, complete with indicator light, thermal overload protection and ready for connection by the Electrical Contractor. All wiring and/or controls, including motors and condensing unit interconnected to a common point of connection.

.2 Supply and install all necessary cords and plugs to match respective receptacles as indicated on plans and specifications.

1.6 MECHANICAL AND ELECTRICAL SERVICE DRAWINGS AND SHOP DRAWINGS

.1 The mechanical and electrical requirements schedule and a drawing showing the location of connections is provided by the Ministerial Representative. All sizes and loads specified indicate actual requirements at point of connection. All trades must provide space for the installation of valves, traps, fittings, switches, disconnects, etc. Connect all equipment horizontally to walls and partitions wherever possible.

.2 Design drawings prepared by the Ministerial Representative show basic equipment details and are a guide only.

.3 Submit for review:

.1 Illustrated technical data sheets for the standard equipment.

.2 Mechanical and electrical services location drawing for equipment.

.4 Submit one copy and one reproducible print of the shop drawings for verification and review by the Ministerial Representative.

.5 Provide fully dimensioned mechanical and electrical services location drawings (not less than 1:50 scale) for all equipment. Refer to the section 11 40 20 for the schedule of mechanical and electrical loads.

.6 Once the requested shop drawings have been verified by the Ministerial Representative, provide the number of sets required. Do not proceed with any part of the fabrication until the drawings have been reviewed by the Ministerial Representative.

.7 Review of these drawings by the Ministerial Representative is general. It is not intended to serve as a final check and does not relieve the Contractor from the responsibility of checking the drawings or from furnishing the specified materials.

.8 Coordinate all mechanical and electrical requirements with all concerned trades. Match the equipment plugs with the electrical outlets furnished and installed by the Electrical Contractor.

1.7 SAMPLES

.1 Obtain all necessary samples of china, baskets, trays, etc., from the Ministerial Representative to determine proper sizes for openings, angles slides, dispensers, or for all other equipment. The Food Service Equipment Contractor shall obtain a written confirmation from the Ministerial Representative for all these dimensions.

1.8 TECHNICAL DATA SHEETS

.1 Before processing orders for purchased equipment (standard), submit three (3) bound sets of technical data sheets in French for verification and review by the Ministerial Representative.

.2 Technical data sheets must include item number, description of equipment giving manufacturers name, model, quantity, options and accessories, and capacity.

.3 Bind sheets in itemized numerical order in a press-board binder appropriately labelled to identify the project and the contents of the binder.

.4 Unless advised otherwise, do not process or order any item requested for verification until a reviewed set of data sheets has been returned from the Ministerial Representative.

.5 Upon receipt of the REVIEWED set, submit the required number of corrected sets for distribution.

1.9 CERTIFICATES OF APPROVAL

.1 Regard all work and material specified or shown on drawings as the minimum requirements. Comply with the latest electrical codes, C.S.A., and any municipal, provincial and federal regulations.

.2 Comply with these regulation and fulfil all necessary changes or additions with no extra charge even if not specified or shown on the drawings. If the equipment supplied is not C.S.A. approved, obtain the approval from local electrical inspectors. Attach a certificate or label or approval to each item.

.3 Furnish and install all equipment in compliance with the latest provincial, municipal and federal regulations. Furnish items required by these regulations, even if not specified or shown on the drawings, with no extra charge.

1.10 INSTRUCTIONS OF OPERATION

.1 Upon completion of installation, supply three (3) bound manuals of operational instructions, maintenance instructions and spare parts list for each item of equipment. Include the name and phone number of the appropriate service company for each item at the beginning of the manual. Submit these information in French during the demonstration. The operation instruction plates on the equipment must be in French.

.2 Also supply specific instructions for the maintenance of equipment, the frequency of maintenance, functioning operations to be verified, parts that are maintained and kept clean, etc. These documents must be part of the three (3) manuals of operational instructions as specified in the preceding paragraph.

.3 Ensure that the equipment and systems are complete, clean, operating normally and safe, before start-up, testing and commissioning.

.4 After start-up, ensure that the operation and maintenance of equipment and systems are according to the manufacturer's instructions.

After completion of commissioning, operate equipment and systems.

.5 Correct faults, vices and defects found during the start-up and commissioning.

1.11 GUARANTEE

.1 Issue a written Guarantee for the period of one (1) year, including parts and labour, from the date of acceptance. Respect all manufacturers' guarantees exceeding this one (1) year period until expiry dates.

.2 This Guarantee applies solely to new purchases and to fabricated equipment specified under this section. Repair or replace, at no cost (parts and labour included), any and all defective equipment within the guarantee period.

1.12 AS BUILT DRAWINGS

.1 Supply at the demonstration time one reproducible drawing and CD (CAD version) of as built drawings showing all changes done by addenda or change notice or all changes done during the construction. Drawing shall be identified "as built drawing".

Part 2 Products

2.1 MATERIALS

.1 Galvanized steel:

Specification "colour bond" with zinc coating - 85g. per sq meter.

.2 Aluminium: Alcan no 3S-1/2 H. Anodize all aluminium part after welding and polishing. Aluminium Association AA3003H14.

.3 Legs and bracing: Stainless steel tubing, cold rolled and welded. Thickness of 1.6 mm, 40 mm o.d. for uprights, 30 mm for bracing. Square tubes: wall thickness of 1.6 mm.

2.2 HARDWARE

.1 Feet: Stainless steel; pop-in adjustable sanitary type, complete with compression ring to fit tubing or piping as shown on drawings.

.2 For specialized mobile equipment, refer to the description for each item listed in these specifications.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

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

3.2 WELDING

.1 Method: Electric, seamless, under inert gas atmosphere. Welding shall conform to the requirements of the C.S.A.

.2 Composition: Use type 304 stainless steel rods so that deposited and original metals have the same composition.

3.3 COOPERATION

.1 Supply any services, items or equipment that require "building-in" or overlapping coordination to all other trades in sufficient time. Notify other trades of exact locations of openings, chases, anchors, etc., required for the food service equipment to be installed.

3.4 PROTECTION AND REPAIR

.1 Properly and efficiently protect all work against damage.

.2 Repair any damage to equipment and/or building immediately, with no extra charge.

3.5 DELIVERY, STORAGE AND HANDLING EQUIPMENT

.1 Coordinate the delivery, storage and handling of food service equipment with the General Contractor.

3.6 INSTALLATION

.1 Supervision: Provide a competent site supervisor experienced in food service equipment assembly and installation.

.2 Scope: Coordinate installation schedule with the General Contractor. Install all equipment shown on drawings and/or described in specifications. Position mobile and portable equipment accordingly.

.3 Requirements: Install machines, appliances and equipment in accordance with all building and safety codes, in accordance with the manufacturer's instructions. Coordinate connection of mechanical and electrical services. Adjust machines, appliances and equipment for smooth and proper operation. Provide access panels, ventilation panels and clearance as required for the proper installation and functioning of all items. Include these requirements in the price of the tender.

.4 Equipment placement: Perform all fitting, joining, levelling, fastening, scribing and caulking necessary to install all fixed equipment. Make any adjustments necessary to properly install the equipment. Make level all mobile equipment in its working position.

.5 Shims: If shims are required, use stainless steel shims.

3.7 INSPECTION AND REJECTION

.1 The Ministerial Representative reserves the right to inspect the fabrication at the fabricating plant; they may reject any equipment which does not comply with drawings and specifications. Replace all rejected materials or equipment within ten (10) days and with no extra charge.

3.8 CLEANING

.1 Cooperate at all times with the General Contractor to keep the area of operation clean and free of all rubbish and debris. At the end, clean all equipment to permit immediate use without further cleaning.

3.9 DEMONSTRATION AND MAINTENANCE

.1 Convene each manufacturer's representative as soon as you receive the schedule of the demonstration and operational sessions on date as indicated on the Ministerial Representative notice. The training, demonstration and operational sessions also include all information related to the maintenance instruction.

3.10 COMMISSIONING

.1 Commissioning is a planned program of tests, procedures and checks carried out systematically on systems and integrated systems of the finished Project. Commissioning is performed after systems and integrated systems are completely installed, functional and Contractor's Performance Verification responsibilities have been completed and approved. Objectives:

.1 Verify installed equipment, systems and integrated systems operate in accordance with contract documents and design criteria and intent.

.2 Ensure appropriate documentation is compiled into the O&M manual.

.3 Effectively train staff.

.2 Contractor assists in commissioning process, operating equipment and systems, troubleshooting and making adjustments as required.

.1 Systems to be operated at full capacity under various modes to determine if they function correctly and consistently at peak efficiency. Systems to be interactively with each other as intended in accordance with Contract Documents and design criteria.

Part 4 Description of items

a) No locks on equipment doors or drawers.

b) For the entire kitchen, fasteners will be "vandal resistant screws" type where it applies or completely welded and polished.

.1 STORAGE

#E107 MOBILE SHELVING UNIT

.1 Quantity: Twenty-five (25)

.2 Dimensions of shelves:
- .1 Six (6) shelves of 915 mm x 610 mm x posts of 1600 mm high (excluding wheels).
- .2 Nineteen (19) shelves of 1220 mm x 610 mm x posts of 1600 mm high (excluding wheels).
- .3 Approximative height of shelves with wheels of 1710 mm – to be verified as per manufacturer's recommandation.

.3 Capacity: Each mobile shelf can receive up to 363 kg per tier of 610 mm x 1220 mm and stationary shelves up to 907 kg each.

.4 Construction:
- .1 Polymer tiers coated with antimicrobial epoxy, with 304 stainless steel corners holders. Removable louvered tiers in sections. Removable corner holder, in stainless steel, allows removing or adding tiers without removing the module.
- .2 Adjustable every 25 mm.
- .3 Five (5) tiers per shelf.
- .4 Polymer posts.
- .5 Inlcuding donut bumpers, four (4) 125 mm diameter wheels with brakes, and all accessories to achieve functional units.
- .6 Locking brackets with positioning index.
- .7 Easy maintenance: louvered tiers are completely removable. This allows cleaning them outside the place of use.
- .8 Ensure that all shelves can get inside all cold rooms.
- .9 NSF Approval.

#E108 FIXED SHELVING UNIT

.1 Quantity: Two (2).

.2 Dimensions of shelves: 1370 mm x 460 mm x posts of 1600 mm high.

.3 Capacity: Each shelf can receive up to 910 kg.

.4 Construction:
- .1 Polymer tiers coated with antimicrobial epoxy, with 304 stainless steel corners holders. Removable louvered tiers in sections. Removable corner holder, in stainless steel, allows removing or adding tiers without removing the module.
- .2 Adjustable every 25 mm.
- .3 Five (5) tiers per shelf.
- .4 Polymer posts.
- .5 Including all accessories to obtain functional units.
- .6 Locking brackets with positioning index.
- .7 Easy maintenance: louvered tiers are completely removable. This allows cleaning them outside the place of use.
- .8 NSF Approval.

#E108A SLIDING SHELVES KIT ON FLOOR RAILS

.1 Quantity: One (1) set including:
- .1 One (1) stationary shelf at each end.
- .2 One (1) stationary shelf in center.
- .3 Five (5) mobile shelves between stationnary shelves for a total of three (3) stationnary and five (5) mobiles.

.2 Dimensions: 1525 mm x 610 mm x 1690 mm high.

.3 Capacity: Each mobile shelf can receive up to 363 kg per tier of 610 mm x 1220 mm and stationary shelves up to 907 kg each

.4 Construction:
- **.1 Two (2) rails solidly fixed to finished floor between stationary shelves.**
- .2 Polymer tiers coated with antimicrobial epoxy, with 304 stainless steel corners holders. Removable louvered tiers in sections. Removable corner holder, in stainless steel, allows removing or adding tiers without removing the module.
- .3 Adjustable every 25 mm.
- .4 Five (5) tiers per shelf.
- .5 Polymer posts.
- .6 Inlcuding bumpers, wheels and all accessories to achieve functional units.
- .7 Locking brackets with positioning index.
- .8 Easy maintenance: louvered tiers are completely removable. This allows cleaning them outside the place of use.
- .9 NSF Approval.

#E109 HAND SINK

.1 Quantity: One (1). Equipment supplied and installed by the plumbing and electrical contractors.

#E110 FOUNTAIN

.1 Quantity: One (1). Equipment supplied and installed by the plumbing and electrical contractors.

#E116 MOBILE CART

.1 Quantity: Two (2)

.2 Dimensions (overall): 749 mm x 457 mm x 845 mm high including push bar. Approximative dimensions of tiers of 457 mm x 711 mm.

.3 Description: Built of three (3) high density polyethylene, injection-molded tiers and 4 chrome-plated posts. Complete unit with four (4) 102 mm diameter thermosplastic, mark-resistant swivel/stem casters with brakes. Tiers and push bar with antimicrobian coating.

.4 Weight capacity: 181 kg per cart.

.5 Color: Slate blue.

.3 COOKING AND DIETS

#E302 HOSE REEL AND FAUCET

.1 Quantity: One (1)

.2 Dimensions (overall): 421 mm x 182 mm x 458 mm high.

.3 Description: The open reel is stainless steel finish open type. Furnished with 10.7 m long section of 9.5 mm interior diameter, 3-ply, 2-braid hose. Working pressure of 1380 kPa and withstands 60°C water temperature, spray nozzle insulated against hot temperature. Reel furnished for wall mounting. Provide with stops so that hose will maintain its position when pulled out until a small movement automatically causes withdrawal.

.4 Accessories:
- .1 Bleeder valve,
- .2 Chrome-plated surface vacuum breaker with test valve,
- .3 Chrome-plated surface Shut-off valve (interconnections are hided),
- .4 Chrome-plated surface mixing valve (interconnections are hided),
- .5 Horizontal or vertical 13 mm diameter backflow preventers,
- .6 Wall support,
- .7 A flexible quick disconnect hose (between vaccum breaker and hose reel).

.5 Installation: Install the unit to have a clearance of 1750 mm high under the spray nozzle. Install the hose reel on service chase item #E313A. The food service contractor shall supply and install on the service chase #E313A the mixing faucet and the shut-off valve and supply to the plumbing contractor all other accessories mentioned above so the plumbing contractor can install and interconnect all pipings inside the service chase item #E313A.

#E302A CONDENSATE PUMP

.1 Quantity: One (1). Equipment supply and install by the plumbing contractor as per the engineer specifications.

#E302B CONDENSATE PUMP

.1 Quantity: One (1). Equipment supply and install by the plumbing contractor as per the engineer specifications.

#E304 VENTILATION HOOD

.1 Quantity: One (1)

.2 Quality required: Hood equipped with modular grease extractor, self-cleaning system with cold water, wall mounted

.3 Number de sections: Three (3), (refer to items #E304, #E304A and #E304B).

.4 Dimensions: 3451 mm x 2100 mm x 760 mm high.

.5 Exhaust: 985 L/s, 1 duct collar 250 mm x 555 mm, 300 Pa.

.6 Description:
- .1 Hood equipped with a self-cleaning system and patented variable geometry modulars grease extractors mounted in a single bank.
- .2 The hood is entirely built in 430 stainless steel with a thickness of 1,1 mm and a n°4 finish for the visible surfaces.

.3 Grease extractors are made of stainless steel and completely removable for cleaning purpose.
.4 Adjustment on each grease extractor allows an energy economy up to 25% at all time. Air exhaust volume over each cooking appliance is adjusted while keeping high efficiency grease extraction.
.5 Each variable geometry modular is equipped with a nozzle for cold water and bacterial liquid for the cleaning of the accumulated grease.
.6 The piping is made of copper and the sprayers are made of brass.
.7 A drainage system for the removal of liquids must be connected to the hood.
.8 A 75 mm air space is provided on the back of the hood for semi-combustible material clearance.
.9 The hood is ULC approved and built of stainless steel in accordance with NFPA 96.

.7 Installation: Ceiling hung at 2000 mm from the finish floor, 75 mm from semi-combustible material, 457 mm from combustible material. The exhaust hood must overhang cooking equipment by 300 mm on the front and 150 mm on each side.

.8 Lighting: nine (9) LED lamps, warm white 3500K, 17 watts, UL approved for use in kitchen exhaust hoods and CSA certified, wired to a ventilated junction box with a 120V/24VDC power supply, installed on top of the exhaust hood.

.9 Cleaning system: Biotechnology with cold water
.1 One automatic cleaning cycle of 90 seconds per day,
.2 Three (3) connections of 10 mm on top of the exhaust hood,
.3 Three (3) drain connections of 51 mm for the drainage system of the exhaust hood.

.10 Skirting : 610 mm maximum width stainless steel panels of 20 mm edges folded over themselves (to 180 degrees) and same finish as the hood. Important note: the height should be verified on site before fabrication and must be installed on three (3) sides of the hood to hide the items on top of the hoods. Supports "Z" type must be factory installed on the lower part of the skirting panels for the installation of the panels and sit at the upper edge of the hood. See details on the sheet I-05. The skirting panels are fixed to an angle with anti-vandal screws. The angles are supplied and installed by general contractor. Screw the panels together halfway to ensure that the panels can not offer an "opening" between them when installed vertically.

.11 Note: Refer to paragraphs .6 à .10 of item #E311 for work to be done by all trades.

#E304A VENTILATION HOOD

.1 Quantity: One (1)

.2 Quality required: Hood equipped with modular grease extractor, self-cleaning system with cold water, wall mounted

.3 Number de sections: One (1).

.4 Dimensions: 3101 mm x 1700 mm x 760 mm high.

.5 Exhaust: 1335 L/s, one (1) duct collar 250 mm x 685 mm, 300 Pa.

For the paragraphs .6 to .11, refer to item #E304.

#E304B VENTILATION HOOD

.1 Quantity: One (1).

.2 Quality required: Hood equipped with modular grease extractor, self-cleaning system with cold water, wall mounted.

.3 Number de sections: One (1).

.4 Dimensions: 2997 mm x 1700 mm x 760 mm high.

.5 Exhaust: 960 L/s, 1 duct collar 250 mm x 530 mm, 300 Pa.

For the paragraphs .6 to .11, refer to item #E304.

#E305 FIRE PROTECTION SYSTEM

.1 Quantity: One (1)

.2 Quality required: Fire suppression system with low PH, listed to ULC 1254.6 standards.

.3 Dimensions: 648 mm x 191 mm x 597 mm high.

.4 Description: The fire suppression system consist of tanks of liquid fire suppressant with low PH less than nine (9), mounted in stainless steel cabinet. All the pipe work and connection inside the hood for the fire suppression system are stainless steel. Nozzles are chrome plated. The fire suppression system meets ULC-1254.6 standards. Each hole in hood required for installation must be sealed with a ULC listed fitting. All relevant technical documentation and schematics are supplied in both English and French language.

.5 Operation: In case of fire, the chemical extinguisher is sprayed onto kitchen appliances once a fusible link is released or if manual pull station is activated. In case of a fire, the air supply from the makeup air unit is stopped and exhaust fan stays on while the cooking appliances, grease extractors and duct collars are sprayed with the chemical extinguisher. All sources of electricity and gas supplying the cooking equipment protected by the Fire Suppression System are shut off. Two dry contacts are available. One shall be used to send signal to the building alarm system. The other is to be connected to the exhaust hood control panel.

.6 start-up test: At the end of the installation, the manufacturer of fire protection system will perform a running test to validate the cut-off power supply and connections with the building alarm. The electrical and building alarm contractor must be present during this test. (The presence of the electrical contractor is required only if the electrical cooking equipment under the hood must be disconnected from their power supply in case of fire).

.7 Capacity: 22 points, 22 liters

.8 Detection: Fusible links located inside the filter banks and the duct collars.

.9 Alarm: Building fire alarm.

.10 Manual Release: one (1), wall surface-installed. The electrical contractor shall locate electrical wires into wall.

.11 Electrical Cut-off: By magnetic contactor supplied and installed by the electrical contractor. (The cut must be made via a dry contact of the exhaust hood control panel).

.12 Portable Extinguisher: Extinguisher type « K », model K-guard, quantity: one (1).

.13 Note: Refer to paragraphs .6 to .10 of item #E311 for work to be done by all trades.

#E307 HAND SINK

.1 Quantity: One (1). Equipment supplied, installed and connected by the plumbing contractor.

#E311 CONTROL PANNEL FOR ITEMS #E304, #E304A, #E304B AND #E514A

.1 Quantity: One (1).

.2 Quality required: control panel with programmable automate for self-cleaning exhaust hood, CSA approved.

.3 Dimensions: 915 mm 205 mm x 610 mm high.

.4 Description:

.1 Control panel is built of 1,6 mm thick stainless steel with two (2) compartments. The first compartment contains the electrical controls for the operation of exhaust motor and supply, lighting, exhaust hood self-cleaning system and the fire suppression system. The second compartment contains a manual main valve, a filter, a backflow device, damper, two (2) solenoid valves and the biotechnology liquid injection system.

.2 The control box shall be wall-embed.

.3 Control panel allow the start-up and controls on the air exhaust and the air intake by variable speed, and control for fire suppression system as well as the lights and the cleaning cycle.

.4 The control box includes the control of the dishwasher's ventilator to synchronize the operation of the ventilation with the equipment. When the dishwasher is turned off, the ventilation is maintained for 15 minutes (adjustable parameter).

.5 The signal for air supply is increased when the dishwasher's exhaust fan works.

.6 The control box comes with a reset function and allows the control sequence to be done in accordance with the NFPA 96.

.7 The control box is pre-wired and comes with one fuse, one PLC and a series of connection terminals for the variable speed control.

.8 The front of the control box presents:

- one (1) three positions selector for the control of the kitchen's exhaust hood,
- one (1) push button for the lights,
- one (1) digital keep pad for the control of variable speed system,
- one (1) three positions selector for the control of the exhaust of the dishwasher,
- one (1) "FIRE" LED indicator light,
- one (1) "Cooking Surfaces OFF" LED indicator light,
- one (1) "BIO" LED indicator light to indicate the cleaning cycle is working.

.5 Operations:

.1 Ventilation system, cleaning and lights:

- One (1) three (3) position selector allows the air flow and the air compensation via three (3) modes:
  a. The "Manual" mode allows the operation at 100 %;
  b. The "Off" mode do not allow exhaust or supply air;
  c. The "Auto" mode allows the PLC in the control box to give the start-up and shut-off authorization according to the programmed schedule. Once started, the exhaust and air supply will modulate based on the readings provided by the sensors in the exhaust hood.

- The “Auto” mode allows the use of a digital entree linked to a dry contact of the building central system. The dry-contact allows remote management of the ventilation system.
- A digital input allows forcing the system to stop.
- A dry-contact is available for the air intake authorization.
- Lighting operation is interlocked with the start and shutdown of the exhaust. If the lighting state must be changed without affecting the ventilation, a push button is on the control panel front.
- The cleaning sequence starts 15 minutes after the shutdown of the ventilation up to three (3) times per day or according to the programmed schedule.
- If the hood is not shutdown, the ventilation will be forced to stop at 4:00AM to allow the self-cleaning system to run. The time can be changed.
- If the hood wasn’t started during the day, the self-cleaning system will not start.
- One (1) three (3) position selector allows the exhaust fan of the dishwasher to run in three (3) modes:
  a. The “Auto” mode allows synchronizing the operation of the exhaust fan with the dishwasher. When the dishwasher stops, the exhaust fan will keep running for 15 minutes (adjustable parameter);
  b. The “Manual” mode allows the operation at 100 %;
  c. The “Off” mode does not allow the exhaust fan to run.

.2 Variable speed system - control:

- The SMART system analyses the exhaust demand of each exhaust fan via temperature and optical sensors. When receiving the information from all sensors, the SMART processor sends a 0-10V signal to the inverter proportionally to the exhaust needed.
- A 0-10V signal equivalent to the exhaust is available for the control of the air supply or for the building’s management system.
- The air supply signal is increased if the dishwasher’s exhaust fan is running.
- The SMART system control keyboard is mounted on the front of the control panel and allows to display the percentage of the total capacity at which the exhaust fans and air supply are running and to display the alarms. According to the NFPA-96, the minimal speed of the air flow in a cooking mode must be at 500 ft/min in the ducts.

.3 Variable speed system - sensors:

- Each sensor must be installed with an ULC sealing ring at the aperture of the exhaust hood.
- Optical sensors vary the exhaust based on the vapors detected under the exhaust hood. Optical sensors must have the following characteristics:
  - High efficiency detection of small suspended particles (diameter less than 0.5 µm);

- Hybrid detector (each sensor is a transmitter and receiver);
- Automatic adjustment of the optical sensibility according to the location of the sensor;
- Dynamic adjustment according to the usage (if there is a high intensity usage, the sensor will take it in consideration in the calculation of the exhaust need to maximize the energy economy automatically in real time and without the intervention of the user);
- Dynamic reading adjustment according to the glass fouling (if the sensor's glass is dirty, the reading will recalibrate automatically, in real time and without the intervention of the user to take into consideration the opacity);
- Visual indicator in case of misalignment;
- Visual indicator in case the fouling on sensors is too much.

- Temperature sensors vary according to the heat flow in the exhaust hood ducts.

Quantity of optical sensors: three (3) pairs.
Quantity of temperature sensors: three (3).

.4 When the fire suppression system is triggered:
- The exhaust fan remains in function.
- The air intake is interrupted. Opening of the dry-connect at maximum of 10 amps.
- The exhaust hood lights are switched off. Opening of the dry-connect at maximum of 10 amps.
- The cooking equipments electrical supply is switched off. Opening of the dry-connect linked to the cooking equipments magnetic contactor. (The magnetic contactor is supplied by others).
- The "COOKING EQUIPMENTS OFF" LED lights up.
- The "FIRE" LED lights up.
- The self-cleaning system of the exhaust hood is activated after 60 seconds.

