



Travaux publics et
Services gouvernementaux
Canada

Public Works and
Government Services
Canada

CANADA BORDER SERVICES AGENCY COLLEGE (CBSA)
KENNEL EXPANSION AND CONSTRUCTION OF A NEW TRAINING
HANGAR

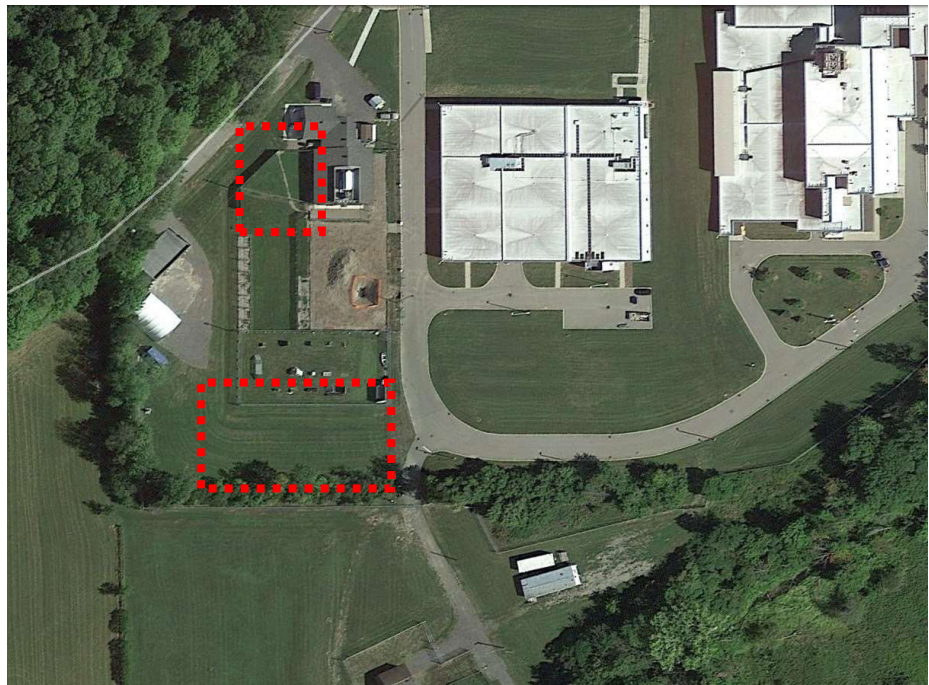
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VOLUME 1

GENERAL REQUIREMENTS / ARCHITECTURAL SPECIFICATIONS

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ENGINEERS

STANTEC

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ALL: All disciplines

A: Architecture

C: Civil

E: Electrical

M: Mechanical

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Part 1 General**1.1 WORK BY OTHERS**

- .1 Co-operate with other sub-contractors in carrying out their respective works and carry out instructions from the Departmental Representative.
- .2 Co-ordinate work with that of other Contractors. If any part of work under this Contract depends for its proper execution or result upon work of another Contractor, report promptly to the Departmental Representative, in writing, any defects which may interfere with proper execution of Work.

1.2 FUTURE WORK

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

1.3 WORK SEQUENCE

- .1 Construct Work in stages to accommodate Departmental Representative use of premises during construction.
- .2 Co-ordinate Progress Schedule with the Departmental Representative.
- .3 Construct Work in stages to provide for continuous public usage. Do not close off public usage of facilities until use of one stage of Work will provide alternate usage.
- .4 Not used.
- .5 Maintain fire access/control.

1.4 CONTRACTOR USE OF PREMISES

- .1 Limit use of premises for Work, for storage, and for access, to allow:
 - .1 The Departmental Representative on site occupancy.
- .2 Co-ordinate use of premises under direction of the Departmental Representative.
- .3 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.
- .4 Remove or alter existing work to prevent injury or damage to portions of existing work which remain.
- .5 Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as directed by the Departmental Representative.
- .6 At completion of operations condition of existing work: equal to or better than that which existed before new work started.

1.5 OCCUPANCY BY THE DEPARTMENTAL REPRESENTATIVE

- .1 The Departmental Representative will occupy premises during entire construction period for execution of normal operations.
- .2 Co-operate with the Departmental Representative in scheduling operations to minimize conflict and to facilitate the Departmental Representative usage.

1.6 PARTIAL OCCUPANCY BY THE DEPARTMENTAL REPRESENTATIVE

- .1 Not used.

1.7 ITEMS SUPPLIED BY THE DEPARTMENTAL REPRESENTATIVE

- .1 Departmental Representative Responsibilities:
 - .1 Not used.
- .2 Contractor Responsibilities:
 - .1 Not used.
- .3 List of the Departmental Representative furnished items:
 - .1 Not used.

1.8 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING

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

1.9 EXISTING UTILITY SERVICES

- .1 Notify the 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 the Departmental Representative 48 hours notice for necessary interruption of mechanical or electrical service throughout course of work. Minimize duration of interruptions. Carry out work at times as directed by governing authorities with minimum disturbance to pedestrian, vehicular traffic and tenant operations.
- .3 Provide alternative routes for personnel and vehicular traffic.
- .4 Establish location and extent of service lines in area of work before starting Work. Notify the Departmental Representative of findings.
- .5 Submit schedule to and obtain approval from the 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.
- .6 Provide temporary services when directed by the Departmental Representative to maintain critical building and tenant systems.
- .7 Provide adequate bridging over trenches which cross sidewalks or roads to permit normal traffic.
- .8 Where unknown services are encountered, immediately advise the Departmental Representative and confirm findings in writing.
- .9 Protect, relocate or maintain existing active services. When inactive services are encountered, cap off in manner approved by authorities having jurisdiction.
- .10 Record locations of maintained, re-routed and abandoned service lines.
- .11 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

1.10 REQUIRED DOCUMENTS

- .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.

1.11 DEFINITIONS

- .1 When the words "approval", "approved", "indication", "indicated", "choice", "chosen", "request", "requested", "report" and other similar words are used in this quote. , these approvals, indications, choices, requests and reports must be provided by the Ministerial Representative.
- .2 When, in the Contractual Documents, it is specified that the work must be performed following the approval, indication, choice or request of the competent authorities or others, this approval, indication, choice or request must be given by written.
- .3 When the words "provide", "apply" or "install", "build" or "construction" are used, they mean the erection, construction, development, repair, repair or demolition of a work, or any work involving the supply and installation of goods including any labor, product, material and service required.
- .4 When the expressions "as indicated" or "if indicated otherwise" are used, they mean "indicated in the drawings, tables or elsewhere in the specifications".
- .5 The expressions "plans" and "drawings" have been used interchangeably in the Contractual Documents and both designate the "drawings" listed in the list of drawings.
- .6 When the expression "Acceptable product" is used in this estimate, it means "Product or material acceptable to the Ministerial Representative", and does not exclude the submission of comparable products according to the prescriptions of this estimate - See also Section 01 60 00.
- .7 When the word "estimate" is used, it always means the specifications or the technical description of the products, materials and their installation.
- .8 The expressions "Work" and "works" have been used interchangeably in the Contractual Documents and designate the same concept. The Work includes the materials, scaffolding, labor, tools, equipment, machinery, transportation, temporary works, temporary services and supervision necessary for the execution of the work. architecture, civil, structural, mechanical and electrical, all as indicated in the drawings, specifications and documents mentioned in these specifications, including the works and services implicitly required and necessary for the completion of the work, as well as all necessary interventions in areas not included in the structure, but affected by related works, and all repairs resulting from demolition works, with new materials compatible or identical to the existing one.
- .9 The expressions "Site", "Site" and "Place of work" or "Place of work" have been used interchangeably in the Contractual Documents and designate the same concept.

- .10 When the words "build" or "construction" are used, they mean the erection, construction, layout, repair, repair or demolition of a work, or any work involving the supply and installation of goods including all labor, product, material and service required.

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 35 13 - Security requirements
- .2 Section 01 52 00 - Construction facilities

1.2 ACCESS AND EGRESS

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

1.3 USE OF SITE AND FACILITIES

- .1 Execute work with least possible interference or disturbance to normal use of premises. Make arrangements with the 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 The Departmental Representative will not assign sanitary facilities for use by Contractor's personnel. The contractor must have its own facilities and must maintain them in order.
- .5 Closures: protect work temporarily until permanent enclosures are completed.

1.4 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING

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

1.5 EXISTING SERVICES

- .1 Notify the 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 the Departmental Representative 48 hours of notice for necessary interruption of mechanical or electrical service throughout course of work. Keep duration of interruptions minimum. Carry out interruptions after normal working hours of occupants, preferably on weekends.
- .3 Provide for personnel and vehicular traffic.
- .4 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

1.6 SPECIAL REQUIREMENTS

- .1 Submit schedule in accordance with Section 01 32 16.07 - Construction Progress Schedules - Bar (GANTT) Chart.
 - .2 Ensure that Contractor personnel employed on site become familiar with and obey regulations including safety, fire, traffic and security regulations.
 - .3 Keep within limits of work and avenues of ingress and egress.
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1.7 SECURITY CLEARANCES

- .1 Personnel employed on this project will be subject to security check. Obtain clearance, as instructed, for each individual who will require to enter premises.
- .2 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.
- .3 Each week, the contractor will be required to provide a list of employees who will need access to the site. These employees will need to identify themselves with security every time they seek access to the site. Authorized parking will be designated for the Contractor's vehicles, as well as personal vehicles of its employees. Vehicle access to the site is controlled at the entrance by a gate and security agents, so a list of planned supply companies/deliveries will also have to be provided, to the security to allow the entry of deliveries to the site. Deliveries must be in the contractor's name.
- 1. The Contractor will be required to follow all instructions from CBSA security officers regarding safety and access to the site.

1.8 BUILDING SMOKING ENVIRONMENT

- .1 Comply with smoking restrictions. Smoking is not allowed on the premises.

1.9 WORKING HOURS

- .1 Work week is from Monday to Friday, 7:00 to 18:00 every day.
- .2 Work is not permitted on weekends or statutory holidays without the express permission of the Departmental Representative, which must be requested at least seven days in advance.

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 ADMINISTRATIVE

- .1 The Departmental Representative will schedule and administer project meetings throughout the progress of the work.
- .2 The Departmental Representative will prepare agenda for meetings.
- .3 The Departmental Representative will distribute written notice of each meeting four days in advance of meeting date.
- .4 The Contractor will provide a physical space for meetings.
- .5 The Departmental Representative will preside at meetings.
- .6 The Departmental Representative will record the meeting minutes. Include significant proceedings and decisions. Identify actions by parties.
- .7 The Departmental Representative will reproduce and distribute copies of minutes via e-mail within five days after meetings and transmit to meeting participants.
- .8 Representative of Contractor, Subcontractor and suppliers attending meetings will be qualified and authorized to act on behalf of party each represents.

1.3 PRECONSTRUCTION MEETING

- .1 Within 15 days after award of Contract, the Departmental Representative will request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.
- .2 Besides the Departmental Representative, Contractor, major Subcontractors, field inspectors and will be in attendance.
- .3 The Departmental Representative will establish time and location of meeting and notify parties concerned minimum 5 days before meeting.
- .4 The Departmental Representative will 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 Schedules - Bar (GANTT) Chart.
 - .3 Schedule of submission of shop drawings, samples, colour chips. Submit submittals in accordance with Section 01 33 00 - Submittal Procedures.
 - .4 Requirements for temporary facilities, site sign, offices, storage sheds, utilities, fences in accordance with Section 01 52 00 - Construction Facilities.
 - .5 Delivery schedule of specified equipment in accordance with departmental representative requirements.
 - .6 Site security in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.
 - .7 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, administrative requirements.
 - .8 Owner provided products.

- .9 Record drawings in accordance with Section 01 33 00 - Submittal Procedures.
- .10 Maintenance manuals in accordance with Section 01 78 00 - Closeout Submittals.
- .11 Take-over procedures, acceptance, warranties in accordance with Section 01 78 00 - Closeout Submittals.
- .12 Monthly progress claims, administrative procedures, photographs, hold backs.
- .13 Appointment of inspection and testing agencies or firms.
- .14 Insurances, transcript of policies.

1.4 PROGRESS MEETINGS

- .1 During course of Work and two weeks prior to project completion, the Departmental Representative will schedule progress meetings every two weeks.
- .2 Contractor, major Subcontractors involved in Work the Departmental Representative and are to be in attendance.
- .3 The Departmental Representative will notify parties minimum four days prior to meetings.
- .4 The Departmental Representative will record minutes of meetings and circulate to attending parties and affected parties not in attendance within five days after meeting.
- .5 Agenda to include the following:
 - .1 Review, approval of minutes of previous meeting.
 - .2 Review of Work progress since previous meeting.
 - .3 Field observations, problems, conflicts.
 - .4 Problems which impede construction schedule.
 - .5 Review of off-site fabrication delivery schedules.
 - .6 Corrective measures and procedures to regain projected schedule.
 - .7 Revision to construction schedule.
 - .8 Progress schedule, during succeeding work period.
 - .9 Review submittal schedules: expedite as required.
 - .10 Maintenance of quality standards.
 - .11 Review proposed changes for affect on construction schedule and on completion date.
 - .12 Other business.

Part 2 Products

2.1 NOT 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 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 the Departmental Representative to enable monitoring of project work in relation to established milestones.

1.3 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.

1.4 SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit to the Departmental Representative within five 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 the Departmental Representative within 5 working days of receipt of acceptance of Master Plan.

1.5 MASTER PLAN

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

1.6 PROJECT SCHEDULE

- .1 Develop detailed Project Schedule derived from Master Plan.
- .2 Ensure detailed Project Schedule includes as minimum milestone and activity types as follows (if applicable):
 - .1 Award.
 - .2 Shop Drawings, Samples.
 - .3 Permits.
 - .4 Mobilization.
 - .5 Excavation.
 - .6 Backfill.
 - .7 Building footings.
 - .8 Slab on grade.
 - .9 Structural Steel.
 - .10 Siding and Roofing.
 - .11 Interior Architecture (Walls, Floors and Ceiling).
 - .12 Plumbing.
 - .13 Lighting.
 - .14 Electrical.
 - .15 Piping.
 - .16 Controls.
 - .17 Heating, Ventilating, and Air Conditioning.
 - .18 Millwork.
 - .19 Fire Systems.
 - .20 Testing and Commissioning.
 - .21 Supplied equipment long delivery items.
 - .22 Engineer supplied equipment required dates.

1.7 PROJECT SCHEDULE REPORTING

- .1 Update Project Schedule on a 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.

1.8 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 RELATED REQUIREMENTS**

- .1 Section 01 78 00 – Closeout submittals.
- .2 Section 01 79 00 – Demonstration and training.

1.2 REFERENCES

- .1 Not used.

1.3 ADMINISTRATIVE

- .1 Submit to the Departmental Representative submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .2 Do not proceed with Work affected by submittal until review is complete.
- .3 Present shop drawings, product data, samples and mock-ups in SI Metric units.
- .4 Where items or information is not produced in SI Metric units converted values are acceptable.
- .5 Review submittals prior to submission to the 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 the 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 the Departmental Representative's review of submittals.
- .9 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by the Departmental Representative review.
- .10 Keep one reviewed copy of each submission on site.

1.4 SHOP DRAWINGS AND PRODUCT DATA

- .1 Not used.
- .2 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.
- .3 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Quebec.

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- .4 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.
 - .5 Allow 10 days for the Departmental Representative's review of each submission.
 - .6 Adjustments made on shop drawings by the Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to the Departmental Representative prior to proceeding with Work.
 - .7 Make changes in shop drawings as the Departmental Representative may require, consistent with Contract Documents. When resubmitting, notify the Departmental Representative in writing of revisions other than those requested.
 - .8 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.
 - .9 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.
 - .10 After the Departmental Representative's review, distribute copies.
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- .11 Submit 2 prints of shop drawings for each requirement requested in specification Sections and as the Departmental Representative may reasonably request or 1 electronic copy is accepted by the Departmental Representative.
 - .12 Submit 2 copies of product data sheets or brochures and 1 electronic copy for requirements requested in specification Sections and as requested by the Departmental Representative where shop drawings will not be prepared due to standardized manufacture of product.
 - .13 Submit 1 electronic copy of test reports for requirements requested in specification Sections and as requested by the Departmental Representative.
 - .1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.
 - .2 Testing must have been within 3 years of date of contract award for project.
 - .14 Submit 1 electronic copy of certificates for requirements requested in specification Sections and as requested by the 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.
 - .15 Submit 1 electronic copy of manufacturers instructions for requirements requested in specification Sections and as requested by the 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.
 - .16 Submit 1 electronic copy of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by the Departmental Representative.
 - .17 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
 - .18 Submit 1 electronic copy of Operation and Maintenance Data for requirements requested in specification Sections and as requested by the Departmental Representative.
 - .19 Delete information not applicable to project.
 - .20 Supplement standard information to provide details applicable to project.
 - .21 If upon review by the Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, copies will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.
 - .22 The review of shop drawings by Departmental Representative is for sole purpose of ascertaining conformance with general concept.
 - .1 This review shall not mean that 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.
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- .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.

1.5 SAMPLES

- .1 Submit for review 2 samples in duplicate as requested in respective specification Sections. Label samples with origin and intended use.
- .2 Deliver samples prepaid to the Departmental Representative's.
- .3 Notify the Departmental Representative in writing, at time of submission of deviations in samples from requirements of Contract Documents.
- .4 Where colour, pattern or texture is criterion, submit full range of samples.
- .5 Adjustments made on samples by the Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to the Departmental Representative prior to proceeding with Work.
- .6 Make changes in samples which the 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.

1.6 MOCK-UPS

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

1.7 PHOTOGRAPHIC DOCUMENTATION

- .1 Before beginning the photographic documentation process, an agreement should be concluded with the Departmental representative for the camera to use. A right of inspection of the pictures will apply.
- .2 Submit electronic copy of colour digital photography in jpg format, fine resolution monthly with progress statement and as directed by the Departmental Representative.
- .3 Project identification: name and number of project and date of exposure indicated.
- .4 Number of viewpoints: 4 locations.
 - .1 Viewpoints and their location as determined by the Departmental Representative.
- .5 Frequency of photographic documentation: weekly as directed by the Departmental Representative.

1.8 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 REFERENCES**

- .1 Canada Labour Code - Part II, Canadian Occupational Safety and Health Regulations.
- .2 Canadian Standards Association (CSA)
- .3 Workplace Hazardous Materials Information System (WHMIS)
- .4 Act Respecting Occupational Health and Safety, R.S.Q. Chapter S-2.1.
- .5 Construction Safety Code, S-2.1, r.6.

1.2 SUBMITTALS

- .1 Submit the documents required according to section 01 33 00 - Documents and samples to be submitted.
- .2 Submit to Departmental Representative, the CNESST, the Association paritaire en santé et sécurité du secteur de la construction (ASP Construction), the site-specific safety program, as outlined in 1.8 at least 10 days prior to start of work. The Contractor must review his program during the course of the project if any change occurs in work methods or site conditions. The Departmental Representative may, after receiving the program or at any time during the project, ask the Contractor to update or modify the program in order to better reflect the reality of the construction site and activities. The Contractor must make the required changes before work begins.
- .3 Submit to Departmental Representative within 24 hours a copy of any inspection report, correction notice or recommendation issued by federal or provincial inspectors.
- .4 Submit to Departmental Representative within 24 hours an investigation report for any accident involving injury and any incident exposing a potential hazard.
- .5 Submit to Departmental Representative all safety data sheets for hazardous material to be used at the site at least three days before they are to be used.
- .6 Submit to Departmental Representative copies of all training certificates required for application of the safety program, in particular:
 - .1 General construction site safety and health courses;
 - .2 Safety officer attestations;
 - .3 First aid in the workplace and cardiopulmonary resuscitation;
 - .4 Work likely to release asbestos dust;
 - .5 Work in confined spaces;
 - .6 Lockout procedures;
 - .7 Wearing and fitting of individual protective gear;
 - .8 forklift truck;
 - .9 positioning platform;
 - .10 Any other requirement of Regulations or the safety program.
- .7 Medical examinations : Wherever legislation, regulations, directives, specification or a safety program require medical examinations, Contractor must:

- .1 Prior to start-up, submit to Departmental Representative certificates of medical examination for all concerned supervisory staff and employees who will be on duty when the site opens.
- .2 Thereafter, submit without delay certificates of medical examination for any newly hired concerned personnel as and when they start work at the site.
- .8 Emergency plan : The emergency plan, as defined in 1.8.3, shall be submitted to Departmental Representative at the same time as the site-specific safety program.
- .9 Notice of site opening : Notice of site opening shall be submitted to the *Commission des normes, de l'équité, de la santé et de la sécurité du travail* before work begins. A copy of such notice shall be submitted to Departmental Representative at the same time and another posted in full view at the site. During demobilization, a notice of site closing shall be submitted to the CNESST, with copy to Departmental Representative.
- .10 Plans and certificates of compliance : Submit to the CNESST and to Departmental Representative a copy signed and sealed by engineer of all plans and certificates of compliance required pursuant to the Construction Safety Code (S-2.1, r. 6), or by any other legislation or regulation or by any other clause in the specifications or in this contract. Copies of these documents must be on hand at the site at all times.
- .11 Certificate of compliance delivered by the CNESST: The certificate of compliance is a document delivered by the CNESST confirming that the contractor is in rule with the CNESST, i.e. that he had pay out all the benefits concerning this contract. This document must be delivered to Departmental Representative at the end of the work.

1.3 HAZARDS ASSESSMENT

- .1 The contractor must identify all hazards inherent in each task to be carried out at the site.
- .2 The contractor must plan and organize work so as to eliminate hazards at source or promote mutual protection so that reliance on individual protective gear can be kept to a minimum. Where individual protection against falling is required, workers shall use safety harness that meets standard CAN/CSA- Z259.10 – 2012(R.2016). Safety belts shall not be used as protection against falling.
- .3 Equipment, tools and protective gear which cannot be installed, fitted or used without compromising the health or safety of workers or the public shall be deemed inadequate for the work to be executed.
- .4 All mechanical equipment shall be inspected before delivery to the site. Before using any mechanical equipment, submit to Departmental Representative a certificate of compliance signed by a qualified mechanic. Whenever he suspects a defect or accident risk, Departmental Representative may at any time order the immediate shut-down of equipment and require a new inspection by a specialist of his own choosing.
- .5 For use of equipment for lifting persons or materials, ensure that the inspections required by the standards are met and be able to provide a copy of certificates of inspection upon request of Departmental Representative.

1.4 MEETINGS

- .1 Contractor decisional representative must attend any meetings at which site safety and health issues are to be discussed

- .2 Set up a site safety committee and convene meetings in accordance with the Construction Safety Code (S-2.1, r.6).

1.5 LEGAL AND REGULATORY REQUIREMENTS

- .1 Execute work in accordance with section 01 41 00 – Regulatory requirements.
- .2 Comply with all legislation, regulations and standards applicable to the site and its related activities.
- .3 Comply with specified standards and regulations to ensure safe operations at site containing hazardous or toxic materials.
- .4 Regardless of the publication date shown in the construction safety code, always use the most recent version.

1.6 SITE-SPECIFIC CONDITIONS

- .1 At the site, the contractor must take account of the following specific conditions:
 - .1 Demolition work.
 - .2 Waste disposal.
 - .3 Sealing guns.
 - .4 Thermowelding of membranes.
 - .5 Work at height.
 - .6 Hot work.
 - .7 Material lifting.
 - .8 Welding and cutting.
 - .9 The presence of dogs in residence in the kennel adjacent to the work area.
- .2 The contractor will be responsible for the health and safety of people on site, security of property on site and for the protection of people near the site and the environment to the point that they may be affected by the 'work execution.
- .3 The contractor must comply with and ensure compliance by employees with the security requirements of the contract documents, applicable federal, provincial, territorial and local laws, regulations and orders, and with the site-specific health and safety plan. When there are differences or contradictions in these, the most stringent requirements apply.

1.7 SAFETY AND HEALTH MANAGEMENT

- .1 Acknowledge and assume all the tasks and obligations which customarily devolve upon a principal Contractor under the terms of the Act Respecting Occupational Health and Safety (R.S.Q., chapter S-2.1) and the Construction Safety Code (S-2.1, r.6).
- .2 Develop a site-specific safety program based on the hazards identified and apply it from the start of project work until close-out is completed. The safety program must take account of all information appearing in 1.7 and must be submitted to all parties concerned, in accordance with the provisions set forth in 1.3. At a minimum, the site-specific safety program must include :
 - .1 Company safety and health policy.
 - .2 A description of the work, total costs, schedule and projected workforce curve.
 - .3 Flow chart of safety and health responsibility.
 - .4 The physical and material layout of the site.

- .5 First-aid and first-line treatment standards.
- .6 Identification of site-specific hazards.
- .7 Risk assessment for the tasks to be carried out, including preventive measures and the procedures for applying them.
- .8 Training requirements.
- .9 Procedures in case of accident/injury
- .10 Written commitment from all parties to comply with the prevention program.
- .11 A site inspection schedule based on the preventive measures.
- .3 The contractor must draw up an effective emergency plan based on the characteristics and constraints of the site and its surroundings. Submit the emergency plan to all parties concerned, pursuant to the provisions of 1.3. The emergency plan must include:
 - .1 Evacuation procedure;
 - .2 Identification of resources (police, firefighters, ambulance services, etc.);
 - .3 Identification of persons in charge at the site;
 - .4 Identification of those with first-aid training;
 - .5 Training required for those responsible for applying the plan;
 - .6 Any other information needed, in the light of the site characteristics.