.5 Rearming of the fire suppression system:
- Following a fire or a power cut-off at the control box, the cooking equipments electrical supply isn't automatically restored. You must:
  - Open the control panel,
  - Push the "RESET" button,
  - Close the control panel.

.6 Work done by the exhaust hood manufacturer:
.1 A start-up on site is require from the exhaust hood manufacturer representative.
.2 Supply and install the fire suppression system according to the NFPA 96 norm.

.7 Work done by the food service equipment contractor:
.1 Install the exhaust hoods according to the manufacturer recommendations and the NFPA 96 norm.

.2 Cut openings on top of the ventilation hood for the duct #E514.
.3 Install the stainless steel panels, with the same finish as the exhaust hoods and 460 mm height on the top of the exhaust hood.
.4 Install the control panel. The control panel is recessed into wall.
.5 Supply and install a 50 mm diameter, stainless steel pipe between each exhaust hood water drain and the funnel floor drain.
.6 Supply and install a 13 mm diameter stainless steel pipe between the ventilation hood item #E514 (dishwashing area) and funnel floor drain.

.8 Work done by the ventilation contractor:
.1 Connect the flanged collars on top of the exhaust hoods to the duct system. The duct network is installed in accordance with NFPA 96's norm and has a slope towards exhaust hood collars' to avoid water traps.

.9 Work done by the plumbing contractor:
.1 Connect the 13 mm in diameter cold water inlet located on top of the control panel to the building cold water system.
.2 Connect the two (2) 10 mm diameter cold water outlets from the control panel to the cold water inlets located on top of each exhaust hoods grease extractors (2x).

.10 Work done by the electrical / control contractor:
.1 Wire and connect to the control panel the following:
- 120/1/60, 15 amps power supply for the control of the lights;
- One (1) shielded four (4) strand wire for the start-up dry contact and modulation signal of the VFD exhaust fans;
- One (1) shielded four (4) strand wire for the make-up air unit;
- One (1), two (2) strand wire for dishwasher exhaust dry contact;
- One (1), two (2) strand wire to the magnetic contactor of the dishwasher's fan;
- The junction boxes of each exhaust hoods sections for the lights;
- The micro switch located on top of the fire suppression systems connected in series via a NF contact;
- The cooking equipments' magnetic contactors protected by the fire suppression systems.

.2 Supply and install the cooking equipments' magnetic contactors protected by the fire suppression systems.
.3 Connect the fire suppression system micro switch to the building alarm system.
.4 Supply and install a 19 mm empty EMT from control panel to the top of each exhaust hood for the low voltage wiring installation for the variable speed system's sensors. (1x).

.4 TRAY ASSEMBLY AND BULK SHIPPING

#E401 MOBILE CART FOR CLEAN TRAYS

.1 Quantity: One (1)

.2 Dimensions: 1100 mm x 635 mm x push bar at 915 mm high and platform at approximately 300 mm above finish floor.

.3 Construction: made of 304, finish #4 stainless steel with strong frame. Welded and polished. Direction and push bar removable in stainless steel. Platform mounted on four (4) 200 mm diameter swivel wheels and mark-resistant with brakes installed diagonally. Wrap-around bumper. Marine edge. Dimensions (overall) of tray supplied by the SCC are: 407 mm x 254 mm x 84 mm high.

#E403 SPARE

.5 POT AND TRAY WASHING AREA

#E502 PRE-RINSE FAUCET

.1 Quantity: One (1)

.2 Dimensions: Approximatively 846 mm high x 357 mm depth and an overhang of 390 mm between the bottom of the nozzle spout and the top of the bed of soiled table.

.3 Description: Complete prewash unit with mixing faucet splashback type, inlets at 200 mm centre to centre and 13 mm diameter female inlets. Backflow preventer with integrated spring. Articulated hose with high efficiency spring allowing a very large radius of action while reducing constraint on flexible stainless steel hose. The Spout type of the jet spray nozzle is a fan and is being activated when we press the handle to release a jet of 1.42 GPM and is automatically stopped as we release the handle. Wall attachment and a swivel 255 mm add-on faucet and shut-off valve included. Install faucet in the backsplash of item #E501 and fix the wall support to the service chase #E501B.

#E503 MOBILE POT SHELVING UNIT

.1 Quantity: Three (3)

.2 Dimensions of shelves:
- .1 Two (2) shelves of 1220 mm x 610 mm x posts of 1600 mm high (excluding wheels).
- .2 One (1) shelf of 915 mm x 610 mm x posts of 1600 mm high (excluding wheels).
- .3 Approximative height of shelves with wheels of 1710 mm – to be verified as per manufacturer's recommandation.

.3 Capacity: Each mobile shelf can receive up to 363 kg per tier of 610 mm x 1220 mm and stationary shelves up to 907 kg each.

.4 Construction:
- .1 Polymer tiers coated with antimicrobial epoxy, with 304 stainless steel corners holders. Removable louvered tiers in sections. Removable corner holder, in stainless steel, allows removing or adding tiers without removing the module.
- .2 Adjustable every 25 mm.
- .3 Four (4) tiers per shelf.
- .4 Polymer posts.
- .5 Including donut bumpers, four (4) 125 mm diameter wheels with brakes, and all accessories to achieve functional units.
- .6 Locking brackets with positioning index.
- .7 Easy maintenance: louvered tiers are completely removable. This allows cleaning them outside the place of use.
- .8 NSF Approval.

#E505 MOBILE SHELVING UNIT

.1 Quantity: Three (3).

.2 Dimensions of shelves:
- .1 Two (2) shelves of 1220 mm x 610 mm x posts of 1600 mm high (excluding wheels).
- .2 One (1) shelf of 915 mm x 610 mm x posts of 1600 mm high (excluding wheels).
- .3 Approximative height of shelves with wheels of 1710 mm – to be verified as per manufacturer's recommandation.

.3 Capacity: Each mobile shelf can receive up to 363 kg per tier of 610 mm x 1220 mm and stationary shelves up to 907 kg each.

.4 Construction:
- .1 Polymer tiers coated with antimicrobial epoxy, with 304 stainless steel corners holders. Removable louvered tiers in sections. Removable corner holders, in stainless steel, allows removing or adding tiers without removing the module.
- .2 Adjustable every 25 mm.

.3 Four (4) tiers per shelf.
.4 Polymer posts.
.5 Including donut bumpers, four (4) 125 mm diameter wheels with brakes, and all accessories to achieve functional units.
.6 Locking brackets with positioning index.
.7 Easy maintenance: louvered tiers are completely removable. This allows cleaning them outside the place of use.
.8 NSF Approval.

#E507 PRE-RINSE FAUCET

.1 Quantity: One (1)

.2 Dimensions: Approximatively 846 mm high x 357 mm depth and an overhang of 390 mm between the bottom of the nozzle spout and the top of the bed of soiled table.

.3 Description: Complete prewash unit with mixing faucet splashback type, inlets at 200 mm centre to centre and 13 mm diameter female inlets. Backflow preventer with integrated spring. Articulated hose with high efficiency spring allowing a very large radius of action while reducing constraint on flexible stainless steel hose. The Spout type of the jet spray nozzle is a fan and is being activated when we press the handle to release a jet of 1.42 GPM and is automatically stopped as we release the handle. Wall attachment and a swivel 255 mm add-on faucet and shut-off valve included. Install faucet in the backsplash of item #E504 and fix the wall support to a 75 mm x 25 mm x 225 mm high tube in the backsplash of item #E504. Everything solidly fixed.

#E508 DISHWASHER

.1 Quantity: One (1)

.2 Work zones:
.1 559 mm Power Scrapper à 43 °C;
.2 1117 mm Power Wash à 60 °C;
.3 Final Rinse à 82 °C.

.3 Direction of operations: Right to Left.

.4 Capacity: 202 racks per hour.

.5 Final Rince: 477 liters/h at 20 p.s.i.

.6 Description:
.1 Semi-automatic, high temperature single-tank, rack-type dishwasher.

.2 Flexible thermal layer curtains at the ends of chamber and between power scrapper, power wash and final rinse zones.
.3 Working zone to be equipped with large insulated chest type hinged inspection doors located in front of dishwasher to provide easy access to wash arms and rinse arms.
.4 Strainer, strainer basket, and pump intake screens designed to prevent foreign objects to enter the pumps.
.5 Insulated doors shall keep maximum heat within power wash tank.

.7 Specifications to be included:
.1 Stainless steel arc welded tank and wash chambers 1.6 mm thick.
.2 Polished satin finish for wash chambers, insulated doors, control module and enclosure panels.
.3 Microprocessor stainless steel control module mounted on top of the machine: digital display of scrapper, wash and final rinse temperatures, low temperature alert, dirty water alert, de-lime notification, service diagnostics.
.4 Stainless steel frame and legs.
.5 Stainless steel front and enclosure panels.
.6 Stainless steel debossed anti-clogging wash arms.
.7 Two recirculating stainless steel pumps and impellers equipped with ceramic seat seals. The pumps must be self-draining. All piping distributing water to the upper and lower wash arms is stainless steel tubing, located outside of wash chambers.
.8 Automatic tank fill.
.9 Energy saver mode provided with auto timer.
.10 115 V pilot circuit control.
.11 Conveyor dwell.
.12 Conveyor designed to process 510 mm x 510 mm racks.
.13 Rapid Return drive to ensure a more even throughput of racks and allow for a 405 mm separation between the wash and the rinse zone. The design eliminates any obstruction to the wash arms to effectively direct water jets to all ware surfaces.
.14 Hinged doors actuated drain closure.
.15 Common drain connection.
.16 2 HP grease-packed ball bearings, splash proof, ventilated with manual, resettable inherent overload protection.
.17 Chemical products ports (pumps not included).
.18 Microprocessor control thermostats with positive low water protection and magnetic contactor.
.19 Specifications sheets and instruction manuals to be available in French and english.

.8 Motors:
.1 Motor of 2 HP wash section (tank of 87 liters)
.2 Motor of 2 HP pre wash (tank 87 liters)
.3 1⁄6 horsepower gear motor, for conveyor.

.9 Options to be included:

.1 Steam booster #150 with steam coils **(item #E509).**
.2 Chamber higher than standard chamber, add 150 mm.
.3 Tank Heat Steam (coils).
.4 Table limit switch at end of clean dishtable. (Provide 3 wires, interconnection by the food service equipment contractor).
.5 Waste water cooling system **(item #E508A).**
.6 Water and steam pressure regulator (supplied by the food service equipment contratctor, installed and connected by the plumbing contractor).
.7 Water hammer arrestor (supplied by the food service equipment contratctor, installed and connected by the plumbing contractor).
.8 Extended stainless steel vent hoods for in and out dishwasher's tunnel, including required stainless steel extensions between theses extended stainless steel vent hoods and the soiled table and alos for the clean table.

#E508A WASTE WATER COOLING SYSTEM

.1 Quantity: One (1)

.2 Note: Refer to the description of item #E508.

#E509 BOOSTER HEATER

.1 Quantity: One (1)

.2 Note: Refer to the description of item #E508.

#E511 MOBILE WATER SOFTENER FOR ITEM #E508

.1 Quantity: One (1)

.2 Dimensions (overall): 355 mm x 355 mm x 535 mm high.

.3 Power: No electrical connection is required. The valve is activated by pressure.

.4 Description:
.1 Softener will remove hardness to less than 1/2 gpg when operated in accordance with the operating instructions.
.2 The system includes two tanks.
.3 This duplex configuration operates with one tank on-line during service.
.4 During regeneration cycles, one tank will provide water to service and to the regenerating tank.
.5 A water meter initiates system regeneration.

.6 The water meter measures the processed volume and is adjustable.
.7 Service flow is up-flow and regeneration flow is down-flow.
.8 Refer to detail #ST-42.

.5 Features to be included:
.1 The regeneration control valve is top mounted (top of media tank), and manufactured from non-corrosive materials.
.2 Control valve does not weigh more than four pounds.
.3 Control valve provides service and regeneration control for two media tanks.
.4 Inlet and outlet ports accept a quick connect, double o-ring sealed adapter.
.5 Interconnection between tanks are made through the regeneration valve with a quick connect adapter.
.6 Control valve operates using a minimum inlet pressure of 15 p.s.i.
.7 Pressure is used to drive all valve functions.
.8 No electric hookup is required.
.9 Control valve incorporates four operational cycles including; service, brine draw, slow rinse, and a combined fast rinse and brine refill.
.10 Service cycle operates in an up-flow direction.
.11 The brine cycle flows down-flow, opposite the service flow, providing a countercurrent regeneration.
.12 Control valve contains a fixed orifice eductor nozzle and self-adjusting backwash flow control.
.13 The control valve will prevent the bypass of hard water to service during the regeneration cycle.
.14 Regeneration Volume: 19 liters
.15 Regeneration Time: 11 minutes

.6 Services:

.1 Water Inlet / outlet: 19 mm NPT Female.
.2 Drain connection: pipe of 13 mm.
.3 Brine Line Connection: pipe of 10 mm internal.
.4 Overflow Connection: pipe of 13 mm.
.5 Power: Not required

#E512 HOSE REEL

.1 Quantity: One (1)

.2 Dimensions (overall): 421 mm x 182 mm x 458 mm high.

.3 Description: The open reel is stainless steel finish open type. Furnished with 10.7 m long section of 9.5 mm interior diameter, 3-ply, 2-braid hose. Working pressure of 1380 kPa and withstands 60°C water temperature, spray nozzle insulated against hot temperature. Reel furnished for wall mounting. Provide with stops so that hose will maintain its position when pulled out until a small movement automatically causes withdrawal.

.4 Accessories:
- .1 Bleeder valve,
- .2 Chrome-plated surface vacuum breaker with test valve,
- .3 Chrome-plated surface Shut-off valve (interconnections are hided),
- .4 Chrome-plated surface mixing valve (interconnections are hided),
- .5 Horizontal or vertical 13 mm diameter backflow preventers,
- .6 Wall support,
- .7 A flexible quick disconnect hose (between vaccum breaker and hose reel).

.5 Installation: Install the unit to have a clearance of 1750 mm high under the spray nozzle. Install the hose reel on service chase item #E513. The food service contractor shall supply and install on the service chase #E513 the mixing faucet and the shut-off valve and supply to the plumbing contractor all other accessories mentioned above so the plumbing contractor can install and interconnect all pipings inside the service chase item #E513.

#E512A FAUCET FOR ITEM #E512

.1 Quantity: One (1)

.2 Note: Refer to the description of item #E512. The mixing valve is located recessed below the soiled table item #E501 with an «L» shaped secured beneath the soiled table.

#E514A VENTILATION HOOD

.1 Quantity: One (1).

.2 Quality: Vapor hood type, wall mounted.

.3 Number of section: one (1).

.4 Dimensions: 3400 mm x1575 mm x 760 mm high.

.5 Exhaust: 1135 L/s total, one (1) duct collar, 850 L/S 425mm x 425mm and 2 direct connections to the dishwasher of approximatively 100 mm x 405 mm, 95 L/s and 190 L/s, 100PA. Verify all dimensions of dishwasher's ventilation ducts.

.6 Description:
- .1 Exhaust hood with grease filters built in 304 stainless steel with a thickness of 1.3 mm and a n° 4 finish for the visible surfaces.
- .2 Vapors exhausted by the hood are pulled toward the collar by a velocity plate put in place to minimize excessive condensation on the upper wall of the hood.
- .3 The lower perimeter of the hood is fold inside to create a trough watertight and rigid.

.7 Installation: Ceiling hung with mounting height of 2000 mm from finish floor.

.8 Drain: Connection for 13 mm diameter drain.

.9 Lighting: 2 LED lamps type warm white 3500 K, 17 watts UL approved or use under kitchen exhaust hoods and CSA certified, wired to a ventilated junction box with transformer 120v/24VDC, installed above the hood.

.10 Skirting: 610 mm maximum width stainless steel panels of 20 mm edges folded over themselves (to 180 degrees) and same finish as the hood. Important note: the height should be verified on site before fabrication and must be installed on three (3) sides of the hood to hide the items on top of the hoods. Supports "Z" type must be factory installed on the lower part of the skirting panels for the installation of the panels and sit at the upper edge of the hood. See details on the sheet I-05. The skirting panels are fixed to an angle with anti-vandal screws. The angles are supplied and installed by general contractor. Screw the panels together halfway to ensure that the panels can not offer an "opening" between them when installed vertically.

.11 Special note: During installation, the food service equipment contractor shall cut two (2) openings for the ventilation ducts #E514 on top of the hood, adjusting the location according to equipment #E508. Refer to detail #CW-1.

.12 The hood must operate with an adjustable delay by the operator between 15 and 30 minutes to evacuate all condensing vapors.

.13 Note: Refer to paragraphs .6 to .10 of item #E311 for work to be done by all trades.

#E515 HAND SINK

.1 Quantity: One (1). Equipment supplied and installed by the plumbing and electrical contractors.

.6 CLEANING AND MAINTENANCE PRODUCTS

#E601 FLOOR SINK

.1 Quantity: Une (1). Equipment supplied and installed by the plumbing contractor.

#E602 FAUCET FOR FLOOR SINK

.1 Quantity: One (1). Equipment supplied and installed by the plumbing contractor.

#E603 DETERGENT SHELVING UNIT

.1 Quantity: Two (2)

.2 Dimensions of shelves:
- .1 One (1) of 1220 mm x 460 mm x posts of 1600 mm high
- .2 One (1) of 1065 mm x 460 mm x posts of 1600 mm high.

.3 Capacity: each shelf can receive up to 910 kg.

.4 Construction:
- .1 Polymer tiers coated with antimicrobial epoxy, with 304 stainless steel corners holders. Removable louvered tiers in sections. Removable corner holder, in stainless steel, allows removing or adding tiers without removing the module.
- .2 Adjustable every 25 mm.
- .3 Five (5) tiers per shelf.
- .4 Polymer posts.
- .5 Including all accessories to obtain functional units.
- .6 Locking brackets with positioning index.
- .7 Easy maintenance: louvered tiers are completely removable. This allows cleaning them outside the place of use.
- .8 NSF Approval.

#E604 SOAP DILUTER

.1 Quantity: One (1). Equipment supplied and installed by the general contractor as per engineer specifications.

.8 CART WASHING AREA

#E802 FAUCET AND HOSE

.1 Quantity: One (1)

.2 Dimensions (overall): 305 mm x 140 mm x 135 mm high.

.3 Description : One (1) chrome finish faucet, including a breaker valve, integrated back flow preventers, with 200 mm centre to centre taps and one (1) hose. Solidely fixed to service chase #E801. Seal. Refer to general specifications, drawings and to detail #XH-11. First quality sturdy faucet with 15 mm long spout to support a bucket. Spout with threads for receiving a premium quality hose of 13 mm inner diameter. Hose of 3650 mm long with pressure gun.

.9 WALK-IN ROOM FOR GARBAGE

#E902 MOBILE SHELVING UNIT

.1 Quantity: Two (2).

.2 Dimensions of shelves:
- .1 Two (2) shelves of 1375 mm x 457 mm x posts of 1600 mm high (excluding wheels).
- .2 Approximative height of shelves with wheels of 1710 mm – to be verified as per manufacturer's recommandation.

.3 Capacity: Each mobile shelf can receive up to 363 kg per tier of 457 mm x 1220 mm.

.4 Construction:
- .1 Polymer tiers coated with antimicrobial epoxy, with 304 stainless steel corners holders. Removable louvered tiers in sections. Removable corner holder, in stainless steel, allows removing or adding tiers without removing the module.
- .2 Adjustable every 25 mm.
- .3 Five (5) tiers per shelf.
- .4 Polymer posts.
- .5 Inlcuding donut bumpers, four (4) 125 mm diameter wheels with brakes, and all accessories to achieve functional units.
- .6 Locking brackets with positioning index.
- .7 Easy maintenance: louvered tiers are completely removable. This allows cleaning them outside the place of use.
- .8 Ensure that all shelves can get inside all cold rooms.
- .9 NSF Approval.

#E905 GARBAGE HOPPER

.1 Quantity: Three (3).

.2 Dimensions: 1537 mm x 711 mm x 981 mm high.

.3 Weight capacity: 385,6 kg.

.4 Volume capacity: 0,4 cubic meters.

.5 Molded rubber and reinforced garbage hopper, scratch-resistant, and reinforced with a UV ray inhibitor. Doesn't rust. Rounded corners with inner notches to strengthen the walls. Easy to clean. UV and PCR and approval. Enhanced steering handle. Contour with back rim. Unit mounted on two (2) main wheels, one (1) small wheel control and a ring that encircles the garbage acting as peripheral reinforcement and swinging support in black enamelled steel. Cover with handle included.

.6 Note: All different color. As selected by CSC.

.1 STORAGE

#S101 HAND PALLET TRUCK

.1 Quantity: One (1). Existing equipment. Equipment relocated by the food service equipment contractor. Ask CSC for its current location to take possession of it.

#S102 PLATFORM CART

.1 Quantity: One (1)

.2 Dimensions: 915 mm x 610 mm x 914 mm (height of push bar) – height of platform at 318 mm from finish floor.

.3 Construction: Anti-skid stainless steel top with sturdy frame. Stainless steel removable direction and push bar. Equipped with four (4) 203 mm diameter swivel wheels with rubber tires, mark-resistant with industrial ball-bearing. Brakes on back wheels. Wrap-around bumper. Capacity of 900 kg.

#S104 CART FOR COOLED DISH

.1 Quantity: Fifty-four (54). Equipment supplied and installed by CSC.

#S106 PALLET

.1 Quantity: Three (3). Equipment supplied and installed by CSC.

#S107 GARBAGE CAN

.1 Quantity: One (1)

.2 Dimensions: 368 mm x 267 mm x 389 mm high.

.3 Capacity: 26.5 liters.

.4 Description: Fiber glass garbage can resistant to scratches and acids. Doesn't rust. Rounded corners. Surface textured finish to avoid seeing scratches. Easy to clean. ULC approval.

.5 Note: standard colour.

#S108 PAPER AND SOAP DISPENSER

.1 Quantity: One (1). Equipment supplied and installed by the general contractor as per architect's specifications.

.2 PREPARATION

#S201 GARBAGE CAN

.1 Quantity: Three (3).

.2 Dimensions: 492 mm diameter x 582 mm high.

.3 Capacity: 75.7 liters

.4 Molded rubber and reinforced garbage hopper, scratch-resistant, and reinforced with a UV ray inhibitor. Doesn't rust. Rounded corners with inner notches to strengthen the walls. Bags are easy to pull out. Easy to clean. ULC and NSF approval. Enhanced rounded handle. Unit to receive a mobile platform avec screw tap between the bottom of the garbage can and the platform. Cover with handle included.

.5 Note: Standard colour.

.6 Option: Supply and give to CSC, 200 garbage bags.

#S203 POWDER MILK DOSER

.1 Quantity: One (1)

.2 Dimensions: 235 mm x 318 mm de hauteur x 127 mm de profondeur.

.3 Description: Doser unit for milk solidly fixed to wall. Height of fixation to be coordinate with CSC. Supply and install required inlet and outlet adaptors to be able to use flexible line of CSC milk can. Cord and plug. Integrated digital display panel with operation sequences and temperature.

.4 Measured volume capacity: 0,1 to 99,9 liters.

.5 Possible flow: of 0,5 to 25 liters per minute.

#S205 SLICER

.1 Quantity: Two (2)

.2 Description:
- .1 Manual type slicer.
- .2 330 mm CleanCut Knife
- .3 Removable Knife
- .4 Removable Ring Guard Cover
- .5 Zero Knife Exposure
- .6 Top-Mounted Borazon Stone Sharpener
- .7 1⁄2 H.P. Knife Drive Motor
- .8 Home-Start Position
- .9 Close-to-Stop
- .10 Gauge-Plate Interlock
- .11 Carriage-System Interlock
- .12 No-Volt Release
- .13 30-Second Shut Off
- .14 Sanitary Anodized Aluminum Base
- .15 Exclusive Tilting, Removable Carriage System
- .16 Double-Action Indexing Cam
- .17 Spring Kickstand
- .18 Ergonomic-Style Handle
- .19 1800 mm, three-wire power supply cord and plug.

#S206 MIXER 80 PINTS

.1 Quantity: One (1)

.2 Description:
- .1 Beater/Mixer 80 quarts.
- .2 Swing-out bowl.
- .3 Shift-on-the-Fly speed control.
- .4 Power Lift Bowl control.
- .5 Quick Release agitators.
- .6 Shift-on-the-Fly controls.
- .7 Ergonomic swing-out bowl.
- .8 Large, easy-to-reach controls.
- .9 Single point bowl installation.
- .10 3 H.P. motor
- .11 Gear transmission
- .12 50-minute SmartTimer
- .13 Four fixed speeds plus stir speed
- .14 Stainless steel bowl guard
- .15 Power bowl lift
- .16 Powder coat finish

.17 80 qt. stainless steel bowl.
.18 80 qt. ”B“ beater.
.19 80 qt. ”ED“ dough hook.
.20 80 qt. bowl truck.
.21 Maximum correctional package.

#S207 MANUAL CAN OPENER

.1 Quantity: One (1)

.2 Dimensions: 228 mm x 89 mm x 713 mm de hauteur (overall in closed position).

.3 Description: All stainless steel. The platform is fixed to the table top by stainless steel countersunk screws. Telescopic tube, head with can-opener blade, including a sviwellng and rotative handle to open cannages.

.4 Accessories:
.1 Replaceable gear and blades.
.2 Cleaning brush.
.3 Take the longest telescopic tube in order to take all highest cannages.
.4 Accessories and unit must be carceral type.
.5 Base of telescopic tube with pin to prevent tube comes out of its support.

#S208 VEGETABLE CUTTER

.1 Quantity: One (1).

.2 Dimensions: 381 mm x 329 mm x 595 mm high.

.3 Description : 1,5 HP power, speed of 425 tr/min. Magnetic safety, engine brake and automatic restart by a lever. Vegetable cutter with side discharge chutes composed of 2 large chutes : a large chute of 170 mm x 76 mm and a cylinder trough of 57 mm in diameter. Metal lid and body. 50 to 400 meals per service. Including: a 3 mm slicing disc, a 3 mm grating disc and a double disc casing. Cord and plug NEMA 5-15P.

.4 Accessories:
.1 Discs (blades) to supply and to give to CSC : a 3 mm and 6 mm slicing discs, a 4 mm and 5 mm grating discs, a 2 mm x 4 mm julienne stick, a 10 mm x 10 mm dicing grid and a 14 mm x 14 mm x 5 mm «Mozzarella» dicing disc.

#S209 COUNTER SCALE 20 KG

.1 Quantity: One (1)

.2 Dimensions of platform: 305 mm x 305 mm x 108 mm high.

.3 Capacity: 20 kg x 10 g

.4 Construction: Stainless steel platform. The terminal and the column are welded to each other. Simplified digital display, lb/kg conversion and cast aluminum base. Programmable. Keypad for quick modification of pre-tare values. Automatic reset to zero. Balance with the hygienic standards according to current standards and load cells in stainless steel hermetically sealed with hygienic box.

.5 Additionnal descriptions:
- .1 Weighing terminal designed for manual operations weight extremely easy sorting.
- .2 The scale can easily withstand high pressure cleaning procedures.
- .3 Keypad to touch (tactile effect).
- .4 Sorting application weight plus / minus offers individual color settings to optimize the CSC process.
- .5 Display Configuration:
  - a. Default configuration: histogram.
  - b. Configuration large characters: weight value (25 mm).
  - c. Information over 3 lines configuration: weight value and tolerance - / Target / Tolerance +
- .6 Three different possibilities to enter the target weight and tolerance settings :
  - a. Absolute: Definition of the lower and upper limits of weight.
  - b. Relative: Definition of target weight and tolerances ± in the form of weight values.
  - c. Percent: Definition of target weight and tolerances ± in the form of percentage.
- .7 In addition to the weighing of values, it is possible to use the numeric keypad to set values.
- .8 Memory of 50 target weight parameters and tolerances. Reminder and easy identification.
- .9 Warned feature when the operator tries to perform a weighing beyond a certain level of accuracy.
- .10 A manual mode allows repeated garment portions and optimizes the accuracy of your process.
- .11 Several interfaces available, for: USB, RS232, RS422 / 485, Ethernet, digital I / O.
- .12 LCD Monitor.
- .13 Cord and plug.

#S210 MOBILE SHELVING UNIT

.1 Quantity: Two (2)

.2 Dimensions of shelves: 915 mm x 610 mm x posts of 1600 mm high (excluding wheels). Approximative height of shelves with wheels of 1710 mm – to be verified as per manufacturer's recommendation.

.3 Capacity: Each mobile shelf can receive up to 363 kg per tier of 610 mm x 1220 mm and stationary shelves up to 907 kg each.

.4 Construction:
- .1 Polymer tiers coated with antimicrobial epoxy, with 304 stainless steel corners holders. Removable louvered tiers in sections. Removable corner holder, in stainless steel, allows removing or adding tiers without removing the module.
- .2 Adjustable every 25 mm.
- .3 Five (5) tiers per shelf.
- .4 Polymer posts.
- .5 Inlcuding donut bumpers, four (4) 125 mm diameter wheels with brakes, and all accessories to achieve functional units.
- .6 Locking brackets with positioning index.
- .7 Easy maintenance: louvered tiers are completely removable. This allows cleaning them outside the place of use.
- .8 Ensure that all shelves can get inside all cold rooms.
- .9 NSF Approval.

#S211 RECYCLING GARBAGE CAN

.1 Quantity: Une (1)

.2 Dimensions: 587 mm x 279 mm x 632 mm high.

.3 Capacity: 60.1 liters.

.4 Description: Molded rubber, scratch-resistant and acid resistant. Doesn't rust. Rounded corners. Surface textured finish to avoid seeing scratches. Easy to clean. PCR approval. Supply an appropriate cover with handle.

.5 Note: colour blue.

.6 Description of mobile cart for garbage can:
- .1 Dimensions: 518 mm x 238 mm x 241 mm high.
- .2 Made of grade 304, no. 4 finish stainless steel.
- .3 Plastique wheels.
- .4 Unit to receive a garbage can of 60,1 liters as mentionned on this item.
- .5 Unit to be acid resistant, doesn't rust and to be used into a humid environment.

#S212 REFRIGERATOR 3 DOORS

.1 Quantity: Two (2). Existing equipment.

.2 Note: The food service equipment contractor must relocate this equipment as shown on the layout. Thoroughly clean the refrigerator. The serial number of the 3 door refrigerator is #7275253. Ask CSC for its current location to take possession of it.

#S214 MICROWAVE OVEN

.1 Quantity: One (1)

.2 Dimensions (overall): 512 mm x 416 mm x 305 mm high.

.3 Dimensions of cooking cavity: 330 mm x 330 mm x 205 mm high.

.4 Cooking power: 1000 watts.

.5 Frequency: 2450 mHz.

.6 Description: Stainless steel construction. Black rubber legs. Commerical type oven. The cavity will be lit by a bulb. The display panel includes a timer, six cooking buttons, 10 programmable buttons with memory, possibility of 20 memories, button double quantity, 2 or 3 stage cooking, programming lock, single timer pre-selection and self-diagnosis. Timer of 99 minutes and 99 seconds. 3 year warranty.

The door is made of a transparent glass panel to wave proof leaks. Defrost possibility. Cord and plug. NEMA 5-15P. ADA and CSA approval.

.3 COOKING AND DIETS

#S301 COMBI OVEN FOR CARTS WITH WATER SOFTENER

.1 Quantity: Two (2).

.2 Dimensions: 1334 mm x 1083 mm x 1886 mm high.

.3 Description:
- .1 Construction in stainless steel including stainless steel welded frame.
- .2 0 to 120 minutes timer / manual mode.
- .3 Electronic thermostat control ± 1 °C (63 to 260 °C).
- .4 Low water level indicator, automatic fill-in.
- .5 Steam temperature control.
- .6 Door drain.

.7 Including 10 stainless steel grids.
.8 Capacity of 28 steam plates and 14 cake plates.
.9 Digital thermal probe with digital display.
.10 Spray bottle and rince hose.
.11 Type of cooking: convection oven cooking, steam cooking type, combination type cooking without pressure.
.12 Oven with double layer glass door with surface hinges for easy cleaning.
.13 The oven allow the operator to choose between cooking modes: steam, hot air, combined and or to cooled down the product.
.14 The oven can receive mobile cart which can be used also with a air cooled blast chiller or an rethermalization unit.
.15 The oven includes a 2 speed fan, an on-demand steam function and a descaling light.
.16 Stainless steel interior and the interior shall have the capability of being hose down for cleaning.
.17 All door gaskets shall be easily removable for replacement or cleaning.
.18 Tempered Glass door.
.19 Unit shall be open vented for waist air quenching.
.20 The oven shall have an on-demand button for steam injection and shall have a indicator light to show descaling time.
.21 The steam generator shall be separate from the cooking compartment in order to provide the fastest possible steam recovery.
.22 Self-cleaning high performance steam generator.
.23 The steam generator shall flush automatically to cut down on mineral build up.
.24 The unit shall include deliming container with semi-automatic pump for storing and dispensing deliming solution.
.25 Deliming bottle with quick connect plug.
.26 A start-up inspection service will be performed by our factory authorized agent at no cost to the Owner.
.27 A formation will be given to the Owner without extra cost by our factory authorized agent.
.28 Unit is able to receive mobile carts.
.29 One (1) full year warranty including materials and labor.
.30 The food service equipment contractor must supply and install a water softener for each combi oven as per manufacturer's recommendations. The water softener must be installed on the left side panel of the combi. The food service equipment contractor must provide and install a reinforcement inside the left side panel, so it may receive the water softener. Water softener solidly fixed at proper height to receive water connections. The plumbing contractor must interconnect the water softener from building services, passing thru the water softener and finally to the combi oven.

#S302 CART FOR COMBI OVEN

.1 Quantity: Two (2)

.2 Description:
- .1 Strong gauge tubing frame construction.
- .2 Removable handles.
- .3 Swivel wheels, rubbed thread with brakes.
- .4 Unit shall be able to fit inside the oven item #S301 and warmer item #S303.
- .5 Section box shall be able to receive 460 mm x 660 mm plates or 305 mm x 508 mm x 65 mm depth steam plates.
- .6 Temperature holding pad included for each cart.

#S303 WARMER FOR ITEMS #S302

.1 Quantity: Two (2)

.2 Dimensions: 914 mm x 959 mm x 2134 mm high.

.3 Description:
- .1 Completely welded cabinet construction with outer cabinet formed to base and welded. All seems turned in to eliminate raw edges.
- .2 All stainless steel: 1 mm thick polished exterior and 1 mm thick interior.
- .3 Base frame: 2 mm thick stainless steel perimeter supports with 2.8 mm thick leg supports.
- .4 High density fiberglass, full 50 mm thick continuous wrap-around type in top, bottom and sides.
- .5 Double wall stainless steel construction. 1 mm thick interior and exterior with fiberglass insulation. Gasket seam included.
- .6 Adjustable self-closing edgemount hinges with chrome plate finish.
- .7 Legs: Unit is fitted with 150 mm high stainless steel adjustable legs.
- .8 Latches: heacvy-duty edgemount latch with magnetic catch.
- .9 Controller: solid state electronic temperature controller with digital display and low temperature alarm. On/Off switch and power indicating light.
- .10 Heating system: lift off, top mounted heater. Inconel-sheathed heating elements. Two high impedances protected, internally cooled fan motors. Removable, precision engineered and balanced interior heat duct system.
- .11 Cord and plug NEMA 6-20P.
- .12 Performance: capable of heating to 948C. Preheat to 718C in approximatively 20 minutes.

#S304 STATIONNARY STEAM KETTLE 300 LITERS

.1 Quantity: One (1). Existing equipment. Kettle supplied and delivered by CSC near the kitchen. The kettle is then located in its final position, installed and secured to the floor by the food service equipment contractor. The connection of electrical and plumbing services is done by the plumber and electrician contractors.

.2 Dimensions: 858 mm diameter (969 mm overall width) / (928 mm overall depth) x 1039 mm high (kettle edge top).

.3 Capacity: 300 liters.

.4 Kettle serial number: 160 123 051 341.

.5 Cleveland's end of guarantee date: March 2018.

.6 Construction: Direct steam kettle, 2/3 steam jacketed. Satin finish and grade 316 stainless steel kettles. Model on legs. One (1) safety valve calibrated. The tangent drain valve is 50 mm in diameter and the drain valve type is "Butterfly" with strainer. 13 mm cold water spout sanitary swivel with fast flow action. Kettle with 345 kPa (50 PSI) rating. Chromed steam plated control kit includes steam traps, condensate strainer, check valves, fittings and accessories, all factory assembled and mounted on the kettle. Spring assisted lid with handle designed to prevent burns. Bar measuring strip in metric.

.7 Accessory kit which doesn't come with the existing kettle, but are to be supplied and deliver to the CSC, which includes: a cleaning brush, a 915 mm long whip kettle, a 915 mm draw-brush, a 915 mm long paddle type utensil for kettle, a 915 mm long kettle brush, a 700 ml (24 oz) ladle. Include the option accessories for a Carceral / Jail environment. Strainer drain.

#S304A PORTABLE MIXER WITH SUPPORT

.1 Quantity: One (1)

.2 Dimensions (overall): 140 mm diameter x 1130 mm high.

.3 Description: In stainless steel. Rotation speed of 9500 rev/minute. CETL, ULC, NSF and CSA approval. Cord and plug NEMA 5-15P. Block motor with an ergonomic handle, a lug on the engine housing can serve as a rest and pivot on the rim of a kettle. Reinforce motor. Power cord winding system. Patented «easy plug» system is removable. Overmoulded blade. Foot, blade, bell and whip fully removable for cleaning. Tube, bell, blade and whip in stainless steel. Preparation capacity of 400 liters. continues Lock feature operating button.

.4 Accessories included:
- .1 Stainless steel universal kettle support.
- .2 Molded whips.

#S305 TILTING STEAM KETTLE 45 LITERS

.1 Quantity: One (1)

.2 Dimensions: 425 mm diameter x 565 mm high.

.3 Capacity: 45 liters

.4 Construction: Steam operated kettle, including all accessories or steam adaptors to make all connections. Satin finish, grade 316 stainless steel. Double wall cylindrical bowl making a 2/3 steam jacketed kettle. Table type model install item #S306 including all required accessories for an adequate fixation. Removable cover. Easy manual tilting, balanced design. Steam inlet and condensate return concealed within stainless steel support legs. Chrome plated steam control valve install on unit.

Safety valve. Positive latch to keep kettle in vertical position including a gear mechanism to screw machined end. NSF and ASME approval. Chrome plated steam control kit. The stand for this item is fabricated by the same company than this kettle to ensure that both items are functional and adaptable between them. 13 mm cold water spout sanitary swivel faucet installed on support item #S306.

#S306 SUPPORT FOR ITEM #S305

.1 Quantity: One (1)

.2 Dimensions: 710 mm x 527 mm x 445 mm high.

.3 Construction: Stainless steel stand to receive the tilting kettle #S305. This stand includes one removable drain drawer with splash shield including a pan support. The drawer is equipped with a drain that drains into the basin below the drawer. The drain is extended to the funnel drain floor. Special top for steam connections with any accessories or adapters steam connections – Verify with kettle #S305. Legs of 32 mm x 32 mm with adjustable feet. The two (2) rear legs are bolted to the floor.

#S307 MOBILE GRIDDLE 1220 MM

.1 Quantity: Two (2)

.2 Dimensions (overall): 1220 mm x 890 mm x 575 mm high and working height of unit of 367 mm de hauteur. Overall working height including mobile support at 915 mm from finish floor.

.3 Description of griddle plate: all stainless steel unit. 1830 mm cord in length with plug NEMA 15-60P. Outlet on the horizontal service chase #E313. The unit includes three (3) heating elements of flat type for each section of 305 mm width. Master switch "On and Off" with green indicator light. Switch "On and Off" for each thermostat. Electronic thermostat of 66 °C to 232 °C, for each cooking section of 305 mm in width. Indicator light "amber" when a section is functional. The sides, front, bottom, rear, backsplash or any components or accessories in stainless steel.

Gutter located at the rear, grease fall in the gutter and two (2) drawers of 152 mm deep with integrated deflector with a capacity of 6 liters for collecting fat which access is located on the front. Splash guard on each side of the griddle. Legs of 152 mm high with adjustable feet. Stainless steel guard protects thermostatic button. Backsplash of 203 mm high. Protection plate for controls.

.4 Description of mobile support: All stainless steel. Mobile support equipped with four (4) swivel wheels, mark resistant with brakes localised on front of mobile support. The wheels and brakes are as per manufacturers' recommandations. The working height of the cooking surface of the griddle is at 915 mm high.

.5 Note for the general and electrical contractor: as per mentioned in the mechanical and electrical chart loads, supply ad install one restriction chain and two (2) hooks (one hook fixed to the support and one hook fixed to the wall or the floor).

#S308 MOBILE RANGE 2 BURNERS WITH GRIDDLE AND OVEN

.1 Quantity: One (1)

.2 Dimensions (overall): 915 mm x 915 mm x 915 mm high. Working height at 915 mm from finish floor.

.3 Description of griddle plate: all stainless steel unit. Direct connection to the unit. The sides, front, bottom, rear, backsplash or any components or accessories in stainless steel. Front shelf in stainless steel for plates. The unit includes a oven rack with removable four-position chrome plated rack guides with two (2) oven racks for the oven. Heavy duty electromechanical thermostats for the oven. Two (2) heating tubular elements. A 610 mm griddle plate controlled by two (2) thermostats (143 °C to 343 °C). A 76 mm high stainless steel vent raiser. Heat resistant, cool to touch oven door handle. Range will be mobile and mounted on four (4) polyurethane non-marking swivel casters complete with front brakes. The oven interior is 343 mm x 533 mm deep x 667 mm high. On the right side of the range, two (2) tubular heating elements. The electrical input is located on back of the range.

.4 Note for the general and electrical contractor: as per mentioned in the mechanical and electrical chart loads, supply ad install one restriction chain and two (2) hooks (one hook fixed to the support and one hook fixed to the wall or the floor).

#S309 RECYCLING GARBAGE CAN

.1 Quantity: One (1)

.2 Dimensions: 587 mm x 279 mm x 632 mm high.

.3 Capacity: 60.1 liters.

.4 Description: Molded rubber, scratch-resistant and acid resistant. Doesn't rust. Rounded corners. Surface textured finish to avoid seeing scratches. Easy to clean. PCR approval. Supply an appropriate cover with handle.

.5 Note: colour blue.

.6 Description of mobile cart for garbage can:
- .1 Dimensions: 518 mm x 238 mm x 241 mm high.
- .2 Made of grade 304, no. 4 finish stainless steel.
- .3 Plastique wheels.
- .4 Unit to receive a garbage can of 60,1 liters as mentionned on this item.
- .5 Unit to be acid resistant, doesn't rust and to be used into a humid environment.

#S313 GARBAGE CAN

.1 Quantity: Two (2)

.2 Dimensions: 492 mm diameter x 582 mm high.

.3 Capacity: 75.7 liters

.4 Molded rubber and reinforced garbage hopper, scratch-resistant, and reinforced with a UV ray inhibitor. Doesn't rust. Rounded corners with inner notches to strengthen the walls. Bags are easy to pull out. Easy to clean. ULC and NSF approval. Enhanced rounded handle. Unit to receive a mobile platform avec screw tap between the bottom of the garbage can and the platform. Cover with handle included.

.5 Note: standard colour.

.6 Option: Supply and give to CSC, 200 garbage bags.

#S314 GARBAGE CAN

.1 Quantity: Une (1)

.2 Dimensions: 368 mm x 267 mm x 389 mm high.

.3 Capacity: 26.5 liters.

.4 Description: Fiber glass garbage can resistant to scratches and acids. Doesn't rust. Rounded corners. Surface textured finish to avoid seeing scratches. Easy to clean. ULC approval.

.5 Note: standard colour.

#S315 PAPER AND SOAP DISPENSER

.1 Quantity: One (1). Equipment supplied and installed by the general contractor as per architect's specifications.

.4 TRAY ASSEMBLY AND BULK SHIPPING

#S401A FAUCET

.1 Quantity: One (1)

.2 Dimensions: approximately 250 mm x 100 mm x 150 mm high.

.3 Description: Sturdy swivel faucet with spout of approximatively 180 mm long. Spout 13 mm internal diameter. Chrome plated faucet with integrated check-valves. Closing valve. Unit installed on left side of hot food table. See detail #DH-1.

#S402 MOBILE WARMER

.1 Quantity: One (1)

.2 Dimensions (overall with wrap-around bumper): 701 mm x 876 mm x 1924 mm high (including casters of 125 mm diameter).

.3 Construction: All stainless steel. Double section hot holding cabinet, heavy duty construction upright type. Interior cavity of each holding compartment of 730 mm x 541 mm x 673 mm height. Stainless steel exterior wall housing of 1 mm thick and stainless steel interior wall housing of 0.8 mm thick. Each compartment is controlled separately with a switch "On and Off" and equipped with an indicator light. Digital display with arrow type buttons to raise or lower the temperature between 60 °C and 93 °C for each section. soft and uniform heat. Each compartment is equipped with two (2) vertical track systems to receive four sets of four (4) pairs of stainless steel angles for full size plates. Universal adjustable angles are 16 possible positions at 44 mm center to center. Insulated doors and ventilation system. Isolated and invisible electrical components. Unit mounted on four (4) 125 mm diameter non-marking swivel casters and brakes located on the front of unit. Wrap-around bumper. Direction of opening doors as per layout. Push and direction bar. ULC and NSF approval.

#S404 TRAY CART

.1 Quantity: One (1)

.2 Dimensions: 1100 mm x 635 mm x push bar at 915 mm high and platform at approximately 300 mm above finish floor.

.3 Construction: made of 304, finish #4 stainless steel with strong frame. Welded and polished. Direction and push bar removable in stainless steel. Platform mounted on four (4) 200 mm diameter swivel wheels and mark-resistant with brakes installed diagonally. Wrap-around bumper. Marine edge. Dimensions (overall) of tray supplied by the SCC are: 407 mm x 254 mm x 84 mm high.

#S405 SPARE

#S406 HOT AND COLD BULK FOOD CART

.1 Quantity: Twelve (12). The carts are located as follows: Six (6) carts in the tray assembly area, supplied, localised and installed by food service equipment contractor and six (6) carts supplied by the food service equipment contractor, but located and installed in the wing of prisoners by CSC.

.2 Dimensions: 730 mm x 847 mm x1375 mm high.

.3 Description: Transport unit superimposed trays with front loading. Door with a hinge on the left and a handle of 230 mm durable nylon with opening to 240°. Handles should be ergonomicaled and molded. The door of the heated section shall be fitted with a non-corrosive heating element integrated into the door itself and removable for repair or maintenance. Removable cord and plug 2700 mm long - NEMA 5-15P. Each section or cavity is made of molded polyethylene and polyurethane injected. The bottom section is cold (not refrigerated) and the top section is heated. The unit must have "CSA and Energy Star" approvals and must maintain a temperature of 65-74 °C. Heating the cavity must reach a temperature of 65 °C in 45 minutes from the ambient room temperature. Heating the cavity must have a start indicator and a temperature indicator. The same device must indicate the temperature inside the cavity by means of a digital thermometer. Heating the cavity must generate and circulate the heat through the entire cavity with ventilation slots located in the interior of the door. A flexible rubber device is located on the left side of the unit for storage of the cord and plug. Each door has a gasket seal. Each cavity (heated and unheated) must have twelve sets of evenly-spaced, molded-in rails per compartment (in polyethylene) to receive full type trays Gastronorm size (GN) and half-trays. Unit mounted on four (4) 150 mm diameter high efficiency casters, swivel, mark-resistant and brakes installed on two front casters.

.4 Colour: as selected by the architect.

#S407 SPARE

#S408 SPARE

#S409 SPARE

#S410 HOT WATER AND COFFEE URN

.1 Quantity: One (1)

.2 Dimensions: 356 mm x 533 mm x 850 mm high.

.3 Capacity: One liner of 43 liters of coffee and 38 liters of hot water.

.4 Construction: Automatic coffee urn. Constructed of 1.3 mm gauge type 304 stainless steel, #4 finish. Completely automatic coffee brewing, switch activated. Automatic water refill, flow controlled for constant water temperature in jacket. Low water temperature cut-out, low water safety cut-off water level and water temperature gauges. Spray arm with adjustable by-pass. Half brew feature and on site adjustment for half-brew cycle level.

Including paper filters, cleaning brush, one (1) 13 mm faucet with clean out cap and gauge glass per liner, plus jacket water faucet and gauge glass. Brew funnel to automatically blend coffee in liner. Half and full brew timings, water flow and temperature shall be adjustable from outside the urn and shall be recessed. Instructions to be on metal label permanently affixed. Including water filter. Heating element of 3,950 W.

#S411 SPARE

#S412 SPARE

#S413 GARBAGE CAN

.1 Quantity: One (1)

.2 Dimensions: 368 mm x 267 mm x 389 mm high.

.3 Capacity: 26.5 liters.

.4 Description: Fiber glass garbage can resistant to scratches and acids. Doesn't rust. Rounded corners. Surface textured finish to avoid seeing scratches. Easy to clean. ULC approval.

.5 Note: standard colour.

#S414 HOT WATER AND COFFEE THERMOS

.1 Quantity: Four (4)

.2 Dimensions: 230 mm x 420 mm x 460 mm high.

.3 Capacity: 9.4 liters

.4 Description: Portable thermos to transport hot water, cold or coffee. Non-electric. Thermos made of molded polyethylene double-walled, seamless and injected with polyurethane. This thermos has raised edges, with integrated splash guard ledges. The lid is provided with a ventilation hatch for equalizing pressures and thus release the vapor pressure accumulated. The thermos is equipped with a handle built in durable nylon. The thermos has recessed carrying handles and molded out of the thermos. The thermos is equipped with an anti-dripping faucet, recessed, and the liquid discharge flow is controlled by finger pressure. The thermos is equipped with a sticker to identify the served liquid. The thermos is equipped with a device "easy service" for dealing with fluid in the cups.

.5 Note: Standard colour.

#S415 ANGLE RACK (DESSERTS)

.1 Quantity: One (1)

.2 Dimensions: 600 mm x 700 mm x 1727 mm high.

.3 Construction: All stainless steel. Posts and crossbars of 38 mm x 38 mm and shape of "U". Eighteen (18) pairs of removable universal angles in stainless steel. Adjustable at every 63 mm center to center. Each pair of angles can receive:
- One (1) tray of 457 mm x 660 mm or
- Two (2) trays of 355 mm x 457 mm or
- Two (2) pans of 305 mm x 508 mm.

Four (4) 125 mm diameter swivel casters with ball bearing, mark-resistant and brakes on the front. Wrap-around bumper.

.5 POT AND TRAY WASHING AREA

#S501 MOBILE GARBAGE CAN

.1 Quantity: Two (2)

.2 Dimensions: 492 mm diameter x 582 mm high.