1.8 RESPONSIBILITIES

- .1 No matter the size of the construction site or how many workers are present at the workplace, designate a competent person to supervise and take responsibility for health and safety. Take all necessary measures to ensure the health and safety of persons and property at or in the immediate vicinity of the site and likely to be affected by any of the work.
- .2 Take all necessary measures to ensure application of and compliance with the safety and health requirements of the contract documents, applicable federal and provincial regulations and standards as well as the site-specific safety program, complying without delay with any order or correction notice issued by the Commission de la santé et de la sécurité du travail.
- .3 Take all necessary measures to keep the site clean and in good order throughout the course of the work.

1.9 COMMUNICATIONS AND POSTING

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

- .6 Data sheets for all hazardous material used at the site;
- .7 Minutes of site committee meetings;
- .8 Names of site committee representatives;
- .9 Names of those with first-aid training;
- .10 Action reports and correction notices issued by the CNESST.

1.10 UNFORESEEN CIRCUMSTANCES

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

1.11 HEALTH AND SECURITY EXPERT

- .1 Hire 2 security officers (1 principal and 1 substitute in case of absence) at the start of the work, in accordance with the provisions of articles 2.5.3 and 2.5.4 of the Safety Code for the construction industry (S-2.1 , r. 6) and grant it the authority and the resources necessary for the exercise of its functions, including the authority to stop work for health and safety reasons.
- .2 Hire a competent person at the start of the work, whose task will be to ensure compliance with and the application of all laws, regulations and standards as well as contractual requirements in the fields of architecture and engineering.
- .3 Give this person the authority, resources and tools necessary to accomplish his task.
- .4 The chosen person must meet the requirements of:
 - .1 CNESST
 - .2 PSPC
 - .3 Any other organism concerned.
- .5 The expert will:
 - .1 Have a thorough knowledge of the laws and regulations applicable to the construction site.
 - .2 Develop and disseminate an awareness program for all site employees.
 - .3 Ensure that no worker is admitted to the site without having followed the awareness program and meets the training requirements, in accordance with applicable legislation and the site-specific prevention program.
 - .4 Inspect the work and ensure compliance with all regulatory requirements and those indicated in the contractual documents or the prevention program.
 - .5 Maintain a daily record of his interventions and send a copy to the Ministerial Representative once a week

1.12 INSPECTION OF SITE AND CORRECTION OF HAZARDOUS SITUATIONS

- .1 Inspect the work site and complete the site inspection sheet at least once a week.
- .2 Immediately take all necessary measures to correct any lapses from legislative or regulatory requirements and any hazards identified by a government inspector, by the Departmental Representative, by the site safety and health coordinator or during routine inspections.

- .3 Submit to Departmental Representative written confirmation of all measures taken to correct lapses and hazardous situations.
- .4 Give the safety officer or, where there is no safety officer, the person assigned to safety and health responsibilities, full authority to order interruption 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 site workers and environmental protection take precedence over cost and scheduling considerations.
- .5 Without limiting the scope of sections 1.8 and 1.9, Departmental Representative may order cessation of work if, in his/her view, there is any hazard or threat to the safety or health of site personnel or the public or to the environment.

1.13 TRENCHES AND EXCAVATIONS

- .1 Provide protection for surfaces that could be exposed to the weather as a result of the exposure of the work. Keep excavations free of water.
- .2 Provide rigid and secure railings and barricades and install them around deep excavations.

1.14 GENERAL PROTECTIONS AND SITE ORGANIZATION

- .1 Regardless of the circumstances and the nature of the work, people with access to the site must wear shoes and a safety hat. The Contractor must provide workers who will be squatting or leaning with chin straps or ratchet helmet hangers.
- .2 Covered passages must be provided to protect all entrances and exits.
- .3 A safety perimeter on the ground must be set up under the work area to protect the public and the occupants.
- .4 The ground work area, the materials handling area as well as the area where the hot water bottle is installed must be clearly boarded up, so that occupants and the public cannot access it.
- .5 Before installing any device liable to emit gases or vapors, the Contractor must obtain the authorization of the person in charge of the workplace. The latter will ensure that there is no risk of infiltration into the building's ventilation systems.
- .6 The Contractor must ensure that the site is kept clean and tidy throughout the work.
- .7 Copies of the material safety data sheets for all controlled products must be sent to the Ministerial Representative and to the person responsible for the work site before the start of work.
- .8 The Contractor must provide sanitary facilities and rest areas in accordance with the requirements of the Safety Code for the construction industry.

1.15 SEALING GUNS AND OTHER CARTRIDGE DEVICES

- .1 Use cartridge devices only with the written permission of the Departmental Representative.
- .2 Anyone using a sealing gun must hold a training certificate and meet all the requirements of section 7 of the Safety Code for the construction industry (S-2.1, r.6).
- .3 Any other cartridge device must be used according to the manufacturer's instructions and in accordance with applicable standards and regulations.

1.16 HOT WORK**.1 General**

- .1 Hot work means any work where a flame is used or a source of ignition may be produced, i.e., riveting, welding, cutting, grinding, burning and heating.
- .2 Before the beginning of work, the contractor must have received the "Hot Work Permit" completed by the Manager in Charge of Worksite when the duties to be undertaken involve hot work..
- .3 Work on construction sites must be carried out in compliance with Fire Commissioner of Canada Standard CI 301, Standard for Construction Operations, June 1982.
- .4 At the start of each shift and for each sector, the Contractor must obtain a "Hot Work Permit" issued by the person in charge of the workplace.
- .5 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.
- .6 An individual shall be appointed to go on rounds (fire) for a period of 30 minutes after the end of the shift. This individual shall countersign the permit and give it to the person in charge of the work site (or the individual he/she appoints) after the 30 minutes period.
- .7 The storage of propane cylinders shall comply with the CAN/CSA-B149.2-20 *Propane Storage and Handling Code* and meet the specific conditions outlined in this document. 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 bars or the equivalent.
- .8 All of the cylinders used or stored on the work site shall be equipped with a collar designed to protect the valve.
- .9 Filling the cylinders on the work site is forbidden, unless a procedure compliant with the CAN/CSA B149.2-20 standard is approved and authorized by the Departmental Representative.

.2 Welding and cutting

- .1 Note : For welding and cutting activities, make sure that that the following conditions are met moreover that the ones mentioned above.
- .2 The works must be carried out in accordance with the articles "3.13 Compressed gas supply" and "3.14 Welding and cutting" of the Safety Code for the construction industry, S-2.1, r. 6.
- .3 Work on construction sites must be carried out in compliance with Fire Commissioner of Canada Standard CI 302, Standard for Welding and Cutting, June 1982.
- .4 The welding and cutting devices are excessively dangerous with regard to the fire risk on the building work place. The following precautions must be taken at the time of this type of work :
 - .1 Store all compressed gas cylinder on a fireproof fabrics and make sure that the room is well ventilated.
 - .2 Store all oxygen cylinders more than 6 metres from a flammable gas cylinder (ex: acetylene) or a combustible such as oil or grease, unless the oxygen cylinder is separated from it by a wall made of non-combustible material as mentioned in the article 3.13.4 of the *Safety Code for the construction industry, S-2.1, r. 6.*
 - .3 Set up fireproof fabrics when work of welding is done in superposition and that there is risk of spark fall.

- .4 Store the bottles far from all heat sources.
- .5 Not to store the bottles close to the staircases, exits, corridors and elevators.
- .6 Not to put acetylene in contact with metals with metals such as silver, mercury, copper and alloys of brass having more than copper 65%, to avoid the risk of an explosive reaction.
- .7 Check that welding equipments with electric arc has the necessary tension and are grounded.
- .8 Ensure that the conducting wire of the electric welding equipment are not damaged.
- .9 Place the welding equipment on a flat ground away from the bad weather.
- .10 Move away or protect the combustible materials which can be near the welding equipment.
- .11 Prohibition to weld or cut any closed container.
- .12 Envisage protection measures when welding or cutting is carried out near drains, tanks or other containers containing inflammable materials.
- .13 Do not perform any cutting, welding or work with naked flame on a container, a tank, a pipe or other container containing a flammable or explosive substance unless:
 - .1 Air Samples indicating that work can be made without danger has been taken; or
 - .2 Provisions to ensure the safety of the workers has been done.

1.17 LOCKOUT

- .1 For every work on energized equipment or equipment that may be started accidentally, the Contractor shall draw up and implement a lockout procedure and complete the Request for Electrical Isolation Form provided by the Manager in Charge of Worksite.
- .2 Although the hereunder list is not exhaustive, here are some examples for which the use of the form is obligatory:
 - 1) main building power feeders
 - 2) feeder supply panels and sub-panels
 - 3) bus ducts
 - 4) motor control centres
 - 5) emergency power circuits
 - 6) fire alarm and fire protection equipment
 - 7) mechanical protective equipment
 - 8) alarm circuit for building services, including all heating, ventilating and air conditioning equipment
 - 9) circuits supplying more than one (1) piece of equipment
 - 10) circuits affecting one (1) single piece of equipment used in a cooling or heating system.
- .3 After having completed the form, the Contractor, shall have it countersigned by the Manager in Charge of Worksite before starting work.
- .4 Notwithstanding the previous paragraphs, the Contractor shall, in emergency situation, receive an oral guarantee of isolation of the Manager in Charge of Worksite and immediately countersign the request of electrical isolation.

- .5 The procedure requested at paragraph 1 must comply with the principles listed in the “Le cadenassage” pamphlet published by the Association paritaire pour la santé et la sécurité du travail secteur construction (ASP Construction).
- .6 Supervisors and all workers concerned must have followed ASP Construction’s “Les techniques de cadenassage” course or an equivalent course given by another firm.
- .7 Identify every work that must absolutely be done on live equipment and establish the safety measures that will be applied, including the personal protective equipment.

1.18 SANDBLASTING

- .1 Sandblasting :
 - .1 The work must be carried out in accordance with section 3.20 Sandblasting of the Safety Code for the construction industry, S-2.1, r.4.
- .2 Ventilation :
 - .1 The site must be isolated and ventilated by extraction (Safety code for construction works art. 3.20.5). The Contractor must isolate the working air and the cloakroom of the work clothes from the rest of the building by means of a sealed enclosure and equipped with an exhaust ventilation system; this ventilation system must meet the following requirements: a) it must be fitted with a high-efficiency filter; b) it must provide at least four (4) air changes per hour; c) it must provide negative pressure between 1 and 4 pascals.
- .3 Respiratory protection :
 - .1 The wearing of an air-supplied hood provided in the Guide to respiratory protection devices used in Quebec, published by the Robert-Sauvé Research Institute in occupational health and safety, as it reads when it applies, gloves and clothing designed to provide protection against dust and projections of abrasives and metals is compulsory for any worker using an abrasive jet unless the worker is isolated from the process.

1.19 SILICA

- .1 Source control methods
 - .1 Work in a humid environment or use tools with water supply to reduce dust, otherwise capture the dust at the source and retain it in a high efficiency filter so as not to spread it in the environment.
 - .2 Clean surfaces and tools with water, never with compressed air.
 - .3 Sand and pickle surfaces using an abrasive containing less than 1% silica (also called amorphous silica).
 - .4 If necessary, install screens or partitions to prevent the migration of dust outside the work area and thus protect other workers and the public.
- .2 Personal protective gears:
 - .1 Wear respiratory protection equipment (mask) during all operations likely to produce silica dust. Select respiratory protection in accordance with the "Guide to respiratory protection devices used in Quebec"
<https://www.csst.qc.ca/prevention/reptox/apruq/Pages/appareil-protection-respiratoire.aspx>
 - .2 Wear eye protection (glasses or visors).

- .3 Wear protective suit to prevent contamination outside the site.
- .3 Personal hygiene:
 - .1 Do not eat, drink or smoke in a dusty area.
 - .2 Wash hands and face before drinking, eating or smoking.
- .4 Occupants protection:
 - .1 Take all preventive measures necessary for this purpose.

1.20 SPECIAL REQUIREMENTS – SCAFFOLDING

- .1 Foundation:
 - .1 Scaffolding shall be installed on a solid foundation so that it does not slip or rock.
 - .2 Contractors wishing to install scaffolding on a roof, overhang, canopy or awning shall submit their calculations and loads to the Engineer and shall obtain permission from the Engineer before beginning installation.
- .2 Assembly, bracing and mooring:
 - .1 All scaffolding shall be assembled, braced and moored in accordance with the manufacturer's instructions and the provisions of the *Safety Code for the construction industry*.
 - .2 Where a situation requires the removal of part of the scaffolding (e.g., crosspieces), the Contractor shall submit 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 where the span between two supports is greater than 2.4 m, the Contractor shall provide an assembly plan signed and sealed by an engineer.
- .3 Protection against falls during assembly:
 - .1 Workers working above the ground shall be protected against falls at all times during assembly.
 - .2 Before the work begins, the Contractor shall submit to the Engineer a procedure stating the protective measures used and, if applicable, identifying the anchor points for the safety cables or moorings. This procedure shall be in accordance with sections 3.9.4.5, 2.9.1 and 2.10.12 of the *Safety Code for the construction industry*.
- .4 Platforms:
 - .1 Scaffolding platforms shall be designed and installed in accordance with the provisions of the *Safety Code for the construction industry*.
 - .2 If planks are used, they shall be approved and stamped in accordance with section 3.9.8 of the *Safety Code for the construction industry*.
 - .3 The platforms shall cover the entire surface protected by the guardrails.
 - .4 The above notwithstanding, scaffolding 4 sections (or 6 metres) high or higher shall have a full platform covering the entire surface of the putlogs every 3 m or fraction thereof, and the components of that platform shall not be moved at any time to create an intermediate landing.
- .5 Guardrails:
 - .1 A guardrail shall be installed on every landing.
 - .2 Cross braces shall not be considered guardrails.

- .3 Where scaffolding 4 sections (or 6 metres) high or higher requiring full platforms is used, guardrails shall be installed on each landing at the start of work and shall remain in place until the work is completed.
- .6 Access:
 - .1 The Contractor shall ensure that access to the scaffolding does not compromise worker safety.
 - .2 Where the platforms of the scaffolding 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 *Safety Code for the construction industry*, stairs shall be installed on all scaffolding that has 6 or more rows of uprights or is 6 sections (or 9 metres) high or higher.
- .7 Protection of the public and occupants:
 - .1 The Contractor shall identify the boundaries of and barricade the work area so as to limit access to authorized workers only.
 - .2 The Contractor shall install covered walkways, nets or other similar devices to protect the public or the occupants against falling objects.
- .8 Use of public thoroughfares:
 - .1 Where it is necessary to encroach on a public thoroughfare, the Contractor shall obtain at the Contractor's expense any authorizations and permits required by the competent authority.
 - .2 The Contractor shall install at the Contractor's expense any signage, barricades or other devices needed to ensure the safety and security of the public and the Contractor's own facilities.

1.21**LIFTING MATERIAL**

- .1 Lifting devices shall be positioned in such a way that loads are not carried over workers, occupants or the public.
- .2 The Contractor must transmit to Departmental Representative a work procedure, signed and sealed by an engineer, including inter alia the position of the crane, a sketch of the trajectory of the transported loads, the length of the mast and a plan of lifting for the handling of loads above occupied buildings. Engineer can, if judge necessary, impose work of evening and weekend.
- .3 All mobile cranes manufactured after January 1st 1980 must be equipped with a safety device against overload.
- .4 All mobile cranes with cables manufactured after January 1st 1970, except if they are used for other end than lifting loads, must be provided with a safety device against two-blocking. Regarding mobile cranes with cables manufactured before January 1st 1970, they will have to be equipped with the device at the latest on December 31st 2006.
- .5 The Contractor shall provide the Departmental Representative with a mechanical service inspection certificate for each lifting device. Inspections must be carried out just prior to the delivery of the equipment to the work site.

- .6 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.
- .7 In addition to the mechanical service inspection certificate, the annual inspection certificate and the crane logbook must be aboard all crane and crane-truck cabs.
- .8 The entire lifting area shall be closed off to prevent non-authorized people from entering it.
- .9 The Contractor shall obtain all of the permits at his own expense, in the event the thoroughfare must be temporarily closed off to meet the requirement stipulated in the preceding paragraph or for any other reason pertaining to the safety of workers, occupants or the public.
- .10 The Contractor shall carefully inspect all of the slings and lifting accessories and make sure that those in poor condition are destroyed or scrapped.
- .11 Compressed-gas cylinders shall be lifted with a basket specially designed for this purpose.

1.22 WORK IN HEIGHT

- .1 The Contractor must ensure that any person carrying out work that poses a risk of falling more than 2,4 m use fall protection equipment.
- .2 Plan and organize work so as to eliminate the danger at 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-Z259.10 – 2012(R.2016). A safety belt must not be used as fall protection.
- .3 Every person using an elevating platform must have a training regarding this equipment.
- .4 Wearing of safety harness is obligatory in any elevating platform with telescopic, articulated or rotary boom.
- .5 Delimit a danger zone in any place where equipment for work in height is used.
- .6 Everyone who works within 3 meters from the edge of a roof must use a safety harness in accordance with the regulation, unless there is presence of a guardrail on the perimeter of the roof which is between 900 mm to 1100 mm high.

1.23 ROOF SPECIFIC CONDITIONS

- .1 Anyone working less than 3 meters from the edge of a roof must use a safety harness in accordance with the requirements of the regulations, unless there is a guardrail of a height located between 900mm to 1100mm around the edge of the roof.
- .2 Protection against falls from a height
 - .1 Guardrail
 - .1 Installation of guardrails is mandatory. The Departmental Representative may indicate certain restrictions regarding anchoring, in which case the Contractor must ensure that the guardrails still meet all the requirements of section 3.8 of the Safety Code for the construction industry (LRQ, S- 2.1, r. 6)

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- .2 The Contractor agrees that the guardrails remain in place until the very end of the project. The Ministerial Representative will authorize their dismantling when he can confirm that all the work, all the inspections and the required corrections have been carried out.
 - .2 Harness
 - .1 The wearing of a safety harness is mandatory for the installation of guardrails.
 - .2 The wearing of a safety harness is mandatory for the installation and modification of parapets or flashings, if it is necessary to temporarily move the railings.
 - .3 The wearing of a safety harness is compulsory for the reception of equipment and the signals to the crane at the edge of the void.
 - .4 Wearing a safety harness is compulsory for all work on the edge of a void where collective protection does not provide adequate safety.
 - .5 The Contractor must submit the method of attachment and emergency cable system in accordance with section 2.10.12 of the Safety Code for the construction industry (LRQ, S-2.1, r. 6) for each sector or place of different work.
 - .3 Ladders
 - .1 All ladders must be of sufficient length to exceed the access landing by at least three steps.
 - .2 All ladders must be attached to their top so that they cannot slide laterally. The Contractor must set up a system to comply with this rule during finishing work (flashing etc.).
 - .4 Scaffolding
 - .1 All scaffolding must be inspected and assembled in accordance with the provisions of the Safety Code for the construction industry (L.R.Q., S-2.1, r. 6)
 - .2 When required, plans and certificates of compliance must be sent to the Departmental Representative before the start of work.
 - .3 When assembling scaffolding, the Contractor must ensure that all workers are constantly protected against falls in accordance with article 3.9.4.5 of the Safety Code for the construction industry (LRQ, S2.1, r. 6).
 - .5 Material lifting
 - .1 For all lifting devices, the Contractor must transmit to the Departmental Representative a mechanical inspection certificate carried out just before the delivery of the equipment to the site.
 - .2 For any winch installation, the contractor must transmit to the Departmental Representative the installation process recommended by the manufacturer or, failing this, an installation process signed and sealed by an engineer. The installation process must in particular take into account the maximum permissible loads, the number, weight and location of the counterweights and any other details that may affect the capacity and stability of the device.
 - .3 In addition to the mechanical inspection certificate, all cranes or truck-cranes must have on board the cabin the annual inspection certificate and the crane log book.
 - .4 Lifting devices must be positioned so that loads are not transported over the heads of workers, occupants and the public.
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- .5 The entire lifting area must be barricaded so as to prevent any unauthorized person from entering it.
- .6 The Contractor must obtain all permits and pay for them, if it is necessary to temporarily block the public highway, for compliance with the previous paragraph or for any other reason concerning the safety of workers, occupants or the public.
- .7 The Contractor must carefully inspect all slings and lifting accessories and ensure that those in poor condition are destroyed and discarded.
- .8 The lifting of compressed gas cylinders must be done using a basket specially designed for this purpose.
- .6 Burn protection
 - .1 Persons assigned to hot water bottles must wear long sleeves and safety glasses and a face shield for loading the hot water bottle.
 - .2 Persons affected by bitumen work or other hot liquids must wear gloves, long sleeves and safety glasses.
- .7 Material and waste management
 - .1 On the roof, light materials and sheet materials must be kept in containers or securely attached. In the event of an exemption, however minor, the Ministerial Representative may prohibit the storage of materials on the roof.
 - .2 The previous paragraph also applies to waste.
 - .3 Waste must be evacuated progressively by a waste chute or appropriate containers.
 - .4 All waste must be evacuated from the roof at the end of the shift
 - .5 Unless specifically authorized by the Ministerial Representative, any waste container must be placed at least 3 m from any structure or building, and in no case prevent the execution of operations and activities, as well as vehicular traffic.

1.24 CLEANING WORK

- .1 The Contractor must be in compliance with the Workplace Hazardous Materials Information System Regulation, and must ensure that the material safety data sheets for all hazardous products used are permanently kept in the building where these products are stored, that these data sheets are updated further to product purchases, and that containers of all sizes are duly labeled. The Contractor must demonstrate to Departmental Representative's satisfaction that all of its employees have received adequate WHMIS training.
- .2 The Contractor must ensure that non-compatible chemicals are stored in such a way that they never come into contact with each other.
- .3 Ensure workers wear the proper gloves when using cleaning products.
- .4 Ensure the public is protected from any risk of slipping on freshly washed floors.
- .5 Ensure workers wear the proper gloves when cleaning outdoors if there is a risk of contact with biological contaminants (droppings, birds' nests, etc.).
- .6 For outdoor work, advise the Departmental Representative of any accumulation of bird or animal droppings so he/she can advise you of the necessary procedures to follow.

APPENDIX F**HANTAVIRUS**

Virus present in certain rodents, including deer mouse in Canada and the United States, which causes an infection in the hantavirus. Piles of garbage, wood, grass and tall grass, rarely used equipment and storage sheds are examples of places where rodents can be found.

People can contract this disease when they inhale the virus found in the urine, the saliva or the excretions of contaminated rodents.

The disease that causes the infection in the hantavirus is known under the name of hantavirus pulmonary syndrome. Initial symptoms of the disease resemble those of the flu (fever, shivers and muscular pain). The disease worsens quickly and can be fatal.

PREVENTION

Please take note that these measures apply to the excretions of pigeons, bats and rodents.

1. CLEAN the infected zone in order to minimize the production of dust in suspension in the air.
2. USE personal protective equipment such as rubber gloves, rubber boots, coveralls, cup goggles and a face mask (protection of the respiratory tract with high efficiency particulate air (HEPA) filter), if the ventilation is suitable. If the space is closed, a full respiratory mask should be used.
3. DISPOSE of the used gloves and of all other equipment in the same manner in which you would dispose of infectious waste.
4. Completely DRENCH the dead mice, nests, excretions with a household bleaching agent (one part bleaching agent for nine parts water) before every cleaning.
5. GATHER the material rather than vacuuming or sweeping it.
6. THROW contaminated material in heavy duty sealed plastic bags.
7. COMMUNICATE with the authorities responsible for the environment or with local municipal authorities on the appropriate disposal methods.
8. WASH hands thoroughly with soap and water after removing gloves.
9. COVER all scraped skin that could be exposed to material contaminated by the rodents.

For more information, communicate with your local public health service. You may also obtain additional information at the following location:

Bureau of Microbiology
Health Protection Building
Health Canada
Ottawa (Ontario) K1A 0L2 (613) 957-1771

Preventive measures to apply to the work site

1. Source reduction methods

- 1.1. Work in wet environment or use tools with inflow of water in order to reduce dustiness, if not, collect dust at the source and retain it with a high efficiency filter not to propagate dust in the environment.
- 1.2. Clean surfaces and tools with water, never with compressed air.
- 1.3. Sand and pickle surfaces by using an abrasive containing less than 1% of silica (also called amorphous silica).
- 1.4. When required, install shields or other containment device to prevent silica dust from migrating toward other workers or the public.

2. Individual protection equipments

- 2.1. Wear individual respiratory protection equipments (mask) during all the operations that could generate silica dust. Select respiratory protection in accordance with the « *Guide des appareils de protection respiratoire utilisés au Québec* »
http://www.prot.resp.csst.qc.ca/Guid_APR.pdf
- 2.2. Wear an ocular protection (glasses or visors).
- 2.3. Wear a coveralls to prevent contamination outside the worksite.

3. Personal hygiene

- 3.1. Do not eat, drink, or smoke in a dusty environment.
- 3.2. Wash the hands and the face before drinking, eating or smoking.

Before undertaking work liable to emit asbestos dust, the contractor must :

- Provide a written procedure considering all items specified in the Safety Code for the construction industry S-2.1, r-6.
- Show that the worker has been trained of the risks, prevention methods and safe working methods (ASP Construction) (art.3.23.7).
- Show that he has under the hand all the material and the equipment necessary to the respect of the procedure and of the execution of a safety work.

END OF SECTION

Part 1 General**1.1 RELATED REQUIREMENTS**

- .1 Not used.