.3 Capacity: 75.7 liters

.4 Molded rubber and reinforced garbage hopper, scratch-resistant, and reinforced with a UV ray inhibitor. Doesn't rust. Rounded corners with inner notches to strengthen the walls. Bags are easy to pull out. Easy to clean. ULC and NSF approval. Enhanced rounded handle. Unit to receive a mobile platform avec screw tap between the bottom of the garbage can and the platform. Cover with handle included.

.5 Note: standard colour.

.6 Option: Supply and give to CSC, 200 garbage bags.

#S502 GARBAGE CAN

.1 Quantity: Une (1)

.2 Dimensions: 368 mm x 267 mm x 389 mm high.

.3 Capacity: 26.5 liters.

.4 Description: Fiber glass garbage can resistant to scratches and acids. Doesn't rust. Rounded corners. Surface textured finish to avoid seeing scratches. Easy to clean. ULC approval.

.5 Note: standard colour.

#S503 PAPER AND SOAP DISPENSER

.1 Quantity: One (1). Equipment supplied and installed by the general contractor as per architect's specifications.

.7 STAFF KITCHENETTE

#S701 GARBAGE CAN

.1 Quantity: Une (1)

.2 Dimensions: 368 mm x 267 mm x 389 mm high.

.3 Capacity: 26.5 liters.

.4 Description: Fiber glass garbage can resistant to scratches and acids. Doesn't rust. Rounded corners. Surface textured finish to avoid seeing scratches. Easy to clean. ULC approval.

.5 Note : Standard colour.

#S702 COFFEE MAKER

.1 Quantity: One (1)

.2 Dimensions: 216 mm x 525 mm x 435 mm high.

.3 Capacity: 14.4 liters of production per hour.

.4 Description: Automatic coffee maker with complete filter basket with handle and faucet for hot water distribution. All stainless steel grade 304, no. 4 finish. Manual filling for a constant rate to a uniform temperature of the coffee. Solid state controls for complete cycle or half-cycle, low water and low temperature level. Temperature, cycle time and water level for adjustable half cycle instead. Integrated warmer at the base of the coffee maker. «On and Off» button. Cord and plug. Indicator light of coffee ready. Provide and give to CSC a second coffee silex in stainless steel finish as the original one.

1000 paper filters and cleaning brush included. Operating instructions on metal plate on coffee maker.

#S703 SPARE

Part 1 General

1.1 GENERAL

.1 Refer to all items in this section, to the general conditions, to all sections in divisions 00 and 01 which apply to and form part of all sections of work.

1.2 BIDDING DOCUMENTS

.1 Visualize the complete scope of work and conditions. Carefully study jointly all written documents and drawings. These documents form an integral part of the work for section 11 40 20 - Custom Equipment.

1.3 RELATED REQUIREMENTS

.1 Refer to the sections 11 40 10 and 11 41 10.

1.4 REFERENCES

.1 American Iron and Steel Institute (AISI)

.2 ASTM International

.1 ASTM A 167-99(2009), Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.

.2 ASTM A 240/A 240M-11a, Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.

.3 ASTM A 269-10, Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.

.4 ASTM A 480/A 480M-11a, Specification for General Requirements for Flat-Rolled Stainless and Heat-Resisting Steel Plate, Sheet, and Strip.

.5 ASTM B 456-08, Standard Specification for Electrodeposited Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium.

.3 Canada Green Building Council (CaGBC)

.1 LEED Canada-NC Version 1.0-2004, LEED (Leadership in Energy and Environmental Design): Green Building Rating System for New Construction and Major Renovations (including Addendum 2007).

.2 LEED Canada-NC-2009, LEED (Leadership in Energy and Environmental Design): Green Building Rating System for New Construction and Major Renovations 2009.

.3 LEED Canada-CI Version 1.0-2007, LEED (Leadership in Energy and Environmental Design): Green Building Rating System for Commercial Interiors.

.4 LEED Canada-EB: O&M-2009, LEED (Leadership in Energy and Environmental Design): Green Building Rating System for Existing Buildings: Operations and Maintenance 2009.

.4 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-19.13-M87, Sealing Compound, One Component, Elastomeric, Chemical Curing.

.5 CSA International

.1 CSA O112.10-08, Evaluation of Adhesives for Structural Wood Products (Limited Moisture Exposure).

.2 CAN/CSA-Z809-08, Sustainable Forest Management.

.6 Forest Stewardship Council (FSC)

.1 FSC-STD-01-001-2004, FSC Principle and Criteria for Forest Stewardship.

.7 Green Seal Environmental Standards (GS)

.1 GS-36-11, Commercial Adhesives.

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

.1 Material Safety Data Sheets (MSDS).

.9 National Hardwood Lumber Association (NHLA)

.1 Rules for the Measurement and Inspection of Hardwood and Cypress 2011.

.10 South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards

.1 SCAQMD Rule 1168-A2005, Adhesives and Sealants Applications.

.11 Sustainable Forestry Initiative (SFI)

.1 SFI-2010-2014 Standard.

.12 The Public Health and Safety Company (NSF International)

1.5 WORK TO BE DONE

.1 The supply of all labour, materials, plant, tools, crating, transportation, delivery, uncrating and set-in-place of all work required to completely install the food service equipment specified and/or as shown on drawings and specifications.

.2 General:

.1 Verify the dimensions of units furnished by others, but recessed into or forming a part of the equipment specified. Make any necessary adjustments required for a complete installation.

.2 Provide all required access and service panels necessary for lubricating, maintenance, clean-out, verification, etc., of equipment.

.3 Plumbing accessories:

.1 Supply and install faucets for sinks and kettles.

.2 Supply and install waste outlets, tail pieces, and overflow assemblies for sinks ready for connection by the Plumbing Contractor. Supply sinks fitted with corner drains complete with removable standpipes and perforated removable stainless steel corner strainer guards (Perforated corner guard holes of 5 mm diameter).

.3 Supply all water regulating valves for connection by the Plumbing Contractor.

.4 Electrical wiring:

.1 Supply and install all internal wiring on custom made equipment or as shown on drawings and specifications. Terminate wiring at a junction box and conveniently located for connection to building services by the Electrical Contractor.

.5 Electrical accessories:

.1 Supply and install all necessary junction boxes required to terminate wiring within custom fabricated equipment. Junction boxes must have grounding screws. Hospital grade devices are a minimum requirement

.2 Supply and install watertight outlets. Furnish and install waterproof wiring, control panels, and controls in dishroom and potwash areas.

.3 Electrical outlet installed near a water outlet shall be supplied and installed in accordance with the electrical code and will be of type "differential circuit breaker".

.6 Miscellaneous accessories:

.1 Supply and install all hardware such as: catches, handles, shock absorbers, etc., which are customarily part of equipment. Supply and install locks on all drawers.

.2 All items of equipment having dials, gauges, indicators, recording devices, etc. (i.e. scales, thermometers, thermostats) must be graduated in the International Metric System.

.3 Where gaps between items of equipment, or between equipment and walls are larger than 3 mm, enclose with a stainless steel fitting strips.

1.6 MECHANICAL AND ELECTRICAL SERVICE DRAWINGS AND SHOP DRAWINGS

.1 The mechanical and electrical requirements schedule and a drawing showing the location of connections is provided by the Ministerial Representative. All sizes and loads specified indicate actual requirements at point of connection. All trades must provide space for the installation of valves, traps, fittings, switches, disconnects, etc. Connect all equipment horizontally to walls and partitions wherever possible.

.2 Design drawings prepared by the Ministerial Representative show basic equipment details and are a guide only.

.3 Submit for review:

.1 Mechanical and electrical services location drawings showing floor depressions and openings in walls for all type of equipment

.2 Detailed shop drawings for custom fabricated equipment.

.4 Shop drawings:

.1 Indicate construction details of equipment including materials, components, metal thicknesses, reinforcements, welds and weld types, interior and exterior corner and joint details, anchorages, locations of exposed fasteners, assembly methods, finishes, mechanical and electrical characteristics.

.2 Indicate roughing-in service requirements for mechanically and electrically operated equipment.

.5 Provide detailed shop drawings for custom-made equipment.

.6 Submit one (1) copy and one (1) reproducible print of the shop drawings for verification and review by the Ministerial Representative.

.7 Provide fully dimensioned mechanical and electrical services location drawings (not less than 1:50 scale) for all equipment.

.8 Provide fully dimensioned drawings (not less than 1:50 scale) locating low walls, floor depressions, wall openings and wall reinforcement required for equipment.

.9 Provide plan and elevation views of equipment not less than 1:25 scale. Provide sections, no less than 1:10 scale, in sufficient number to clearly illustrate construction method. Half of full size scale for details or fittings. Clearly indicate all welds, supports and fasteners.

.10 Once the requested shop drawings have been verified by the Ministerial Representative, provide the number of sets required. Do not proceed with any part of the fabrication until the drawings have been reviewed by the Ministerial Representative.

.11 Review of these drawings by the Ministerial Representative is general. It is not intended to serve as a final check and does not relieve the Contractor from the responsibility of checking the drawings or from furnishing the specified materials.

.12 Coordinate all mechanical and electrical requirements with all concerned trades. Match the equipment plugs with the electrical outlets furnished and installed by the Electrical Contractor.

1.7 DIMENSIONS

.1 Consider all dimensions shown on drawings and in specifications as a guide only: check them on the job-site and coordinate any necessary adjustments.

.2 Coordinate with the General Contractor the exact size and location of electrical wall outlets, floor depressions, sleeves required in walls and floors for services, wall openings and wall reinforcement for wall-mounted equipment.

1.8 SAMPLES

.1 Obtain all necessary samples of china, baskets, trays, etc., from the Ministerial Representative to determine proper sizes for openings, angles slides, dispensers, or for all other equipment. The Food Service Equipment Contractor shall obtain a written confirmation from the Ministerial Representative for all these dimensions.

1.9 CERTIFICATES OF APPROVAL

.1 Regard all work and material specified or shown on drawings as the minimum requirements. Comply with the latest electrical codes, C.S.A., and any municipal, provincial and federal regulations.

.2 Comply with these regulation and fulfil all necessary changes or additions with no extra charge even if not specified or shown on the drawings. If the equipment supplied is not C.S.A. approved, obtain the approval from local electrical inspectors. All gas heated equipment must conform to local and provincial codes. Attach a certificate or label of approval to each item.

.3 Furnish and install all equipment in compliance with the latest provincial, municipal and federal regulations. Furnish items required by these regulations, even if not specified or shown on the drawings, with no extra charge.

1.10 GUARANTEE

.1 Issue a written Guarantee for the period of one (1) year, including parts and labour, from the date of acceptance. Respect all manufacturers' guarantees exceeding this one (1) year period until expiry dates.

.2 This Guarantee applies solely to new purchases and to fabricated equipment specified under this section. Repair or replace, at no cost (parts and labour included), any and all defective equipment within the guarantee period.

1.11 ASEISMIC INSTALLATION

.1 The equipment shall be installed to meet aseismic installation.

.2 Unless indicated otherwise, aseismic installation has to be designed and selected to meet the requirements of the last edition of the Building National Code and is supplement.

.3 The Food Service Equipment Contractor has to retain the services of a aseismic specialist to perform the calculation and develop the aseismic installation details for each equipment of component. The Food Service Equipment Contractor has to submit shop drawings stamp with the approbation approved by the specialized aseismic engineer.

.4 In the case where, after the verification on site by the aseismic specialist, there is correction to apply, the Food Service Equipment Contractor has to provide an inspection report and explain the steps to correct the deficiencies.

.5 At the end of the work, the Food Service Equipment Contractor shall submit to the Ministerial Representative a certificate of approval provided by an aseismic speciaslist.

1.12 AS BUILT DRAWINGS

.1 Supply at the demonstration time one reproducible drawing and CD (CAD version) of as built drawings showing all changes done by addenda or change notice or all changes done during the construction. Drawing shall be identified "as built drawing".

Part 2 Products

2.1 MATERIALS

.1 Stainless steel:

All exposed surfaces on purchased or custom fabricated equipment must be stainless steel unless noted otherwise in Description of Items or on drawings.

According to the specifications ASTM-A240/A 240M, type 304, #4 finish of AISI on one side - cold rolled and sealed.

Use only stainless steels nuts, bolts, screws, washers, and all other hardware.

Metal thickness (unless specified otherwise or shown on drawings):

2.8 mm: For exposed frames, upright angles.

2 mm: For table tops, counter tops, backsplash, drain boards, tray slide, reinforcements, pot sinks and all sinks over 508 mm x 508 mm.

1.6 mm: For shelves, utility sinks (508 mm x 508 mm or smaller) and angle slides.

1.3 mm: Exposed bodies of cabinets, casing of exposed electrical outlets, exterior surfaces of doors and drawers.

1 mm: Interior partitions of cabinets, linings of insulated cabinets, interior surfaces of doors and drawers. Interior covering of the isolated units.

Stainless steel wire shelves: Framing and reinforcement with 8 mm wire. Shelf with 3 mm wire. Rounded corners and polished welds. 15 mm space between wires.

.2 Galvanized steel:

Specification "colour bond" with zinc coating - 85g. per sq meter.

Metal thickness (unless specified otherwise):

2.8 mm: Non-apparent reinforcements

2 mm: Channel for equipment base

1 mm: Unexposed surfaces of insulated cabinets

.3 Aluminium: Alcan no 3S-1/2 H. Anodize all aluminium part after welding and polishing.

.4 Stainless steel tubing: To ASTM A 269, Type TP304, commercial grade, seamless and welded with AISI No.4 finish

.5 Sealant: To CAN/CGSB-19.13, non toxic aluminum coloured sealing compound, adhesive/sealant, meeting NSF requirements for direct contact with food and stay flexible during long term exposure to temperatures ranging from - 73 to plus 232 °C.

.6 Painted finish: One (1) coat of primer and two (2) coats of finishing enamel of an accepted quality and colour.

2.2 HARDWARE

.1 Supply and install the type of hardware shown on drawings. All hardware specified or not shall be commercial type and heavy duty construction.

.2 Handles:

.1 Hinged doors: Stainless steel, recessed. Refer to drawings and detail.

.2 Drawers: Stainless steel, recessed. Refer to drawings and detail.

.3 Sliding doors: Identical to hinged doors except formed vertically.

.3 Latches: Magnetic type with heavy duty holding power (15 kg minimum) and concealed self aligning, floating magnet. Friction type, solid brass with satin nickel finish. Rustproof steel balls and springs with set screws for adjustable tension. Component Hardware #M32-2401 for hinged doors on counters and high cupboards (wood or stainless steel). Component Hardware model #M22-2420 for warmers.

.4 Locks:

.1 Install locks on all drawers, reach-in refrigerators and freezers. For other equipment, if specified or shown on drawings and details.

.2 Hinged doors and drawers: Five (5) discs tumbler cylinder type with non-ferrous satin chromium barrel and case with rust proof steel bolt. Two (2) sets of keys.

.5 Feet: Stainless steel pop-in adjustable sanitary type. Complete with compression ring to fit tubing or piping as shown on drawings.

.6 Casters: Non-marking cushion rubber wheel, permanently bonded or mechanically locked to polyolefin or steel core. Zinc plated with two (2) rows of ball bearings in hardened raceways. Capacity per caster of 100 kg minimum. Plate casters mounted with stainless steel bolts and lock washers for easy replacement.

.1 For mobile shelves located inside cold rooms, equip casters with Delrin bearings.

.2 For mobile food service equipment, other than inside cold rooms: equip casters with ball bearings and dirtban seal on the raceways. Lubricate for efficient use in varied temperature of kitchen. Casters to be cart washable type to withstand frequent high pressure detergent washing.

.3 For specialized mobile equipment, refer to the description for each item listed in these specifications.

.7 Pilaster strips for shelves: Stainless steel. 20 mm wide slots on 13 mm centres.

.8 Clips: Die formed stainless steel.

.9 Faucets:

.1 Deck type: T&S #B-0221, or Fisher #3313 with aerator or equivalent. For the small sinks, the faucet spouts will be shorter.

.2 Wall type: T&S #B-0231, or Fisher #3253 with aerator or equivalent. For the small sinks, the faucet spouts will be shorter.

.10 Drains: 40 mm or 50 mm corner type drains: Chrome plated brass with removable stainless steel standing overflow pipe. Removable perforated stainless steel corner strainer guard. Perforations to be 5 mm dia. For 40 mm or 50 mm center drain: install an heavy duty commercial stainless steel basket strainer complete with brass coupling nut.

.11 Bumpers: COLSON #9-6915 with metal insert for rigidity. Exterior casing in 2 mm stainless steel. All bumpers fabricated mobile equipment at identical height. Extend bumpers to adequately protect equipment and walls.

.12 Electrical accessories: Hospital grade fixtures: Hubbell #8200 outlets and Hubbell #1201-1 switches. Provide outlets with watertight covers in all food service areas. All electrical fixtures to be grounded. Install ground fault interrupters as required by the code. All electrical outlet connected on the emergency system shall be red.

2.3 EXHAUST HOODS

.1 Equipment: Supply and install all specified exhaust hoods over cooking equipment or vapour producing equipment. Include all necessary hanging devices to secure hoods in place.

.2 Requirements: Coordinate with the Ventilation Contractor for the exact size and placement of exhaust hood duct take-off collars.

.3 Relay: Equip all exhaust hood control panels with a magnetic relay for pick-up to remote central monitoring panel by the Electrical Contractor. This relay to indicate "fire condition" in exhaust hood.

.4 Internal wiring: Supply and install all internal wiring for exhaust hood lighting and damper controls. Terminate wiring at junction boxes on each hood.

.5 Enclosure panels: Supply and install removable enclosure panels from the top of the exhaust hoods to the ceiling. Supply and install all required support lips and ceiling channels. Supply and install all stainless steel filler panel between the hood and the wall.

2.4 FIRE EXTINGUISHING SYSTEM

.1 Equipment: Supply and install fire extinguishing systems for total surface protection of all cooking equipment and hoods including future or not in contract cooking equipment, as listed in the specifications
Supply and install bottles, piping and all necessary accessories for the systems. Install bottles as close as possible to the ceiling.

.2 Micro-switch: Extinguishing system equipped with double pole micro-switch for power shut-off to equipment during actuation of system and to return a signal to the remote central monitoring panel.

.3 Power shut-off: Magnetic contactors and gas shut-off valves to shut-off cooking equipment by the Plumbing Contractor and Electrical Contractor.

.4 Installation: The installation and the servicing requirements of the fire extinguishing system shall be in accordance with the "Underwriters' Laboratories of Canada" homologation rules, "N.F.P.A. 96", "N.F.P.A. 17A", the CAN/CGA-B149 .1 and .2 certified ULC-ORD125-06-95 and shall meet the requirements of the "Canadian Underwriters' Association" and any other local authorities having jurisdiction. All exposed piping chrome plated. Fit all nozzles with grease caps. The panel, the reservoir, the manual control post and the operation and instruction manual must be in English.

.5 Remote pull stations: Supply and install remote fire pull stations for the fire extinguishing systems.

.6 Enclosure: Supply and install a stainless steel box with hinged door to enclose the bottles and any exposed piping to the ceiling and/or wall.

2.5 FABRICATION

.1 Unless indicated otherwise, all exposed surfaces must be of stainless steel.

.2 Fabricate equipment from stainless steel, as per sizes and configurations indicated on drawings and specifications.

.3 Fabricate work square, true, straight, to suit installation conditions and as indicated.

.4 Fit and shop-assemble equipment ready for erection where possible.

.5 Deburr, smooth and round off raw edges prior to forming.

2.6 CUSTOM FABRICATED TABLES AND COUNTERS

.1 General: Fabricate all custom items in stainless steel, unless specified otherwise on drawings and specifications. Refer to detail drawings for general construction details.

.2 Tops:

.1 Stainless steel without visible joints. Coins and joints welded and polished. All tops with sinks to have marine edge, unless specified otherwise.

.2 Weld and polish all around all posts protruding through counter tops and/or backsplash.

.3 Body: Stainless steel without visible joints. Field joints fully welded as specified under paragraph "Welding". 1.3 mm stainless steel vertical mullions formed as a single piece with the facade and closed inside with 1 mm stainless steel channel for sanitary construction.

.4 Reinforcements: "U" shaped 2 mm stainless steel. Construct every component part of each piece of equipment strongly enough so that bending, warping, deflection or sag does not occur. Take special care to properly reinforce cantilever tops. Attach reinforcements to table and counter tops with high-strength silicone or weld without any apparent deflections or marks on the working surfaces.

.5 Marine edge: Raised 9.5 mm on an inclination for 25 mm, down 40 mm, return of 13 mm on a 45° angle.

.6 Boxed edge: Down 40 mm (or as shown on drawings) at a 90° angle, return of 13 mm on a 45° angle.

.7 Slopes: Work tops to slope toward sinks. For dish tables, 8 mm per meter toward dishwashing machine. Front edge level over full length.

.8 Backsplash and upturns: Integral with table top. Turned up as specified for each item. Top of backsplash returned 50 mm on 45° angle and turned down 13 mm at rear. Intersection of counter top and backsplash or upturn to have inside radius of 13 mm, welded, ground and polished. Enclose all exposed ends and backs with stainless steel. Seal all backsplash to walls (where applicable) with clear silicone. When gap between equipment or top of backsplash and wall is larger than 3 mm, enclose with a stainless steel strip. All joints welded and polished.

.9 Table and counter legs and cross braces: Leg saddles 2 mm "top hat" section with ends fully welded. Legs fillet-welded to saddle, ground smooth. Secure to underside of tops or bodies with stainless steel studs and nuts, or spot weld.

.1 Legs: 41 mm od tubing 1.6 mm thick stainless steel.

.2 Bracing: 30 mm od tubing 1.2 mm thick stainless steel on back and sides only.

.10 Intermediate shelving: Stainless steel with boxed edges unless specified otherwise. Corners notched to fit contour of legs, fully welded on top and both sides of corner, ground smooth and polished. Removable shelves with fully welded corners. Shelves over 460 mm wide in two (2) sections, able to pass through one (1) door opening.

.11 Bottom shelf:

.1 Provide removable sections where required for access to funnel drains, electrical junction boxes or any other services.

.2 Removable bottom shelf in counters or tables with sink for access to clean-out valve on drain trap.

.12 Solid undershelf: 1.6 mm thick stainless steel, edges boxed, shelf supports welded to legs and bracing, 255 mm clear of floor. With adjustable shelves, use sanitary type supports

2.7 DRAWERS

.1 Type: Self-closing, full extension. Refer to construction details #XD-3 and #XD-4.

.2 Front: Stainless steel double wall with enough fibreglass insulation; flush with face of cabinet bodies.

.3 Frame: Stainless Steel frame to take removable pan and support tracks.

.4 Pan: Pan removable without removing frame. Component Hardware #S80-2020, rounded corners, 510 mm x 510 mm x 125 mm. Bread drawers with removable stainless steel pan, 510 mm x 510 mm x 255 mm deep, rounded corners.

.5 Tracks: Component Hardware #S52-022. Stainless steel tracks complete with neoprene rollers and stainless steel ball bearings. Rubber stoppers to prevent drawer from sliding out completely except by intent.

.6 Rubber stoppers: Insert rubber stoppers into holes in frame.

.7 Handles: See paragraph "Hardware".

.8 Housing: For all drawers specified under open tables supply 1.3 mm stainless steel fully enclosed housing.

.9 Locks: On all drawers - see paragraph "Hardware".

2.8 DOORS

.1 Material: Stainless steel exterior, stainless steel back.

.2 Construction: Insulated double wall construction. Corners fully welded, ground and polished.

.3 Insulation: Fibreglass across full length and width of inside.

.4 Rubber stoppers: Insert rubber stopper into frame to reduce noise.

.5 Locks: Install locks as shown on drawings or called for in paragraph "Hardware".

.6 Handle: As listed under paragraph "Hardware".

.7 Hinged doors: Stainless steel, concealed heavy-duty pivot type hinge. Fixed to body with stainless steel screws. Refer to detail #XD-5. Friction catch as listed under paragraph "Hardware".

2.9 SINK BOWLS

.1 Material: Stainless steel.

.2 Construction: Interior corners rounded with a minimum radius of 25 mm, both horizontally and vertically. Sloped towards drain outlet. All joints butt edged, electrically welded, ground and polished so that no evidence of welding appears, #4 finish on inside and outside. All sink sizes shown on drawings are inside measurements. Top joint with minimum radius of 6 mm.

.3 Drains: As listed under paragraph "Hardware".

.4 Faucets: As listed under paragraph "Hardware"

Part 3 Execution

3.1 WELDING

.1 Method: Electric, seamless, under inert gas atmosphere. Welding shall conform to the requirements of the C.S.A.

.2 Composition: Use type 304 stainless steel rods so that deposited and original metals have the same composition.

.3 Joints: Fully welded, invisible, properly jigged and ground smooth; free from pits, cracks, discoloration and other mechanical imperfections. Refer to detail #XC-4.

.4 Finish: Grind smooth and polish all exposed welds to #4 finish to match finish of adjacent surfaces. Grind smooth and passivate all unexposed welds on underside of equipment to remove all weld discoloration and oxidation, and to arrest corrosion.

.5 Not acceptable: Apparent screws, fitting strips or butt joints made by spot welding, or by riveting strips under seams, either filled or not filled with solder.

3.2 COOPERATION

.1 Supply any services, items or equipment that require "building-in" or overlapping coordination to all other trades in sufficient time. Notify other trades of exact locations of openings, chases, anchors, etc., required for the food service equipment to be installed.

3.3 PROTECTION AND REPAIR

.1 Properly and efficiently protect all work against damage.

.2 Repair any damage to equipment and/or building immediately, with no extra charge.

3.4 MANUFACTURER'S INSTRUCTIONS

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

3.5 DELIVERY, STORAGE AND HANDLING EQUIPMENT

.1 Coordinate the delivery, storage and handling of food service equipment with the General Contractor.

3.6 INSTALLATION

.1 Supervision: Provide a competent site supervisor experienced in food service equipment assembly and installation.

.2 Scope: Coordinate installation schedule with the General Contractor. Install all equipment shown on drawings and/or described in specifications. Position mobile and portable equipment accordingly.

.3 Requirements: Install equipment in accordance with all building and safety codes, and with the manufacturers recommendations. Provide access panels, ventilation panels and clearance as required for the proper installation and functioning of all items. Include these requirements in the price of the tender.

.4 Equipment placement: Perform all fitting, joining, levelling, fastening, scribing and caulking necessary to install all fixed equipment. Make any adjustments necessary to properly install the equipment.

.5 Shims: If shims are required, use stainless steel shims.

.6 Fitting strips: Supply and install all fitting strips required to properly finish each piece of equipment (i.e. filler pieces at ends of counters, back of ranges, rear of exposed backsplash, end of wall cupboards) as part of the contract and with no extra charge.

.7 Securing: Solidly attach all permanently installed equipment to the floor and/or base.

.8 Services access: Perform all cutting, drilling and fitting necessary in equipment to accommodate work of mechanical and electrical trades in a neat and workmanlike manner.

3.7 INSPECTION AND REJECTION

.1 The Ministerial Representative reserves the right to inspect the fabrication at the fabricating plant; they may reject any equipment which does not comply with drawings and/or specifications. Replace all rejected materials or equipment within ten (10) days and with no extra charge.

3.8 TESTING

.1 Factory test and verify all custom built equipment to be sure they are in proper working order before shipment.

.2 Test the seals on all parts of pressure equipment.

.3 Adjust all doors and drawers to close properly.

3.9 CLEANING

.1 Cooperate at all times with the General Contractor to keep the area of operation clean and free of all rubbish and debris. At the end, clean all equipment, including reused existing equipment, to permit immediate use without further cleaning.

3.10 DEMONSTRATION AND MAINTENANCE

.1 Convene each manufacturer's representative as soon as you receive the schedule of the demonstration and operational sessions on date as indicated on the Ministerial Representative notice. The training, demonstration and operational sessions also include all information related to the maintenance instruction.

Part 4 Description of items

a) For item #S403, the locking device must be equipped with «Best Lock» lock with a 7 pins barrel and a type «N» interchangeable cylinder.

b) No locks on the doors of counters, drawers or high cabinets.

c) Since the slopes of the finished floor (provided by the general contractor), all cooking equipment and/or other equipment required to be level and perfectly horizontal when they are at their working places.

d) For the entire kitchen, fasteners will be «tamper proof screws type» where it applies or fully welded and polished.

.1 STORAGE

#E112 VERTICAL DUCT FOR ITEM #E111

.1 Quantity: Four (4).

.2 Dimensions: ± 60 mm x 210 mm of 1.6 mm thick in stainless steel, starting from ventilated floor #E114 (shims under the cold room) to fan #E111 located on top of the walk-in cold room. The dimensions of the duct must remain the same area in square millimeters (mm2) of the fan's opening to keep the same static pressure.

.3 Construction:
- .1 Dimensions of the ventilation duct must be coordinated with the air fan opening.
- .2 The perimeter of the complex ventilation walk-in cold room is closed and sealed. Refer in detail #RV-4.
- .3 Front of the fan, a fixed panel will be supplied and installed with an opening for the passage of the ventilating duct with a trim collar around the pipe.
- .4 Air inlet duct to push air under the isolated floor.

#E112A HORIZONTAL DUCT FOR ITEM #E111A

.1 Quantity: One (1).

.2 Dimensions: ± 135 mm x 95 mm of 1.6 mm thick in stainless steel. Starting from ventilated fan #E111A, the duct is sitting, solidly fixed and sealed to the top of the walk-in cold room and running to the back of the walk-in cold room (toward exterior wall) as shown on layout. When arrived to the edge of the walk-in cold room, the duct is doing an 90° down angle (between the exterior wall and the walk-in cold room wall) and going down on a distance of ± 760 mm to ventilate the space between the exterior wall and the walk-in cold room wall. The dimensions of the duct must remain the same area in square millimeters (mm2) of the fan's opening to keep the same static pressure.

.3 Construction:
- .1 Dimensions of the ventilation duct must be coordinated with the air fan opening.
- .2 As per the detail suggested on the layout #I-07, the top of walk-in cold room is closed by an «L» shape angle to provide an adequate ventilation between the exterior wall and the walk-in cold room wall #E105. Refer to detail #RB-3A.

#E113 STEEL ANGLE

.1 Quantity: One (1). By the general contractor, as per the architect's specifications.

#E115 PROTECTION GUIDE

.1 Quantity: Four (4).

.2 Dimensions: 535 mm x 50 mm diameter x 840 mm high.

.3 Construction: In stainless steel. Refer to detail #XR-1A.

#E115A HORIZONTAL BUMPER

.1 Quantity: Approximatively thirteen linear meters.

.2 Dimensions: length as per layout disposition x 25 mm deep x 200 mm high.

.3 Construction: In stainless steel. Refer to detail #XC-5A.

.4 Note: These bumpers are for the outer periphery of the walk-in cold room #E101, #E103 and #E105 only. Solidly fixed to wall and sealed. When the bumper must bypass a funnel drain floor, a diagonal reinforcement must be installed on each side to prevent deformation of the bumper.

#E115B VERTICAL BUMPER

.1 Quantity: Three (3), localised inside the walk-in cold room #E103 and #E105.

.2 Dimensions: 75 mm x 75 mm x 1525 mm high.

.3 Construction: In stainless steel. Refer to detail #XC-5A. Solidly fixed to wall and sealed.

.2 PREPARATION

#E201 COUNTER WITH DOUBLE SINK

.1 Quantity: One (1).

.2 Dimensions: 3255 mm x 760 mm x 915 mm high.

.3 Construction: Refer to details #TE-1, #XB-5, #XD-4, #XD-5, #YE-6A and to the elevation. Sink of 305 mm deep for washing vegetables.

.4 Accessories:
.1 Supply and install a faucet with a 305 mm long special spout. Replace the shower by a stainless steel shower complete with is countertop «O-ring» gasket, and one (1) 1220 mm long stainless steel flexible hose. Expect the storage of the flexible hose under the counter at the back of the sink.

E201A SERVICE CHASE

.1 Quantity: One (1).

.2 Dimensions: 325 mm x 150 mm and starting at 400 mm above finish floor up to 50 mm above finished ceiling.

.3 Construction: In stainless steel. Refer to detail #XS-3A. Thickness of 2 mm. Reinforcement where needed to ensure vertical rigidity. Multiple access panels. Closed removable bottom.

#E202 OVERSHELF

.1 Quantity: One (1).

.2 Dimensions: 1567 mm x 610 mm x 40 mm thick (adjustable in height and installed at 430 mm over the countertop #E203 and #E204).

.3 Construction: In stainless steel. Refer to detail #XP-3B and to elevation.

#E203 COUNTER

.1 Quantity: One (1).

.2 Dimensions: 2743 mm x 760 mm x 915 mm high.

.3 Construction: In stainless steel. Square edge top. The top of the counter form a single top with counter item #E204. Welded and polished joints. The left bottom section of the counter is recessed to receive the can-opener item #S207. Backsplash to receive the support posts items #E209, #E202 and #E207 and the #E205 service chase. Seal the body counter with counter #E204. Refer to details #TE-7A, #XB-5 and #XD-3 and in detail #YE-6A as a reference and to elevation.

#E204 COUNTER WITH SINK

.1 Quantity: One (1).

.2 Dimensions: 2743 mm x 760 mm x 915 mm high.

.3 Construction: In stainless steel. Marine edge top. The top of the counter form a single top with counter item #E203. Welded and polished joints. The left side is cantilevered with reinforcement. Backsplash to receive the support posts items #E209, #E202 and #E207 and the #E205 service chase. Seal the body counter with counter #E203. Refer to details #TE-7A, #XB-5 and #XD-3 and in detail #YE-6A as a reference and to elevation.

#E205 SERVICE CHASE

.1 Quantity: One (1).

.2 Dimensions: 425 mm x 100 mm and starting from backsplash up to 50 mm above finished ceiling.

.3 Construction: In stainless steel. Refer to detail #XS-3. Reinforcement where needed to ensure vertical rigidity. The service chase must be fixed to the building structure (in between-ceiling). The service chase has to withstand the adjustable shelf #E209 and the microwave #S214 – reinforcement required.

#E206 SPICE CUPBOARD

.1 Quantity: One (1).

.2 Dimensions: 3255 mm x 380 mm x 610 mm / 915 mm high.

.3 Construction: Refer to detail #HW-1A and to elevation.

#E207 ADJUSTABLE POT RACK

.1 Quantity: One (1).

.2 Dimensions: 1467 mm x 510 mm and adjustable in height starting from 1980 mm from finish floor up to 2285 mm from finish floor.

.3 Construction: In stainless steel. Refer to detail #XP-3B and to elevation.

#E208 TABLE WITH SINK

.1 Quantity: One (1).

.2 Dimensions: 2048 mm x 760 mm x 915 mm high.

.3 Construction: In stainless steel. Refer to detail #TO-4 and to elevation.

#E209 SHELF FOR ITEM #S214

.1 Quantity: One (1).

.2 Dimensions: 610 mm x 388 mm x 40 mm thick.

.3 Construction: In stainless steel. Refer to detail #XS-2A and to elevation. Shelf and support bracket reinforced to support the weight of the microwave oven #S214.

.3 COOKING AND DIETS

#E301 STAINLESS STEEL WALL COVERING

.1 Quantity: One (1).

.2 Dimensions: 11070 mm x 1925 mm high.

.3 Construction: In stainless steel of 1,6 mm thick. Refer to detail #CW-2C and #CW-1E. The wall covering will cover the wall plinth of the general contractor. Seal properly.

#E303 FLOOR PAN

.1 Quantity: One (1).

.2 Dimensions: 2650 mm x 665 mm x 140 mm deep.

.3 Construction: In stainless steel. Refer to detail #SF-1B.

#E303A FLOOR PAN

.1 Quantity: One (1).

.2 Dimensions: 4214 mm x 355 mm x 125 mm deep.

.3 Construction: In stainless steel. Refer to detail #SF-1B.

#E303B FLOOR PAN

.1 Quantity: One (1).

.2 Dimensions: 3173 mm x 384 mm x 125 mm deep.

.3 Construction: In stainless steel. Refer to detail #SF-1B.

.4 Note: Supply and install flat stainless steel strips on the top of the floor pan so that the combi ovens' angle carts can go easily in and out without having any problem. These strips must be fixed firmly on the floor pan and grids must be removable without difficulty for cleaning the bottom of the floor pan. Coordinate the width of strips with the angle carts #S302.

#E306 WORKING TABLE WITH 2 SINKS

.1 Quantity: One (1).

.2 Dimensions: 3353 mm x 1370 mm x 915 mm high.

.3 Construction: In stainless steel. Refer to detail #TE-1A, #TO-1B, #TO-1D and to elevations. No central backsplash. Top of one piece.

#E308 OVERSHELF

.1 Quantity: One (1).

.2 Dimensions: 2026 mm x 610 mm x 40 mm thick (adjustable in height and installed at 430 mm above countertops #E203 and #E204).

.3 Construction: In stainless steel. Refer to details #TO-1B, #XP-3B and to elevation.

#E309 SERVICE CHASE

.1 Quantity: One (1).

.2 Dimensions: 425 mm x 100 mm and starting from backsplash up to 50 mm above finished ceiling.

.3 Construction: In stainless steel. Refer to detail #XS-3. Reinforcement where needed to ensure vertical rigidity. The service chase must be fixed to the building structure (in between-ceiling).

#E310 ADJUSTABLE POT RACK

.1 Quantity: One (1).

.2 Dimensions: 1976 mm x 510 mm and adjustable in height starting from 1980 mm from finish floor up to 2285 mm from finish floor.

.3 Construction: In stainless steel. Refer to detail #XP-3B and to elevation.

#E312 TABLE FOR DIETS

.1 Quantity: One (1).

.2 Dimensions: 2583 mm x 760 mm x 915 mm high.

.3 Construction: In stainless steel. Refer to detail #TE-1A and to elevation. The localised leg on the right side at the back will have a distance of approximately 500 mm from center to center with the leg on the front to allow the space required for the passage of mechanical and electrical services from the #E312A service chase. Supply and install a countertop faucet. Angled backsplash of 25 mm deep.

E312A SERVICE CHASE

.1 Quantity: One (1).

.2 Dimensions: 150 mm x 150 mm and starting from countertop up to 50 mm above finished ceiling.

.3 Construction: In stainless steel. Refer to detail #XS-3. Reinforcement where needed to ensure vertical rigidity. The service chase must be fixed to the building structure (in between-ceiling).

#E313 HORIZONTAL SERVICE CHASE

.1 Quantity: One (1).

.2 Dimensions: 10160 mm x 305 mm x 1320 mm high.

.3 Construction: In stainless steel. Refer to details #CW-1E, #CW-2A, #CW-2B, #CW-2C and #CW-1E. unit solidly fixed to wall and sealed.

#E313A CABINET FOR ITEMS #E302 AND #E302A

.1 Quantity: One (1).

.2 Dimensions: main cabinet of 910 mm wide x 915 mm deep from finish floor up to 2860 mm high and a service chase of 760 mm x 375 mm which starts from back above the main cabinet up to 50 mm above finished ceiling for in and out services.

.3 Construction: In stainless steel. Refer to details #CW-1E and #CW-2C. Supply and install all reinforcements required to ensure a vertical rigidity of the cabinet and of the vertical service chase who starts from top of cabinet up to 50 mm above finished ceiling and to support retractable hose #E302.

#E313B VERTICAL SERVICE CHASE

.1 Quantity: One (1).

.2 Dimensions: 610 mm x 305 mm and starting from top of horizontal service chase #E313 up to 50 mm above finished ceiling.

.3 Construction: In stainless steel. Refer to details #CW-1E, #CW-2A, #CW-2B, #CW-2C et #XS-3A. Reinforcement where needed to ensure vertical rigidity.

#E313C HORIZONTAL SERVICE CHASE

.1 Quantity: One (1).

.2 Dimensions: approximately 2885 mm x 75 mm x 150 mm high.

.3 Construction: In stainless steel. Refer to detail #CW-2A and #CW-2B and to elevation. Chase to receive outlets for items #S303, #S402 and #S404. Watertight outlets.

#E314 PROTECTION GUIDE

.1 Quantity: One (1).

.2 Dimensions: 535 mm x 50 mm diameter x 840 mm high.

.3 Construction: In stainless steel. Refer to detail #XR-1A.

#E315 FLOOR PAN

.1 Quantity: One (1)

.2 Dimensions: 400 mm x 400 mm x 125 mm deep.

.3 Construction: In stainless steel. Refer to detail #SF-1B.

.4 TRAY ASSEMBLY AND BULK SHIPPING

#E402 SPARE

#E404 COUNTER WITH SINK

.1 Quantity: One (1)

.2 Dimensions: 1830 mm x 813 mm x 915 mm high.

.3 Construction: In stainless steel. Refer in detail #TE-1 and to elevation. Pay particular attention for the height of the tier installation to receive the thermos #S414. The thermos should be able to settle easily on the tier without touching or risking of damaging the spouts of the coffee urn. This tier for the thermos is also used as a gutter, refer to detail above mentioned. Provide reinforcements required under the coffee urn. Raised edge on 1102 mm long at the back of the coffee urn. Vertical service chase acting as a backsplash starting from countertop up to 50 mm above the finished ceiling.

E404A SERVICE CHASE

.1 Quantity: One (1)

.2 Dimensions: 400 mm x 100 mm and starting from countertop #E404 up to 50 mm above finished ceiling.

.3 Construction: In stainless steel. Refer to detail #XS-3. Reinforcement where needed to ensure vertical rigidity. This service chase to receive faucet. Installation height of the faucet as shown on detail #TE-1.

.5 POT AND TRAY WASHING AREA

#E501 POT SINK

.1 Quantity: One (1)

.2 Dimensions: 3700 mm x 760 mm x 915 mm high – height to be coordinate with item #E506 and the entry of the dishwasher #E508.

.3 Construction: In stainless steel. Refer to details #SS-4C and #SS-5D. Right side of backsplash end to be closed and sealed.

#E501A SPACER

.1 Quantity: Three (3).

.2 Dimensions: 2400 mm x 253 mm x 191 mm in height with a check (overall / 1300 mm x 253 mm x 191 mm in height with a check (overall) / 2870 mm x 289 mm x 213 mm in height with a check (overall).

.3 Construction: In stainless steel. Refer to details #SC-4, #SS-1, #SS-4C and to elevation. The spacer will have an approximate angle of 30° as shown on detail.

#E501B SERVICE CHASE

.1 Quantity: One (1)

.2 Dimensions: 407 mm x approximatively 203 mm and starting from top of backsplash up to 50 mm above the finished ceiling.

.3 Construction: In stainless steel. Refer to detail #XS-3A. Reinforcement where needed to ensure vertical rigidity.

#E501C SERVICE CHASE

.1 Quantity: One (1)

.2 Dimensions: 950 mm x approximatively 250 mm and starting from top of backsplash up to 50 mm above the finished ceiling.

.3 Construction: In stainless steel. Refer to detail #XS-3A. Reinforcement where needed to ensure vertical rigidity.

#E504 CLEANING TABLE

.1 Quantity: One (1).

.2 Dimensions: 1443 mm x 760 mm x 915 mm high. Coordinate the height of the table base with the entry of the dishwasher #E508.

.3 Construction: In stainless steel. Refer to detail #SS-1 and to elevation.

#E506 PRE-RINSE SINK

.1 Quantity: One (1).

.2 Dimensions: 560 mm x 560 mm x 250 mm high.

.3 Construction: In stainless steel. Refer to detail #SS-1 and to elevation.

#E510 CLEAN DISH TABLE

.1 Quantity: One (1).

.2 Dimensions: 2872 mm x 730 mm x 915 mm deep. Coordinate the height of the table base with the entry of the dishwasher #E508.

.3 Construction: In stainless steel. Refer to detail #SC-4 and to elevation.

#E513 SERVICE CHASE

.1 Quantity: One (1).

.2 Dimensions: 400 mm x 200 mm and starting from top of backsplash up to 50 mm above the finished ceiling.

.3 Construction: In stainless steel. Refer to detail #XS-3A. Reinforcement where needed to ensure vertical rigidity.

#E514 EXHAUST DUCT

.1 Quantity: Two (2).

.2 Dimensions: 100 mm x 405 mm x from dishwasher's duct collar up to 50 mm above finished ceiling.

.3 Construction: In stainless steel. Refer to detail #CW-1 and to elevation. Reinforcement where needed to ensure vertical rigidity because of its height.

#E514B EXHAUST DUCT

.1 Quantity: One (1).

.2 Dimensions: 425 mm x 425 mm from ventilation hood's duct collar item #E514A up to 50 mm above finished ceiling.

.3 Construction: In stainless steel. Refer to detail #CW-1 and to elevation. Reinforcement where needed to ensure vertical rigidity because of its height.

E515A SERVICE CHASE

.1 Quantity: One (1).

.2 Dimensions: 455 mm x 100 mm starting at 500 mm from finished floor up to 50 mm above finished ceiling.

.3 Construction: In stainless steel. Refer to detail #XS-3. Reinforcement where needed to ensure vertical rigidity. The service chase must be fixed to the building structure (in between-ceiling).

#E515B HORIZONTAL SERVICE CHASE

.1 Quantity: One (1).

.2 Dimensions (overall): 7595 mm x 167 mm x 203 mm high.

.3 Construction: In stainless steel. Refer to detail #XS-3B. Solidly fix on top of the concrete block wall. Fasten securely on top of the concrete block wall. Removable overlapping top sections. The horizontal service chase will be connected to vertical service chase #E515A so that electrical services can run from vertical service chase to horizontal service chase unit. Welded and polished joints between the two service chases. Seal to wall. Supply and install this new service chase nine (9) recessed outlets, ready to be connected by the electrical contractor.

#E516 PROTECTION GUIDE

.1 Quantity: Two (2).

.2 Dimensions: 535 mm x 50 mm diameter x 840 mm high.

.3 Construction: In stainless steel. Refer to detail #XR-1A.

#E517 HORIZONTAL BUMPER

.1 Quantity: approximately 65 linear meters.

.2 Construction: Refer to detail #XC-5A.

.3 Notes:
.1 One (1) bumper localised under the control panel #E311 will have dimensions of 1200 mm long x 60 mm deep and height as same as detail.
.2 One (1) bumper localised under the horizontal service chase #E313C (and on back of items #S402 and #S404) will have dimensions of 2435 mm long x 100 mm deep and height as same as detail. Solidly fixed to wall and sealed.

#E518 VERTICAL BUMPER

.1 Quantity: Fifteen (15).

.2 Dimensions: 75 mm x 75 mm x 1525 mm high.

.3 Construction: In stainless steel. Refer to detail #XC-5A. Solidly fixed to wall and sealed.

.7 STAFF KITCHENETTE

#E700 COUNTER

.1 Quantity: One (1). Equipment supplied and installed by the general contractor, as per architect's specifications.

#E701 SPARE

.8 CART WASHING AREA

#E800 FLOOR PAN

.1 Quantity: One (1).

.2 Dimensions: 1766 mm x 355 mm x 125 mm deep.

.3 Construction: In stainless steel. Refer to detail #SF-1B.

#E801 SERVICE CHASE

.1 Quantity: One (1).

.2 Dimensions: 480 mm x 100 mm starting at 500 mm from finished floor up to 50 mm above finished ceiling.

.3 Construction: In stainless steel. Solidly fixed to wall and sealed. Hose of 3660 mm long with pressure gun. Refer to detail #XH-11. Reinforcement where needed to ensure vertical rigidity.

.4 Note: to receive the wall type faucet item #E802. Provide all reinforcements required to support the wall faucet.

.9 GARBAGE WALK-IN COLD ROOM

#E903 SPARE

#E904 PROTECTION POST

.1 Quantity: Three (3).

.2 Dimensions: Posts of 75 mm x 75 mm x 915 mm high. « C » angles of 38 mm x 150 mm high. One (1) length of 990 mm and one (1) length of 1190 mm.

.3 Construction: In stainless steel. Heavy duty construction. Refer to detail #RX-3. Solidly fixed to floor and sealed.

.1 STORAGE

#S103 MOBILE TABLE

.1 Quantity: One (1).

.2 Dimensions: 1220 mm x 760 mm x 915 mm high.

.3 Construction: In stainless steel. Refer to detail #TO-2A.

#S105 CART

.1 Quantity: One (1).

.2 Dimensions: 915 mm x 610 mm x 915 mm high.

.3 Construction: In stainless steel. Refer to detail #MU-1.

.2 PREPARATION

#S202 UTILITY CART

.1 Quantity: One (1).

.2 Dimensions: 760 mm x 610 mm x 760 mm high.

.3 Construction : in stainless steel. Refer to detail #MU-1.

S208A CART FOR ITEM #S208

.1 Quantity: One (1).

.2 Dimensions: 915 mm x 610 mm x 760 mm high.

.3 Construction: In stainless steel. Refer to detail #MU-1. Brakes on all casters.

#S212A SERVICE CHASE FOR OUTLET ITEM #S212

.1 Quantity: One (1).

.2 Dimensions: 100 mm x 75 mm starting at 1900 mm from finished floor up to 50 mm above finished ceiling.

.3 Construction: In stainless steel. Refer to detail #XS-3A. Reinforcement where needed to ensure vertical rigidity.

#S213 CART FOR ITEM #S205

.1 Quantity: Two (2).

.2 Dimensions: 915 mm x 610 mm x 810 mm high.

.3 Construction: In stainless steel. Refer to detail #MU-1. Brakes on all casters.

.3 COOKING AND DIETS

#S310 UTILITY CART

.1 Quantity: Three (3).

.2 Dimensions: 915 mm x 610 mm x 915 mm high.

.3 Construction: In stainless steel. Refer to detail #MU-1.

#S311 SPARE

#S312 MOBILE STORAGE CART

.1 Quantity: One (1).

.2 Dimensions: 460 mm x 900 mm x 915 mm high.

.3 Construction: In stainless steel. Cabinet closed on three (3) sides and open on front. Cabinet fixed to the right of the mobile griddle #S307 (griddle on the left when facing the cooking line). Fixed bottom shelf and adjustable middle shelf. Top, backsplash and edge to fit the mobile griddle #S307. Supply and install two swivel casters on the right side of the cabinet with a brake located on the front. Working height to suit adjacent equipment to which it is attached. Seal between the support/griddle #S307 and the cabinet. Use high temperature silicone between the cabinet and the support/griddle #S307.

.4 TRAY ASSEMBLY AND BULK SHIPPING

#S401 HOT FOOD TABLE WITH 5 WELLS

.1 Quantity: One (1).

.2 Dimensions: 1900 mm x 900 mm x 915 mm high.

.3 Construction: In stainless steel. Refer to detail #DH-1 and to its elevation.

#S401B ADJUSTABLE DOUBLE WALL SHELF

.1 Quantity: One (1).

.2 Dimensions: 1875 mm x 406 mm x 40 mm thick.

.3 Construction: In stainless steel. Refer to detail #XC-3B. Solidly fixed to wall.

#S403 CART FOR ASSEMBLED TRAYS

.1 Quantity: Two (2).

.2 Dimensions: 1462 mm (overall length with push bar) / 1207 mm (length with bumpers) x 678 mm width (with bumpers) x 1365 mm total height / 1020 mm high (for coffee section).

.3 Construction: In stainless steel. Refer to details #AP-12A, #AP-12B and #AP-12C. Trays, pans and coffee thermos supplied by CSC. Verify with CSC to be sure about trays' dimensions for different equipment to insert inside the cart (ex.: trays, pans, thermos, etc.).