1.2 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 humankind; 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 Reference Standards:
 - .1 U.S. Environmental Protection Agency (EPA)/Office of Water
 - .1 EPA 832/R-92-005-96, Storm Water Management for Construction Activities, Chapter 3.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Prior to commencing construction activities or delivery of materials to site, provide Environmental Protection Plan for review and approval by the 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 issue and required construction tasks.
- .5 Include in Environmental Protection Plan:
 - .1 Name[s] of person[s] responsible for ensuring adherence to Environmental Protection Plan.
 - .2 Name[s] and qualifications of person[s] responsible for manifesting hazardous waste to be removed from site.
 - .3 Name[s] and qualifications of person[s] responsible for training site personnel.
 - .4 Descriptions of environmental protection personnel training program.
 - .5 Erosion and sediment control plan identifying type and location of erosion and sediment controls to be provided including monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan, Federal, Provincial, and Municipal laws and regulations, EPA 832/R-92-005, Chapter 3 requirements.
 - .6 Drawings showing locations of proposed temporary excavations or embankments for haul roads, stream crossings, material storage areas, structures, sanitary facilities, and stockpiles

of excess or spoil materials including methods to control runoff and to contain materials on site.

- .7 Traffic Control Plans including measures to reduce erosion of temporary roadbeds by construction traffic, especially during wet weather. Ensure plans include measures to minimize amount of mud transported onto paved public roads by vehicles or runoff.
- .8 Work area plan showing proposed activity in each portion of area and identifying areas of limited use or non-use. Ensure plan includes measures for marking limits of use areas and methods for protection of features to be preserved within authorized work areas.
- .9 Spill Control Plan including procedures, instructions, and reports to be used in event of unforeseen spill of regulated substance.
- .10 Non-Hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris.
- .11 Air pollution control plan detailing provisions to assure that dust, debris, materials, and trash, are contained on project site.
- .12 Contaminant Prevention Plan identifying potentially hazardous substances to be used on job site; intended actions to prevent introduction of such materials into air, water, or ground; and detailing provisions for compliance with Federal, Provincial, and Municipal laws and regulations for storage and handling of these materials.
- .13 Waste Water Management Plan identifying methods and procedures for management and/or discharge of waste waters which are directly derived from construction activities, such as concrete curing water, clean-up water, dewatering of ground water, disinfection water, hydrostatic test water, and water used in flushing of lines.

1.4 FIRES

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

1.5 DRAINAGE

- .1 Provide Erosion and Sediment Control Plan identifying type and location of erosion and sediment controls provided. Ensure plan includes monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan, Federal, Provincial, and Municipal laws and regulations, EPA 832/R-96-005, Chapter 3 requirements.
- .2 Storm Water Pollution Prevention Plan (SWPPP) to be substituted for erosion and sediment control plan.
- .3 Provide temporary drainage and pumping required to keep excavations and site free from water.
- .4 Ensure pumped water into waterways, sewer or drainage systems is free of suspended materials.
- .5 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.

1.6 SITE CLEARING AND PLANT PROTECTION

- .1 Protect trees and plants on site and adjacent properties as indicated.
- .2 Wrap in burlap, trees and shrubs adjacent to construction work, storage areas and trucking lanes, and encase with protective wood framework from grade level to height of 2m minimum.
- .3 Protect roots of designated trees to dripline during excavation and site grading to prevent disturbance or damage. Avoid unnecessary traffic, dumping and storage of materials over root zones.

- .4 Minimize stripping of topsoil and vegetation.
- .5 Restrict tree removal to areas indicated or designated by the Departmental Representative.
- .6 Machinery is allowed to the grassed area only.

1.7 WORK ADJACENT TO WATERWAYS

- .1 Not used.

1.8 POLLUTION CONTROL

- .1 Maintain temporary erosion and pollution control features installed under this Contract.
- .2 Control emissions from equipment and plant to 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 by the Departmental Representative.
- .4 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.
- .5 Install sediment barriers along the site fences for the duration of the work.

1.9 HISTORICAL/ARCHAEOLOGICAL CONTROL

- .1 Not used.

1.10 NOTIFICATION

- .1 The 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 the Departmental Representative of proposed corrective action and take such action for approval by the Departmental Representative.
 - .1 Do not take action until after receipt of written approval by the Departmental Representative.
- .3 The Departmental Representative will issue stop order of work until satisfactory corrective action has been taken.
- .4 No time extensions granted or equitable adjustments allowed to Contractor for such suspensions.

1.11 NOISE AND AIR QUALITY

- .1 Noise and air quality restrictions will be reviewed and applied by experts regarding the presence of dogs in a kennel near construction site.

Part 2 Products**2.1 NOT USED**

- .1 Not Used.

Part 3 Execution**3.1 CLEANING**

- .1 Clean in accordance with Section 01 74 00 - Cleaning.
- .2 Waste Management: separate waste materials for recycling in accordance with Section 01 74 19 - Construction/Demolition Waste Management and Disposal.
- .3 Bury rubbish and waste materials on site after receipt of written approval from the 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 RELATED SECTIONS**

- .1 Not used.

1.2 REFERENCES AND CODES

- .1 Perform Work in accordance with National Building Code of Canada (NBC) including amendments up to tender closing date and other codes of provincial or local application provided that in case of conflict or discrepancy, more stringent requirements apply.
- .2 Meet or exceed requirements of:
 - .1 Contract documents.
 - .2 Specified standards, codes and referenced documents.
 - .3 Canada labour code.

1.3 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 the Departmental Representative.
- .2 PCB: Polychlorinated Biphenyl: stop work immediately when material resembling Polychlorinated Biphenyl is encountered during demolition work. Notify the Departmental Representative.
- .3 Mould: stop work immediately when material resembling mould is encountered during demolition work. Notify the Departmental Representative.

1.4 BUILDING SMOKING ENVIRONMENT

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

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 Not Used.

1.3 INSPECTION

- .1 Allow the Departmental Representative access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.
- .2 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by the 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 The 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, the Departmental Representative shall pay cost of examination and replacement.

1.4 INDEPENDENT INSPECTION AGENCIES

- .1 Independent Inspection/Testing Agencies will be engaged by the 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 the Departmental Representative at no cost to the Departmental Representative. Pay costs for retesting and reinspection.

1.5 ACCESS TO WORK

- .1 Allow inspection/testing agencies access to Work, off site manufacturing and fabrication plants.
- .2 Co-operate to provide reasonable facilities for such access.

1.6 PROCEDURES

- .1 Notify appropriate agency and the Departmental Representative in advance of requirement for tests, in order that attendance arrangements can be made.
- .2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in Work.

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

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

1.8 REPORTS

- .1 Submit 4 paper copies and 1 electronic copy of inspection and test reports to the Departmental Representative.
- .2 Provide copies to subcontractor of work being inspected or tested.

1.9 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 the Departmental Representative and may be authorized as recoverable.

1.10 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 the Departmental Representative as specified in specific Section.
- .3 Prepare mock-ups for the Departmental Representative 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, the Departmental Representative will assist in preparing schedule fixing dates for preparation.
- .6 Remove mock-up at conclusion of Work or when acceptable to the Departmental Representative.
- .7 Mock-ups may remain as part of Work.
- .8 Specification section identifies whether mock-up may remain as part of Work or if it is to be removed and when.

1.11 MILL TESTS

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

1.12 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 RELATED SECTIONS**

- .1 Section 01 14 00 - Work restrictions

1.2 REFERENCES

- .1 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB 1.189-00, Exterior Alkyd Primer for Wood.
 - .2 CGSB 1.59-97, Alkyd Exterior Gloss Enamel.
- .2 Canadian Standards Association (CSA International)
 - .1 CSA-A23.1-14/A23.2, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
 - .2 CSA-O121-17, Douglas Fir Plywood.
 - .3 CAN/CSA-S269.2-16, Access Scaffolding for Construction Purposes.
 - .4 CAN/CSA-Z321-96 (C2006), Signs and Symbols for the Occupational Environment.
- .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.
- .4 U.S. Environmental Protection Agency (EPA) / Office of Water
 - .1 EPA 832R92005, Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices.

1.3 SUBMITTALS

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

1.4 INSTALLATION AND REMOVAL

- .1 Prepare site plan indicating proposed location and dimensions of area to be fenced and used by Contractor, number of trailers to be used, avenues of ingress/egress to fenced area and details of fence installation.
- .2 Identify areas which have to be gravelled to prevent tracking of mud.
- .3 Indicate use of supplemental or other staging area.
- .4 Provide construction facilities in order to execute work expeditiously.
- .5 Remove from site all such work after use.

1.5 SCAFFOLDING

- .1 Scaffolding in accordance with CAN/CSA-S269.2.
- .2 Provide and maintain scaffolding, ramps, ladders, swing staging, platforms, and temporary stairs.

1.6 HOISTING

- .1 Provide, operate and maintain hoists cranes required for moving of workers, materials and equipment. Make financial arrangements with Subcontractors for their use of hoists.
- .2 Hoists to be operated by qualified operator.

1.7 ELEVATORS

- .1 Not used.

1.8 SITE STORAGE/LOADING

- .1 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.
- .2 Do not load or permit to load any part of Work with weight or force that will endanger Work.

1.9 CONSTRUCTION PARKING

- .1 Departmental Representative will designate authorized parking areas for vehicles of construction employees. If employees park elsewhere, their vehicle can be removed.
- .2 Parking will be permitted on site provided it does not disrupt performance of Work, and as directed by the Departmental representative.
- .3 Provide and maintain adequate access to project site.
- .4 Clean runways and taxi areas where used by Contractor's equipment.
- .5 Employees' vehicles cannot remain on site at the end of workdays. In the event of an emergency (e.g. mechanical failure, sick employee), safety should be notified that the vehicle will be left at the site, and measures should be taken to ensure that the vehicle leaves the site the next day.

1.10 SECURITY

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

1.11 OFFICES

- .1 Provide office heated to 22 degrees C, lighted 750 lx and ventilated, of sufficient size to accommodate site meetings and furnished with drawing laydown table.
- .2 Provide marked and fully stocked first-aid case in a readily available location.
- .3 Subcontractors to provide their own offices as necessary. Direct location of these offices.
- .4 The Departmental Representative's Site office.
 - .1 Not used.

1.12 EQUIPMENT, TOOL AND MATERIALS STORAGE

- .1 Provide and maintain, in clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.
- .2 Locate materials not required to be stored in weatherproof sheds on site in manner to cause least interference with work activities.

1.13 SANITARY FACILITIES

- .1 Provide sanitary facilities for work force in accordance with governing regulations and ordinances.
- .2 Post notices and take precautions as required by local health authorities. Keep area and premises in sanitary condition.

1.14 CONSTRUCTION SIGNAGE

- .1 No advertising display allowed on CBSA site.

1.15 PROTECTION AND MAINTENANCE OF TRAFFIC

- .1 Provide access and temporary relocated roads as necessary to maintain traffic.
- .2 Maintain and protect traffic on affected roads during construction period except as otherwise specifically directed by the Departmental Representative.
- .3 Provide measures for protection and diversion of traffic, including provision of watch-persons and flag-persons, erection of barricades, placing of lights around and in front of equipment and work, and erection and maintenance of adequate warning, danger, and direction signs
- .4 Protect travelling public from damage to person and property.
- .5 Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with public traffic.
- .6 Verify adequacy of existing roads and allowable load limit on these roads. Contractor: responsible for repair of damage to roads caused by construction operations.
- .7 Construct access and haul roads necessary.
- .8 Haul roads: constructed with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic shall be avoided.
- .9 Provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic.
- .10 Dust control: adequate to ensure safe operation at all times.
- .11 Location, grade, width, and alignment of construction and hauling roads: subject to approval by the Departmental Representative.
- .12 Lighting: to assure full and clear visibility for full width of haul road and work areas during night work operations.
- .13 Provide snow removal during period of Work.
- .14 Remove, upon completion of work, haul roads designated by the Departmental Representative.

1.16 CLEAN-UP

- .1 Remove construction debris, waste materials, packaging material from work site daily.
- .2 Clean dirt or mud tracked onto paved or surfaced roadways.
- .3 Store materials resulting from demolition activities that are salvageable.
- .4 Stack stored new or salvaged material not in construction facilities.

Part 2 Products**2.1 NOT USED**

- .1 Not Used.

Part 3 Execution**3.1 TEMPORARY EROSION AND SEDIMENTATION CONTROL**

- .1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction.
- .2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
- .3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

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-O12117, Douglas Fir Plywood.

1.3 INSTALLATION AND REMOVAL

- .1 Provide temporary controls in order to execute Work expeditiously.
- .2 Remove from site all such work after use.

1.4 FENCES

- .1 Erect, around the site, a temporary fence consisting of a new snow fence 1.2 m high, attached with metal wire to T-shaped posts placed at 2.4 m center distance. Provide two (1) lockable access barriers for trucks.
- .2 Install fences around trees and plants to be left in place to protect them from damage that could be caused to them by the equipment used or by certain construction practices.

1.5 WORK PERIMETER

- .1 Supply and install mobile posts connected with plastic tape to mark off the perimeter that the contractor will use the ground for trucks, cranes, containers, etc. into the secure area.
- .2 All existing exits of every building must remain functional at all times. The scope of work of the Contractor shall not obstruct the exits at ground level.

1.6 WEATHER ENCLOSURES

- .1 Not used.

1.7 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 public.
- .2 Maintain and relocate protection until such work is complete.

1.8 ACCESS TO SITE

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

1.9 FIRE ROUTES

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

1.10 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

- .1 Protect surrounding private and public property from damage during performance of Work.
- .2 Be responsible for damage incurred.

1.11 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 the Departmental Representative locations and installation schedule 3 days prior to installation.
- .4 Be responsible for damage incurred due to lack of or improper protection.

1.12 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for recycling in accordance with Section 01 74 19 - 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, the Departmental Representative reserves right to have such products or systems tested to prove or disprove conformance.
- .4 If the products or systems comply with the contractual documents, the costs incurred by these tests will be assumed by the Ministerial Representative, otherwise they will have to be assumed by the Contractor.

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 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 the 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 the 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 the Departmental Representative at commencement of Work and should it subsequently appear that Work may be delayed for such reason, the 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, 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 the Departmental Representative.
- .9 Touch-up damaged factory finished surfaces to the 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 the 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 the Departmental Representative in writing, of conflicts between specifications and manufacturer's instructions, so that the Departmental Representative will establish course of action.
- .3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes the 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 the 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. The 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 the 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 Not used.

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 the 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 the 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 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 Not Used.

1.2 REFERENCES

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

1.3 QUALIFICATIONS OF SURVEYOR

- .1 Not used.

1.4 SURVEY REFERENCE POINTS

- .1 Not used.

1.5 SURVEY REQUIREMENTS

- .1 Not used.

1.6 EXISTING SERVICES

- .1 Before commencing work, establish location and extent of service lines in area of Work and notify the Departmental Representative of findings.
- .2 Remove abandoned service lines within 2 m of structures. Cap or otherwise seal lines at cut-off points as directed by the Departmental Representative.

1.7 LOCATION OF EQUIPMENT AND FIXTURES

- .1 Location of equipment, fixtures and outlets indicated or specified are to be considered as approximate.
- .2 Locate equipment, fixtures and distribution systems to provide minimum interference and maximum usable space and in accordance with manufacturer's recommendations for safety, access and maintenance.
- .3 Inform the Departmental Representative of impending installation and obtain approval for actual location.
- .4 Submit field drawings to indicate relative position of various services and equipment when required by the Departmental Representative.

1.8 RECORDS

- .1 Maintain a complete, accurate log of control and survey work as it progresses.
- .2 On completion of foundations and major site improvements, prepare a certified survey showing dimensions, locations, angles and elevations of Work.
- .3 Record locations of maintained, re-routed and abandoned service lines.

1.9 SUBMITTALS

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

- .2 On request of the Departmental Representative, submit documentation to verify accuracy of field engineering work.
- .3 Submit certificate signed by surveyor certifying and noting those elevations and locations of completed Work that conform to Contract Documents.

1.10 SUBSURFACE CONDITIONS

- .1 Promptly notify Consultant in writing if subsurface conditions at Place of Work differ materially from those indicated in Contract Documents, or a reasonable assumption of probable conditions based thereon.
- .2 After prompt investigation, should Consultant determine that conditions do differ materially, instructions will be issued for changes in Work as provided in Changes and Change Orders.

Part 2 Products**2.1 NOT USED**

- .1 Not Used.

Part 3 Execution**3.1 NOT USED**

- .1 Not Used.

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Not Used.

1.2 SUBMITTALS

- .1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit written request in advance of cutting or alteration which affects:
 - .1 Structural integrity of elements of project.
 - .2 Integrity of weather-exposed or moisture-resistant elements.
 - .3 Efficiency, maintenance, or safety of operational elements.
 - .4 Visual qualities of sight-exposed elements.
 - .5 Work of Owner or separate contractor.
- .3 Include in request:
 - .1 Identification of project.
 - .2 Location and description of affected Work.
 - .3 Statement on necessity for cutting or alteration.
 - .4 Description of proposed Work, and products to be used.
 - .5 Alternatives to cutting and patching.
 - .6 Effect on Work of Owner or separate contractor.
 - .7 Written permission of affected separate contractor.
 - .8 Date and time work will be executed.

1.3 MATERIALS

- .1 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 Refinish surfaces to match adjacent finishes: Refinish continuous surfaces to nearest intersection. Refinish assemblies by refinishing entire unit.
- .13 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 RELATED SECTIONS**

- .1 Not Used.

1.2 REFERENCES

- .1 Not Used.

1.3 PROJECT CLEANLINESS

- .1 Maintain Work in tidy condition, free from accumulation of waste products and debris, other than that caused by Owner or other Contractors.
- .2 Remove waste materials from site at daily regularly scheduled times or dispose of as directed by the Departmental Representative. Do not burn waste materials on site, unless approved by the Departmental Representative.
- .3 Clear snow and ice from access to building, bank/pile snow in designated areas only.
- .4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .5 Provide on-site containers for collection of waste materials and debris.
- .6 Provide and use marked separate bins for recycling. Refer to Section 01 74 19 - Construction/Demolition Waste Management and Disposal.
- .7 Dispose of waste materials and debris 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.
- .13 A visual inspection of areas accessible to dogs and adjacent to the site should be carried out at midday and at the end of each work day to ensure that there is no waste, building materials or other pests for dogs within reach of dogs. When such objects are found inside the fenced areas of the dogs, either during the working day or during the end-of-day inspection, it is necessary to notify the detector dog service staff immediately (or security when there is no employee available), and obtain their permission to enter the affected areas and remove the objects. Visual inspection should be carried out from outside fenced dog areas, unless permission is obtained to enter these areas, when the areas are not sufficiently visible from the outside.

1.4 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 other than that caused by Owner or other Contractors.
- .5 Remove waste materials from site at regularly scheduled times or dispose of as directed by the 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 Backfill / repair damaged land surfaces by the passage of vehicles, equipment and storage of materials. Put them back as they were before the start of work. Sweep or rake the rest of the land to remove construction residues.
- .15 Remove dirt and other disfiguration from exterior surfaces.
- .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 and adjacent roofs outside construction limits of any debris. Clean roof surfaces, downspouts and gutters.
- .19 Remove debris and surplus materials from crawl areas and other accessible concealed spaces.
- .20 Remove snow and ice from access to building.

1.5 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for recycling in accordance with Section 01 74 19 - 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 the Departmental Representative to review and discuss Waste Management Plan and Goals.
- .2 Waste Management Goal 75 percent of total Project Waste to be diverted from landfill sites. Provide the Departmental Representative documentation certifying that waste management, recycling, reuse of recyclable and reusable materials has 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 35 29.06 - Health and Safety Requirements
- .2 Section 01 35 43 - Environmental procedures
- .3 Section 01 73 00 - Execution

1.3 DEFINITIONS

1. CRD Waste: Construction, demolition and renovation waste, excluding Class III hazardous materials. This term refers to any waste material brought and produced on the site as well as unused items left on site. CRD waste also includes waste generated by workers (cans, paper, etc.) and packaging. The term waste in the text refers to CRD waste.
 - .1 Inert Fill: inert waste - exclusively asphalt and concrete.
 - .2 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.
 - .3 Recyclable: ability of product or material to be recovered at end of its life cycle and re-manufactured into new product for reuse.
 - .4 Recycle: process by which waste and recyclable materials are transformed or collected for purpose of being transferred into new products.
 - .5 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.
 - .6 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.
 - .7 Salvage: removal of structural and non-structural materials from deconstruction/disassembly projects for purpose of reuse or recycling.
 - .8 Separate Condition: refers to waste sorted into individual types.

- .9 Source Separation: acts of keeping different types of waste materials separate beginning from first time they became waste.
- .10 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.
- .11 Waste Management Co-ordinator (WMC) : contractor representative responsible for supervising waste management activities as well as coordinating related, required submittal and reporting requirements.
- .12 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).

1.4 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, and E completed for project.

1.5 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 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, co-mingled and separated off-site 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.

1.6 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.

1.7 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.

1.8 DEMOLITION WASTE AUDIT (DWA)

- .1 Not Used.

1.9 COST/REVENUE ANALYSIS WORKPLAN (CRAW)

- .1 Not Used.

1.10 MATERIALS SOURCE SEPARATION PROGRAM (MSSP)

- .1 Prepare MSSP and have ready for use prior to project start-up.
 - .2 Implement MSSP for waste generated on project in compliance with approved methods and as reviewed by the 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 material[s] to site operating under Certificate of Approval.
 - .2 Materials must be immediately separated into required categories for reuse or recycling.

1.11 WASTE PROCESSING SITES

- .1 Contractor will confirm that a treatment site for materials separation has been selected and provide location to the Departmental representative and proof that the site is authorised to receive and treat materials in the province of Quebec.
 - .1 Province:
 - .2 Name:
 - .3 Address:
 - .4 Telephone:
 - .5 Fax:

1.12 STORAGE, HANDLING AND PROTECTION

- .1 Store, materials to be reused, recycled and salvaged in locations as directed by the Departmental Representative.
- .2 Unless specified otherwise, materials for removal become 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 the 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.
- .10 Particular attention must be paid to prevent waste from ending up in dogs area outside (ex: by the wind).

1.13 DISPOSAL OF WASTES

- .1 Do not bury rubbish or waste materials.

- .2 Do not dispose of waste, volatile materials, mineral spirits, oil, 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.

1.14 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.

1.15 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 Not Used.

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 the 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 recyclable materials is not permitted.
- .3 Demolition Waste: Not used
- .4 Construction Waste:

Material Type	Recommended Diversion %	Actual Diversion %
Cardboard	100	
Plastic Packaging	100	
Rubble	100	
Soiled Rubble	0	
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 Description						
Off-cuts						
Warped Pallet Forms						
Plastic Packaging						
Cardboard Packaging						
Other						
Doors and Material Description						
Painted Frames						
Glass						
Wood						
Metal						
Other						

3.6 WASTE REDUCTION WORKPLAN (WRW)

.1 Schedule B:

(1) Material category	(2) Person(s) responsible	(3) Total Quantity of waste %	(4) Reused amount (units) projected	Actual	(5) Recycled Amount (unit) projected	Actual	(6) Material(s) destination
Wood and Plastics Description							
Chutes							
Warped Pallet Forms							
Plastic Packaging							
Card- board Packaging							
Other							
Doors and Windows Description							
Painted Frames							
Glass							
Wood							
Metal							
Other							

3.7 DEMOLITION WASTE AUDIT (DWA)

.1 Schedule C - Demolition Waste Audit (DWA)

(1) Material category	(2) Quantity	(3) Units	(4) Total	(5) volume (cumulative)	(6) Weight (cumulative)	(7) Observations and hypotheses
Wood elements						
Wood posts						
Plywood elements						
Wood baseboard						
Wood door carpentry						
Storage furniture						
Doors and windows						
Common panels						
Common slabs						
Laminated wood						
Folding doors						
Glazing						

3.8 COST/REVENUE ANALYSIS WORKPLAN (CRAW)

.1 Schedule D - Cost/Revenue Analysis Workplan (CRAW)

(1) Material category	(2) Total quantity (units)	(3) Volume (cumulative)	(4) Weight (cumulative)	(5) Cost/income disposal (± \$)	(6) Sub-total per category (± \$)
Wood elements					
Wood posts					
Plywood elements					
Wood baseboard					
Wood door carpentry					
Storage furniture					
Doors and windows					
Common panels					
Common slabs					
Laminated wood					
Folding doors					
Glazing					
(7) Cost (-) / Income (+)					

3.9 CANADIAN GOVERNMENTAL DEPARTMENTS CHIEF RESPONSIBILITY FOR THE ENVIRONMENT

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

Province	Adress	General Inquires	Fax
Quebec	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 l'environnement 800, place d'Youville, 19e étage Québec QC G1R 3P4	418-643-3818	

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Not Used.

1.2 REFERENCES

- .1 Not Used
- .2 Canadian Environmental Protection Act (CEPA)
 - .1 SOR/2008-197, Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations.

1.3 ADMINISTRATIVE REQUIREMENTS

- .1 Acceptance of Work Procedures: Contractor's Inspection: Contractor: conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
 - .1 Notify the Departmental Representative in writing of satisfactory completion of Contractor's inspection and submit verification that corrections have been made.
 - .2 Request the Departmental Representative inspection.
- .2 The Departmental Representative Inspection:
 - .1 The Departmental Representative and Contractor to inspect Work and identify defects and deficiencies.
 - .2 Contractor to correct Work as directed.
- .3 Completion Tasks: submit written certificates in English that tasks have been performed as follows:
 - .1 Work: completed and inspected for compliance with Contract Documents.
 - .2 Defects: corrected and deficiencies completed.
 - .3 Equipment and systems: tested, adjusted and balanced and fully operational.
 - .4 Certificates required by Utility companies: submitted.
 - .5 Operation of systems: demonstrated to Owner's personnel.
 - .6 Commissioning of mechanical systems: completed in accordance with 01 91 13 - General Commissioning Requirements and one copy of final Commissioning Report submitted to the Departmental Representative.
 - .7 Work: complete and ready for final inspection.
- .4 Final Inspection:
 - .1 When completion tasks are done, request final inspection of Work by the Departmental Representative and Contractor.
 - .2 When Work incomplete according to the Departmental Representative, complete outstanding items and request re-inspection.
- .5 Declaration of Substantial Performance: when the Departmental Representative considers deficiencies and defects corrected and requirements of Contract substantially performed, make application for Certificate of Substantial Performance.

- .6 Commencement of Lien and Warranty Periods: date of Owner's acceptance of submitted declaration of Substantial Performance to be date for commencement for warranty period and commencement of lien period unless required otherwise by lien statute of Place of Work.
- .7 Final Payment:
 - .1 When the Departmental Representative considers final deficiencies and defects corrected and requirements of Contract met, make application for final payment.
 - .2 When Work deemed incomplete by the Departmental Representative, complete outstanding items and request re-inspection.
- .8 Payment of Holdback: after issuance of Certificate of Substantial Performance of Work, submit application for payment of holdback amount in accordance with contractual agreement.

1.4 FINAL CLEANING

- .1 Clean in accordance with Section 01 74 00 - Cleaning.
 - .1 Remove surplus materials, excess materials, rubbish, tools and equipment.
- .2 Waste Management: separate waste materials for recycling in accordance with Section 01 74 19 - 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 See appendix 3.

1.2 REFERENCES

- .1 Canadian Environmental Protection Act (CEPA)
 - .1 SOR/2008-197, Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations.

1.3 ADMINISTRATIVE REQUIREMENTS

- .1 Pre-warranty Meeting:
 - .1 Convene meeting one week prior to completion of work with contractor's representative and the Departmental Representative, in accordance with Section 01 31 19 - Project Meetings to:
 - .1 Verify Project requirements.
 - .2 Review manufacturer's installation instructions and warranty requirements.
 - .2 The 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.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Two weeks prior to Substantial Performance of the Work, submit to the Departmental Representative, four final copies of operating and maintenance manuals in 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.

1.5 FORMAT

- .1 Organize data as instructional manual.
- .2 Binders: vinyl, hard covered, 3 'D' ring, loose leaf 219 x 279 mm with spine and face pockets.
- .3 When multiple binders are used correlate data into related consistent groupings.
 - .1 Identify contents of each binder on spine.

- .4 Cover: identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.
- .5 Arrange content by systems or 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.

1.6 CONTENTS - PROJECT RECORD DOCUMENTS

- .1 Table of Contents for Each Volume: provide title of project;
 - .1 Date of submission;
 - .2 Names, 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.
- .6 Training: refer to Section 01 79 00 - Demonstration and Training.

1.7 AS -BUILT DOCUMENTS AND SAMPLES

- .1 Maintain, in addition to requirements in General Conditions, at site for the Departmental Representative and the Owner 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 the Departmental Representative.

1.8 RECORDING INFORMATION ON PROJECT RECORD DOCUMENTS

- .1 Record information on set of black line opaque drawings, and in copy of Project Manual, provided by the 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.

1.9 FINAL SURVEY

- .1 Submit final site survey certificate in accordance with Section 01 71 00 - Examination and Preparation, certifying that elevations and locations of completed Work are in conformance, or non-conformance with Contract Documents.

1.10 EQUIPMENT AND SYSTEMS

- .1 For each item of equipment and each system include description of unit or system, and component parts.
 - .1 Give function, normal operation characteristics and limiting conditions.
 - .2 Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.
- .2 Panel board circuit directories: provide electrical service characteristics, controls, and communications.
- .3 Include installed colour coded wiring diagrams.
- .4 Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences.
 - .1 Include regulation, control, stopping, 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 Requirements.
- .15 Additional requirements: as specified in individual specification sections.

1.11 MATERIALS AND FINISHES

- .1 Building products, applied materials, and finishes: include product data, with catalogue number, size, composition, and colour and texture designations.
 - .1 Provide information for re-ordering custom manufactured products.
- .2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .3 Moisture-protection and weather-exposed products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

- .4 Additional requirements: as specified in individual specifications sections.

1.12 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; place and store.
 - .4 Receive and catalogue items.
 - .1 Submit inventory listing to the 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; place and store.
 - .4 Receive and catalogue items.
 - .1 Submit inventory listing to the 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; place and store.
 - .4 Receive and catalogue items.
 - .1 Submit inventory listing to the Departmental Representative.
 - .2 Include approved listings in Maintenance Manual.

1.13 DELIVERY, STORAGE AND HANDLING

- .1 Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.
- .2 Store in original and undamaged condition with manufacturer's seal and labels intact.
- .3 Store components subject to damage from weather in weatherproof enclosures.
- .4 Store paints and freezable materials in a heated and ventilated room.
- .5 Remove and replace damaged products at own expense and for review by the Departmental Representative.

1.14 WARRANTIES AND BONDS

- .1 Develop warranty management plan to contain information relevant to Warranties.

-
- .2 Submit warranty management plan, 30 days before planned pre-warranty conference, to the Departmental Representative approval.
 - .3 Warranty management plan to include required actions and documents to assure that the 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 the 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 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 4 month and 9 month warranty inspection, measured from time of acceptance, by the 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.
 - .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 4 months and 9 months 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.

1.15 WARRANTY TAGS

- .1 Tag, at time of installation, each warranted item. Provide durable, oil and water resistant tag approved by the 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's signature.

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 ADMINISTRATIVE REQUIREMENTS

- .1 Demonstrate scheduled operation and maintenance of equipment and systems to Owner's personnel two weeks prior to date of interim completion.
- .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 in accordance with Section 01 91 13 - General Commissioning Requirements and equipment.
 - .4 Ensure testing, adjusting, and balancing has been performed in accordance with Section 01 91 13 - General Commissioning 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 scheduled agreed upon times, at the equipment designated 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 of equipment or system as follows:
 - .1 See engineer's document.

1.3 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 Consultant'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.

1.4 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**

- .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 02 81 01 – Hazardous material
- .2 Section 06 10 00 – Rough carpentry
- .3 Section 07 21 16 – Blanket insulation
- .4 Section 07 26 00 – Vapour retarders
- .5 Section 08 00 10 – Doors and frames schedule
- .6 Section 09 21 16 – Gypsum board.
- .7 Section 09 22 16 – Non structural metal framing
- .8 Section 09 91 23 – Interior painting
- .9 See also mechanical and electrical documents.
- .10 See also structural and civil documents.

1.2 REFERENCES

- .1 Canadian Standards Association (CSA International)
 - .1 CSA S350-M1980 (R2003), Code of Practice for Safety in Demolition of Structures.

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 professional engineer registered with *the Ordre des ingénieurs du Québec*.
- .3 At the request of competent authorities, submit for review shoring and bracing drawings for load bearing and all other walls before demolition. These drawings must be drawn up by a qualified engineer, member of the *Ordre des ingénieurs du Québec*, and must clearly illustrate the proposed method for proceeding. DCC

1.4 SECURITY CODE AND BYLAWS

- .1 Unless otherwise indicated, all work must be executed in conformity with the *Code de construction du Québec*, chapter 1, part 8: Security measures at construction site, also with the National Security Code, and also with the Security code on construction site by the *Commission de la sécurité et santé au travail* (CSST).

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Waste Management and Disposal:
 - .1 Separate waste materials for recycling in accordance with Section 01 74 19 - Construction/Demolition Waste Management and Disposal.
-

1.6 EXISTING CONDITIONS

- .1 Demolish the work as it finds itself on the day of the awarding of the contract.
- .2 Verify the dangerous designated materials survey lists. See section 028101 – Hazardous Materials.
- .3 Should material resembling spray or trowel-applied asbestos or other substance designated hazardous by the survey be encountered, stop work, take preventative measures, and notify DCC Representative immediately.
 - .1 Do not proceed until written instructions have been received from DCC Representative.
- .4 Notify DCC Representative before disrupting building access or services.

1.7 WORK COORDINATION

- .1 Contractor is required to follow work sequence as dictated by the particular conditions of implementation. Work shall be executed in several steps to allow each building trade to proceed with their own work.

Part 2 Products**2.1 MATERIALS AND EQUIPMENT**

- .1 The choice of materials and equipment needed for demolition is the responsibility of the contractor.
- .2 Equipment and machinery shall run only while in use, except where extremal temperatures prohibit shutdown.
- .3 Demonstrate that tools and machinery are being used in manner which allows for salvage of materials in best condition possible

2.2 MATERIALS

- .1 Provide all necessary materials to ensure the temporary waterproofing of the roofs, and at perimeter of new partitions such as wood framing, waterproof canvas, polyethylene sheets, sealing tape, self-sealing elastomeric membranes and/or all materials of tested methods.

2.3 SALVAGE

- .1 The following materials must be subject to selective dismantling for recovery and reuse
 - .1 Corrugated exterior siding.
 - .2 Metallic exterior soffit.

Part 3 Execution**3.1 PREPARATION**

- .1 Work shall be done in accordance with Section 01 35 29.06 - Health and Safety Requirements.

- .2 Protection:
 - .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 Prevent that demolition work obstruct water drainage system.
- .3 Disconnect and re-route electrical, telephone and communication service lines. Post warning signs on electrical lines and equipment which must remain energized to serve other products during period of demolition.
- .4 Locate and protect utility lines. Do not disrupt active or energized utilities traversing premises designated to remain undisturbed.
- .5 Disconnect and cap designated mechanical services.

3.2 DEMOLITION SALVAGE AND DISPOSAL

- .1 Remove parts of existing building to permit new construction.
- .2 Refer to demolition drawings and specifications for items to be salvaged for reuse.
- .3 As much as possible, mend existing partitions using recuperated brick.
- .4 Remove items to be reused, store as directed by Departmental Representative, and re-install under appropriate section of specification.
- .5 Trim edges of partially demolished building elements to tolerances as defined by Departmental Representative to suit future use.
- .6 Dispose of removed materials, to appropriate recycling facilities except where specified otherwise, in accordance with authority having jurisdiction.

3.3 PARTIAL DEMOLITION OF STRUCTURES

- .1 All holes with diameters greater than 50mm for other trades must be undertaken by the contractor.
- .2 Refer to structural drawings for specifications concerning any demolition for this specialty.
- .3 Carefully cut out exterior walls, parapets, roofs, and ceilings to allow the carrying out of the related work prescribed on drawings and specifications and the connecting of the new structure to the existing.
- .4 Coordinate all demolition work with all trades related specialties.
- .5 Refer to mechanical and electrical drawings for any prescription concerning mechanical and electrical items to demolish and for the conduits location and course that will require cutting out and drilling of walls, ceilings, and floors.

3.4 REMOVAL OF HAZARDOUS WASTES

- .1 Remove contaminated or dangerous materials as defined by authorities having jurisdiction, relating to environmental protection, from site and dispose of in safe manner to minimize danger at site or during disposal.
- .2 Before starting the demolition, remove contaminated or dangerous materials from site as directed by Departmental Representative and dispose of them by transporting them to the facilities designated for this purpose and according to section 02 81 01 - Dangerous goods. Refer to the article Existing conditions, in Part 1

3.5 REMOVAL FROM SITE

- .1 Transport recyclable materials for alternate disposal to approved facilities or receiving organizations in accordance with applicable regulations.
- .2 Dispose of all non recyclable materials in containers provided for this matter in accordance with applicable regulations and have them transport to an authorised waste landfill.

3.6 CLEANING

- .1 Keep site clean and organized throughout demolition procedure.

3.7 SITE REMEDIAL WORK

- .1 Upon completion of project, reinstate areas affected by work condition prior to beginning of work and coordinate with that which is adjacent, undisturbed areas.
- .2 Make good surfaces and finishes affected by demolition to the complete satisfaction Departmental Representative, condition which existed prior any demolition work, including but without limiting itself the restoration floors, walls, partitions, and interior ceilings.
- .3 Make good surfaces and finishes affected by mechanical and electrical work. Refer to appropriate engineers drawings regarding all prescriptions for mechanical and electrical articles installations that would imply cutting and/or drilling of walls, partitions, ceilings, and floors thus also repairs and making good.
- .4 Make good elements, surfaces, and finishes of existing ceiling which must be temporarily removed in order to proceed with any mechanical, electrical and structural work.
- .5 Make good any parts of walls, partitions, and ceilings demolished or dismantled for any mechanical, electrical, and structural work described and/or prescribed on engineers drawings and specifications but not necessarily nor precisely identified on the architectural drawings.

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Section 02 41 16 – Structure demolition.
- .2 Geotechnical study – See structure.

1.2 REFERENCES

- .1 Canadian Environmental Protection Act, 1999 (CEPA 1999)
 - .1 Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations (SOR/2005-149)
- .2 Department of Justice Canada
 - .1 Transportation of Dangerous Goods Act, 1992 (TDG Act) 2019, (c. 34)
 - .2 Transportation of Dangerous Goods Regulations (T-19.01-SOR/2001-286)
- .3 Health Canada / Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS)
- .4 National Fire Code of Canada - 2015

1.3 DEFINITIONS

- .1 Dangerous Goods: product, substance, or organism specifically listed or meets hazard criteria established in Transportation of Dangerous Goods Regulations.
- .2 Hazardous Material: product, substance, or organism used for its original purpose; and is either dangerous goods or material that will cause adverse impact to environment or adversely affect health of persons, animals, or plant life when released into the environment.
- .3 Hazardous Waste: hazardous material no longer used for its original purpose and that is intended for recycling, treatment or disposal

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Co-ordinate storage of hazardous materials with DCC Representative and abide by internal requirements for labelling and storage of materials and wastes.
- .2 Store and handle hazardous materials and wastes in accordance with applicable federal and provincial laws, regulations, codes, and guidelines.
- .3 Store and handle flammable and combustible materials in accordance with National Fire Code of Canada requirements.
- .4 Keep no more than 45 litres of flammable and combustible liquids such as gasoline, kerosene and naphtha for ready use.
 - .1 Store flammable and combustible liquids in approved safety cans bearing the Underwriters' Laboratory of Canada or Factory Mutual seal of approval.
 - .2 Storage of quantities of flammable and combustible liquids exceeding 45 litres for work purposes requires the written approval of the DCC Representative.
- .5 Transfer of flammable and combustible liquids is prohibited within buildings.
- .6 Transfer flammable and combustible liquids away from open flames or heat-producing devices.
- .7 Solvents or cleaning agents must be non-flammable or have flash point above 38 degrees C.

- .8 Store flammable and combustible waste liquids for disposal in approved containers located in safe, ventilated area. Keep quantities to minimum.
- .9 Observe smoking regulations, smoking is prohibited in areas where hazardous materials are stored, used, or handled.
- .10 Storage requirements for quantities of hazardous materials and wastes in excess of 5 kg for solids, and 5 litres for liquids:
 - .1 Store hazardous materials and wastes in closed and sealed containers.
 - .2 Label containers of hazardous materials and wastes in accordance with WHMIS.
 - .3 Store hazardous materials and wastes in containers compatible with that material or waste.
 - .4 Segregate incompatible materials and wastes.
 - .5 Ensure that different hazardous materials or hazardous wastes are stored in separate containers.
 - .6 Store hazardous materials and wastes in secure storage area with controlled access.
 - .7 Maintain clear egress from storage area.
 - .8 Store hazardous materials and wastes in location that will prevent them from spilling into environment.
 - .9 Have appropriate emergency spill response equipment available near storage area, including personal protective equipment.
 - .10 Maintain inventory of hazardous materials and wastes, including product name, quantity, and date when storage began.
- .11 Ensure personnel have been trained in accordance with Workplace Hazardous Materials Information System (WHMIS) requirements.
- .12 Report spills or accidents immediately to DCC Representative. Submit a written spill report to DCC Representative within 24 hours of incident.

1.5 TRANSPORTATION

- .1 Transport hazardous materials and waste materials in accordance with Transportation of Dangerous Goods Act, Transportation of Dangerous Good Regulation, and applicable provincial regulations.
- .2 When hazardous waste is generated on site:
 - .1 Co-ordinate transportation and disposal with Departmental Representative.
 - .2 Comply with applicable federal, provincial and municipal laws and regulations for generators of hazardous waste.
 - .3 Use licensed carrier authorized by provincial authorities to accept subject material.
 - .4 Before shipping material obtain written notice from intended hazardous waste treatment or disposal facility it will accept material and it is licensed to accept this material.
 - .5 Label containers with legible, visible safety marks as prescribed by federal and provincial regulations.
 - .6 Only trained personnel handle, offer for transport, or transport dangerous goods.
 - .7 Provide photocopy of all shipping documents and waste manifests to the Departmental Representative.
 - .8 Follow the progress of the manifest completed by the recipient of the dangerous goods shipped. Give the Departmental Representative a photocopy of the completed manifest.
 - .9 Report discharge, emission, or escape of hazardous materials immediately to Departmental Representative and appropriate provincial authority. Take reasonable measures to control release.

Part 2 Products**2.1 MATERIALS****.1 Description:**

- .1 Bring on site only quantities hazardous material required to perform Work.
- .2 Maintain MSDS in proximity to where materials are being used. Communicate this location to personnel who may have contact with hazardous materials.

Part 3 Execution**3.1 DISPOSAL**

- .1 Dispose of hazardous waste materials in accordance with applicable federal and provincial acts, regulations, and guidelines.
- .2 Recycle hazardous waste to a cost-effective recycling process if available.
- .3 Send hazardous wastes to authorized hazardous waste disposal or treatment facilities.
- .4 Burning, diluting, or mixing hazardous wastes for purpose of disposal is prohibited.
- .5 Disposal of hazardous materials in waterways, storm or sanitary sewers, or in municipal solid waste landfills is prohibited.
- .6 Dispose of hazardous wastes in timely fashion in accordance with applicable provincial regulations.
- .7 Minimize generation of hazardous waste to maximum extent practicable. Take necessary precautions to avoid mixing clean and contaminated wastes.

3.2 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 00 - Cleaning.
 - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 - Cleaning.

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Division 03 – See structure.
- .2 Section 07 92 00 – Joint sealants.
- .3 Section 09 00 10 – Finish schedule.
- .4 Section 09 30 13 – Ceramic tiling.
- .5 Section 09 65 19 – Resilient tile flooring.
- .6 Section 09 67 00 – Fluid-applied flooring.
- .7 Section 12 48 00 – Floor grating.
- .8 Section 32 31 13 – Chainlink fence and gates

1.2 REFERENCES

- .1 American Society for Testing and Materials (ASTM)
 - .1 ASTM C779/C779M-05 (2010), Standard Test Method for abrasion Resistance of Horizontal Concrete Surfaces
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB 19.24-M90, Multicomponent, Chemical-Curing Sealing Compound.
 - .2 CAN/CGSB-25.20-95, Surface Sealer for Floors
- .3 Canadian Standard Association (CSA)
 - .1 A23.1-09/A23.2-09, Concrete Materials and Methods of Concrete Construction / Methods of Test for Concrete

1.3 SUBMITTALS

- .1 Submit submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Data Sheets :
 - .1 Provide manufacturer's printed product literature and data sheets for concrete finishes. These should include product characteristics, performance criteria, physical size, finish and limitations to the Departmental Representative for review and comments.

1.4 ENVIRONMENTAL REQUIREMENTS

- .1 Temporary lighting:
 - .1 A source of light providing at least 1200 W per 40 square metres of treated surface shall be supplied; the source shall be placed 2.5 m above the treated floor.
- .2 Electrical power:
 - .1 Provide sufficient electrical power to operate equipment normally used during construction.

- .3 Work area:
 - .1 Make work area water tight protected against rain and detrimental weather conditions.
- .4 Temperature:
 - .1 Maintain an ambient temperature of at least 10°C and a maximum 40% relative humidity for a period of 7 days before implementation, during implementation and for at least 48 hours after completion of the work.
 - .2 Comply with the manufacturer's minimum requirements for the product used.
- .5 Moisture:
 - .1 The moisture content of the substrate shall be within the limits stipulated by the manufacturer of the product used.
- .6 Ventilation:
 - .1 Ventilate area of work as directed by Departmental Representative by use of approved portable supply and exhaust fans.
 - .2 Continuous ventilation shall be provided during and after product application.

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:
 - .1 Deliver materials to site in original factory packaging, labelled with manufacturer's name, address.

1.6 PACKAGING WASTE MANAGEMENT

- .1 Remove for reuse and return by manufacturer of pallets, crates, padding, and packaging materials in accordance with Section 01 74 19 - Construction/Demolition Waste Management and Disposal.

Part 2 Products**2.1 MATERIALS**

- .1 Auxiliary backer rod for joints: closed cell polyethylene foam, required diameters based on the dimensions shown on the drawings, such as approved by the DCC Representative.
- .2 Joint sealers two-component, polysulphide-based product with a chemical cure, in compliance with the CAN/CGSB 19.24 Type 2, Class A standard, such as approved by the DCC Representative.
- .3 Hardener: colourless, non-metallic floor hardener such as approved by the DCC Representative. The hardener need to be compatible with floor finish specified in architecture. No hardener is required when polishing of the concrete slab is specified in architecture.

2.2 PERFORMANCE REQUIREMENTS

- .1 Product quality and quality of work in accordance with Section 01 61 00 – Common Product Requirements.

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

2.3 DENSIFIER / SEALANT

- .1 Blend of silicate and silicate polymers.
 - .1 Characteristics:
 - .1 Resistance to abrasion (ASTM C779)
 - .2 Friction coefficient: dry condition 0,81, humid 0,72.
 - .3 Waterproofing : RILEM Method 11.4.

2.4 CURING PRODUCT

- .1 Select water-based curing product, free from organic solvent or otherwise prescribed.

2.5 MIXES

- .1 Mixing ratios in accordance with manufacturer's written instructions.

2.6 INTERIOR FINISHING PRODUCTS

- .1 Leveling compound and / or preparation and / or leveling to be used on existing floor surfaces to receive a flexible floor covering: cement-based fast setting modified polymers.
- .2 Slopes from 6mm to 50mm.
 - .1 One-component, shrinkage-compensated, polymer-modified, fast-setting cementitious mortar with a corrosion inhibitor. Products containing gypsum are not acceptable.
 - .2 Have not less than the following physical properties after 7 days:
 - .1 Compressive strength : 25 MPa.
 - .2 Flexural strength : 7 MPa.
 - .3 Volume change : <-0,05%
 - .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.
- .3 Slopes from 10mm to 100mm
 - .1 Cementitious mortar one-component, shrinkage-compensated.
 - .2 Have not less than the following physical properties after 7 days:
 - .1 Compressive strength : 25 MPa.
 - .2 Flexural strength : 6 MPa.
 - .3 Capable of being applied in layers up to 100 mm thick with clean pea gravel, being brought to feather edge, and being trowelled to smooth finish.
 - .4 Galvanized 50mm x 50mm welded wire mesh if required by the Manufacturer.

Part 3 Execution**3.1 SURFACES INSPECTION**

- .1 Ensure that the condition of the slab is suitable for the application of treatment products and levels comply with tolerances.

3.2 SLABS PREPARATION

- .1 Unless otherwise indicated, sand the visible edges of the concrete surfaces with a carborundum so as to give them a radius of curvature of 3 mm
- .2 Saw control joints in accordance with CAN / CSA A23.1, no more than 24 hours after placing the concrete
- .3 Use mechanical removal methods to get rid of surfaces chlorinated rubber or existing surface treatment product.
- .4 Use eye protection and respiratory protection during the removal of chlorinated rubber or existing surface treatment products.
- .5 Execute a 10mm blastrack of concrete surfaces to allow realization of slopes in showers and dogs enclosures.

3.3 FINISHES

- .1 Apply densifier sealant, densifier and protector for concrete in conformance with manufacturer written instructions on a surface that has dried for a minimal 24 hours period.
- .2 Once the treatment product is completely dry, fill with an appropriate sealant the control joints and the joints made at the meeting points of the vertical surfaces
- .3 Apply floor treatment product in accordance with the product manufacturer's written instructions.
- .4 Remove all traces of sprayed product outside limit. Remove any sealant applied to adjoining surfaces.

3.4 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 00 - Cleaning.
 - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 - Cleaning.

3.5 PROTECTION

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

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Section 04 05 12 – Masonry mortar and grout.
- .2 Section 04 05 19.01 – Masonry anchorage and reinforcing.
- .3 Section 04 05 23 – Masonry accessories.
- .4 Section 04 22 00 – Concrete unit masonry
- .5 Section 05 50 00 – Architectural metal fabrications.
- .6 Section 06 10 00 – Rough carpentry.
- .7 Section 07 92 00 – Joint sealants.
- .8 Section 08 44 13 – Glazed aluminum curtain walls.
- .9 See also mechanical and electrical documents.

1.2 REFERENCES

- .1 Canadian Standards Association (CSA)
 - .1 CAN/CSA A165 Series-04 (R2009), Standards on Concrete Masonry Units (Consists of A165.1, A165.2 and A165.3).
 - .2 CAN/CSA A179-04 (R2009), Mortar and Grout for Unit Masonry.
 - .3 CAN/CSA A371-04 (R2009), Masonry Construction for Buildings.