.7 STAFF KITCHENETTE

#S700 KNIFES CABINET

.1 Quantity: One (1). Equipment supplied and installed by the CSC.

Part 5
EQUIPMENT LIST AND SCHEDULE OF MECHANICAL & ELECTRICAL LOADS

SIZES & LOADS INDICATED ARE ACTUAL REQUIREMENTS AT POINT OF CONNECTION ON EQUIPMENT

FOR TENDER

IMPORTANT INFORMATIONS

LEGEND OF ABBREVIATIONS

LOAD
- EMERGENCY POWER = To be connected on emergency power circuit by the electrical contractor

CONNECTION
- JUNCTION BOX = Supply and install by the food service equipment contractor and connected by electrical contractor.
- ELECTRICAL OUTLET = **K** : on equipment , supplied and installed by the food service contractor and connected by electrical contractor.
  W : on wall, supplied and connected by the electrical contractor.
- ON ITEM # = load included in and plugged into item no
- C.B.P. = Circuit breaker panel number – supply and install by the food service equipment contractor and connected by the electrical contractor. The interconnection between outlets or others junction boxes of equipments and the circuit breaker is by the food service equipment contractor.

CONDENSING UNIT
- LOCATION = **I** : built-in **B** : bottom mounted **T** : top mounted **R** : remote
- COOLING = **A** : air cooled **W** : water cooled

DRAINS
- OPEN = **F.D.F**. : floor drain with funnel and the open drain is extended to F.D.F. by the food service equipment contractor.
  F.F.: floor funnel and the open drain is extended to F.F. by the food service equipment contractor.

GAS
- BTU = Consumption (btu/hour)
- PRESSURE = mm water gauge

STEAM
- IN = Inlet size (mm)
- OUT = Return size (mm)
- KG = Consumption (kilograms/hours)
- PRE = Pressure (kilopascal)

- DEPRESSION = Depth of depression (mm)
- EXISTING EQUIPMENT = Verify mechanical and electrical services

* When encountering this symbol in the schedule, you must refer to the "REMARKS" column.

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TYPE OF EQUIPMENT

N = New equipment
EX = Existing equipment to be relocated by the food service equipment contractor
PL = Equipment supplied and installed by the plumbing contractor
EG = Equipment supplied and installed by the general contractor as per engineer's or architect's specifications.

Note 1: 1800 mm flexible electric cable including hooks and chain supplied and installed by the electrical contractor.
Note 2: Water filter supplied and installed by the food service equipment contractor and connected by the plumbing contractor.
Note 3: 1830 mm flexible hose for water supplied and installed by the plumbing contractor.
Note 4: The pressure water regulating valve to obtain minimum 40 PSI up to a maximum of 50 PSI to the equipment. The valve is supplied by the food service equipment contractor and connected by the plumbing contractor.
Note 4A: The pressure water regulating valve to obtain between 10 PSI and 50 PSI to the equipment is supplied by the food service equipment contractor and connected by the plumbing contractor.
Note 5: Flexible hose between the shut-off valve of the incoming hot water and the water softener and the flexible hose between the water softener and the hot water shut-off valve of the booster are supplied and installed by the food service equipment contractor. Refer to detail #ST-42.
Note 6: The water tempering kit is installed in the dishwasher by the food service equipment contractor. The electrical connection between the water tempering kit and the electrical control panel of the dishwasher is executed by the food service equipment contractor. Piping, devices and accessories between the dishwasher drain and the building drain are installed and connected by the plumbing contractor.
Note 7: Condensing unit is supplied and installed on the roof by the food service equipment contractor. Platform or support by the general contractor.
Note 8: The fire protection system is connected to the building alarm system by the electrical contractor.
Note 9 : The magnetic contactors required to shut-off power of equipment under the ventilation hood and the connection to the building fire alarm and the interconnection with the micro-switch of the fire protection system and the control panel are supplied, installed and connected by the electrical contractor
Note 10: The electrical contractor must supply and install all the electrical wiring between the ventilation hoods, fans, control panel of the hoods, the fire protection system and the control panel of the building.
Note 11: The ventilation hood is installed at 2000 mm from the finished floor and is 760 mm high and the collars are 75 mm high. The food service equipment contractor must coordinate with the ventilation contractor and verify the space available on site before manufacturing the hood.
Note 12: The cold water piping between the ventilation hood and the control panel is supplied and installed by the plumbing contractor.
Note 12A: One (1) duct of 425 mm x 425 mm in the ventilation hood for 1800 CFM. Connection to duct by the ventilation contractor.
Note 12B: One (1) duct of 200 mm x 405 mm for 200 CFM at the entrance of the dishwasher and one (1) duct of 200 mm x 405 mm for 400 CFM at the exit of the dishwasher. The ducts are connected to the main duct by the ventilation contractor.
Note 13: The junction box for Controls (E) as planned into the schedule must be wired to the building central alarm panel by the control contractor. Refer to detail #RA-1A of sheet #I-09.
Note 14: The bottom of the floor depression must be levelled by the general contractor.
Note 15: Spare.
Note 16: Water softener supplied and installed by the food service equipment contractor and connected by the plumbing contractor.
Note 17: For items #E302 and #E512. The connections, interconnections and piping between controls and the retractable hose are supplied and installed by the plumbing contractor. The accessories supplied by the food service equipment contractor are installed and connected by the plumbing contractor. This includes all following accessories: one hot and cold wall mixing valve, one 13 mm diameter wall shut-off valve, two 13 mm diameter vertical or horizontal back-flow preventer (B.F.P.), one 13 mm diameter continuous pressure breaker valve and one 13 mm diameter bleeder valve.

IDENTIFICATION					ELECTRICAL FOR EACH UNIT									MECHANICAL FOR EACH UNIT														
					LOAD						CONNECTION			COND. UNIT		WATER			DRAINS				GAS					
Revision	Item #	Quantity	IDENTIFICATION	Type of equipment	Emergency power	Amperes	Horse power (HP)	Kilowatts	Volts	Phase	Junction box	Electrical outlet	Included on item #	Location	Cooling	Hot water (mm)	Temperature (°C)	Cold water (mm)	Direct (mm)	Open (mm) FDF	Open (mm) FF	Floor drain	Inlet size (mm)	BTU	Pressure (mm)	STEAM	Depression (mm)	REMARKS
			.1 STORAGE																									
	E101	1	Walk-in cold room (- 1 °C)	N	X									R													125	Note 14
		1	Junction box (B) for : 3 lighting fixtures, 1 temperature alarm, 1 panic alarm, 1 heating cable / door		X	12*			120	1	X																	*Total charge
		1	Blower coil (C)		X			3.84	208	1	X									25								
		1	Drain heater (D)		X			1	120	1	X																	
		1	Controls (E)		X				*																			*Dry Contact: Note 13.
	E102	1	Condensing unit for item #E101	N	X		3		600	3	X			*	A													*Note 7
	E103	1	Walk-in freezer room (-18 °C)	N	X									R													125	Note 14
		1	Set (B) for : 3 lighting fixtures, 1 temperature alarm, 1 panic alarm, 1 heated port valve, 1 heating cable / door		X	12*			120	1	X																	*Total charge
		1	Blower coil (C)		X			4.8	208	1	X									25								
		1	Drain heater (D)		X			1	120	1	X																	

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IDENTIFICATION					ELECTRICAL FOR EACH UNIT									MECHANICAL FOR EACH UNIT														
					LOAD						CONNECTION			COND. UNIT		WATER			DRAINS				GAS					
Revision	Item #	Quantity	IDENTIFICATION	Type of equipment	Emergency power	Amperes	Horse power (HP)	Kilowatts	Volts	Phase	Junction box	Electrical outlet	Included on item #	Location	Cooling	Hot water (mm)	Temperature (°C)	Cold water (mm)	Direct (mm)	Open (mm) FDF	Open (mm) FF	Floor drain	Inlet size (mm)	BTU	Pressure (mm)	STEAM	Depression (mm)	REMARKS
		1	Controls (E)		X				*																			*Dry Contact: Note 13.
	E104	1	Condensing unit for item #E103	N	X		5		600	3	X			*	A													*Note 7
	E105	1	Walk-in cold room (3 °C)	N	X									R														
		1	Junction box (B) for: 3 lighting fixtures, 1 temperature alarm, 1 panic alarm, 1 heating cable / door		X	12*			120	2	X																	*Total charge
		1	Blower coil (C)		X			2.88	208	1	X									25								
		1	Controls (E)		X				*																			*Dry Contact: Note 13.
	E106	1	Condensing unit for item #E105	N	X		2		600	3	X			*	A													*Note 7
	E107	25	Mobile shelving unit	N																								
	E108	2	Fixed shelving unit	N																								
	E108A	1	Sliding shelves kit on floor rails	N																								
	E109	1	Hand sink	EG		*			*			*				*		*	*									*By plumbing and electrical contractors
	E110	1	Fountain	EG		*			*			*						*	*									*By plumbing and electrical contractors
	E111	4	Fan	N	X	4			120	1	X																	

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IDENTIFICATION					ELECTRICAL FOR EACH UNIT									MECHANICAL FOR EACH UNIT														
					LOAD						CONNECTION			COND. UNIT		WATER			DRAINS				GAS					
Revision	Item #	Quantity	IDENTIFICATION	Type of equipment	Emergency power	Amperes	Horse power (HP)	Kilowatts	Volts	Phase	Junction box	Electrical outlet	Included on item #	Location	Cooling	Hot water (mm)	Temperature (°C)	Cold water (mm)	Direct (mm)	Open (mm) FDF	Open (mm) FF	Floor drain	Inlet size (mm)	BTU	Pressure (mm)	STEAM	Depression (mm)	REMARKS
	E111A	1	Fan	N	X	4			120	1	X																	
	E112	4	Vertical duct for items #E111	N																								
	E112A	1	Horizontal duct for item #E111A	N																								
	E113	1	Steel angle*	EG																								*By general contractor, according to the architect's specifications.
	E114	2	Ventilated floor	N																								
	E115	4	Protection guide	N																								
	E115A	*	Horizontal bumper	N																								*13 linear meters
	E115B	3	Vertical bumper	N																								
	E116	2	Mobile cart	N																								
			.2 PREPARATION																									
	E201	1	Counter with double sink	N	X	4x12			120	1		K*				13		13	2x 38									*2 GFI outlets
	E201A	1	Service chase	N																								
	E202	1	Overshelf	N																								
	E203	1	Counter	N	X	3x12			120	1		K																
	E204	1	Counter with wink	N	X	2x12			120	1		K*				13		13	38									*GFI outlet

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IDENTIFICATION					ELECTRICAL FOR EACH UNIT									MECHANICAL FOR EACH UNIT														
					LOAD						CONNECTION			COND. UNIT		WATER			DRAINS				GAS					
Revision	Item #	Quantity	IDENTIFICATION	Type of equipment	Emergency power	Amperes	Horse power (HP)	Kilowatts	Volts	Phase	Junction box	Electrical outlet	Included on item #	Location	Cooling	Hot water (mm)	Temperature (°C)	Cold water (mm)	Direct (mm)	Open (mm) FDF	Open (mm) FF	Floor drain	Inlet size (mm)	BTU	Pressure (mm)	STEAM	Depression (mm)	REMARKS
	E205	1	Service chase	N																								
	E206	1	Spice cabinet	N																								
	E207	1	Adjustable pot rack	N																								
	E208	1	Table with sink	N	X	2x12			120	1		K*				13		13	38									*GFI outlet
	E209	1	Shelf for item #S214	N		13.4			120	1		K																Nema 5-20R
			.3 COOKING AND DIETS																									
	E301	1	Stainless steel wall covering	N																								
	E302	1	Hose reel and faucet	N												13		13										See note 17.
	E302A	1	Condensate pump	PL																								
	E302B	1	Condensate pump	PL																								
	E303	1	Floor pan	N															100*								125	*In the bottom of floor depression
	E303A	1	Floor pan	N															100*								125	*In the bottom of floor depression
	E303B	1	Floor pan	N															100*								125	*In the bottom of floor depression

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IDENTIFICATION					ELECTRICAL FOR EACH UNIT									MECHANICAL FOR EACH UNIT														
					LOAD						CONNECTION			COND. UNIT		WATER			DRAINS				GAS					
Revision	Item #	Quantity	IDENTIFICATION	Type of equipment	Emergency power	Amperes	Horse power (HP)	Kilowatts	Volts	Phase	Junction box	Electrical outlet	Included on item #	Location	Cooling	Hot water (mm)	Temperature (°C)	Cold water (mm)	Direct (mm)	Open (mm) FDF	Open (mm) FF	Floor drain	Inlet size (mm)	BTU	Pressure (mm)	STEAM	Depression (mm)	REMARKS
	E304	1	Ventilation hood	N																51								985 L/s @ 300 Pa, duct 250 mm x 555 mm Notes 8, 9, 10, 11 and 12
	E304A	1	Ventilation hood	N																51								1335 L/s @ 300 Pa, duct 250 mm x 685 mm Notes 8, 9, 10, 11 and 12
	E304B	1	Ventilation hood	N																51								960 L/s @ 300 Pa, duct 250 mm x 530 mm Notes 8, 9, 10, 11 and 12
	E305	1	Fire protection system	N																								Notes 8, 9 and 10
	E306	1	Working table with 2 sinks	N	X	4x12	1/2**		120 120**	1 1**		K* K **				2x13		2x13	2x 38									*GFI outlet **For item #S205
	E307	1	Hand sink	EG		*			*			*				*		*	*									*By plumbing and electrical contractors
	E308	1	Overshelf	N																								
	E309	1	Service chase	N																								
	E310	1	Adjustable pot rack	N																								
	E311	1	Control panel for items #E304, #E304A, #E304B and #E514A	N	X	15			120	1	X							13										Notes 9, 10 and 12

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IDENTIFICATION					ELECTRICAL FOR EACH UNIT									MECHANICAL FOR EACH UNIT														
					LOAD						CONNECTION			COND. UNIT		WATER			DRAINS				GAS					
Revision	Item #	Quantity	IDENTIFICATION	Type of equipment	Emergency power	Amperes	Horse power (HP)	Kilowatts	Volts	Phase	Junction box	Electrical outlet	Included on item #	Location	Cooling	Hot water (mm)	Temperature (°C)	Cold water (mm)	Direct (mm)	Open (mm) FDF	Open (mm) FF	Floor drain	Inlet size (mm)	BTU	Pressure (mm)	STEAM	Depression (mm)	REMARKS
	E312	1	Table for diets	N	X	2x12			120	1		K*				13		13	38									*GFI outlet
	E312A	1	Service chase	N																								
	E313	1	Horizontal service chase	N																								
	E313A	1	Cabinet for items #E302 and #E302A	N																								
	E313B	1	Vertical service chase	N																								
	E313C	1	Horizontal service chase	N																								
	E314	1	Protection guide	N																								
	E315	1	Floor pan	N															100*								125	*In the bottom of floor depression
			.4 TRAY ASSEMBLY AND BULK SHIPPING																									
	E401	1	Mobile cart for clean trays	N																								
	E402		Spare																									
	E403		Spare																									
	E404	1	Counter with sink	N												13		13	38+ 25*									*The 25 mm direct drain is connected on the 38 mm direct drain
	E404A	1	Service chase	N																								

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IDENTIFICATION					ELECTRICAL FOR EACH UNIT									MECHANICAL FOR EACH UNIT														
					LOAD						CONNECTION			COND. UNIT		WATER			DRAINS				GAS					
Revision	Item #	Quantity	IDENTIFICATION	Type of equipment	Emergency power	Amperes	Horse power (HP)	Kilowatts	Volts	Phase	Junction box	Electrical outlet	Included on item #	Location	Cooling	Hot water (mm)	Temperature (°C)	Cold water (mm)	Direct (mm)	Open (mm) FDF	Open (mm) FF	Floor drain	Inlet size (mm)	BTU	Pressure (mm)	STEAM	Depression (mm)	REMARKS
			.5 POT AND TRAY WASHING AREA																									
	E501	1	Pot sink	N												3x13		3x13	3x 38									
	E501A	3	Spacer	N																								
	E501B	1	Service chase	N																								
	E501C	1	Service chase	N																								
	E502	1	Pre-rinse faucet	N												*		*										*Included in item #E501
	E503	3	Mobile pot shelving unit	N																								
	E504	1	Cleaning table	N																								
	E505	3	Mobile shelving unit	N																								
	E506	1	Pre-rinse sink	N												13		13	38									
	E507	1	Pre-rinse faucet	N												*		*										*Included in item #E506
	E508	1	Dishwasher	N	X	8.4			600	3	X					**	60		50							*		*Steam inlet: 19 mm Ø - Steam outlet: 19 mm Ø. Pressure 15 PSI. Consumption 60 lb/h **Coming from booster item #E509 by the plumbing contractor. Note 4A.

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IDENTIFICATION					ELECTRICAL FOR EACH UNIT									MECHANICAL FOR EACH UNIT														
					LOAD						CONNECTION			COND. UNIT		WATER			DRAINS				GAS					
Revision	Item #	Quantity	IDENTIFICATION	Type of equipment	Emergency power	Amperes	Horse power (HP)	Kilowatts	Volts	Phase	Junction box	Electrical outlet	Included on item #	Location	Cooling	Hot water (mm)	Temperature (°C)	Cold water (mm)	Direct (mm)	Open (mm) FDF	Open (mm) FF	Floor drain	Inlet size (mm)	BTU	Pressure (mm)	STEAM	Depression (mm)	REMARKS
	E508A	1	Waste water cooling system	N	X	*			*	*								13*										*Integrated to the dishwasher item #E508. Note 6
	E509	1	Booster heater	N	X	12			120	1	X					19**	60			19						*		*Steam inlet: 19 mm Ø - Steam outlet: 19 mm Ø. Pressure15 PSI Consumption 55 lb/h Note 5 **Towards item #E508 by the plumbing contractor
	E510	1	Clean dish table	N															38									
	E511	1	Mobile water softener for item #E508	N												*				38								*Service arrival from building with a 19 mm threaded inlet connection to equipment and 19 mm interconnection towards item #E509 by the plumbing contractor. Note 5.
	E512	1	Hose reel	N												*		*										*Note 17
	E512A	1	Faucet for item #E512	N												13		13										Passing thru chase item #E513 Note 17
	E513	1	Service chase	N																								

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IDENTIFICATION					ELECTRICAL FOR EACH UNIT									MECHANICAL FOR EACH UNIT														
					LOAD						CONNECTION			COND. UNIT		WATER			DRAINS				GAS					
Revision	Item #	Quantity	IDENTIFICATION	Type of equipment	Emergency power	Amperes	Horse power (HP)	Kilowatts	Volts	Phase	Junction box	Electrical outlet	Included on item #	Location	Cooling	Hot water (mm)	Temperature (°C)	Cold water (mm)	Direct (mm)	Open (mm) FDF	Open (mm) FF	Floor drain	Inlet size (mm)	BTU	Pressure (mm)	STEAM	Depression (mm)	REMARKS
	E514	2	Exhaust duct	N																								Included in item #E514A
	E514A	1	Ventilation hood	N																13								Notes 12A and 12B Total of notes 12A and 12B equal 2,400 CFM @ 100 Pa
	E514B	1	Horizontal exhaust duct	N																								Included in item #E514A
	E515	1	Hand sink	EG		*			*			*				*		*	*									*By plumbing and electrical contractors
	E515A	1	Service chase	N																								
	E515B	1	Horizontal service chase	N																								Included in item #E514A
	E516	2	Protection guide	N																								
	E517	*	Horizontal bumper	N																								*±65 linear meters
	E518	15	Vertical bumper	N																								
			.6 CLEANING AND MAINTENANCE PRODUCTS																									
	E601	1	Floor sink	PL															*									*By plumbing contractor
	E602	1	Faucet for floor sink	PL												*		*										*By plumbing contractor
	E603	2	Detergent shelving unit	N																								
	E604	1	Soap diluter	N																								By CSC

RÉVISION [ ]

IDENTIFICATION					ELECTRICAL FOR EACH UNIT									MECHANICAL FOR EACH UNIT														
					LOAD						CONNECTION			COND. UNIT		WATER			DRAINS				GAS					
Revision	Item #	Quantity	IDENTIFICATION	Type of equipment	Emergency power	Amperes	Horse power (HP)	Kilowatts	Volts	Phase	Junction box	Electrical outlet	Included on item #	Location	Cooling	Hot water (mm)	Temperature (°C)	Cold water (mm)	Direct (mm)	Open (mm) FDF	Open (mm) FF	Floor drain	Inlet size (mm)	BTU	Pressure (mm)	STEAM	Depression (mm)	REMARKS
			.7 STAFF KITCHENETTE																									
	E700	1	Counter	EG	X	*			*	*		*																*See architect's drawing
	E701		Spare																									
			.8 CART WASHING AREA																									
	E800	1	Floor pan	N															100*								125	*In the bottom of floor depression
	E801	1	Service chase	N																								
	E802	1	Faucet and hose	N												13		13										
			.9 WALK-IN COLD ROOM FOR GARBAGE																									
	E900	1	Walk-in cold room for garbage (4 °C)	N	X									R														
		1	Junction box (B) for: 1 lighting fixture, 1 temperature alarm, 1 panic alarm, 1 heating cable / door		X	12*			120	1	X																	*Total charge
		1	Blower coil (C)		X			0.96	208	1	X									25								
		1	Controls (E)		X				*																			*Dry Contact: Note 13.
	E901	1	Condensing unit for item #E900	N	X		3/4		208	1	X			*	A													*Note 7

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IDENTIFICATION					ELECTRICAL FOR EACH UNIT									MECHANICAL FOR EACH UNIT														
					LOAD						CONNECTION			COND. UNIT		WATER			DRAINS				GAS					
Revision	Item #	Quantity	IDENTIFICATION	Type of equipment	Emergency power	Amperes	Horse power (HP)	Kilowatts	Volts	Phase	Junction box	Electrical outlet	Included on item #	Location	Cooling	Hot water (mm)	Temperature (°C)	Cold water (mm)	Direct (mm)	Open (mm) FDF	Open (mm) FF	Floor drain	Inlet size (mm)	BTU	Pressure (mm)	STEAM	Depression (mm)	REMARKS
	E902	2	Mobile shelving unit	N																								
	E903		Spare																									
	E904	3	Protection post	N																								
	E905	3	Garbage hopper	N																								
			.1 STORAGE																									
	S101	1	Hand pallet truck	EX																								
	S102	1	Platform cart	N																								
	S103	1	Mobile table	N																								
	S104	54	Cart for cooled dish	N																								By CSC
	S105	1	Cart	N																								
	S106	3	Pallet	N																								By CSC
	S107	1	Garbage can	N																								
	S108	1	Paper and soap dispenser	EG																								See architecture
			.2 PREPARATION																									
	S201	3	Garbage can	N																								
	S202	1	Utility cart	N																								
	S203	1	Powder milk doser	N	X								E208					19										

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IDENTIFICATION					ELECTRICAL FOR EACH UNIT									MECHANICAL FOR EACH UNIT														
					LOAD						CONNECTION			COND. UNIT		WATER			DRAINS				GAS					
Revision	Item #	Quantity	IDENTIFICATION	Type of equipment	Emergency power	Amperes	Horse power (HP)	Kilowatts	Volts	Phase	Junction box	Electrical outlet	Included on item #	Location	Cooling	Hot water (mm)	Temperature (°C)	Cold water (mm)	Direct (mm)	Open (mm) FDF	Open (mm) FF	Floor drain	Inlet size (mm)	BTU	Pressure (mm)	STEAM	Depression (mm)	REMARKS
	S204	1	Cart for milk bag	N																								
	S205	2	Slicer	N	X								E306															
	S206	1	Mixer 80 pints	N	X		3		208	3	X*																	*Passing thru chase item #E205
	S207	1	Manual can opener	N																								
	S208	1	Vegetable cutter	N	X								E201															
	S208A	1	Cart for item #S208	N																								
	S209	1	Counter scale 20 kg	N	X								E203															
	S210	2	Mobile shelving unit	N																								
	S211	1	Recycling garbage can	N																								
	S212	1	Refrigerator 3 doors	EX	X	9.6	1/2		120	1		K*																*Outlet into item #S212A
	S212A	1	Service chase for outlet item #S212	N																								
	S213	2	Cart for item #S205	N																								
	S214	1	Microwave oven	N	X								E209															

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IDENTIFICATION					ELECTRICAL FOR EACH UNIT									MECHANICAL FOR EACH UNIT														
					LOAD						CONNECTION			COND. UNIT		WATER			DRAINS				GAS					
Revision	Item #	Quantity	IDENTIFICATION	Type of equipment	Emergency power	Amperes	Horse power (HP)	Kilowatts	Volts	Phase	Junction box	Electrical outlet	Included on item #	Location	Cooling	Hot water (mm)	Temperature (°C)	Cold water (mm)	Direct (mm)	Open (mm) FDF	Open (mm) FF	Floor drain	Inlet size (mm)	BTU	Pressure (mm)	STEAM	Depression (mm)	REMARKS
			.3 COOKING AND DIETS																									
	S301	2	Combi oven for carts	N	X	20*		61	208 120	3 1	X	K						2x13 **		50 ***								*Nema 5-20P outlet **One (1) 13 mm inlet on water softener, see note 16 ***Extend open drain to item #E315 Note 4
	S302	2	Cart for combi oven	N																								
	S303	2	Warmer for items #S302	N	X			3	208	1			*															*Nema 6-20P on item #E313C
	S304	1	Stationary steam kettle 300 liters	EX														13								*		*19 mm steam inlet - 13 mm steam return Operating pressure from 5 to 45 PSI
	S304A	1	Portable mixer with support	N	X		1.6		120	1		K																
	S305	1	Tilting steam kettle 45 liters	N														13								*		*19 mm steam inlet - 13 mm steam return Operating pressure from 5 to 45 PSI
	S306	1	Support for item #S305	N															32									