1.3 DOCUMENTS/SAMPLES SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Provide manufacturer's printed product literature, specifications and datasheets with respect to product characteristics.
- .3 Samples:
 - .1 Provide samples as follows:
 - .1 Two (2) of each type of clay brick concrete masonry units specified, including special shapes, supplemented with specific requirements in Sections.
 - .2 Two (2) cured, and coloured samples of mortar, illustrating mortar colour and colour range, supplemented with specific requirements in Section 04 05 12 - Masonry Mortar and Grout.
 - .3 Two (2) of each type of masonry accessory and flashing specified, supplemented by specific requirements in Section 04 05 23 - Masonry Accessories.

- .4 Two (2) of each type of masonry anchorage, reinforcement and connector proposed for use, supplemented by specific requirements in Section 04 05 19 - Masonry Anchorage and Reinforcing.

.4 Shop drawings:

- .1 The shop drawings submitted must bear the seal and signature of an engineer, member of the *Ordre des Ingénieurs du Québec* (OIQ)
- .2 The shop drawings must indicate the details of the required temporary bracing, which must be designed to withstand the overloads due to the wind and lateral forces throughout the implementation work.

- .5 Certificates: provide manufacturer's product certificates certifying materials comply with specified requirements.

- .6 Submit manufacturer's instructions for the care, cleaning and maintenance of glazed masonry units and attach them to the manual mentioned in Section 01 78 00 – closeout submittals.

1.4 DELIVERY, STORAGE, AND HANDLING

- .1 Deliver 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 Storage and Handling Protection:

- .1 Keep materials dry until use except where wetting of bricks is specified.
- .2 Store under waterproof cover on pallets or plank platforms held off ground by means of plank or timber skids.

1.5 PACKAGING WASTE MANAGEMENT

- .1 Remove for reuse and return of pallets, crates, padding, and packaging materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.

1.6 SITE CONDITIONS

- .1 Ambient Conditions: assemble and erect components when temperatures are above 5 degrees C.

- .2 Weather Requirements: to CSA-A371.

.3 Cold weather requirements:

- .1 Add the following requirements to those stipulated in CSA-A371:
 - .1 Maintain temperature of mortar between 5 degrees C and 50 degrees C until batch is used or becomes stable.
 - .2 Maintain ambient temperature of masonry work and its constituent materials between 5 degrees C and 50 degrees C and protect site from windchill.
 - .3 Maintain temperature of masonry above 0 degrees C for minimum of 7 days, after mortar is installed.
 - .4 Preheat unheated wall sections in enclosure for minimum 72 hours above 10 degrees C, before applying mortar.

- .2 Hot weather requirements:
 - .1 Protect freshly laid masonry from drying too rapidly, by means of waterproof, non-staining coverings.
 - .2 Keep masonry dry using waterproof, non-staining coverings that extend over walls and down sides sufficient to protect walls from wind driven rain, until masonry work is completed and protected by flashings or other permanent construction.
- .3 Spray mortar surface at intervals and keep moist for maximum of three days after installation.

Part 2 Products**2.1 MATERIALS**

- .1 Masonry materials are specified in pertinent sections of article 1.1 - Related sections.

Part 3 Execution**3.1 MANUFACTURER'S INSTRUCTIONS**

- .1 Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

3.2 EXAMINATION

- .1 Examine conditions, substrates and work to receive work of this Section.
 - .1 Co-ordinate with Section 01 71 00 - Examination and Preparation.
- .2 Examine openings to receive masonry units. Verify opening size, location, and that opening is square and plumb, and ready to receive work of this Section.
 - .1 Inform Ministerial Representative of unacceptable conditions immediately upon discovery.
 - .2 Proceed with installation after unacceptable conditions have been remedied and after receipt of written approval from Ministerial Representative.
- .3 Verification of Conditions:
 - .1 Verify that:
 - .1 Substrate conditions which have been previously installed under other sections, or contracts, are acceptable for product installation in accordance with manufacturer's instructions prior to installation of clay brick and concrete block.
 - .2 Field conditions are acceptable and are ready to receive work.
 - .3 Built-in items are in proper location, and ready for roughing into masonry work.
 - .2 Commencing installation means acceptance of existing substrates.

3.3 PREPARATION

- .1 Surface Preparation: prepare surface in accordance with manufacturer's written recommendations and co-ordinate with Section 01 71 00 - Examination and Preparation.
- .2 Establish and protect lines, levels, and coursing.

- .3 Protect adjacent materials from damage and disfiguration.

3.4 GENERAL

- .1 Except where specified otherwise, execute masonry work in accordance with CSA-A371..
- .2 Provide temporary bracing of masonry work during and after erection until permanent lateral support is in place.
- .3 Build masonry plumb, level, and true to line, with vertical joints in alignment, respecting construction tolerances permitted by CSA A371.
- .4 Layout coursing and bond to achieve correct coursing heights, and continuity of bond above and below openings, with minimum of cutting.

3.5 CONSTRUCTION

- .1 Exposed masonry:
- .1 Remove chipped, cracked, and otherwise damaged units, in accordance with CSA A-165, in exposed masonry and replace with undamaged units.
- .2 Jointing:
- .1 Allow joints to set just enough to remove excess water, then tool with round jointer to provide smooth, joints true to line, compressed, uniformly concave joints where concave joints are indicated.
- .3 Cutting:
- .1 Cut out for electrical switches, outlet boxes, and other recessed or built-in objects.
- .2 Make cuts straight, clean, and free from uneven edges.
- .4 Building-In:
- .1 Build in items required to be built into masonry.
- .2 Prevent displacement of built-in items during construction. Check plumb, location and alignment frequently, as work progresses.
- .3 Brace door jambs to maintain plumb. Fill spaces between jambs and masonry with mortar.
- .5 Wetting of bricks:
- .1 Except in cold weather, wet bricks having initial rate of absorption exceeding 1g/minute/1000 mm²: wet to uniform degree of saturation, 3 to 24 hours before laying, and do not lay until surface dry.
- .2 Wet tops of walls built of bricks qualifying for wetting, when recommencing work on such walls.
- .6 Wetting of blocks:
- .1 Except in cold weather, wet blocks having initial rate of absorption exceeding 1g/minute/1000 mm²: wet to uniform degree of saturation, 3 to 24 hours before laying, and do not lay until surfaces are dry.

- .7 Movement of masonry units:
 - .1 Leave 3 mm space below shelf angles.
 - .2 Leave 25 mm space between top of non-load bearing walls and partitions and structural elements; do not use wedges.
- .8 Loose steel lintels:
 - .1 Install loose steel lintels above openings. Center over width of opening with 200mm support on each sides.
- .9 Control joints:
 - .1 Construct continuous control joints as indicated at 10m spacing.
- .10 Expansion joints:
 - .1 Construct continuous expansion joints as indicated on drawings, if required.
- .11 Interface with other work:
 - .1 Cut openings in existing work as indicated.
 - .2 Openings in walls: reviewed by DCC Representative.
 - .3 Make good existing work. Use materials to match existing.

3.6 SITE TOLERANCES

- .1 Tolerances in notes of the article 5.3 in CSA A371 standard are applicable.

3.7 PROTECTION

- .1 Temporary Bracing:
 - .1 Provide temporary bracing of masonry work during and after erection until permanent lateral support is in place.
 - .2 Bracing approved by DCC Representative.
 - .3 Brace masonry walls as necessary to resist wind pressure and lateral forces during construction.
- .2 Moisture Protection:
 - .1 Keep masonry dry using waterproof, nonstaining coverings that extend over walls and down sides sufficient to protect walls from wind driven rain, until completed and protected by flashing or other permanent construction.
 - .2 Cover completed and partially completed work not enclosed or sheltered with waterproof covering at end of each work day. Anchor securely in position.
 - .3 Air Temperature Protection: protect completed masonry as recommended in 1.7 site conditions.

3.8 CLEANING

- .1 Clean in accordance with Section 01 74 11 - Cleaning.
 - .2 Progress Cleaning: in accordance with related masonry sections.
-

- .3 Final Cleaning:
 - .1 Perform cleaning after installation to remove construction and accumulated environmental dirt.
 - .2 Upon completion of installation and verification of performance of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Section 04 05 00 – Common work results for masonry
- .2 Section 04 05 19.01 – Masonry anchorage and reinforcing
- .3 Section 04 05 27 – Masonry accessories
- .4 Section 04 22 00 – Concrete masonry units

1.2 REFERENCES

- .1 American Society for Testing and Materials (ASTM)
 - .1 ASTM C207-18, Standard Specification for Hydrated Lime for Masonry Purposes
 - .2 ASTM C979/C979M-16, Standard Specification for Pigments for Integrally colored Concrete
- .2 Canadian Standards Association (CSA International)
 - .1 CAN/CSA-A23.1-09/A23.2-19, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete
 - .2 CSA-A165 Series-04 (R2009), Standards on Concrete Masonry Units.
 - .3 CAN/CSA A179-04 (R2009), Mortar and Grout for Unit Masonry
 - .4 CAN/CSA A371-04 (R2009), Masonry Construction for Buildings
 - .5 CAN/CSA-A3000-18, Cementitious materials compendium (consist of A3001, A3002, A3003, A3004 and A3005)

1.3 DOCUMENTS AND SAMPLES

- .1 Product Data:
 - .1 All documents shall be submitted in triplicate (3). A single (1) annotated copy shall be returned to the Contractor.
 - .2 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
 - .3 Provide manufacturer's printed product literature, specifications and datasheets.
- .2 Certificates
 - .1 Provide certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.4 TRANSPORT, STORAGE, AND HANDLING

- .1 Deliver, store and handles masonry mortar and grout materials in accordance with Section 01 61 00 - Common Product Requirements, supplemented as follows:
 - .1 Deliver pre-packaged, dry-blended mortar mix to project site in labelled plastic-lined bags each bearing name and address of manufacturer, production codes or batch numbers, and colour or formula numbers.

- .2 Maintain mortar, grout and packaged materials clean, dry, and protected against dampness, freezing, traffic and contamination by foreign materials until use. Store under waterproof cover on pallets or plank platforms held off ground by means of plank or timber skids.

1.5 PACKAGING WASTE MANAGEMENT

- .1 Remove for reuse and return of pallets and packaging materials in accordance with Section 01 74 19 - Construction/Demolition Waste Management and Disposal.

1.6 SITE CONDITIONS

- .1 Ambient Conditions: maintain materials and surrounding air temperature to:
 - .1 Minimum 10 degrees C prior to, during, and 48 hours after completion of masonry work.
 - .2 Maximum 32 degrees C prior to, during, and 48 hours after completion of masonry work.

Part 2 Products

2.1 MATERIALS

- .1 Use same brands of materials and source of aggregate for entire project.
- .2 Mortar and grout: in compliance with CSA A179 standard.
- .3 Aggregates: when 6 mm joints are specified, aggregates used need to pass through sieve of 1,18 mm.
- .4 Cement:
 - .1 Portland Cement: in compliance with CAN/CSA-A3000, Type GU - General use hydraulic cement (Type 10) gray colour.
 - .2 Masonry Cement: Usage is prohibited.
 - .3 Packaged Dry Combined Materials for mortar: in compliance with CAN/CSA A179, using gray colour cement.
- .5 Aggregate: supplied by one supplier.
 - .1 Fine Aggregate: in compliance with CAN/CSA A179, natural sand.
 - .2 Course Aggregate: in compliance with CAN/CSA A179.
- .6 Water: clean and potable, in compliance with CAN/CSA A179.
- .7 Lime:
 - .1 Hydrated Lime: in compliance with CAN/CSA A179, Type S.

2.2 ADMIXTURES

- .1 Usage of admixture not specified aforementioned is prohibited.

2.3 MORTAR MIXES

- .1 Mortar for exterior masonry above grade:

- .1 Non-Loadbearing: type N. Integrally colored factory mixed. Unless otherwise indicated by structure.
- .2 Mortar for interior masonry:
 - .1 Loadbearing and non-loadbearing: Unless otherwise specified by structure, based on type S mortar. Unless otherwise indicated by structure.
- .3 Parging mortar: type N in compliance with CAN/CSA-A179.
- .4 Following applies regardless of mortar types and uses specified above:
 - .1 Mortar for grouted reinforced masonry: type based on CSA 179 specifications, factory mixed.

2.4 MORTAR MIXING

- .1 Use pre-blended, pre-coloured mortar prepackaged under controlled factory conditions.
 - .1 For batch mixer: Pour water first, then mortar mixes in a clean mixer. After mixing, scrape interior of mixer and restart it for one minute.
 - .2 Mix mortar ingredients in accordance with CAN/CSA A179 in quantities needed for immediate use.
- .2 Use mortar within 1-1/2 hour after mixing at temperatures of 25 degrees C and above, or 2-1/2 hours at temperatures under 25 degrees C, (in compliance with CAN/CSA A371).

2.5 GROUT

- .1 Grout to be used in the case of connecting beams: grout having a resistance of 10 to 12.5 MPa at 28 days and a slump of 200-250 mm; premixed according to CAN / CSA-A179
- .2 Grout to be used in the case of lintels: grout having a resistance of 10 to 12.5 MPa at 28 days and a slump of 200-250 mm; premixed according to CAN / CSA-A179 standard
- .3 Grout: compressive strength of at least 12.5 MPa at 28 days. The maximum size of the aggregates and the slump of the material must comply with the CAN / CSA-A179 standard.

2.6 GROUT MIXING

- .1 Mix the components of the grout in quantities necessary for immediate use in accordance with standard CAN / CSA-A179.
- .2 Do not use admixtures based on calcium chloride or other chlorides.
- .3 Discard grout that has not been used within the following times: 1 hour 30 minutes. Reference CAN / CSA-A371 standard.

Part 3 Execution**3.1 EXAMINATION**

- .1 Request inspection of spaces to be grouted.

3.2 PREPARATION

- .1 Apply bonding agent to existing concrete surfaces.
- .2 Plug clean-out holes with block masonry units. Brace masonry for wet grout pressure.

3.3 MANUFACTURER'S INSTRUCTIONS

- .1 Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

3.4 IMPLEMENTATION

- .1 Do masonry mortar and grout work in accordance with CAN/CSA A179 except where specified otherwise.
- .2 Apply parging in uniform coating not less than total 10 mm thick, where indicated.
- .3 Remove excess mortar from grout spaces.

3.5 MIXING

- .1 All pointing mortar can be mixed using a regular paddle mixer. Only electric motor mixers are permissible. Mixers run on hydrocarbons are not permitted, due to fumes.
- .2 Clean all mixing boards and mechanical mixing machine between batches.
- .3 Mortar must be weaker than the units it is binding.
- .4 Contractor to appoint one individual to mix mortar, for duration of project. In the event that this individual must be changed, mortar mixing must cease until the new individual is trained, and mortar mix is tested.

3.6 MOTAR APPLICATION

- .1 Install pre-mixed mortar in accordance with manufacturer's instructions.
- .2 Install mortar in accordance with CAN / CSA-A179 standard.
- .3 Remove excess mortar from spaces where grout is to be applied.

3.7 GROUT APPLICATION

- .1 Apply grout in accordance with manufacturer's instructions.
- .2 Apply grout in accordance with CAN / CSA-A179 standard.
- .3 Introduce grout into cavities of masonry work so as to eliminate all voids.
- .4 Do not apply the grout in a layer more than 400 mm thick without consolidating the mass by agitating it with a rod.
- .5 Avoid moving the rebar when installing the grout.

3.8 QUALITY CONTROL

- .1 Tests carried out on site / Inspection: in accordance with the prescriptions of section 04 05 00 - Masonry - General requirements concerning the results of the work and those indicated below.
 - .1 Test and evaluate mortar before construction work, in accordance with CAN / CSA A179 standard.
 - .2 Test and evaluate the grout before construction work, in accordance with CAN / CSA A179 standard; carry out the tests in accordance with the prescriptions set out in the specified sections relating to the various masonry elements.
- .2 On-site inspections by the manufacturer: according to section 04 05 00 - Masonry - General requirements concerning the results of the work.

3.9 CLEANING

- .1 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.
- .2 Remove spills and seepage using clean sponge and water.
- .3 Clean masonry with low pressure clean water and soft natural bristle brush.
- .4 Waste Management: separate waste materials recycling in accordance with Section 01 74 19 - Construction/Demolition Waste Management and Disposal.

3.10 PROTECTION OF COMPLETED WORK

- .1 Cover completed and partially completed work not enclosed or sheltered with waterproof covering at end of each work day. Anchor securely in position.

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Section 04 05 00 – Common work: Result for masonry
- .2 Section 04 05 12 – Masonry mortar and grout
- .3 Section 04 05 23 – Masonry accessories
- .4 Section 04 22 00 – Concrete unit masonry
- .5 Section 07 21 16 - Blanket insulation
- .6 Frames for masonry - See also structure.

1.2 References

- .1 American Society for Testing and Materials (ASTM)
 - .1 ASTM A36/A36M-19, Standard Specification for Carbon Structural Steel.
 - .2 ASTM A82/A82M-05a, Standard Specification for Steel Wire, Plain, for Concrete Reinforcement.
 - .3 ASTM A167-99 (R2004), Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
 - .4 ASTM A307-14th1, Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
 - .5 ASTM A580/A580M-06, Standard Specification for Stainless Steel Wire.
 - .6 ASTM A641/A641M-19, Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.
 - .7 ASTM-A666-03, Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
- .2 Canadian Standards Association (CSA/CSA International)
 - .1 CAN/CSA-A23.1:19 /A23.2:19, Concrete - Constituents and execution of work/test methods and standard practices for concrete.
 - .2 CAN/CSA-A179-14, Mortar and grout for large masonry.
 - .3 CAN/CSA-A370-14, Connectors for masonry.
 - .4 CAN/CSA-A371-14, Building Masonry.
 - .5 CAN/CSA-S304.1-04 (C2010), Masonry Works Calculation.

1.3 DOCUMENTS/SAMPLES TO BE SUBMITTED

- .1 Submit required documents and samples in accordance with section 01 33 00 - Submittal procedures.
- .2 Data sheets
 - .1 Submit the required technical sheets as well as the manufacturer's specifications and documentation for the products to be used in this work.

1.4 QUALITY ASSURANCE

- .1 Test reports: Submit test reports certifying that products, materials and materials meet physical characteristics and performance criteria requirements.
- .2 Certificates: Submit documents signed by the manufacturer certifying that products, materials and materials meet physical characteristics and performance criteria requirements.

1.5 MEASURING ON SITE

- .1 Take the necessary measures on the spot to ensure an appropriate adjustment of the elements implemented.

1.6 TRANSPORTATION, STORAGE AND HANDLING

- .1 Transport, store and handle masonry frames, connectors and anchors in accordance with section 01 61 00 - Common product requirements and those listed below.
 - .1 Deliver frames, connectors and anchors identified on workshop drawings and installation drawings.

1.7 PACKAGING WASTE MANAGEMENT

- .1 Sort and recycle waste in accordance with section 01 74 19 - Construction / demolition waste management and disposal.

Part 2 Products**2.1 MATERIALS**

- .1 Connectors: CAN/CSA compliant -A370 and CSA-S304.1.
- .2 Corrosion protection: CSA-S304.1 and CAN/CSA-A370 standards for any steel element installed in exterior structures.
- .3 Fixing devices: installed after construction.
 - .1 Screw pads and ankles: plastic, nylon or lead, resistant to vibrations, chemicals, water, placed in mortar joints.
 - .2 Screws and bolts: type and size suitable for application, arranged according to the indications.
 - .3 Nails: ringed or cemented steel, type and size suitable for application.
 - .4 Mechanical attachments (gun-down): suitable type and length for application, and consistent with manufacturer's recommendations for use, load capacity and restraint capacity.
 - .5 Adhesives: epoxy putty, plastic putty or contact adhesive, designed to be used with fastening devices, in accordance with the manufacturer's recommendations.
- .4 Attaches: hot immersion galvanized steel, according to CAN/CSA-A370.
 - .1 Undulating fasteners: according to CAN/CSA-A370. 1mm thick.
 - .2 Non-continuous attachments: according to CAN/CSA-A370, rectangular stirrups, Z-shaped rods, cold-stretched steel, suitable for application.
 - .3 Adjustable attachments: CAN/CSA-A370, trademark, type, style and size suitable for application and in accordance with manufacturer's recommendations. 75mm height fit.
- .5 Anchors: CAN/CSA-compliant -A370.

- .1 Traditional anchors: folded and threaded anchor bars at the end, plate anchors, L-shaped bolts, size suitable for application.
- .2 Stall anchors: expandable anchors with a wedge and bolt of size suitable for application.
- .3 Sleeve anchors: with sleeve and bolt, suitable for application.
- .4 Autonomous anchors: double-walled glass/plastic capsules with epoxy resin and hardener.
- .5 Dovetail anchors: 25 mm x x thick folded steel strips, galvanized to CAN/CSA19 mm3 mm-A370, Table 5.2.
- .6 Anchor bolts: trademarked (patented) anchors, made of steel, galvanized to THE CAN/CSA-A370, Table 5.2.
- .6 Traditional bolts
 - .1 Bolts: according to the ASTM A36/A36M standard, made of steel bars threaded in the workshop, straight with hexagonal or square head nuts.
 - .2 Plate anchors: steel under asSTM A36/A36M, with a circular plate welded perpendicular to the axis of a threaded steel rod at the opposite end.
 - .3 Crossing bolts: ASTM A307 threaded rods or steel bars threaded to ASTM A36/A36M.
- .7 Adhesive anchors: ready-to-use registered anchoring systems consisting of a double-walled glass capsule containing epoxy resin, hardener and aggregate.
- .8 Masonry frame: heavy type, interlocking or triangulated, made of deformed wires of 4.76 mm minimum diameter, galvanized finish 40 mm less than the thickness of the wall. For single-wall wall, and cavities (two (2) walls).

2.2 SHAPING

- .1 Frames must be shaped in accordance with the requirements of CAN/CSA-A23.1 and the Reinforcing Steel Manual of Standard Practice, published by the Reinforcing Steel Institute of Canada.
- .2 Connectors and anchors must be shaped in accordance with CAN/CSA A370.
- .3 The location of the joints between the frames, other than those shown in the set-up drawings, must be approved by the Department's Representative.
- .4 Subject to approval by the Department's Representative, the frames must be welded in accordance with CSA W186 requirements.
- .5 Before being shipped, frames, connectors and anchors must be clearly marked according to the designs.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

- .1 Comply with the manufacturer's written recommendations, including any available technical bulletins, instructions on handling, storing and implementing products, and technical fact sheets.

3.2 PREPARATORY WORK

- .1 Supervise and coordinate the work of setting up metal connectors and anchors for masonry provided under other sections.

3.3 POSE

- .1 Unless otherwise indicated, provide and lay anchors in accordance with the requirements of CAN/CSA-A370, CAN/CSA-A371, CAN/CSA-A23.1 and CSA-S304.1.
- .2 Attach masonry siding to the support in accordance with the National Building Code, CSA-S304.1 and CAN/CSA-A371 and as indicated

3.4 BINDING AND BINDING

- .1 Link the walls of two or more walls with connectors and metal anchors, in accordance with CSA-S304 and CAN/CSA A371 standards and as directed.
- .2 Attach masonry veneers to the support in accordance with the National Building Code (NBC), CSA-S304.1 and CAN/CSA A371 standards and as directed.
- .3 Place non-continuous adjustable frames for single-wall and multi-walled wall joints as directed and in accordance with CAN/CSA A370 and CAN/CSA A371.
 - .1 Link single-walled or multi-walled walls with metal connectors in accordance with CAN/CSA A371 and as indicated.
 - .2 Place frames in horizontal joints at 400 mm of entrax.
 - .3 Place frames in the first horizontal joint above and below each bay and extend them to a length of 400mm on either side of the bay.
 - .4 Place continuous frames in the first joint below the top of the walls.
 - .5 Straddle the ends of the frames to a length of at least 150mm.
 - .6 Connect corners and intersections with anchor legs at 400 mm of entrax.

3.5 GROUT INJECTION

- .1 Inject grout into masonry in accordance with CSA-S304.1, CAN/CSA-A371 and CAN/CSA-A179 and as indicated.

3.6 LAYS ANCHORS

- .1 Provide and lay metal anchors in accordance with CAN/CSA-A370 and CAN/CSA-A371 and as directed at structural designs.

3.7 LAYS ANCHORS AND LATERAL SUPPORTS

- .1 Provide and lay anchors and side supports in accordance with CSA-S304.1 and as indicated

3.8 SPLITTING JOINTS

- .1 Unless otherwise indicated, no continuous frame should pass through a splitting joint.

3.9 FOLDING EXECUTED ON-SITE

- .1 Rebars, connectors and anchors should not be bent or bent on site unless specifically stated or specifically authorized by the Department's Representative.
- .2 When on-site folding is permitted, proceed without heat, slowly applying uniform pressure.
- .3 Replace rebar, connectors and cracked or cracked anchors

3.10 TOUCH-UPS ON SITE

- .1 Retouch the cut or damaged ends of frames, connectors and anchors galvanized or coated with an epoxy coating with a compatible finishing product to ensure continuity of their protective coating.

3.11 CLEANING

- .1 Do the cleaning work in accordance with section 01 74 00 - Cleaning.

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Section 04 05 00 – Common Work results for masonry.
- .2 Section 04 05 12 – Masonry mortar and grout.
- .3 Section 04 05 19.01 – Masonry anchorage and reinforcing
- .4 Section 04 22 00 – Concrete masonry units.

1.2 REFERENCES

- .1 American Society for Testing and Materials (ASTM)
 - .1 ASTM D2240-15E1, Standard Test Method for Rubber Property - Durometer Hardness.
- .2 Canadian Standards Association (CSA)
 - .1 CAN/CSA A371-14, Masonry Construction for Buildings

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, specifications and datasheets. Include product characteristics, performance criteria, and limitations.

1.4 FIELD MEASUREMENTS

- .1 Make field measurements necessary to ensure proper fit of members.

1.5 DELIVERY, STORAGE, AND HANDLING

- .1 Deliver, store and handle masonry accessories in accordance with, Section 01 61 00 - Common Product Requirements supplemented as follows:
 - .1 Keep fillers and adhesives dry, protected against dampness, and freezing.
 - .2 Store packaged materials off ground and in accordance with manufacturer's written instructions.

1.6 PACKAGING WASTE MANAGEMENT:

- .1 Separate waste materials for recycling in accordance with Section 01 74 19 - Construction/Demolition Waste Management and Disposal.

Part 2 Products**2.1 MATERIALS**

- .1 Control joint filler: purpose-made elastomeric to ASTM D2240 of oversized required (twice the width of the joints).

- .2 Masonry general anchoring: recommended by the manufacturer of the flashings according to the needs of the work, in stainless steel.
- .3 Joint sealant: conformance with prescriptions of section 07 92 00 – Joints sealants.
- .4 Compartmentalization seal: Closed cell neoprene gasket, 40 mm in diameter.
- .5 Expansion and control joint filler: closed cell PVC, joint thickness on the cladding full depth minus the joint sealant and backing.

2.2 MOISTURE CONTROL

- .1 Weeping vents: flexible plastic elements in polypropylene-copolymer, color corresponding to the color of the mortar, height 89mm; preventing the entry of insects.
- .2 Mortar burr deflectors with integrated insect barrier: in shape and size appropriate to the wall cavity.
 - .1 Wall cavity: 25 mm.
 - .2 Provide a trapezoidal burr deflector suspending mortar burrs at uneven heights to drain moisture from the cavity and helping to maintain air flow within the cavity.
 - .3 Made of 25mm thick polyester with 90% open mesh.
 - .4 The insect barrier is a densely woven membrane attached to the face of the baffle deflector.
 - .5 Install according to manufacturer's instructions

2.3 SHEET METAL FLASHING

- .1 See Section 07 62 00 – Sheet metal flashing and trim.

Part 3 Execution

3.1 APPLICATION

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

3.2 MASONRY ANCHORING (FACE MASONRY)

- .1 Sink in anchors in horizontal mortar joints at 406 mm c/c and 600 mm c/c vertically, in order to adequately bound the masonry work to the back work.

3.3 INSTALLATION: MASONRY MATERIALS

- .1 Install continuous movement joint fillers in movement joints at locations indicated on drawings.
- .2 Mechanical fasteners: install fasteners to suit application and in accordance with manufacturer's written installation instructions.
- .3 Reglets: install reglets at locations indicated on drawings.
- .4 Brick vents: install brick vents at locations indicated on drawings.

3.4 INSTALLATION: MOISTURE CONTROL

- .1 Install weep hole vents in vertical joints immediately over flashings, in exterior vertical joints of cavity wall and masonry veneer wall construction, at maximum horizontal spacing of 600 mm on centre.
- .2 Install mortar baffles, dimensions and shapes appropriate to their function, in wall cavities, where indicated and as directed.
- .3 Install grout retaining mesh, dimensions and shapes appropriate to their function, in wall cavities, where indicated and as directed.

3.5 INSTALLATION: MASONRY FLASHINGS

- .1 Build in flashings in masonry in accordance with CAN/CSA A371.
 - .1 Install flashings under exterior masonry bearing on foundation walls, slabs, shelf angles, and steel angles over openings, and at base of cavity wall and where cavity is interrupted by horizontal members or supports and as shown on drawings. Install flashings under weep hole courses and as indicated.
 - .2 In cavity walls and veneered walls, carry flashings from front edge of exterior masonry, under outer wythe, then up backing not less than 150 mm, and as follows:
 - .1 For masonry backing embed or bond flashing 25 mm in joint.
 - .2 For concrete backing, insert or bond flashing into reglets.
 - .3 For wood frame backing, staple flashing to walls behind water resistive paper, and lap joints.
 - .4 For gypsum board and glass fibre faced sheathing backing, bond to wall using manufacturer's recommended adhesive.
 - .3 Lap joints 150 mm and seal with adhesive.
- .2 Form flashing (end dams) at lintels, sills and wall ends to prevent water from travelling horizontally past flashing ends.
- .3 Install vertical flashing where outer veneer returns at window or door jambs, to prevent contact of veneer with inner wall.

3.6 CLEANING

- .1 Clean in accordance with Section 01 74 00 – Cleaning.
 - .1 Remove surplus materials, excess materials, rubbish, tools and equipment.

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Section 04 05 00 – Common Work Results for Masonry.
- .2 Section 04 05 12 – Masonry mortar and grout.
- .3 Section 04 05 19.01 - Masonry anchorage and reinforcing.
- .4 Section 04 05 23 – Masonry accessories.
- .5 Section 06 40 00 – Architectural woodwork.
- .6 Section 07 21 13 – Board insulation.
- .7 Section 07 26 00 – Vapour retarders.
- .8 Section 08 31 00.01 – Access doors - mechanical.
- .9 Section 08 33 23.01 – Overhead coiling doors and grilles.
- .10 Section 08 36 13.02 – Sectional metal doors.
- .11 Section 09 67 00 – Fluid-applied flooring.
- .12 Section 09 91 23 – Interior painting.
- .13 Section 10 22 13 – Wire mesh partitions.
- .14 Section 10 28 10 – Toilet and bath accessories.

1.2 REFERENCES

- .1 American Society for Testing and Materials (ASTM)
 - .1 ASTM C423-17, Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method
 - .2 ASTM E336-19A, Standard Test Method for Measurement of Airborne Sound Attenuation Between Rooms in Buildings
- .2 Canadian Standards Association (CSA)
 - .1 CAN/CSA-A165 Series-14, CSA Standards on Concrete Masonry Units including A165.1, A165.2 and A165.3
 - .2 CAN/CSA A371-14, Masonry Construction for Buildings
 - .3 CSA S304.1-04 (R2010), Design of Masonry Structures
- .3 Underwriters' Laboratories of Canada (ULC)
 - .1 CAN/ULC-S101-14, Standard Methods of Fire Endurance Tests of Building Construction and Materials.

1.3 SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:

-
- .1 Provide product data, including manufacturer's printed data sheets and catalog pages illustrating products to be incorporated into project for specified products.
 - .3 Manufacturer written instructions: submit the installation instructions provided by the manufacturer in accordance with section 04 05 00 - Masonry - General requirements concerning the results of the work.
 - 1.4 QUALITY INSURANCE**
 - .1 Certificates: provide in accordance with Section 04 05 00 - Common Work Results for Masonry.
 - .2 Test and Evaluation Reports: provide certified test reports in accordance with Section 04 05 00 - Common Work Results for Masonry.
 - 1.5 DELIVERY, STORAGE, AND HANDLING**
 - .1 Deliver, store and handle concrete unit masonry in accordance with Section 04 05 00 - Common Work Results for Masonry.
 - 1.6 PACKAGING WASTE MANAGEMENT:**
 - .1 Separate and recycle waste materials in accordance with Section 01 74 19 - Construction/Demolition Waste Management and Disposal.
 - Part 2 Products**
 - 2.1 MATERIALS**
 - .1 Standard concrete block units in compliance with CAN/CSA-A165 Series (CAN/CSA-A165.1) .
 - .1 Classification: H / 15 / A / O.
 - .2 Dimensions : 190mm x 390mm x required depth or as indicated.
 - .3 Special shapes: provide square units for exposed corners, and special purpose-made shapes for lintels, beams and bond beams; provide additional special shapes as indicated.
 - .2 Fire rated 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 the Supplement to the National Building Code of Canada 2005, and in accordance with CAN/ULC-S101, for fire-resistance ratings indicated.
 - .3 Size: modular.
 - .4 Special shapes: provide square bull- nosed units for exposed corners. Provide purpose-made shapes for lintels and bond beams and provide additional shapes as indicated.
 - .3 Thin concrete blocks: Common masonry elements of the regular type with normal pressure walling: in accordance with standards of the CAN / CSA-A165 series (CAN / CSA-A165.1).
-

- .1 Type: FS / 15 / A / M
- .2 Nominal dimensions: 40 mm wide x 200 mm high x 400 mm long.
- .3 Elements of special shape: elements with sharp edges must be used for visible angles, and elements made to measure must be used for lintels, beams and connecting beams; other specially shaped elements must be provided, as indicated.

2.2 REINFORCEMENT INSTALLATION

- .1 In accordance with Section 04 05 19.01 - Masonry Anchorage and Reinforcing.
- .2 When fire resistance is required, install a braced masonry reinforcement every two rows to comply with Table D-2.6.1.-A of the Building Construction Code.

2.3 CONNECTORS INSTALLATION

- .1 In accordance with Section 04 05 23 - Masonry Accessories.

2.4 FLASHING INSTALLATION

- .1 In accordance with Section 07 62 00 – Sheet metal flashing and trim.

2.5 MORTAR MIXES

- .1 In accordance with 04 05 12 Masonry Mortar and Grout.

2.6 GROUT MIXES

- .1 In accordance with 04 05 12 - Masonry Mortar and Grout.

2.7 CLEANING COMPOUNDS

- .1 Compatible with substrate and acceptable to masonry manufacturer for use on products.
- .2 Cleaning compounds compatible with concrete unit masonry and in accordance with manufacturer's written recommendations and instructions.

2.8 TOLERANCES

- .1 Tolerances for standard concrete unit masonry tolerances in accordance with CAN/CSA A165.1, supplemented as follows:
 - .1 Maximum variation between units within specific job lot not to exceed 2 mm.
 - .2 No parallel edge length, width or height dimension for individual unit to differ by more than 2 mm.
 - .3 Perpendicularity tolerance must not to exceed 2 mm.
- .2 The dimensional tolerances relating to architectural elements must comply with the requirements of standard CAN / CSA-A165.1 as well as with the prescriptions set out below
 - .1 The maximum difference in length or height between the elements of prescribed dimensions implemented on a particular surface must not exceed 2 mm.
 - .2 The difference between the length, width or height of the parallel edges of the different elements must not be more than 2 mm.

- .3 The difference in perpendicularity of the faces of the elements must not be greater than 2 mm.
- .4 The maximum width difference between the elements of prescribed dimensions implemented on a particular surface must not exceed 2mm.

Part 3 Execution

3.1 EXAMINATION

- .1 Verify surfaces and conditions are ready to accept work of this Section.
- .2 Commencing installation means acceptance of existing substrates.

3.2 PREPARATION

- .1 Protect adjacent finished materials from damage due to masonry work.

3.3 INSTALLATION

- .1 To CAN/CSA-A-371 and manufacturer's recommendations.
- .2 Concrete block units other than acoustical concrete block units.
 - .1 Bond: running unless otherwise noted.
 - .2 Coursing height: 200 mm for one (1) block and one (1) joint.
 - .3 Jointing: concave where exposed or where paint or other finish coating is specified.
- .3 Special Shapes:
 - .1 Install special units to form corners, returns, offsets, reveals and indents without cut ends being exposed and without losing bond or module.
 - .2 Install reinforced concrete block lintels over openings in masonry where steel or reinforced concrete lintels are not indicated.
 - .3 End bearing: not less than 200 mm as indicated on drawings.
 - .4 Install special site cut shaped units.

3.4 REINFORCEMENT

- .1 Install reinforcing in accordance with Section 04 05 19 - Masonry Anchorage and Reinforcing.

3.5 CONNECTORS

- .1 Install connectors: in accordance with Section 04 05 23 - Masonry Accessories.

3.6 FLASHING

- .1 Install flashing in accordance with Section 07 62 00 – Sheet metal flashing and trim.

3.7 MORTAR PLACEMENT

- .1 Place mortar in accordance with Section 04 05 12 - Masonry Mortar and Grout.

3.8 GROUT PLACEMENT

- .1 Place grout in accordance with Section 04 05 12 - Masonry Mortar and Grout.

3.9 CONSTRUCTION

- .1 Cull out masonry units, in accordance with CAN/CSA A165 and reviewed approved range of colour samples, with chips, cracks, broken corners, excessive colour and texture variation.
- .2 Build in miscellaneous items such as bearing plates, steel angles, bolts, anchors, inserts, sleeves and conduits.
- .3 Construct masonry walls using running bond unless otherwise noted.
- .4 Build around frames previously set and braced. Fill behind hollow frames within masonry walls with mortar or grout and embed anchors.
- .5 Fit masonry closely against electrical and plumbing outlets so collars, plates and covers overlap and conceal cuts.
- .6 Install movement joints and keep free of mortar where indicated.
- .7 Hollow Units: spread mortar setting bed from outside edge of face shells. Gauge amount of mortar on top and end of unit to create full joints, equivalent to shell thickness. Avoid excess mortar.
- .8 Solid Units: apply mortar over entire vertical and horizontal surfaces. Avoid bridging of airspace between brick veneer and backup wall with mortar.
- .9 Ensure compacted head joints. Use full or face-shell joint as indicated.
- .10 Tamp units firmly into place.
- .11 Do not adjust masonry units after mortar has set. Where resetting of masonry is required, remove, clean and reset units in new mortar.
- .12 Tool exposed joints concave weathered/raked for interior work; strike concealed joints flush.
- .13 After mortar has achieved initial set up, tool joints.
- .14 Do not interrupt bond below or above openings.

3.10 REPAIR/RESTORATION

- .1 Upon completion of masonry, fill holes and cracks, remove loose mortar and repair defective work.

3.11 CLEANING

- .1 Clean in accordance with Section 01 74 00 - Cleaning, supplemented as follows.
 - .1 Progress Cleaning of standard Concrete Unit Masonry:
 - .1 Allow mortar droppings on masonry to partially dry then remove by means of trowel, followed by rubbing lightly with small piece of block. Clean wall surface with suitable brush or burlap.

3.12 PROTECTION

- .1 Brace and protect concrete unit masonry in accordance with Section 04 05 00 - Common Work Results for Masonry.

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Cast-in-place concrete – See structure
- .2 Section 04 05 00 – Common Work Results for Masonry
- .3 Section 06 10 00 – Rough carpentry
- .4 Section 06 40 00 – Architectural woodwork
- .5 Section 08 33 23.01 – Overhead coiling doors and grilles.
- .6 Section 08 36 13.02 – Sectional metal doors
- .7 Section 09 21 16 – Gypsum board
- .8 Section 09 91 23 – Interior Painting
- .9 Section 10 26 33 – Folding partitions

1.2 REFERENCES

- .1 American Society for Testing and Materials (ASTM)
 - .1 ASTM A36/A36M-19, Standard Specification for Carbon Structural Steel
 - .2 ASTM A53/A53M-18, Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless
 - .3 ASTM A123/A123M-17, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
 - .4 ASTM A307-14e1, Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength
 - .5 ASTM A572/A572M-18, Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel.
 - .6 ASTM A653/A653M-19a, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - .7 ASTM A666-15, Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar
 - .8 ASTM A1011/A1011M-18a, Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength.
 - .9 ASTM B593-96(2014)e1, Standard Test Method for Bending Fatigue Testing for Copper-Alloy Spring Materials
 - .10 ASTM F1267-18, Standard Specifications For Expanded Metal – Steel
ASTM F3125/F3125M-19, Standard Specification for High Strength Structural Bolts and Assemblies, Steel and Alloy Steel, Heat Treated, Inch Dimensions 120 ksi and 150 ksi Minimum Tensile Strength, and Metric Dimensions 830 MPa and 1040 MPa Minimum Tensile Strength.
- .2 Canadian Standards Association (CSA)
 - .1 CAN/CSA-G40.20/G40.21-13 (R2018), General Requirements for Rolled or Welded Structural Quality Steel

- .2 CAN/CSA-G164-M92 (R2009), Hot Dip Galvanizing of Irregularly Shaped Articles.
- .3 CAN/CSA-S16-19, Design of Steel Structures
- .4 CAN/CSA W47.1-83, Certification of Companies for Fusion Welding of Steel
- .5 CAN/CSA W48-14, Filler Metals and Allied Materials for Metal Arc Welding (Developed in co-operation with the Canadian Welding Bureau)
- .6 CAN/CSA W59-19, Welded Steel Construction (Metal Arc Welding) (Imperial Version)
- .3 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-1.40-97, Anti-corrosive Structural Steel Alkyd Primer
 - .2 CAN/CGSB-1.181-99, Ready Mixed, Organic Zinc-Rich Coating

1.3 SUBMITTALS

- .1 Shop Drawings
 - .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Indicate materials, core thicknesses, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories.

1.4 QUALITY INSURANCE

- .1 Certificates: provide manufacturer's product certificates certifying materials comply with specified requirements.

1.5 DELIVERY, STORAGE, AND HANDLING

- .1 Packing, Shipping, Handling and Unloading:
 - .1 Deliver, store, handle and protect materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Storage and Protection:
 - .1 Cover exposed stainless steel surfaces with pressure sensitive heavy protection paper or apply strippable plastic coating, before shipping to job site.
 - .2 Leave protective covering in place until final cleaning of building. Provide instructions for removal of protective covering.

1.6 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 19 - Construction/Demolition Waste Management And Disposal.

Part 2 Products**2.1 MATERIALS**

- .1 Stainless steel tubing: angles, plates, connectors, other profiles and/or bars to ASTM A269, Type 302 Commercial grade Seamless welded with AISI Finish No. 4, containing at least 75% of recycled materials.
- .2 Bolts, nuts and washers: stainless steel, in accordance with ASTM B593, containing at least 75% of recycled materials.

- .3 Steel sections and plates: to CAN/CSA-G40.20/G40.21, Grade 300W.
- .4 Aluminum alloy: extrusion in accordance with standard AA 6063-T5, sheet and plate AA5005 for anodized finish, containing at least 80% of recycled materials, brushed finish AA-A41 clear anodized.
- .5 Steel pipe: to ASTM A53/A53M standard weight (40) heavy duty, black for interior usage and galvanized finish for exterior.
- .6 Profiles and other steel elements, non-structural and structural: in accordance with ASTM A36 / A36M, A572 / A572M, or CAN / CSA-G40.20 / G40.21, grades 300W (profiles), 260W (plates) and 350W grade (tubes).
- .7 Welding materials: to CSA W59.
- .8 Bolts and anchor bolts: in accordance with ASTM A307, corrosion resistant in accordance with ASTM F3125 / F3125M, type 3. Provide all types of anchor staples, expansive bolts and sheaths and other devices designed to receive and tie down an installation.
- .9 Adhesive to coat a drilled hole for anchoring: two (2) component adhesive to be injected before the insertion of bolts, rods or rebar..
- .10 Expanding anchors: minimum dimensions 10 x 90 mm.
- .11 Threadlocker adhesive: general type for thread fastening requiring dismantling with standard manual tools, with an acrylic component, of medium capacity, such as a di-methacrylate ester adhesive for fasteners subject to impact stress and / or medium level load vibrations.
 - .1 Braking torque at start after release: 20 Nm conforming to ISO. 10964.
 - .2 Current torque: 7 Nm conforming to ISO 10964.
 - .3 Breaking torque: 24 Nm conforming to DIN 54454.
 - .4 Maximum current torque: 24 Nm conforming to DIN 54454.
- .12 Safety fixing
 - .1 Provide security screws, security nuts, rivets, socket screws or other approved security devices to fix various items, such as torx pin head, socket, Phillips, diagonal or equivalent.
 - .2 Socket screws must have slots requiring the use of a socket tool to remove the screw.
 - .3 Round head screws are not acceptable except in approved locations where material is not thick enough for tapered drilling.
 - .4 Standard screws are not acceptable.
- .13 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 or round as shown or required headed screws on items requiring assembly by screws or as indicated.

- .3 Proceed by welding for exterior work, unless otherwise approved by the Departmental Representative.
- .4 Where possible, fit and shop assemble work, ready for erection.
- .5 Ensure exposed welds are continuous for length of each joint. File or grind exposed welds smooth and flush.
- .6 Seal all exterior steel fabrication to provide corrosion protection in accordance with CAN / CSA S16.

2.3 FINISHES

- .1 Shop coat primer: to CAN/CGSB-1.40.
- .2 Galvanizing: hot dipped galvanizing with zinc coating 600 g/m² to CAN/CSA-G164.
- .3 Touch-up coating for galvanizing: in accordance with standard CAN / CGSB-1.181.
- .4 Zinc primer: zinc rich, ready mix to CAN/CGSB-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 Apply one shop coat of primer to metal items, with exception of galvanized or concrete encased items.
- .2 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.
- .3 Clean surfaces to be field welded; do not paint.

2.6 ANGLE LINTELS

- .1 Steel angles: galvanized, sizes indicated here after. Provide 200 mm minimum bearing at ends.
 - .1 Unless otherwise specified, chooses the lintels according to the followings schedule:

Widths of opening	Lintels dimensions
0 to 1800 mm	100 x 90 x 6 mm
1801 to 2000 mm	125 x 90 x 6 mm
2001 to 3000 mm	150 x 100 x 10 mm
Over 3000 mm	As per engineer's drawings

- .2 Weld or bolt back-to-back angles to profiles as indicated.

2.7 SECTIONAL METAL DOOR FRAME

- .1 Door frame fabricated from heavy steel sheet and/or plates, at prescribed thickness and dimensions prescribed on drawings.
- .2 Weld to obtain a continuous frame with jambs and head at indicated profiles.
- .3 Provide at jambs anchoring steel plates, dimensioned 38 mm x 200 mm x 6 mm thick at 610 mm c/c.
- .4 Provide all required reinforcing to insure adequate rigidity for the usage.
- .5 Finish: shop coat primer, to CAN/CGSB-1.40.

2.8 SUSPENSION FOR FOLDING PARTITION

- .1 Unless otherwise indicated to engineer's drawings and specifications, supply and install a metallic suspension adequately designed by an engineer member of the ordre des ingénieurs du Québec to support the folding partition shown on drawings and prescribed in section 10 22 26.33

Part 3 Execution

3.1 ERECTION

- .1 Conduct 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 Make field connections with bolts to CAN/CSA-S16.1, or weld.
- .5 Hand items over for casting into concrete or building into masonry to appropriate trades together with setting templates.
- .6 Touch-up rivets, field welds, bolts and burnt or scratched surfaces after completion of erection with primer.
- .7 Touch-up galvanized surfaces with zinc rich primer where burned by field welding.
- .8 Exposed fastening devices to match finish and be compatible with material through which they pass.
- .9 Provide components for building by other sections in accordance with shop drawings and schedule.

3.2 INSTALLATION OF CORNER PROTECTION

- .1 Install the guards on a solid bearing surface, all elements at level, solidly fixed and perfectly aligned.
- .2 Glue corner guards solid bearing surface with the manufacturer recommended adhesive.

3.3 CLEANING

- .1 Perform cleaning after installation to remove construction and accumulated environmental dirt.
- .2 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Cast-in-Place Concrete – See structure.
- .2 Section 04 05 00 – Common Work Results for Masonry
- .3 Section 05 50 00 – Architectural Metal Fabrications
- .4 Section 06 10 00 – Rough carpentry.
- .5 Section 08 21 16 – Gypsum board
- .6 Section 09 91 23 – Interior Painting

1.2 REFERENCES

- .1 American National Standards Institute/National Association of Architectural Metal Manufacturers (ANSI/NAAMM)
 - .1 ANSI/NAAMM MBG531-00, Metal Bar Grating Manual.
- .2 American Society for Testing and Materials International, (ASTM)
 - .1 ASTM A53/A53M-18, Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless
 - .2 ASTM A307-14e1, Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength
 - .3 ASTM A325M-10, Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength
 - .4 ASTM F3125/F3125M-19, Standard Specification for High Strength Structural Bolts and Assemblies, Steel and Alloy Steel, Heat Treated, Inch Dimensions 120 ksi and 150 ksi Minimum Tensile Strength, and Metric Dimensions 830 MPa and 1040 MPa Minimum Tensile Strength.
- .3 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-1.40-97, Anti-corrosive Structural Steel Alkyd Primer.
 - .2 CAN/CGSB-1.181-99, Ready-Mixed Organic Zinc-Rich Coating.
- .4 Canadian Standards Association
 - .1 CAN/CSA-G40.20/G40.21-13 (R2018), General Requirements for Rolled or Welded Structural Quality Steel/ Structural Quality Steel
 - .2 CSA W59-18, Welded Steel Construction (Metal Arc Welding/Imperial Version).
- .5 National Association of Architectural Metal Manufactures (NAAMM)
 - .1 AMP 510-92, Metal Stair Manual.
- .6 Steel Structures Painting Council (SSPC), Systems and Specifications Manual, Volume 2.

1.3 CALCULATION CRITERIA

- .1 Metal stairs steps, guard-rails, and landings and all other assemblies must be designed to resist dynamic loads to which they could be submitted vertically or horizontally, to National building code (NBC) prescriptions.

- .2 The drawings only present schematically the element geometry, their aesthetic disposition and generalities, the dimensioning to respect and materials. While conforming to the presently imposed restrictions, the choice of work, the methods and procedures of manufacturing assembling, anchoring, the members sizes are under the contractor's responsibilities while been subject to DCC Representative.
- .3 Design metal stair, balustrade and landing construction and connections to NBC vertical and horizontal live load requirements.
- .4 Detail and fabricate stairs to NAAMM Metal Stairs Manual.
- .5 If dimensions indicated on drawings must be upscale, proceed without plus-value.