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IDENTIFICATION					ELECTRICAL FOR EACH UNIT									MECHANICAL FOR EACH UNIT														
					LOAD						CONNECTION			COND. UNIT		WATER			DRAINS				GAS					
Revision	Item #	Quantity	IDENTIFICATION	Type of equipment	Emergency power	Amperes	Horse power (HP)	Kilowatts	Volts	Phase	Junction box	Electrical outlet	Included on item #	Location	Cooling	Hot water (mm)	Temperature (°C)	Cold water (mm)	Direct (mm)	Open (mm) FDF	Open (mm) FF	Floor drain	Inlet size (mm)	BTU	Pressure (mm)	STEAM	Depression (mm)	REMARKS
	S307	2	Mobile griddle 1220 mm	N	X			17.2	208	3			E313*															Note 1 *Nema 15-60P
	S308	1	Mobile range 2 burners with griddle and oven	N	X			20.7	208	3	X																	Note 1
	S309	1	Recycling garbage can	N																								
	S310	3	Utility cart	N																								
	S311		Spare																									
	S312	1	Mobile storage cabinet	N																								
	S313	2	Garbage can	N																								
	S314	1	Garbage can	N																								
	S315	1	Paper and soap dispenser	EG																								See architecture
			.4 TRAY ASSEMBLY AND BULK SHIPPING																									
	S401	1	Hot food table with 5 wells	N	X								CBP #1							25								
	S401A	1	Faucet	N														13										
	S401B	1	Adjustable double wall shelf	N																								
	S402	1	Mobile warmer	N	X			1.4	208	1			E313C*															*Nema outlet 6-15P
	S403	2	Cart for assembled trays	N	X			0.75	120	1			E515B*															*Twist-lock - Nema L5-15

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IDENTIFICATION					ELECTRICAL FOR EACH UNIT									MECHANICAL FOR EACH UNIT														
					LOAD						CONNECTION			COND. UNIT		WATER			DRAINS				GAS					
Revision	Item #	Quantity	IDENTIFICATION	Type of equipment	Emergency power	Amperes	Horse power (HP)	Kilowatts	Volts	Phase	Junction box	Electrical outlet	Included on item #	Location	Cooling	Hot water (mm)	Temperature (°C)	Cold water (mm)	Direct (mm)	Open (mm) FDF	Open (mm) FF	Floor drain	Inlet size (mm)	BTU	Pressure (mm)	STEAM	Depression (mm)	REMARKS
	S404	1	Tray cart	N																								
	S405		Spare																									
	S406	12 *	Hot and cold bulk food cart	N	X	4.6			120	1			E515B															*Six (6) located in the tray assembly sector and six (6) located elsewhere
	S407		Spare																									
	S408		Spare																									
	S409		Spare																									
	S410	1	Hot water and coffee urn	N	X			3.95	120/208	1	X							6										See note 2
	S411		Spare																									
	S412		Spare																									
	S413	1	Garbage can	N																								
	S414	4	Hot water and coffee thermos	N																								
	S415	1	Angle rack (desserts)	N																								
			.5 POT AND TRAY WASHING AREA																									
	S501	2	Mobile garbage can	N																								
	S502	1	Garbage can	N																								

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IDENTIFICATION					ELECTRICAL FOR EACH UNIT									MECHANICAL FOR EACH UNIT														
					LOAD						CONNECTION			COND. UNIT		WATER			DRAINS				GAS					
Revision	Item #	Quantity	IDENTIFICATION	Type of equipment	Emergency power	Amperes	Horse power (HP)	Kilowatts	Volts	Phase	Junction box	Electrical outlet	Included on item #	Location	Cooling	Hot water (mm)	Temperature (°C)	Cold water (mm)	Direct (mm)	Open (mm) FDF	Open (mm) FF	Floor drain	Inlet size (mm)	BTU	Pressure (mm)	STEAM	Depression (mm)	REMARKS
	S503	1	Paper and soap dispenser	EG																								See architecture
			.6 CLEANING AND MAINTENANCE PRODUCTS																									
			.7 STAFF KITCHENETTE																									
	S700	1	Knife cabinet	N																								By CSC
	S701	1	Garbage can	N																								
	S702	1	Coffee maker	N	X	12*			120	1	X																	*Nema 5-20 RA
	S703		Spare																									
			.8 CART WASHING AREA																									
			.9 GARBAGE WALK-IN COLD ROOM																									

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C.B.P. #1					120 V / 208 V – 3 PH
CIRCUIT BREAKER PANEL FOR HOT FOOD TABLE ITEM #S401					
REV.	NO.	DESCRIPTION	SERVICES		
	#S401	Hot food table with 5 wells	5 x 1.67 kW	208 V	1 PH
		Spare circuit	12 A	120 V	1 PH

Part 1 General

1.1 GENERAL

.1 Refer to all items in this section, to the general conditions, to all sections in divisions 00 and 01 which apply to and form part of all sections of work.

1.2 BIDDING DOCUMENTS

.1 Visualize the complete scope of work and conditions. Carefully study jointly all written documents and drawings. These documents form an integral part of the work for section 11 41 10 - Walk-in freezers and coolers.

1.3 RELATED REQUIREMENTS

.1 Refer to the schedule of mechanical and electrical loads at the section 11 40 20.

.2 Refer to the sections 11 40 10 and 11 40 20.

1.4 REFERENCES

.1 American National Standards Institute/American Society of Mechanical Engineers (ANSI/ASME)

.1 ANSI/ASME B16.26-2006, Cast Copper Alloy Fittings for Flared Copper Tubes.

.2 ANSI/ASME B16.29-2007, Wrought Copper and Wrought Copper Alloy Solder Joint Drainage Fittings-DWV.

.2 American National Standards Institute/National Fire Protection Association (ANSI/NFPA)

.1 ANSI/NFPA 255-2006, Standard Method of Test of Surface Burning Characteristics of Building Materials.

.3 ASTM International

.1 ASTM A 167-99(2009), Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.

.2 ASTM A 240/A 240M-11a, Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.

.3 ASTM A 480/A 480M-11a, Specification for General Requirements for Flat-Rolled Stainless and Heat-Resisting Steel Plate, Sheet and Strip.

.1 Finish for sheet: No. 4 Finish-General purpose polished finish, one or both sides.

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

.5 ASTM B 88M-09, Standard Specification for Seamless Copper Water Tube Metric.

.6 ASTM B 280-08, Standard Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service.

.7 ASTM E 84-11a, Standard Test Method for Surface Burning Characteristics of Building Materials.

.8 ASTM E 162-11a, Standard Test Method for Surface Flammability of Materials Using a Radiant Heat Energy Source.

.4 Canada Green Building Council (CaGBC)

.1 LEED Canada-NC Version 1.0-2004, LEED (Leadership in Energy and Environmental Design): Green Building Rating System for New Construction and Major Renovations (including Addendum 2007).

.2 LEED Canada-NC-2009, LEED (Leadership in Energy and Environmental Design): Green Building Rating Systemfor New Construction and Major Renovations 2009.

.3 LEED Canada-CI Version 1.0-2007, LEED (Leadership in Energy and Environmental Design): Green Building Rating System for Commercial Interiors.

.4 LEED Canada-EB: O&M-2009, LEED (Leadership in Energy and Environmental Design): Green Building Rating System for Existing Buildings: Operations and Maintenance 2009.

.5 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-19.13-M87, Sealing Compound, One-Component, Elastomeric, Chemical Curing.

.6 CSA International

.1 CSA C22.2 No.137-M1981(R2004), Electric Luminaires for Use in Hazardous Locations.

.7 Society of Automotive Engineers (SAE)

.8 Underwriters' Laboratories of Canada

.1 CAN/ULC-S704-11, Thermal Insulation, Polyurethane and Polyisocyanurate Boards, Faced.

.2 CAN/ULC-S705.1-2001, Thermal Insulation - Spray Applied Rigid Polyurethane Foam, Medium Density, Material Specification.

1.5 WORK TO BE DONE

.1 The supply of all labour, materials, plant, tools, crating, transportation, delivery, uncrating and set-in-place of all work required to completely install the food service equipment specified and/or as shown on drawings and specifications.

.2 Prefabricated cold rooms:

.1 Supply and install all prefabricated cold rooms and their respective mechanical refrigeration systems to operate at the specified temperatures.

.2 Supply and install painted condensate drain lines (complete with traps) from blower coils. Run drainlines inside the cold rooms and come out exactly over the funnel drains.

.3 Supply and install electrical wiring between blower coils and time clocks. Install time clocks on top of cold room near the door. Provide a removable access panel for easy access. Supply and install all interwiring for time clocks. Refer to details #RA-1A or #RA-1B.

.4 Supply and install floor panels constructed as to be an integral part of the prefabricated cold room.

.5 Supply all panels for all cold rooms from the same manufacturer.

.6 Supply and install all refrigeration lines, insulation and refrigerant.

1.6 MECHANICAL AND ELECTRICAL SERVICE DRAWINGS AND SHOP DRAWINGS

.1 The mechanical and electrical requirements schedule and a drawing showing the location of connections is provided by the Ministerial Representative. All sizes and loads specified indicate actual requirements at point of connection. All trades must provide space for the installation of valves, traps, fittings, switches, disconnects, etc. Connect all equipment horizontally to walls and partitions wherever possible.

.2 Design drawings prepared by the Ministerial Representative show basic equipment details and are a guide only.

.3 Submit for review:

.1 Illustrated technical data sheets for condensing units, blower coil, etc.

.2 Mechanical and electrical services location drawings and floor depressions.

.3 Detailed shop drawings for cold rooms.

.4 Submit one (1) copy and one (1) reproducible print of the shop drawings for verification and review by the Ministerial Representative.

.5 Provide fully dimensioned mechanical and electrical services location drawings, not less than 1:50 scale, for all equipment. Include schematics and installation diagrams where required. Refer to the section 11 40 20 for the schedule of mechanical and electrical loads.

.6 Provide fully dimensioned drawings, not less than 1:50 scale, locating floor depressions, wall openings required for equipment.

.7 Provide plan and elevation views of equipment not less than 1:25 scale. Provide sections, no less than 1:10 scale, in sufficient number to clearly illustrate construction method. Half of full size scale for details or fittings. Clearly indicate all welds, supports and fasteners.

.8 Once the requested shop drawings have been verified by the Ministerial Representative, provide the number of sets required. Do not proceed with any part of the fabrication until the drawings have been reviewed by the Ministerial Representative.

.9 Review of these drawings by the Ministerial Representative is general. It is not intended to serve as a final check and does not relieve the Contractor from the responsibility of checking the drawings or from furnishing the specified materials.

.10 Coordinate all mechanical and electrical requirements with all concerned trades. Match the equipment plugs with the electrical outlets furnished and installed by the Electrical Contractor.

1.7 DIMENSIONS

.1 Consider all dimensions shown on drawings and in specifications as a guide only: check them on the job-site and coordinate any necessary adjustments.

.2 Coordinate with the General Contractor for exact size and location of floor depressions, and sleeves required in walls and floors for services and refrigeration lines and wall reinforcement.

1.8 SAMPLES

.1 Upon request from the Ministerial Representative, provide samples of any piece of hardware, painted steel or any other finish or material.

1.9 TECHNICAL DATA SHEETS

.1 Before commencing processing orders for the cold rooms, condensing units and blower coils, submit three (3) bound sets of technical data sheets in French for review by the Ministerial Representative.

.2 Technical data sheets must include item number, description of equipment giving manufacturers name, model, quantity, options and accessories, and capacity.

.3 Bind sheets in itemized numerical order in a press-board binder appropriately labelled to identify the project and the contents of the binder.

.4 Unless advised otherwise, do not process or order any item requested for verification until a reviewed set of data sheets has been returned from the Ministerial Representative.

.5 Upon receipt of the REVIEWED set, submit the required number of corrected sets for distribution.

1.10 CERTIFICATES OF APPROVAL

.1 Regard all work and material specified or shown on drawings as the minimum requirements. Comply with the latest electrical codes, C.S.A., and any municipal, provincial and federal regulations.

.2 Comply with these regulation and fulfil all necessary changes or additions with no extra charge even if not specified or shown on the drawings. If the equipment supplied is not C.S.A. approved, obtain the approval from local electrical inspectors.

.3 Furnish and install all equipment in compliance with the latest provincial, municipal and federal regulations. Furnish items required by these regulations, even if not specified or shown on the drawings, with no extra charge.

1.11 INSTRUCTIONS OF OPERATION

.1 Upon completion of installation, supply three (3) bound manuals of operational instructions, maintenance instructions and spare parts list for each item of equipment. Include the name and phone number of the appropriate service company for each item at the beginning of the manual. Submit these information in French during the demonstration. The operation instruction plates on the equipment must be in French.

.2 Also supply specific instructions for the maintenance of equipment (i.e. condensing units, blower coils, etc.), the frequency of maintenance, functioning operations to be verified, parts that are maintained and kept clean, etc. These documents must be part of the three (3) manuals of operational instructions as specified in the preceding paragraph.

.3 These documents must be submitted to the Ministerial Representative before the equipment demonstration.

1.12 GUARANTEE

.1 Issue a written Guarantee for the period of one (1) year, including parts and labour, from the date of acceptance. Respect all manufacturers' guarantees exceeding this one (1) year period until expiry dates. Supply a guarantee of 4 years for the compressor on the condensing unit. Labour is not included in that four (4) years guarantee.

.2 This Guarantee applies solely to new purchases and to fabricated equipment specified under this section. Repair or replace, at no cost (parts and labour included), any and all defective equipment within the guarantee period.

1.13 ASEISMIC INSTALLATION

.1 The equipment shall be installed to meet aseismic installation.

.2 Unless indicated otherwise, aseismic installation has to be designed and selected to meet the requirements of the last edition of the Building National Code and is supplement.

.3 The Food Service Equipment Contractor has to retain the services of a aseismic specialist to perform the calculation and develop the aseismic installation details for each equipment of component.

.4 In the case where after the verification on site by the specialized aseismic specialist, there is correction to apply, the Food Service Equipment Contractor has to provide an inspection report and explain the steps to correct the deficiencies.

.5 At the end of the work, the Food Service Equipment Contractor shall submit to the Ministerial Representative a certificate of approval provided by an aseismic specialist.

1.14 AS BUILT DRAWINGS

.1 Supply at the demonstration time one reproducible drawing and CD (CAD version) of as built drawings showing all changes done by addenda or change notice or all changes done during the construction. Drawing shall be identified "as built drawing".

Part 2 Products

2.1 PREFABRICATED WALK-IN COOLERS AND FREEZERS

.1 Equipment: Supply and install all cold rooms and accessories as specified. The prefabricated cold room shall comply with refrigeration code CSA B52-95 and the panels shall be homologated to fire as per CAN-ULCS102 AND CAN-ULCS138 (ULC-ORD C 376). The index of flame propagation of 25 or less for the panels and 500 or less for insulation. A seal homologation must be affixed on each panel. All electrical services shall be homologated as per CSA standard. Panels shall carry a minimum of the following approvals : NSF, UL, C-UL,CSA et ULC.

.2 Construction:

.1 Factory fabricate the exterior and interior panels of walls, ceilings and floors using a steel die. Check for uniformity. All to be locked together by cam-type locking devices.

.2 Foamed-in place rigid urethan insulation, injected into the panels 75 mm thick urethane having a density of 40 kg per cubic meter. Panel interiors covered with adhesive to obtain a perfect bond with the blown insulation; to form a solid, rigid wall free of cavities and without internal wood structures. The factor of thermal conductivity (k) for this insulation not to exceed 0.86 watts per sq. meter per degree Kelvin for a temperature difference of 38 °C. Polyurethane foam shall be CFC and HCFC free

.3 Floor panels able to withstand a spreading load of 1,225 kg per sq meter. The outside surface of the floor sandwich panel must be 1.6 mm thick galvanized steel and 12.5 mm thick plywood under the galvanized steel.

.4 The floor panels shall be covered with hardi backer fibro concrete board of 13 mm thick and screwed to the floor. Apply “Lepage” PL glue on the cold room floor panels, apply the fibro concrete board on that glue, and then screw the fibro concrete board on the insulated cold room floor with countersunk zinc steel screws. Joints staggered with those in the cold room floor.

.5 All interior and exterior surfaces of walls and ceiling apparent or not are fabricated with galvanized steel of 0.6 mm thick. All interior and exterior surfaces of walls and ceiling including doors shall be painted with two coats of white baked enamel "epoxy" coated polyester of 0.02 mm thick.

.6 Fabricate each panel from a single sheet of steel, without joint or overlap.

.3 Enclosure panels: Supply and install enclosures panels, with the same finish as the exterior of the boxes, between the top of the boxes and the ceiling and between wall panels and architectural walls, columns, etc. Removable section for each enclosure.

.4 Panel edges: Joining edges of panels with integral matching tongue and groove profile, formed in the foaming operation. Accurately shaped to provide a continuous foam to foam airtight contact without the use of gaskets or other sealers. Lock panels in position using eccentric locking devices built into foamed edges from inside the rooms to permit mounting of sections at a distance not exceeding 40 mm from all walls and columns.

.5 Sleeves:

.1 Drill holes through pre-fabricated wall and ceiling panels for refrigeration lines, electrical wiring and drain lines.

.2 Coordinate with other Divisions for the exact location of these holes.

.3 The sleeves, the scaling compound and holes for all mechanical and electrical conduits are by Food Service Equipment Contractor. Fit all refrigeration lines, electrical wiring and drain lines holes with sleeves and fill completely with sealing compound.

.6 Doors:

.1 Recessed doors are insulated. Dimensions 865 mm x 1980 mm or as specified and the same construction as the wall panels. Fix 1.6 mm stainless steel kickplates 1220 mm high, finish #4, to the interior and exterior of each door. Equip each door with a "thermopane" glass window of 380 mm x 510 mm at 1550 mm centre line from finished floor for all refrigerators (freezers not included).

.2 The lock are to be designed that they may be re-keyed in the field using a Best Lock key way. The lock shall have on interior assembly as to allow safe aggress. Secure Guard. Best interchangeable care lock cylinders. The lock shall be selectable to allow for keyless entry or automatically lock each time doors closed.

.3 For each freezer room, supply and install a micro-switch which shut down the evaporator of the blower coil and the condensing unit when the door is open and the refrigeration system will restart when the door is closed.

.4 All accessories including electrical wiring are supplied and installed by the Kitchen Equipment Contractor.

.7 Hardware for cold rooms:

.1 Hinges: All hardware's of heavy duty moulded zinc covered with brushed chrome. Self-closing type hinges, two (2) per door, with stainless steel zinged pins and nylon cams and one hung being spring loaded hold in place with non reversible screws for correctional application self classing type with zinc plated and nylon cam-type bearing. The handle, when pulled, breaks away from the magnetic force of the magnetic gasket, and permits the use of lock. Complete with a latch release mechanism allowing opening of door from inside, even when the door is locked. The lock will be equivalent to Kason #57 for hinged doors.

.2 Gaskets: each door complete with a removable thermoplastic gasket with a magnetic band of metal in the centre, at the top and sides. Adjustable sliding gasket on the bottom of each door. The magnetic force of the gasket must be sufficient to keep the door closed and airtight. Removable gaskets.

.3 Heating cable: equip door jambs of walk-in refrigerators and freezers and thresholds of walk-in freezer with of sufficient wattage within panels to prevent frosting and condensation on exterior surfaces. Wire to junction box of the light inside the walk-in cold room.

.4 Lighting: coordinate location of luminaries with evaporators. Lighting: two (2) LED array of 39 Watts, 3770 lumens total. 96 lumens/watt. 4500K Color temperature, Rated 50,000 hours. No Ultraviolet emission. Constant current LED. Fixture are cULus listed. Classe 2 power supply is an ANSI / UL-CSA recognized components and bears the RoHS and CE marks. Specifically design for wet and low temperature environments. Ideal operating temperature from -40°C to 40°C. Fixture: rating IP-65 for wet and cold environments. Housing: Constructed of heavy gauge injection molded polycarbonate. Supplied with integrated gasket, one 22 mm diameter hole provided with 22 mm diameter knockout on opposite end, and three 22 mm diameter knockouts on back. Complies with NEC regulations. Diffuser: clear molded shatterproof high impact polycarbonate. Latches: stainless steel, eight (8) supplied per fixture. Power: 100VAC-277VAC at 50/60 Hz. Mounting: «EZ» mounting system consists of two mounting brackets (included with fixture) that are mounted to the ceiling with 900 mm spacing, mount conduit hub, or hole plug and snap fixture in place. Manufacturer Kason and model #1810LX LED.

.5 Heated exhaust port: equip each freezer door section with a heated exhaust port. Wire to junction box of light above door. If access to freezer is through a refrigerator, than the door of that refrigerator shall also be equipped with a heat exhaust port also.

.8 Bumper guards:

.1 On all exposed exterior walls, supply and install bumper guards made from 25 mm x 200 mm x 1.6 mm stainless steel welded and polished all corners, #4 finish, and installed at the same height as the kitchen plinth. Weld and polish corners. Seal all around with silicone. Extend bumper as closest to door opening as possible. Fasten to walk-in boxes with matching brackets and countersunk screws.

.2 Install plates 400 mm high, 1.6 mm thick, stainless steel #4 finish all around the interior of each cold room.

.3 Install a 1.3 mm galvanized steel reinforcement inside the insulated wall panels to mount exterior and interior bumpers.

.9 Corner guards: Provide and install 2 mm stainless steel, #4 finish guards, 150 mm x 150 mm x 1830 mm high on all exposed exterior and interior corners. Fix with stainless steel countersunk screws and seal all around with silicone.

.10 Panic alarm: In addition to high and low temperature alarms, equip each walk-in refrigerator and freezer with a panic alarm consisting of an illuminated vapour proof push button, located inside the cold room near the door and connected to an alarm bell located outside the cold room above the door. Connection between the alarm panic button and the alarm bell are included.

.11 Alarm system with battery:

.1 Refer to details #RA-1 and #RA-2. Supply and install one (1) high and low temperature alarm system for each cold room to create an audible signal and warning light when actuated by any change in temperature. Equip this alarm system with a digital read-out thermometer. Install this alarm system is plugged into the electrical outlet provided on top of the cold room by the Electrical Contractor.

.2 This alarm system shall automatically control the lighting fixture inside the cold rooms. This system will control the time required to close the lighting following the closure of the door.

.3 If a freezer door is located within a refrigerator, install the control box of the freezer unit outside the refrigerator. Identify each alarm system when two (2) or more are grouped together.

.4 Supply and install a temperature sensor inside the cold room and connect to the alarm system control box. Install this temperature sensor at approximately 2 metres from the door. All wiring for the temperature sensor shall be covered with a stainless steel "U" molding.

.12 Threshold: Equip each doorway with a removable, 2.8 mm stainless steel or extruded aluminium threshold of 6 mm thick

.13 Door closer: Equip each door with piston action closer, spring type, installed outside the cold room above the door.

2.2 MECHANICAL REFRIGERATION SYSTEMS

.1 Installation: Supply and install refrigeration systems in strict compliance with all applying refrigeration, electrical and safety codes. Run all necessary relief to meet the requirements. Comply also with manufacturers recommendations. Condensing unit shall be installed to provide easy access for cleaning and services.

.2 Refrigeration line installation: While braixing refrigeration lines, inject a small amount of dry nitrogen into the line to prevent scale deposits. Always use A.C.R. nitrogenized piping. Avoid sagging, and properly slope all refrigeration lines to prevent trapping oil.

.3 Testing: Upon completion of piping, test all refrigeration systems. Evacuate system with high capacity vacuum pumps. When it is certain that the systems are leak free, add sufficient charges of refrigerant to give specified operating temperatures. Temperature in freezer rooms to be -18 °C and in refrigerator to be 2.2 °C.

.4 Evaporators: Construct evaporators entirely of non-corrosive materials exterior is white baked enamel. Low velocity fan motors (permanently lubricated) with thermal overload protection and built-in heat exchanger. Evaporators specified with electric defrost complete with defrost elements, time clock, fan delay thermostat and defrost termination thermostat. Non corrosive, cadmium-plated steel support rods. Provide a P-trap in the suction line where it connects to the evaporator. Supply and install all wiring between time clocks and evaporators. The evaporators are complete with disconnect switch integrated in the unit. Refer to details #RA-1A or #RA-1B.

.5 Evaporator drains: Pitch drain lines at 1:25 minimum slope. Copper tubing for all drain pipes. Equip all evaporator drain lines for freezers with a drain line heater cable, complete with a thermostat. Connect drain line heater to a junction box installed inside the cold room connection by the Electrical Contractor. All drain line shall be unsulated with 13 mm thick insulation and covered with white PVC finish and welded joints.

.6 Condensing units:

.1 Semi-hermetic condensing unit as specified in description of item including the contactor consisting of base, motor-compressor assembly, suction and discharge valves, oil separator, valve on oil return line, high and low pressure controls and electrical protection devices. Operating with R404A for all refrigerators freezers or as specified. Identify condensing units with the name and item number of their corresponding cold rooms.

Screw 16 mm x 65 mm Bakelite identification plates to condensing units and cold rooms. All wiring and controls are interconnected to a common junction box, including magnetic starter, ready for connection by the Electrical Contractor.

.2 Issue a Guarantee for the period of one (1) year from the date of acceptance. Respect all manufacturers' guarantees exceeding this one (1) year period until expiry dates. All compressor on the condensing units shall have an additional guarantee for 4 years for parts only. Labor is not included in this additional guarantee.