1.4 SUBMITTALS

- .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Shop Drawings
 - .1 Indicate construction details, sizes of steel sections and thickness of steel sheet.
 - .2 Submit shop drawing bearing stamp of a qualified professional engineer member in good standing with the Ordre des ingénieurs du Québec.

1.5 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 19 - Construction/Demolition Waste Management and Disposal.

Part 2 Products**2.1 MATERIALS**

- .1 Steel sections and plates: to CAN/CSA-G40.20/G40.21 Grade 300W and 260W.
- .2 Steel plates: to CAN/CSA-G40.20/G40.21, Grade 260 W, with or without pattern.
- .3 Floor steel plates: to CAN/CSA-G40.20/G40.21, Grade 260 W.
- .4 Steel pipe: to ASTM A53/A53M, standard weight, schedule 40 seamless black.
- .5 Steel tubing: to CAN/CSA-G40.20/G40.21, Grade 350, sizes and dimensions as indicated.
- .6 Welding materials: to CSA W59.
- .7 Bolts and anchors: to ASTM A307.
- .8 High strength bolts: to ASTM A325M.

2.2 FABRICATION

- .1 Fabricate to NAAMM, Metal Stair Manual.

- .2 Weld connections where possible, otherwise bolt connections. Countersink exposed fastenings, cut off bolts flush with nuts. Make exposed connections of same material, colour and finish as base material on which they occur.
- .3 Accurately form connections with exposed faces flush; mitres and joints tight. Make risers of equal height.
- .4 Grind or file exposed welds and steel sections smooth.
- .5 Assemble stairs at shop in sections as large and complete as practicable.

2.3 PLATE TYPE

- .1 Form treads with bended 4.8 mm steel sheet and fix treads to stringers with 32 x 32 x 4.8 mm steel horizontal angles, welded. Landings must be made of strong embossed steel sheet 4.8 mm thick, reinforced with profiles L 55 x 55 x 6 placed at 400 mm spacing
- .2 Form risers with 3.2 mm thick steel sheet fixed to stringers with 32 x 32 x 4.8 mm steel vertical angles, welded.
- .3 Fabricate stringers with MC 310 x 15.8 profiles.
- .4 Fabricate exterior stringer with MC 310 x 15.8 profiles closed with a 4.8 mm steel plate.
- .5 Extend stringers around landings as supports.
- .6 Close up end of stringers with 3 mm steel plates when visible.

2.4 RAILINGS AND HANDRAILS

- .1 Railings and handrails must be made of the elements of steel described and welded to the stringers or fixed to the walls, as indicated in the drawings.
- .2 Close and weld both ends of railings and handrails.

2.5 LADDERS

- .1 Fabricate and install galvanized steel ladders as indicated on the drawings.

2.6 PREFABRICATED ROOF STAIRS AND RAILINGS

- .1 Modular staircase and railing system to access roof different levels.
 - .1 Mechanically assembled galvanized steel tubes with straight, L, T and articulated fittings.
 - .2 Steps in galvanized steel grating.
 - .3 Installation maintained in place with 22kg modular ballast. Adapted quantity as Manufacturer's recommendations.
 - .4 Dimensions according to the drawings

2.7 ATTIC LADDER

- .1 Folding ladder in three sections for attic access in accordance with ANSI A14.9 (2010) standard having the following characteristics:

- .1 Aluminum ladder.
- .2 Non-slip steps.
- .3 Capacity: 170kg.
- .4 Insulation of the hatch: 0.6 W / m²K
- .5 Weatherstripping at the perimeter of the hatch.
- .6 Wooden hatch frame.
- .7 Height according to project conditions.

2.8 FINISHES

- .1 Galvanization: hot immersion process with zinc coating of 600g / m², according to CAN / CSA G164 standard.
- .2 Paint for printing layer applied in workshop: according to CAN / CGSB 1.40 standard.
- .3 Zinc coating for printing layer: zinc-rich coating, ready to use, in accordance with CAN / CGSB 1.181 standard.

2.9 SHOP PAINTING

- .1 Clean surfaces in accordance with Steel Structures Painting Council Manual Volume 2.
- .2 Apply one coat of shop primer on all surfaces.
- .3 Apply two coats of primer of different colours to parts inaccessible after final assembly.
- .4 Use primer as prepared by manufacturer without thinning or adding admixtures. Paint on dry surfaces, free from rust, scale, grease; do not paint when temperature is below 7 degrees C.
- .5 Do not paint surfaces to be field welded.

Part 3 Execution**3.1 INSTALLATION OF STAIRS**

- .1 Install in accordance with NAAMM, Metal Stair Manual.
- .2 Install plumb and true in exact locations, using welded connections wherever possible to provide rigid structure. Provide anchor bolts, bolts and plates for connecting stairs to structure.
- .3 Hand items over for casting into concrete or building into masonry to appropriate trades together with setting templates.
- .4 Do welding work in accordance with CSA W59 unless specified otherwise.
- .5 Touch up shop primer to bolts, welds, and burned or scratched surfaces at completion of erection.

3.2 INSTALLATION OF LADDERS

- .1 Install roof ladders as per drawings.

3.3 CLEANING

- .1 Perform cleaning as soon as possible after installation to remove construction and accumulated environmental dirt.
- .2 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Section 02 41 16 – Structure demolition.
- .2 Division 4 – Masonry
- .3 Section 05 50 00 – Architectural metal fabrications
- .4 Section 05 51 29 – Metals stairs and ladders
- .5 Section 06 40 00 – Architectural woodwork
- .6 Section 07 21 16 – Blanket insulation
- .7 Section 07 26 00 – Vapour retarders
- .8 Section 07 31 13 – Asphalte shingles
- .9 Section 08 11 00 – Metal doors and frames
- .10 Section 08 31 00.01 – Access doors - Mechanical
- .11 Section 08 44 13 – Glazed aluminum curtain walls
- .12 Section 09 21 16 – Gypsum board
- .13 Section 10 22 26.33 – Folding panel partitions
- .14 Section 10 26 00.01 – Wall and corner guards
- .15 Section 10 28 10 – Toilet and bath accessories
- .16 Section 10 51 13 – Metal lockers
- .17 Section 12 35 53.13 – Steel laboratory casework

1.2 REFERENCES

- .1 American National Standards Institute (ANSI)
 - .1 ANSI/NPA A208.1 2016, Particleboard, Mat Formed Wood.
- .2 American Society for Testing and Materials International (ASTM)
 - .1 ASTM A653/A653M-19a, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - .2 ASTM C36/C36M-03e1, Standard Specification for Gypsum Wallboard.
 - .3 ASTM C578-19, Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.
 - .4 ASTM C1289-19, Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
 - .5 ASTM D1761-12, Standard Test Methods for Mechanical Fasteners in Wood.
 - .6 ASTM D5055-19, Standard Specification for Establishing and Monitoring Structural Capacities of Prefabricated Wood I-Joists.
 - .7 ASTM D5456-19, Standard Specification for Evaluation of Structural Composite Lumber Products.

- .3 Canadian General Standards Board
 - .1 CAN/CGSB 11.3-M87, Hardboard.
 - .2 CAN/CGSB 51.32-M77, Sheathing, Membrane, Breather Type.
 - .3 CAN/CGSB 51.34-M86, Vapour Barrier, Polyethylene Sheet for Use in Building Construction.
 - .4 CAN/CGSB 71.26-M88, Adhesive for Field-Gluing Plywood to Lumber Framing for Floor Systems.
- .4 Canadian Standards Association (CSA International)
 - .1 CSA A123.2-03, Asphalt-Coated Roofing Sheets.
 - .2 CAN/CSA A247-M86, Insulating Fiberboard.
 - .3 CSA B111-1974 (R2003), Wire Nails, Spikes and Staples.
 - .4 CAN/CSA-G164-M92(R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.
 - .5 CSA O112 Series 08 CSA Standards for Wood Adhesives.
 - .6 CSA O121-17, Douglas Fir Plywood.
 - .7 CSA O122-16, Structural glued-laminated timber.
 - .8 CSA O141-05, Softwood Lumber.
 - .9 CSA O151-17, Canadian Softwood Plywood.
 - .10 CSA O153-13, Poplar Plywood.
 - .11 CAN/CSA-O325.0-92 (R2003), Construction Sheating.
 - .12 CSA O437 Série-93 (R2011), Standards on OSB and Waferboard.
- .5 National Lumber Grades Authority (NLGA)
 - .1 Standard Grading Rules for Canadian Lumber 2005.
- .6 Truss Plate Institute of Canada, Truss Design and Procedures for Light Metal Connected Wood Trusses.
- .7 Underwriters Laboratory of Canada (ULC)
 - .1 CAN/ULC-S706-09, Standard for Wood Fibre Thermal Insulation for Buildings.

1.3 SUBMITTALS

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

1.4 QUALITY ASSURANCE

- .1 Lumber identification: by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.
- .2 Plywood identification: by grade mark in accordance with applicable CSA standards.

1.5 DELIVERY, STORAGE, AND HANDLING

- .1 Waste Management and Disposal:
 - .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 19 - Construction/Demolition Waste Management and Disposal.

Part 2**Products****2.1****LUMBER MATERIAL**

- .1 Lumber: unless specified otherwise, softwood, S4S, moisture content 19% (R-SEC) or less in accordance with following standards:
 - .1 CAN/CSA-O141.
 - .2 NLGA Standard Grading Rules for Canadian Lumber.
- .2 Carpentry and panels: conform to NBC prescriptions.
- .3 Furring, blocking, nailing strips, grounds, rough bucks, cants, curbs, fascia backing and sleepers:
 - .1 Panels: Standard or better grade.
 - .2 Board sizes: Standard or better grade.
 - .3 Post and timbers sizes: "Standard" or better grade.

2.2**PANEL MATERIALS**

- .1 Plywood, oriented strand board (OSB) and wood-based structural panels, conform to CSA O325.0.
- .2 Douglas fir plywood, conform to CSA O121, standard construction,
- .3 Canadian softwood plywood (CSP): to CSA O151, standard construction.
- .4 Poplar plywood, conform to CSA O153, standard construction.

2.3**ACCESSORIES**

- .1 All purpose glue : to CSA O112.
 - .1 VOC content of 140 g/L maximum.
- .2 Nails, spikes and staples: to CSA B111.
- .3 Bolts: 12.5mm 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, explosive actuated fastening devices, recommended for purpose by manufacturer.
- .5 H-Clips for plywood: grade and width according to panels, from extruded 6063 T6 aluminum and approved by the Departmental Representative.

2.4**FINISHES**

- .1 Galvanizing: to CAN/CSA-G164, use galvanized fasteners for exterior work interior highly humid areas, treated wood and fireproof wood.
- .2 Stainless steel, grade 304.
- .3 Immersion / soaking preservative to treat wood: based on chromated copper arsenate, so as to obtain a minimum net retention of 6.5 kg / m³ of wood.
 - .1 To be used on the perimeter of openings in exterior walls, furs in humid environments and for all pieces of wood embedded in masonry or concrete.
 - .2 After treatment with a water-soluble preservative, dry the material so that its humidity does not exceed 19%.

Part 3 Execution**3.1 PREPARATION**

- .1 Store and protect wood products and accessories to ensure their physical integrity.

3.2 INSTALLATION

- .1 Comply with NBC 2015 section 9 and with the prescriptions below.
- .2 Install squared and plumbed wood elements, following indications on drawings.
- .3 Build with continuous elements by using longest cuts possible.
- .4 Ensure truss elements have an upward bow and never a downward bow.
- .5 Install plywood decking sheets as per indications in the NBC.
- .6 Install furring and shims for curbs, soffits, cladding and other works, where required.
- .7 Install furring to support vertically oriented cladding when framing doesn't include shims for cladding that cannot be fixed directly to framing.
 - .1 Use furring and shims to ensure work is vertical with a deflection no more 1:600.
- .8 Install rough bucks, nailers and linings to rough openings as required to provide backing for frames and other work.
- .9 Install blocking and cant strips, nailing fins for roof and reglet flashings, curb members and other roofing support required, using galvanized fasteners.
- .10 Install sleepers as per indications.
- .11 Use caution when working with particle board. Use dust collectors and high quality respirator masks.

3.3 ERECTION

- .1 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.
- .2 Countersink bolts where necessary to provide clearance for other work.

3.4 SCHEDULES

- .1 Roof decking panels:
 - .1 Douglas fir plywood or Canadian softwood plywood, tongue and groove edges, 19mm.
- .2 Exterior wall sheeting:
 - .1 Douglas fir plywood or Canadian softwood plywood, straight edges, 16mm.
- .3 Electrical panels
 - .1 Douglas fir plywood or Canadian softwood plywood, straight edges, 16mm.

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Section 04 22 00 – Concrete unit masonry
- .2 Section 05 50 00 – Architectural metal fabrications
- .3 Section 06 10 00 – Rough carpentry
- .4 Section 07 92 00 – Joint sealants
- .5 Section 09 21 16 – Gypsum board
- .6 Section 09 91 23 – Interior paint
- .7 See also mechanical and electrical documents.

1.2 REFERENCES

- .1 American National Standards Institute (ANSI)
 - .1 ANSI/NPA A208.1-1999, Particleboard.
 - .2 ANSI A208.2-02, Medium Density Fiberboard (MDF) for Interior Applications.
 - .3 ANSI/HPVA HP-1-04, Standard for Hardwood and Decorative Plywood.
- .2 American Society for Testing and Materials International (ASTM)
 - .1 ASTM A167-99 (2009), Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
 - .2 ASTM A240/A240M-11b, Standard Specification for Heat-Resisting Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels.
 - .3 ASTM A653/A653M-11, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - .4 ASTM B117-11, Standard Practice for Operating Salt Spray (Fog) Apparatus.
 - .5 ASTM B456-11e1, Standard Specification for Electrodeposited Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium.
 - .6 ASTM E54-80(1996), Standard Test Methods for Chemical Analysis of Special Brasses and Bronzes.
 - .7 ASTM E478-08, Standard Test Methods for Chemical Analysis of Copper Alloys.
 - .8 ASTM E1333-96(2002), Standard Test Method for Determining Formaldehyde Concentrations in Air and Emission Rates From Wood Products Using a Large Chamber.
 - .9 ASTM D2832-92(R2005), Standard Guide for Determining Volatile and Nonvolatile Content of Paint and Related Coatings.
 - .10 ASTM D5116-06, Standard Guide For Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products.
- .3 Architectural Woodwork Manufacturers Association of Canada (AWMAC) and Architectural Woodwork Institute (AWI)

- .1 Architectural Woodwork Quality Standards Illustrated, 8th edition, Version 1.0 (2005)
- .4 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-71.20-M88, Adhesive, Contact, Brushable.
- .5 Canadian Standards Association (CSA)
 - .1 CAN/CSA B111-74 (R2003), Wire Nails, Spikes and Staples
 - .2 CAN/CSA O112.4 Series-M1977 (R2006), Standards for Wood Adhesives
 - .3 CSA O112.5-Series-M-1977(R2006), Urea Resin Adhesives for Wood (Room- and High-Temperature Curing).
 - .4 CSA O112.7-Series M-1977(R2006), Resorcinol and Phenol-Resorcinol Resin Adhesives for Wood (Room- and Intermediate-Temperature Curing).
 - .5 CSA O121-FM89(C2003)], Douglas fir plywood.
 - .6 CSA O141-F05, Soft lumber.
 - .7 CSA O151-F04, Canadian softwood plywood.
 - .8 CSA O153-FM1980(C2003), Poplar plywood.
- .6 Forest Stewardship Council (FSC)
 - .1 FSC-STD-01.001.2004, FSC Principal and Criteria for Forest Stewardship.
- .7 National Electrical Manufacturers Association (NEMA)
 - .1 ANSI/NEMA LD-3-05, High-Pressure Decorative Laminates.
- .8 National Hardwood Lumber Association (NHLA)
 - .1 Rules for the Measurement and Inspection of Hardwood and Cypress 1998
- .9 National Lumber Grades Authority (NLGA)
 - .1 Standard Grading Rules for Canadian Lumber 2005

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 two samples: sample size 300 x 300 mm or 300 mm long.
 - .2 Provide two colour samples of laminated plastic for colour selection.
 - .3 Provide two samples of laminated plastic joints, edging, cutouts and postformed profiles.
- .4 Quality assurance
 - .1 Manufacturer's instructions: submit manufacturer's installation instructions.

1.4 QUALITY ASSURANCE

- .1 Lumber by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.
- .2 Plywood in accordance with CSA and ANSI standards.

1.5 DELIVERY, STORAGE, AND HANDLING:

- .1 Deliver, handle, store and protect materials of this section 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.

1.6 WASTE MANAGEMENT AND DISPOSAL:

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 19 - Construction/Demolition Waste Management and Disposal.

Part 2 Products**2.1 MATERIAL**

- .1 Softwood lumber: unless specified otherwise, S4S, moisture content 15 % or less in accordance with following standards:
 - .1 CSA O141.
 - .2 NLGA Standard Grading Rules for Canadian Lumber.
 - .3 AWMAC custom grade, moisture content as specified.
- .2 Machine stress-rated lumber is acceptable for all purposes.
- .3 Hardwood lumber: moisture content 7 % or less in accordance with following standards:
 - .1 National Hardwood Lumber Association (NHLA).
 - .2 AWMAC custom grade, moisture content as specified.
- .4 Stainless steel sheet: to ASTM A167, ASTM A240/A240M, Type 304, with no4 finish.

2.2 PANEL MATERIALS

- .1 Harwood plywood: to ANSI/HPVA HP-1.
- .2 Medium density fibreboard (MDF): according to ANSI A208.2 standard, grade 115, thickness as indicated in the drawings, having a surface mass of 640 to 800 kg / m².
- .3 Laminated plastic for flatwork: to NEMA LD3, Grade VGL, Type T5. 1,15 mm thick; based on any decorative facing, including texture except metallic.
- .4 Laminated plastic backing sheet: Grade QR, Type TL not less than 0.7 mm thick or same thickness and colour as face laminate.

- .5 Laminated plastic liner sheet: Grade QO, Type TS, 1,15 mm thick, white colour with the exception of furniture where there are open spaces (without doors) and / or behind glass doors where the color must be identical to that of the exterior of the furniture and finished at the choice of the Departmental Representative
- .6 Thermofused melamine: complies with NEMA LD3 standard, category VGL (for vertical surfaces). Color and finish at the choice of the Departmental Representative.
 - .1 Thermofused melamine, high wear resistance: resistance to at least 400 cycles (minimum abrasion resistance standard for high pressure laminates).
- .7 Edges: 3mm PVC, identical color to adjacent surfaces (counter tops, door and / or drawer fronts, etc.).
- .8 Nails and staples: to CSA B111.
- .9 Wood screws stainless steel, type and size to suit application.
- .10 Splines: metal.
- .11 Sealant: according to section 07 92 00 – Joint sealants
- .12 Laminated plastic adhesive: as Manufacturer's recommendations.

2.3 MANUFACTURED UNITS

- .1 Casework:
 - .1 Fabricate caseworks to AWMAC premium 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.
 - .3 Frame : softwood.
 - .4 Case bodies (ends, divisions and bottoms).
 - .1 Hardwood plywood:
 - .1 Thickness: 16 mm.
 - .2 Face Veneers: to receive plastic laminate.
 - .5 Backs:
 - .1 Hardwood plywood:
 - .1 Thickness: 6 mm.
 - .2 Face veneer: to receive laminated plastic sheet.
 - .6 Shelving:
 - .1 Medium density fiberboard (MDF) with square edges, 19 mm thick with facing in plastic laminates.
- .2 Drawers:
 - .1 Fabricate drawers to AWMAC custom grade supplemented as follows:
 - .2 Sides and Backs.

- .1 Hardwood plywood:
 - .1 Thickness: 16 mm.
 - .2 Veneers: to receive plastic laminate.
- .3 Bottoms:
 - .1 Hardwood plywood:
 - .1 Thickness: 6 mm.
 - .2 Veneers: visible face to receive plastic laminate.
- .4 Fronts:
 - .1 Medium density fiberboard (MDF) with square edges, 19 mm thick with facing in plastic laminates.
- .3 Casework Doors:
 - .1 Fabricate doors to AWMAC custom grade supplemented as follows:
 - .2 Hardwood plywood, 16 mm thick, : to receive laminated plastics species.
- .4 Countertop
 - .1 Unless otherwise indicated, fabricate preformed countertops with 19mm and 16mm thick laminated hardwood plywood, with a moisture content not exceeding 8%, with sanded faces, square edges, with surfacing plastic laminates.
 - .2 Include splash backs in plastic laminate with shaped rims at the back and at the ends of countertops and shaped edges on the front edge, as indicated.
 - .3 Finish the underside of countertops in support category plastic laminates.
 - .4 Solid plastic countertop nosing 13mm thick, color white.

2.4 FABRICATION

- .1 All measurements must be taken on site prior to fabrication.
- .2 Drown the head of the finishing nails and drive the screws into countersunk holes; garnish the holes with a natural filling paste, then sand until a smooth surface is ready to finish.
- .3 Shop install cabinet hardware for doors, shelves and drawers. Recess shelf standards unless noted otherwise.
- .4 Shelving to cabinetwork to be adjustable unless otherwise noted.
- .5 Provide cutouts for plumbing fixtures, inserts, appliances, outlet boxes and other fixtures.
- .6 Shop assemble work for delivery to site in size easily handled and to ensure passage through building openings.
- .7 Obtain governing dimensions before fabricating items which are to accommodate or abut appliances, equipment and other materials.
- .8 Ensure adjacent parts of continuous laminate work match in colour and pattern.
- .9 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.

- .10 Postformable grade laminate to be profiled or curved as directed, in accordance with laminate manufacturer's instructions.
- .11 Use straight self-edging laminate strip for flatwork to cover exposed edge of core material. Chamfer exposed edges uniformly at approximately 20 degrees. Do not mitre laminate edges.
- .12 Apply laminate backing sheet to reverse side of core of plastic laminate work.
- .13 Apply laminated plastic liner sheet to interior of cabinetry.

2.5 FINISHES

- .1 SCAQMD, Architectural Coatings no 1113.
- .2 All visible surfaces and interior and exterior edges of furniture must be covered with a finish coating or edge banding.

2.6 HARDWARE

- .1 Handles: Functional stainless steel handle. Length of 110mm. Position and quantity according to drawings.
- .2 Drawer slides: Robust slides (for heavy load): 25 mm over extension, steel ball bearing, capacity 90 kg per pair.
- .3 Concealed hinge: with nickel-plated steel case, 170 ° opening, three-dimensional adjustable. Provide 2 hinges for 750 mm high doors and 3 hinges for 750 to 1220 mm high doors and 5 hinges for full height doors.
- .4 Racks and supports: "U" shaped pilaster for recessed installation. Height adjustment every 13mm. Four racks per casework, length as indicated in the drawings. Zinc plated finish.
- .5 Bathroom counter top wall brackets : 480mm heavy duty steel bracket. 180mm x 80mm wall anchor plate. Load capacity of 500kg per pair.
- .6 Janitor shelves support : Heavy-duty double slot rack and support. Size and quantity as shown on drawings.
- .7 Wardrobe pole: 32mm diameter stainless steel tube, thickness 1.2mm, with wall console.

Part 3 Execution

3.1 ON SITE EXAMINATION

- .1 Verification of conditions: before proceeding with the installation of cabinet works, ensure that the condition of the surfaces / supports previously implemented under other sections or contracts is acceptable and allows the work to be carried out according to the manufacturer's instructions.
 - .1 Make a visual inspection of surfaces / supports in the presence of the Departmental Representative.

- .2 Immediately notify the Departmental Representative of any unacceptable conditions detected.
- .3 Begin installation work only after correcting unacceptable conditions.

3.2 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 water resistant building paper over wood framing members in contact with masonry or cementitious construction.
- .8 Fit hardware accurately and securely in accordance with manufacturer's written instructions.

3.3 CLEANING

- .1 Proceed in accordance with Section 01 74 00 - Cleaning.
- .2 Clean complete work.
- .3 Remove excess glue from surfaces.

3.4 PROTECTION

- .1 Protect mill work from damage until final inspection.
- .2 Repair damage caused to adjacent materials and equipment by the installation of cabinet works.

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Section 04 22 00 – Concrete unit masonry
- .2 Section 07 21 16 – Blanket insulation.
- .3 Section 07 24 10.03 – Exterior finish – Direct applied
- .4 Section 07 26 00 – Vapour retarders.
- .5 Section 07 46 13 – Preformed metal siding.
- .6 Section 08 44 13 – Glazed aluminum curtain walls

1.2 REFERENCES

- .1 American Society for Testing and Materials International (ASTM)
 - .1 ASTM C1289-19, Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
- .2 Canadian General Standards Board (CGSB)
 - .1 CGSB 71-GP-24M-77(R1983), Adhesive, Flexible, for Bonding Cellular polystyrene Insulation.
- .3 Underwriters Laboratories of Canada (ULC)
 - .1 CAN/ULC-S701-17, Standard for Thermal Insulation, Polystyrene, Boards and Pipe Coverings.
 - .2 CAN/ULC-S702-14, Standard for Thermal Insulation, Mineral Fibre, for Buildings.
 - .3 CAN/ULC-S704-03, Standard for Thermal Insulation Polyurethane and Polyisocyanurate, Boards, Faced.
 - .4 CAN/ULC-S770-09, Standard test method for determination of long-term thermal resistance of closed-cell thermal insulating foams

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 two copies of WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 33 00 - Submittal Procedures. Indicate VOC's insulation products and adhesives.