.3 Supply and install high density rubber pads under the shelving legs of the condensing units.

.7 Expansion valves: Thermostatic type expansion valves. All metal, moisture proof with gas charged bulb clamped to suction end of coil. Freezers with 69 KPa expansion valves.

.8 Room thermostat: Equip each refrigerator and freezer with a thermostat to control solenoid valve.

.9 Solenoid valves: Mount solenoid valves on liquid lines, close to the cooling unit, to control flow of refrigerant.

.10 Dryer and moisture indicator: Supply and install a dryer on the liquid line of each system. Include liquid and moisture indicators on each liquid line after the dryer.

.11 Control wiring: Supply and install all accessories, controls and control wiring for the refrigerators, freezers, condensing units and defrost systems.

.12 Refrigerant piping:

.1 Size refrigerant piping to obtain a pressure drop equivalent to -16.6 °C or less in suction lines and equivalent to -17.2 °C in liquid lines. To increase the velocity and assure proper oil return, install smaller diameter vertical risers on suction lines.

.2 On the riser suction, supply and install a "P" trap on the bottom and the top of the riser suction which exceed 4570 mm. Install a double "P" trap at each 4570 mm riser suction.

.3 All refrigerant piping: Type "L", hard copper with "Silfos" brazed joints, verified free of leaks. Thoroughly dehydrate piping before charging with refrigerant. Supply and install a vibration eliminator on each refrigeration line.

.4 Insulate all refrigerant lines with "Armaflex" (Type-AP), 13 mm thick for refrigerators and 19 mm thick for freezers. All joints to be sealed with a glue approved by the manufacturer. Where liquid accumulators are specified, insulate these in the same manner. Clamp at every support, with additional clamps as required to prevent vibration or to keep lines from touching together. Clip with metal band over Armaflex to keep clamp from compressing insulation.

.5 Supply and install "Unistrutt" piping supports with accessories from the same manufacturer. Where there is a possibility of vibration in the suction lines and backflow near the compressor, use "Hydra-Zorb" attachments from the same manufacturer.

.6 Insulate all refrigerant lines which are installed on the outside with Armaflex, 13 mm thick for refrigerators and 19 mm thick for freezers. This case closed on three (3) sides must be of stainless steel between the condensing units and the building and must be built to support the weight of the snow and the ice. Supply and install the required stainless steel supports.

Part 3 Execution

3.1 MATERIALS

.1 Stainless steel:

Specifications: ASTM-A167-99, type 304 cold rolled and sealed with #4 finish on one (1) side.

Use only stainless steels nuts, bolts, screws, washers, and all other hardware.

Metal thickness as specified on plans and specifications.

3.2 WELDING

.1 Method: Electric, seamless, under inert gas atmosphere. Welding shall conform to the requirements of the C.S.A.

.2 Composition: Use type 304 stainless steel rods so that deposited and original metals have the same composition.

3.3 COOPERATION

.1 Supply any services, items or equipment that require "building-in" or overlapping coordination to all other trades in sufficient time. Also, notify other trades of exact locations of floor depressions, conducts, anchors required.

3.4 PROTECTION AND REPAIR

.1 Properly and efficiently protect all work against damage.

.2 Repair any damage to equipment and/or building immediately, with no extra charge.

3.5 DELIVERY, STORAGE AND HANDLING EQUIPMENT

.1 Coordinate the delivery, storage and handling of food service equipment with the General Contractor.

3.6 INSTALLATION

.1 Supervision: Provide a competent site supervisor experienced in food service equipment assembly and installation.

.2 Requirements: Install equipment in accordance with all building and safety codes, and with the manufacturers recommendations.

3.7 INSPECTION AND REJECTION

.1 The Ministerial Representative reserves the right to inspect the fabrication at the fabricating plant; they may reject any equipment which does not comply with drawings and/or specifications. Replace all rejected materials or equipment within ten (10) days and with no extra charge.

3.8 TESTING

.1 Factory test and verify all equipment.

.2 Calibrate and balance all refrigeration systems.

3.9 CLEANING

.1 Cooperate at all times with the General Contractor to keep the area of operation clean and free of all rubbish and debris. At the end, clean all equipment to permit immediate use without further cleaning.

3.10 DEMONSTRATION AND MAINTENANCE

.1 Convene each manufacturer's representative as soon as you receive the schedule of the demonstration and operational sessions on date as indicated on the Ministerial Representative notice. The training, demonstration and operational sessions also include all information related to the maintenance instruction.

Part 4 Description of items

a) All doors for walk-in cold rooms or freezer room must be equipped with « Best Lock barrel » lock with a 7 pins, interchangeable cylinder type "N".

b) As mentioned in the general specifications and strictly not limited to, supply and install all required covers on refrigeration lines located on the roof as well as ties to various media devices provided by the general contractor as per architect's documents.

c) For all carceral areas, fasteners will type "screw vandal" where it applies or completely welded and polished.

d) IMPORTANT NOTE: All electrical wires related to our discipline (Food Service – Walk-in coolers and freezers Section 11 41 10) and which are located on top of the cold rooms will all be protected inside a rigid conduit and sealed.

.1 STORAGE

#E101 WALK-IN COLD ROOM (-1 °C)

.1 Quantity: One (1).

.2 Dimensions: 5443 mm x 4013 mm x 2590 mm high.

.3 Construction: Sandwich type 75 mm thick insulated panels. Exterior and interior finishes are made of white enamelled steel and are non-textured. Insulated panels and cam-type fixation devices shall meet actual standards. Refer to details #RA-1A, #RB-6, #RB-6A, #RV-4, #RX-2 and #RX-4 on sheet #I-09 and #I-10. Refer to detailed layouts on sheets #I-01, #I-02, #I-03, #I-07, and to section and elevation sheet #I-08. Refer to general specification, part 2 - Products, clause 2.1. Multiple 1220 mm long «LED» lights and fixtures.

.4 Temperature: -1 °C.

.5 Description of blower coil: « Low Silhouette » model, Blower coil entirely built of non-corrosive materials exterior is white baked enamel. The fan motors are permanently lubricated with thermal overload protection and built-in heat exchanger. Blower coil specified with electric defrost complete with time clock, fan delay thermostat and defrost termination thermostat. Supply and install non-corrosive, cadmium-plated steel support rods. Install time clock on top of cold room. Supply and install all interwiring for time clock. The blower coil is complete with securable disconnect switch integrated in the unit.

.6 Dimensions of blower coil: 2340 mm x 355 mm x 420 mm high. - Four (4) fans.

.7 Door: 865 mm wide (complete with window of 380 mm x 510 mm). Supply and install a 1220 mm high stainless steel plate solidly fixed on each side of the door.

.8 Notes:
- .1 The disconnect switch must have a clearance of 1 meter on front.
- .2 Disconnect switch integrated to the unit.
- .3 Electrical defrost.
- .4 One (1) Electrical contactor Standard Lovato.
- .5 Liquid solenoid - 13 mm factory installed 240 V.
- .6 White enameled exterior finish.
- .7 Accessory #TXV – Standard 0-9 Tons (factory installed).

#E102 CONDENSING UNIT FOR ITEM #E101

.1 Quantity: One (1). Unit installed on roof.

.2 Model: Air cooled condensing unit (Outdoor horizontal air flow), Semi-Hermetic compressor model of 3 HP including R404A cooling fluid - 1M4.

.3 Compressor: With air cooled calender including a «real» separate sub-cooling circuit. With reservoir adapted to required refrigerant charges. Factory assembled on a galvanized steel frame. Refer to general specification, part 2 - Products, clause 2.2.
- .1 Receiver : 19 lb
- .2 Suction : 22 mm, isolated 13 mm thick
- .3 Suction riser: 22 mm, isolated 13 mm thick
- .4 Liquid: 13 mm, exterior isolated 13 mm thick

.4 Options and accessories:
- .1 Discharge check valve.
- .2 Discharge thermostat on compressor - Standard RTH-0012 (required when ambient temperature is over 41 °C).
- .3 Disconnect - fused 030A.
- .4 Flooding valve - adjustable ORI-6 and ORD-4.
- .5 Liquid line kit - standard 13 mm (sealed liquid line drier and sight glass / moisture indicator factory installed).
- .6 Liquid line kit solenoid - Standard solenoid 13 mm (240 V) (supplied by the manufacturer, but installed on site near blower coil by the refrigeration contractor).
- .7 Winterization kit complete with housing heater - 75W Standard.
- .8 Oversized Receiver.
- .9 Pressure controls - adjustable dual pressure controls complete with super hoses
- .10 Replaceable filter on suction line - RPL 22 mm.
- .11 Transformer - Standard 240 V.
- .12 Liquid accumulator on suction line with heat exchanger in the case of freezer.
- .13 Oil separator « Temprite » coalescing with isolated and heated retaining valve.
- .14 Adjustable discharge pressure valve.

.15 Switch with breaker.
.16 Electrical defrost timer with contactor for ventilator and contactor for defrost element. Timer must be located on top of walk-in cold room and must be easily accessible.
.17 The condenser must be cleanable.
.18 Legs included for each corner.
.19 Voltage is 600 V, 3 Phases.

.5 Notes:
.1 The condensing unit shall be complete and shall include all required accessories for an optimal operation.
.2 One (1) isolated and heated receiver as per mentioned capacity.
.3 All required accessories for liquid lines.

.6 Additional installation notes:
.1 On the suction riser, there should be a bottom hatch and a high-style «P-Trap» on exceeding risers of 4570 mm in height. At the time, install a double hatch at every 4570 mm of suction riser.
.2 All external refrigerant lines is isolated, the thickness of the insulation is as mentioned with aluminum covering. At the interior, if refrigerant lines are apparent, they shall be covered with white PVC.

#E103 WALK-IN FREEZER ROOM (-18 °C)

.1 Quantity: One (1).

.2 Dimensions: 4927 mm x 4013 mm x 2590 mm high.

.3 Construction: Sandwich type 75 mm thick insulated panels. Exterior and interior finishes are made of white enamelled steel and are non-textured. Insulated panels and cam-type fixation devices shall meet actual standards. Refer to details #RA-1A, #RB-6, #RB-6A, #RV-4, #RX-2 and #RX-4 on sheets #I-09 and I-10. Refer to detailed layouts on sheets #I-01, #I-02, #I-03, #I-07 and to section and elevation sheet #I-08. Refer to general specification, part 2 - Products, clause 2.1. Multiple 1220 mm long «LED» lights and fixtures.

.4 Temperature: -18 °C.

.5 Description of blower coil: « Low Silhouette » model, Blower coil entirely built of non-corrosive materials exterior is white baked enamel. The fan motors are permanently lubricated with thermal overload protection and built-in heat exchanger. Blower coil specified with electric defrost complete with time clock, fan delay thermostat and defrost termination thermostat. Supply and install non-corrosive, cadmium-plated steel support rods. Install time clock on top of cold room. Supply and install all interwiring for time clock. The blower coil is complete with securable disconnect switch integrated in the unit. Four (4) fins per inch.

.6 Dimensions de blower coil: 2845 mm x 355 mm x 420 mm high. - Five (5) fans.

.7 Door: 865 mm wide (without window). Supply and install a 1220 mm high stainless steel plate solidly fixed on each side of the door.

.8 Notes:
- .1 The disconnect switch must have a clearance of 1 meter on front.
- .2 Disconnect switch integrated to the unit.
- .3 Electrical defrost.
- .4 One (1) Electrical contactor Standard Lovato.
- .5 Liquid solenoid - 13 mm factory installed 240 V.
- .6 White enameled exterior finish.
- .7 Accessory #TXV – Standard 0-9 Tons (factory installed).

#E104 CONDENSING UNIT FOR ITEM #E103

.1 Quantity: One (1). Unit installed on roof.

.2 Model: Air cooled condensing unit (Outdoor horizontal air flow), Semi-Hermetic compressor model of 5 HP including R404A cooling fluid – 1L4.

.3 Compressor: With air cooled calender including a «real» separate sub-cooling circuit. With reservoir adapted to required refrigerant charges. Factory assembled on a galvanized steel frame. Refer to general specification, part 2 - Products, clause 2.2.
- .1 Receiver: 24 lb
- .2 Suction : 35 mm, isolated 19 mm thick
- .3 Suction riser: 22 mm, isolated 19 mm thick
- .4 Liquid: 16 mm, exterior isolated 13 mm thick, starting from the accumulator to the blower coil.

.4 Options and accessories:
- .1 Discharge check valve.
- .2 Discharge thermostat on compressor - Standard RTH-0012 (required when ambient temperature is over 41 °C).
- .3 Disconnect - fused 030A.
- .4 Flooding valve - adjustable ORI-10 and ORD-4.
- .5 Liquid line kit - standard 16 mm (sealed liquid line drier and sight glass / moisture indicator factory installed).
- .6 Liquid line kit solenoid - Standard solenoid 16 mm (240 V) (supplied by the refrigeration manufacturer, but installed on site near blower coil by the refrigeration contractor).
- .7 Winterization kit complete with housing heater - 75W Standard.
- .8 Pressure controls - adjustable dual pressure controls complete with super hoses.
- .9 Replaceable filter on suction line - RPL (LT) 35 mm.
- .10 Transformator - Standard 240 V.

.11 Liquid accumulator on suction line with heat exchanger in the case of freezer.
.12 Oil separator « Temprite » coalescing with isolated and heated retaining valve.
.13 Adjustable discharge pressure valve.
.14 Switch with breaker.
.15 Electrical defrost timer with contactor for ventilator and contactor for defrost element. Timer must be located on top of walk-in cold room and must be easily accessible.
.16 The condenser must be cleanable.
.17 Legs included for each corner.
.18 Voltage is 600 V, 3 Phases.

.5 Notes:
.1 The condensing unit shall be complete and shall include all required accessories for an optimal operation.
.2 One (1) isolated and heated receiver as per mentioned capacity.
.3 All required accessories for liquid lines.

.6 Additional installation notes:
.1 On the suction riser, there should be a bottom hatch and a high-style «P-Trap» on exceeding risers of 4570 mm in height. At the time, install a double hatch at every 4570 mm of suction riser.
.2 All external refrigerant lines is isolated, the thickness of the insulation is as mentioned with aluminum covering. At the interior, if refrigerant lines are apparent, they shall be covered with white PVC.

#E105 WALK-IN COLD ROOM (3 °C)

.1 Quantity: One (1).

.2 Dimensions: 4927 mm x 4013 mm x 2590 mm high.

.3 Construction: Sandwich type 75 mm thick insulated panels. Exterior and interior finishes are made of white enamelled steel and are non-textured. Insulated panels and cam-type fixation devices shall meet actual standards. Refer to details #RA-1A, #RB-3A, #RX-2 and #RX-4 on sheets #I-09 and #I-10. Refer to detailed layouts on sheets #I-01, #I-02, #I-03, #I-07 and to section and elevation sheet #I-08. Refer to general specification, part 2 - Products, clause 2.1. Multiple 1220 mm long «LED» lights and fixtures.

.4 Temperature: 3 °C.

.5 Description of blower coil: « Low Silhouette » model, Blower coil entirely built of non-corrosive materials exterior is white baked enamel. The fan motors are permanently lubricated with thermal overload protection and built-in heat exchanger. Blower coil specified with electric defrost complete with time clock, fan delay thermostat and defrost termination thermostat. Supply and install non-corrosive, cadmium-plated steel support rods. Install time clock on top of cold room. Supply and install all interwiring for time clock. The blower coil is complete with securable disconnect switch integrated in the unit.

.6 Dimensions of blower coil: 1830 mm x 355 mm x 420 mm high. - Three (3) fans.

.7 Door: 865 mm wide (complete with window of 380 mm x 510 mm). Supply and install a 1220 mm high stainless steel plate solidly fixed on each side of the door.

.8 Notes:
- .1 The disconnect switch must have a clearance of 1 meter on front.
- .2 Disconnect switch integrated to the unit.
- .3 Electrical defrost.
- .4 One (1) Electrical contactor Standard Lovato.
- .5 Liquid solenoid - 13 mm factory installed 240 V.
- .6 White enameled exterior finish.
- .7 Accessory #TXV – Standard 0-9 Tons (factory installed).

#E106 CONDENSING UNIT FOR ITEM #E105

.1 Quantity: One (1). Unit installed on roof.

.2 Model: Air cooled condensing unit (Outdoor horizontal air flow), Semi-Hermetic compressor model of 2 HP including R404A cooling fluid – 5E4.

.3 Compressor: With air cooled calender including a «real» separate sub-cooling circuit. With reservoir adapted to required refrigerant charges. Factory assembled on a galvanized steel frame. Refer to general specification, part 2 - Products, clause 2.2.
- .1 Receiver: 14 lb
- .2 Suction : 22 mm, isolated 13 mm thick
- .3 Suction riser: 22 mm, isolated 13 mm thick
- .4 Liquid: 10 mm, exterior isolated 13 mm thick, starting from the accumulator to the blower coil.

.4 Options and accessories:
- .1 Discharge check valve.
- .2 Discharge thermostat on compressor - Standard RTH-0012 (required when ambient temperature is over 41 °C).
- .3 Disconnect - fused 030A.
- .4 Flooding valve - adjustable ORI-6 and ORD-4.

.5 Liquid line kit - standard 13 mm (sealed liquid line drier and sight glass / moisture indicator factory installed).
.6 Liquid line kit solenoid - Standard solenoid 10 mm (240 V) (supplied by the refrigeration manufacturer, but installed on site near blower coil by the refrigeration contractor).
.7 Winterization kit complete with housing heater - 75W Standard.
.8 Oversized Receiver.
.9 Pressure controls - adjustable dual pressure controls complete with super hoses.
.10 Replaceable filter on suction line – Standard 22 mm.
.11 Transformator - Standard 240 V.
.12 Oil separator « Temprite » coalescing with isolated and heated retaining valve.
.13 Adjustable discharge pressure valve.
.14 Switch with breaker.
.15 Electrical defrost timer with contactor for ventilator and contactor for defrost element. Timer must be located on top of walk-in cold room and must be easily accessible.
.16 The condenser must be cleanable.
.17 Legs included for each corner.
.18 Voltage is 600 V, 3 Phases.

.5 Notes:
.1 The condensing unit shall be complete and shall include all required accessories for an optimal operation.
.2 One (1) isolated and heated receiver as per mentioned capacity.
.3 All required accessories for liquid lines.

.6 Additional installation notes:
.1 On the suction riser, there should be a bottom hatch and a high-style «P-Trap» on exceeding risers of 4570 mm in height. At the time, install a double hatch at every 4570 mm of suction riser.
.2 All external refrigerant lines is isolated, the thickness of the insulation is as mentioned with aluminum covering. At the interior, if refrigerant lines are apparent, they shall be covered with white PVC.

#E111 VENTILATOR

.1 Quantity: Four (4).

.2 Approximative dimensions (Over size): 248 mm x 283 mm x 270 mm high.

.3 Description: Utility ventilator squirel type housing with low noise levels. Direct connection to unit. Designed for easy installation. Works up to 375 CFM in low static systems (to 0.125 inch of water column). Works on 120 Volts. Prelubricated bearings – no further lubrication required. Built in automatic reset thermal protector. Mount in horizontal or vertical position. Conduit wiring box. Duct collard inlet. Quiet operating forwardly curved zinc coated blower wheel. Quiet operating forwardly curved zinc coated blower wheel. Base slotted for 4 rubber blower feet. Rugged steel blower housings with baked green enamel finish. Motor side access plate for motor and wheel servicing removal.

The blower's opening must be connected to the ventilation duct, items #E112 or #E112A. All seams must be sealed between the blower and the ventilation duct.

.4 Note: The ventilator must operate all day long and 7 days a week.

#E111A VENTILATOR

.1 Quantity: One (1).

.2 Approximative dimensions (Over size): 248 mm x 283 mm x 270 mm high.

.3 Description: Utility ventilator squirel type housing with low noise levels. Direct connection to unit. Designed for easy installation. Works up to 375 CFM in low static systems (to 0.125 inch of water column). Works on 120 Volts. Prelubricated bearings – no further lubrication required. Built in automatic reset thermal protector. Mount in horizontal or vertical position. Conduit wiring box. Duct collard inlet. Quiet operating forwardly curved zinc coated blower wheel. Quiet operating forwardly curved zinc coated blower wheel. Base slotted for 4 rubber blower feet. Rugged steel blower housings with baked green enamel finish. Motor side access plate for motor and wheel servicing removal.

The blower opening must be connected to the ventilation duct, items #E112 or #E112A. All seams must be sealed between the blower and the ventilation duct.

.4 Note: The ventilator must operate all day long and 7 days a week.

#E114 VENTILATED FLOOR

.1 Quantity: Two (2).

.2 Dimensions:
- .1 One (1) of 5355 mm x 3838 mm.
- .2 One (1) of 4852 m x 3838 mm.

.3 Description: Refer to details #RB-6A and #RV-4 on sheets #I-09 and #I-10. The two areas are independent of each other only under the insulated floor of the walk-in cold rooms. This to prevent the air blown by the ventilators #E111 not to be found in an adjacent area, which would prevent the adjacent side of being well ventilated. There are two ventilators #E111 by area.

.9 WALK-IN COLD ROOM FOR GARBAGE

#E900 WALK-IN COLD ROOM FOR GARBAGE (4 °C)

.1 Quantity: One (1).

.2 Dimensions: 2900 mm x 1557 mm x 2590 mm high.

.3 Construction: Sandwich type 75 mm thick insulated panels. Exterior and interior finishes are made of white enamelled steel and are non-textured. Insulated panels and cam-type fixation devices shall meet actual standards. Refer to details #RA-1A, #RB-3, #RX-2, #RX-3 and #RX-4 on sheet #I-09 and #I-10. Refer to detailed layouts on sheets #I-01, #I-02, #I-03, #I-07 and to section and elevation sheet #I-08. Refer to general specification, part 2 - Products, clause 2.1. Multiple 1220 mm long «LED» lights and fixtures.

.4 Temperature: 4 °C.

.5 Description of blower coil: « Low Silhouette » model, Blower coil entirely built of non-corrosive materials exterior is white baked enamel. The fan motors are permanently lubricated with thermal overload protection and built-in heat exchanger. Blower coil specified with electric defrost complete with time clock, fan delay thermostat and defrost termination thermostat. Supply and install non-corrosive, cadmium-plated steel support rods. Install time clock on top of cold room. Supply and install all interwiring for time clock. The blower coil is complete with securable disconnect switch integrated in the unit.

.6 Dimensions of blower coil: 813 mm x 355 mm x 420 mm high. - One (1) fan.

.7 Sliding type door: 915 mm opening (complete with window of 380 mm x 510 mm). Door handle complete with special trigger. Supply and install a 1220 mm high stainless steel plate solidly fixed on each side of the door.

.8 Notes:
- .1 The disconnect switch must have a clearance of 1 meter on front.
- .2 Disconnect switch integrated to the unit.
- .3 Electrical defrost.
- .4 One (1) Electrical contactor Standard Lovato.
- .5 Liquid solenoid - 13 mm factory installed 240 V.
- .6 White enameled exterior finish.
- .7 Accessory #TXV – Standard 0-9 Tons (factory installed).

#E901 CONDENSING UNIT FOR ITEM #E900

.1 Quantity: One (1). Unit installed on roof.

.2 Model: Air cooled condensing unit (Outdoor horizontal air flow), Semi-Hermetic compressor model of 3/4 HP including R404A cooling fluid – 1M4.

.3 Compressor: With air cooled calender including a «real» separate sub-cooling circuit. With reservoir adapted to required refrigerant charges. Factory assembled on a galvanized steel frame. Refer to general specification, part 2 - Products, clause 2.2.
- .1 Receiver: 5 lb
- .2 Suction : 16 mm, isolated 13 mm thick
- .3 Suction riser: 13 mm, isolated 13 mm thick
- .4 Liquid: 10 mm, exterior isolated 13 mm thick.

.4 Options and accessories:
- .1 Discharge check valve.
- .2 Discharge thermostat on compressor - Standard RTH-0012 (required when ambient temperature is over 41 °C).
- .3 Disconnect – Non-fused 030A.
- .4 Flooding valve - adjustable ORI-6 and ORD-4.
- .5 Liquid line kit - standard 10 mm (sealed liquid line drier and sight glass / moisture indicator factory installed).
- .6 Liquid line kit solenoid - Standard solenoid 10 mm (240 V) (supplied by the refrigeration manufacturer, but installed on site near blower coil by the refrigeration contractor).
- .7 Winterization kit complete with housing heater - 75W Standard.
- .8 Oversized Receiver.
- .9 Pressure controls - adjustable dual pressure controls complete with super hoses.
- .10 Replaceable filter on suction line – Standard 13 mm.
- .11 Oil separator « Temprite » coalescing with isolated and heated retaining valve.
- .12 Adjustable discharge pressure valve.
- .13 Switch with breaker.
- .14 Electrical defrost timer with contactor for ventilator and contactor for defrost element. Timer must be located on top of walk-in cold room and must be easily accessible.
- .15 The condenser must be cleanable.
- .16 Legs included for each corner.
- .17 Voltage is 208 V, 1 Phase.

.5 Notes:
- .1 The condensing unit shall be complete and shall include all required accessories for an optimal operation.
- .2 One (1) isolated and heated receiver as per mentioned capacity.
- .3 All required accessories for liquid lines.

.6 Additional installation notes:

.1 On the suction riser, there should be a bottom hatch and a high-style «P-Trap» on exceeding risers of 4570 mm in height. At the time, install a double hatch at every 4570 mm of suction riser.

.2 All external refrigerant lines is isolated, the thickness of the insulation is as mentioned with aluminum covering. At the interior, if refrigerant lines are apparent, they shall be covered with white PVC.