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.

1.5 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for recycling in accordance with Section 01 74 19 - Construction/Demolition Waste Management And Disposal.
- .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.

Part 2 Products**2.1 INSULATION**

- .1 Extruded polystyrene (XPS): to CAN/ULC-S701.
 - .1 Type: 4.
 - .2 Compressive strength: 10% under 140 kPa.
 - .3 Thickness: as indicated.
 - .4 Edges: shiplapped.
 - .5 Thermal value: 0.88 m²K/W for 25.4mm
- .2 Extruded polystyrene with laminated vapour barrier : to CAN/ULC-S704.
 - .1 Type: 1.
 - .2 Compressive strength: >110 kPa.
 - .3 Thickness: as indicated.
 - .4 Edges: straight.
 - .5 Thermal value: 0.95 m²K/W for 25.4mm.
 - .6 Water vapour transmission: 0.05 Perms.
- .3

2.2 ACCESSORIES

- .1 Fasteners: self-drilling and self-tapping screws with washers at least 25 mm in diameter, corrosion resistant. Suitable for the type of support and able to maintain panels in place.

2.3 ADHESIVE

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

2.4 COMPATIBILITY

- .1 Ensure the compatibility between insulation panels and other materials.
- .2 When an incompatibility is encountered, provide a separation material recommended by the manufacturer.

Part 3 Execution**3.1 MANUFACTURER'S INSTRUCTIONS**

- .1 Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

3.2 WORKMANSHIP

- .1 Install insulation after building substrate materials are dry.
- .2 Install insulation to maintain continuity of thermal protection to building elements and spaces.
- .3 Fit insulation tight around electrical boxes, plumbing and heating pipes and ducts, around exterior doors and windows and other protrusions.
- .4 Keep insulation minimum 200 mm from heat emitting devices such as recessed light fixtures. Follow manufacturer recommendations.
- .5 Cut and trim insulation neatly to fit spaces. Butt joints tightly, offset vertical joints. Use only insulation boards free from chipped or broken edges. Use largest possible dimensions to reduce number of joints.
- .6 Offset both vertical and horizontal joints in multiple layer applications.
- .7 Do not enclose insulation until it has been inspected and approved by Departmental Representative.

3.3 EXAMINATION

- .1 Examine substrates and immediately inform Departmental Representative in writing of defects.
- .2 Prior to commencement of work, ensure substrates are firm, straight, smooth, dry, free of snow, ice or frost, and clean of dust and debris.

3.4 RIGID INSULATION INSTALLATION

- .1 Apply Type A adhesive to substrate in accordance with manufacturer's recommendations.
- .2 Leave insulation board joints unbonded over line of expansion and control joints. Bond a continuous 150 mm wide polyethylene membrane over expansion and control joints using compatible adhesive and primer before application of insulation.

3.5 PERIMETER FOUNDATION INSULATION

- .1 Exterior application: extend boards as indicated. Install on exterior face of perimeter foundation wall with adhesive.
- .2 Under slab application: extend boards as indicated. Lay boards on level compacted fill.

3.6 CLEANING

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

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Section 02 41 16 – Structure demolition
- .2 Section 04 05 19.01 – Masonry anchorage and reinforcing.
- .3 Section 06 10 00 - Rough Carpentry.
- .4 Section 07 21 13 – Board insulation.
- .5 Section 07 26 00 – Vapour retarders
- .6 Section 08 11 00 – Metal doors and frames.
- .7 Section 09 21 16 – Gypsum board
- .8 Section 09 22 16 – Non structural metal framing
- .9 Division 22 and 23 – Mechanical insulation – see also mechanical and electrical documents

1.2 REFERENCES

- .1 American Society for Testing and Materials International (ASTM)
 - .1 ASTM C665 – 17, Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.
- .2 Underwriters Laboratories of Canada (ULC)
 - .1 CAN/ULC S102-10, Standard Method of Test for Surface Burning Characteristics of building Materials and Assemblies.
 - .2 CAN/ULC S129-15, Standard Method of Test for Smoulder Resistance of Insulation (Basket Method).
 - .3 CAN/ULC S702-14, Mineral Fibre Thermal Insulation for Buildings.
 - .4 CAN/ULC S702.2-10, Mineral Fibre Thermal Insulation for Buildings, Part 2: Application Guidelines
- .3 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB 19.13-84-M87, Sealing Compound, One Component, Elastomeric Chemical Curing.

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.

1.4 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 19 - Construction/Demolition Waste Management and disposal.

Part 2 Products**2.1 INSULATION**

- .1 Semi-rigid stone wool insulation batt : to CAN/ULC S702 for exterior wood and steel studs.
 - .1 Type : 1.
 - .2 Thickness : as indicated.
 - .3 Density : +32 kg/m³.
 - .4 Thermal value : 0.70 m²K/W pour 25.4mm
- .2 Semi-rigid stone wool insulation board: to ASTM C612 for rainscreen application.
 - .1 Type : 1.
 - .2 Thickness : as indicated.
 - .3 Density :
 - .1 <38mm = 85 kg/m³
 - .2 50mm = 70 kg/m³
 - .3 >64mm double density = 100 kg/m³ et 65 kg/m³.
 - .4 Thermal value : 0.76 m²K/W pour 25.4mm
- .3 Acoustical fire batt stone wool : to CAN/ULC S702.
 - .1 Type : 1.
 - .2 Thickness : as indicated.
 - .3 Density : <76mm 45 kg/m³, >76mm 40 kg/m³.

Part 3 Execution**3.1 INSTALLATION**

- .1 Install insulation to maintain continuity of thermal and sound protection to building elements and empty spaces.
- .2 Install acoustical insulation in walls and ceiling with sound attenuation.
- .3 Fill steel frame with acoustical insulation for acoustical partitions or with thermal insulation for exterior doors frames.
- .4 Fit insulation closely around electrical boxes, pipes, ducts, frames and other objects in or passing through insulation.
- .5 Do not compress insulation to fit into spaces, except around window frame shim space.
- .6 Do not enclose insulation until installations have been approved by Departmental Representative.
- .7 Keep insulation minimum 75 mm from heat emitting devices such as recessed light fixtures, and minimum 50 mm from sidewalls of chimneys and combustion vents.

3.2 CLEANING

- .1 Promptly as the work proceeds and on completion clean up and remove from the premises all rubbish and surplus materials resulting from the foregoing work.

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Section 05 12 23 – Structural Steel for Building (see also structure).
- .2 Section 07 42 00 – Aluminium siding.

1.2 REFERENCES

- .1 Canadian Urethane Foam Contractors' Association Inc. (CUFCA)
- .2 Underwriters' Laboratories of Canada (ULC)
 - .1 CAN/ULC-S101-04, Fire Endurance Tests of Building Construction and Materials.
 - .2 CAN/ULC-S102-03, 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.
 - .5 CAN/ULC-S770-09, Long Term thermal Resistance Test Method.

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 and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Quality assurance submittals: submit following in accordance with Section 01 45 00 - Quality Control.
 - .1 Test reports: 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 in accordance with CAN/ULC-S101 for fire endurance and CAN/ULC-S102 for surface burning characteristics.
 - .3 Manufacturer's Field Reports: submit to manufacturer's written reports within 3 days of review, verifying compliance of Work, as described in part 3 - field quality control.

1.4 QUALITY ASSURANCE

- .1 Applicators to conform to CUFCA Quality Assurance Program.
- .2 Health and Safety Requirements: worker protection:
 - .1 Protect workers as recommended by CAN/ULC-S705.2 and manufacturer's recommendations:

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

1.6 WASTE MANAGEMENT AND DISPOSAL:

- .1 Separate waste materials for recycling in accordance with Section 01 74 19 - Construction/Demolition Waste Management and Disposal.

1.7 SITE CONDITIONS

- .1 Ventilate area to receive insulation by introducing fresh air and exhausting air continuously during and 24 hour after application to maintain non-toxic, 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.
 - .1 Product shall contain no CFC or HCF and no ozone-depleting-chemicals (ZERO SACO).
 - .2 It has a long term thermal resistance of RSI = 0.91/25 mm (CAN/ULC S770).
- .2 Primers: in accordance with manufacturer's recommendations for surface conditions.
- .3 Thermal barrier for polyurethane foam insulation: Portland cement-based flame retardant coating in accordance with manufacturers' recommendations, approved by Underwriters laboratories (ULC). Applicable by spray gun, of minimum thickness required in order to obtain the required thermal protection.
- .4 Provide accessories in accordance with manufacturer's recommendations and in order to comply with fire resistance requirements indicated in documents and codes. These accessories include, but are not limited to, the required elements, bonding agents, mechanical fasteners, application accessories such as metal lattice, canvas or mesh, and accelerator.
- .5 Staples, mesh and other mechanical anchors: with anti-corrosion finish, according to the manufacturer's recommendations in order to meet the requirements of certification laboratories.

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 VERIFICATION AND PREPARATION

- .1 Previous work must be verified for its capacity to receive the sprayed insulation. Any defects or non compliances must be declared. Start insulations work only after corrections of defects or non compliances.
- .2 Surfaces to CAN/UL S705.2 and here after requirements:
 - .1 Surfaces to receive sprayed insulation must be free of humidity, frost, oil, rust or any other deleterious material.
 - .2 Be certain of complete substrate curing (concrete, mortar, coatings, membranes, primers, etc.) before application.
 - .3 Be certain of adequate bonding of membranes and coatings to substrate.

3.3 APPLICATION

- .1 Apply insulation to clean surfaces in accordance with CAN/ULC-S705.2 and manufacturer's printed instructions.
 - .1 For application thickness superior to 50 mm, provide continuous mechanical anchoring to self-adhered membrane at opening perimeter, wall junctions, etc. with galvanized steel sheet angle of 32 mm x 32 mm x 0.42 mm (such as gypsum corner trims) fixed at 400 mm c/c.
- .2 Use primer where recommended by manufacturer.
- .3 Apply sprayed foam insulation in thickness as indicated.
- .4 Apply thermal barrier on sprayed insulation as Manufacturer's recommendations.

3.4 FIELD QUALITY CONTROL

- .1 Manufacturer's Field Services:
 - .1 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

3.5 CLEANING

- .1 Proceed in accordance with Section 01 74 00 - 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 SECTIONS**

- .1 Section 07 21 13 – Board insulation.
- .2 Section 09 21 16 – Gypsum board.
- .3 Section 09 22 16 – Non structural metal framing.

1.2 REFERENCES

- .1 American Society for Testing and Materials International (ASTM)
 - .1 ASTM B117-03, Standard Practice for Operating Salt Spray (Fog) Apparatus.
 - .2 ASTM C67-05, Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile.
 - .3 ASTM C144-04, Standard Specification for Aggregate for Masonry Mortar.
 - .4 ASTM D968-05, Standard Test Methods for Abrasion Resistance of Organic Coatings by the Falling Abrasive.
 - .5 ASTM D2247-02, (U.S. Federal Test 141A 6201), Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity.
 - .6 ASTM E72-05, Standard Test Methods of Conducting Strength Tests of Panels for Building Construction.
 - .7 ASTM E96/E96M-05, Standard Test Methods for Water Vapor Transmission of Materials.
 - .8 ASTM E695-03, Standard Method for Measuring Relative Resistance of Wall, Floor, and Roof Construction to Impact Loading.
 - .9 ASTM G154-05, Standard Practice for Operating Fluorescent Light Apparatus for UV Exposure of Nonmetallic Materials.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-1.162-2004, Emulsion Coating for Stucco and Masonry.
 - .2 CAN/CGSB-19.24-M90, Multicomponent, Chemical-Curing Sealing Compound.
- .3 Canadian Standards Association (CSA International)
 - .1 CAN/CSA-A3000-03(R2005), Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005).
 - .1 CSA-A3001-03, Cementitious Materials for Use in Concrete.
- .4 Health Canada (HC)
 - .1 Workplace Hazardous Materials Information System (WHMIS).
 - .2 Material Safety Data Sheets (MSDS).
- .5 Underwriters' Laboratories of Canada (ULC)
 - .1 CAN-ULC-S101-04, Standard Methods of Fire Endurance Tests of Building Construction and Materials.

- .2 CAN-ULC-S102-03, Standard Methods for Surface Burning Characteristics of Building Materials and Assemblies.
- .3 CAN-ULC-S134-92, Standard Method of Fire Test of Exterior Wall Assemblies.

1.3 DEFINITIONS

- .1 Aesthetic joint: joint for appearance or installation ease. Also known as reveals grooves and reglets used to provide starting and stopping points during application of finish coat.
- .2 Base coat adhesive: adhesive used in base coat. Polymer modified, polymer based or cementitious material, typically mixed with Portland cement.
- .3 Base coat: base coat consists of 2 components; base coat adhesive and reinforcing mesh.
- .4 Direct-Applied: direct-applied systems use EIFS-like coatings applied directly to rigid sheathing boards. Insulation is not used in these systems, thus, they are not EIFS.
- .5 Lamina: base coat reinforcing mesh and finish.
- .6 Reinforcing mesh: woven glass fibre reinforcement to base coat providing impact resistance.

1.4 SYSTEM DESCRIPTION

- .1 Performance requirements: ensure installed modified polymer (soft) coat wall system has following performance properties:
 - .1 Comply with CAN-ULC-S134.
 - .2 Finish abrasion resistance: falling sand method to ASTM D968, no deleterious effects.
 - .3 Finish salt spray resistance: to ASTM B117, after 300 hours exposure to 5 % salt spray solution - no effects.
 - .4 Finish moisture resistance: to ASTM D2247 (U.S. Federal test 141 A6201), after 14 days exposure - no deleterious effects.
 - .5 Accelerated weathering: to CAN/CGSB-1.162, ASTM G154, 2000 hours - no effect.

1.5 SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit product data.
 - .2 Submit product data sheets for system materials. Include product characteristics, performance criteria, limitations and colours.
- .3 Shop Drawings: submit shop drawings and indicate wall layout, details, connections, expansion joints, finish system, installation sequence, including interface with fascias, walls, air barriers, vapour retarders and other components.
- .4 Samples:

- .1 Submit samples.
 - .1 Submit one 300 x 300 mm sample of each colour of system prior to fabrication of mock-up.

1.6 QUALITY ASSURANCE

- .1 Quality Assurance:
 - .1 Installer: company or person specializing in application of exterior finish system (direct applied) approved by manufacturer.
 - .2 Installation of exterior finish system by applicators certified by manufacturers of system used.
 - .3 Submit certification to Departmental Representative prior to commencement of work.
- .2 Mock-ups:
 - .1 Construct mock-up in accordance with Section 01 45 00 - Quality Control.
 - .2 Construct mock-up where indicated by Departmental Representative.
 - .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 work, and may remain as part of finished work.

1.7 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Deliver and store materials in accordance with manufacturer's instructions.
- .3 Protect base finish materials from freezing.
- .4 Waste Management and Disposal:
 - .1 Separate waste materials for recycling in accordance with Section 01 74 19 - Construction/Demolition Waste Management and Disposal.

1.8 AMBIENT CONDITIONS

- .1 Temperature, relative humidity, moisture content.
 - .1 Apply exterior finish system components at temperatures, relative humidity, and substrate moisture content and substrate temperature in accordance with manufacturer's written instructions.

Part 2 Products**2.1 SURFACE PREPARATION**

- .1 Conditioner: water based, clear conditioner/sealer compatible with system materials, recommended by system manufacturer.
- .2 Leveller: polymer-modified, cement-based, reinforced levelling compound.

2.2 BASECOAT

- .1 Modified polymer: non-cementitious, fibre reinforced, premixed base coat system, colour as indicated.
- .2 Modified, cementitious base coat system: cement, silica sand aggregate, acrylic liquid admixture, mixing ratios as recommended by manufacturer.
- .3 Acrylic: non-cementitious, fibre reinforced base coat system.

2.3 FINISH COAT

- .1 Modified polymer finish coat system: acrylic resins in dispersion, silica aggregate, integral mineral pigmentation and additives, colour selected by Departmental Representative.
- .2 Modified finish coat system: synthetic stucco, acrylic type, cement, silica sand aggregate, integral mineral pigmentation and additives, colour selected by Departmental Representative.

2.4 ACCESSORIES

- .1 Accessories: corner beads, casing beads, stop beads, and accessories, as recommended by exterior finish system manufacturer to suit system components.

2.5 MATERIALS: SITE MIX

- .1 Cement: to CSA-A3001.
- .2 Sand: dry bag.
 - .1 For white cement: silica sand, 30-50 mesh.
 - .2 For grey cement: mortar sand to ASTM C144.
- .3 Water: potable.

2.6 MIXES

- .1 General:
 - .1 Mixer: high speed, clean and rust free.
 - .2 Mixing pail: clean and rust free.
 - .3 Mixes: additive free.
- .2 Conditioner: mix in accordance with manufacturer's written instructions.
- .3 Leveller: mixed to uniform consistency in accordance with manufacturer's written instructions.
- .4 Basecoat: mixed to uniform consistency in accordance with manufacturer's written instructions.
- .5 Finish coat: mixed to uniform consistency in accordance with manufacturer's written instructions.

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 EXAMINATION

- .1 Inspect and verify condition of existing substrate surfaces for contamination, surface absorption, chalkiness, cracks, damage, deterioration, moisture content, moisture damage, and tolerances.
- .2 Report deviations from specified requirements or other conditions that might adversely affect exterior finish system installation in writing to Departmental Representative.
- .3 Proceed with Work only after receipt of written approval from Departmental Representative.

3.3 PREPARATION

- .1 Protection:
 - .1 Protect adjacent surfaces from damage resulting from Work of this section.
 - .2 Protect finished Work from water penetration at end of each day or on completion of each section of Work.
 - .3 Protect installation from moisture for 48 hours minimum after completion of each portion of Work.
- .2 Surface preparation:
 - .1 Ensure environmental and site conditions are suitable for installation of system.
 - .2 Prepare new surfaces in accordance with manufacturer's written instructions.
 - .3 Conditioner: acrylic, clear conditioner/sealer compatible with system materials, substrate and as recommended by system manufacturer.
 - .1 Add water and mix.
 - .2 Apply to clean, dry substrate surfaces ensuring complete even coverage in accordance with manufacturer' written instructions.
 - .4 Leveller: polymer-modified, cement based, reinforced levelling compound.
 - .1 Add water and mix.
 - .2 Allow set time.
 - .3 Apply to existing substrate, 6 mm thick maximum.
 - .4 Allow time to fully cure.

3.4 INSTALLATION

- .1 Install system in accordance with CAN-ULC-S134.
- .2 Accessories:

- .1 Install required accessories as detailed and as required by exterior finish system manufacturer, and in accordance with CAN-ULC-S134.
- .3 Mesh and Base Coat Application:
 - .1 Apply mesh and base coat in accordance with manufacturer's written installation instructions.
- .4 Finish Coat Application
 - .1 Prime dry base coat and allow to dry thoroughly before applying finish coat.
 - .2 Apply finish coat directly over base coat, or primed basecoat, only after base coat or primer has thoroughly dried.
 - .3 Apply finish by spray or trowel as recommended by manufacturer.
 - .4 Apply finish in continuous application, and work towards wet edge.
 - .5 Do not install separate batches of finish coat side by side.
 - .6 Do not apply finish into or over sealant joints.
 - .1 Apply finish to outside of wall only.
 - .7 Do not apply finish over irregular or unprepared surfaces.
 - .8 Apply textured or aggregate finishes to wall areas as indicated and in accordance with manufacturer's written instructions.

3.5 CLEAN UP

- .1 Upon completion of installation remove excess materials, droppings and debris, tools and equipment barriers.
- .2 Clean surface and adjacent work area of foreign materials resulting from installation procedures.

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Section 02 41 16 – Structure demolition
- .2 Cast-in-Place Concrete – see also structure documents
- .3 Section 04 22 00 – Concrete unit masonry
- .4 Section 06 10 00 – Rough carpentry.
- .5 Section 07 21 13 – Board insulation
- .6 Section 07 21 16 – Blanket insulation.
- .7 Section 07 46 13 – Preformed metal siding
- .8 Section 08 44 13 – Glazed aluminum curtain walls
- .9 Section 09 21 16 – Gypsum board.

1.2 REFERENCES

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

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 and include:
 - .1 Product characteristics.
 - .2 Performance criteria.
 - .3 Limitations.

1.4 WASTE MANAGEMENT AND DISPOSAL:

- .1 Separate waste materials for recycling in accordance with Section 01 74 19 - Construction/Demolition Waste Management and Disposal.

Part 2 Products**2.1 SHEET VAPOUR BARRIER**

- .1 Polyethylene film for walls: to CAN/CGSB-51.34, 6 mil.
- .2 Polyethylene film for slab on grade: to ASTM E1745, 15 mil.

2.2 AIR/VAPOUR BARRIER

- .1 Self-adhesive air/vapour barrier membrane composed of SBS modified bitumen and a tri-laminated woven polyethylene facer.

- .1 Thickness : 1mm
- .2 Tensile strength -30°C (ASTM D5147): Pass.
- .3 Air permeability
 - .1 75 Pa (ASTM E2178): 0.0011 L/s.m² minimum.
 - .2 Resistance to wind gusts, 3000 Pa (ASTM E330):
No delamination, no variation of air permeability.
- .4 Water vapour transmission (ASTM E96/E96M méthode B): <0.08 Perms.
- .5 Air leakage resistance (ASTM E2357): <0.0195 L/s.m².
- .6 Air leakage rate classification (CAN/ULC S742): A1.
- .7 Fire resistance (NFPA 285): Pass.
- .8 Nail sealability (ASTM D1970 modified): Pass.
- .2 Solvent-based primer specifically designed to maximize adhesion of self-adhesive membranes as manufacturer recommendations.
- .3 Aluminum sheet : 0.81 mm thick for membrane support. Use at junctions with curtain wall and gaps over 12 mm
- .4 Galvanized steel sheet: 1.0 mm thick for membrane support. To fill gaps over 6mm other than curtain wall.
- .5 Galvanized steel angle: 32 mm x 32 mm x 0,42 mm thick fixed every 400 mm c/c (gypsum board type).
- .6 Smoothing roller: steel or polypropylene, as recommended by manufacturer.

2.3 ACCESSORIES

- .1 Joint sealing tape: air resistant pressure sensitive adhesive tape, type recommended by vapour barrier manufacturer, 50 mm wide.
- .2 Sealant: silicone base compound compatible with vapour retarder materials, recommended by vapour retarder manufacturer.
- .3 Staples: minimum 6 mm leg.
- .4 Moulded box vapour barrier: factory-moulded polyethylene box for use with recessed electric switch and outlet device boxes.

Part 3 Execution

3.1 INSTALLATION UNDER CONCRETE SLAB

- .1 Only when the building is entirely closed that the polyethylene vapour retarder may be set under the floor slab and joint back up materials at walls, columns, etc including completion of all refill, compaction, final levelling of grounds and laboratory's compaction test results.
- .2 Lay down vapour retarder for all interior floor slabs overlapping 152 mm at joints. Unless indicated that an overlapping is required between the under floor and wall vapour retarder, bring up the polyethylene film 100 mm at Foundation walls, grease sumps, columns, etc. and anchor film with common joint, sealant to vertical surface. Seal all joints between films and around all vertical conduits (plumbing, electrical, etc.) passing through the vapour retarder.

3.2 INSTALLATION IN EXTERIOR WALLS

- .1 Ensure services are installed and inspected prior to installation of retarder.
- .2 Install sheet vapour retarder on warm side of exterior wall assemblies prior to installation of gypsum board to form continuous retarder.
- .3 Use sheets of largest practical size to minimize joints.
- .4 Inspect for continuity. Repair punctures and tears with sealing tape before work is concealed.

3.3 EXTERIOR SURFACE OPENINGS

- .1 Cut sheet vapour retarder to form openings and ensure material is lapped and sealed to frame.

3.4 PERIMETER SEALS

- .1 Seal perimeter of sheet vapour barrier as follows:
 - .1 Apply continuous bead of sealant to substrate at perimeter of sheets.
 - .2 Lap sheet over sealant and press into sealant bead.
 - .3 Ensure that no gaps exist in sealant bead. Smooth out folds and ripples occurring in sheet over sealant.

3.5 LAP JOINT SEALS

- .1 Seal lap joints of sheet vapour barrier as follows:
 - .1 Attach first sheet to substrate.
 - .2 Apply continuous bead of sealant over solid backing at joint.
 - .3 Lap adjoining sheet minimum 150 mm and press into sealant bead.
 - .4 Ensure that no gaps exist in sealant bead. Smooth out folds and ripples occurring in sheet over sealant.

3.6 ELECTRICAL BOXES

- .1 Seal electrical switch and outlet device boxes that penetrate vapour barrier as follows:
 - .1 Install moulded box vapour barrier.
 - .2 Apply sealant to seal edges of flange to main vapour barrier and seal wiring penetrations through box cover.

3.7 AIR/VAPOUR BARRIER APPLICATION

- .1 Apply self-adhesive air / vapor barrier membrane where required according to manufacturer's recommendations.
- .2 Ensure 75mm overlap between membranes.
- .3 Mechanically fasten membrane through a metal strip or angle as required.
- .4 Carefully cut the membrane around the fasteners. Seal the openings around the fasteners and all projections.
- .5 Press the membrane in place with a smoothing roller to ensure a perfect adhesion.
- .6 Use a specific membrane over control joint.
- .7 Inspection

- .1 Prior to insulation installation, examine every seams and continuity of the air/vapour barrier membrane. Repair damaged membrane as recommended by the manufacturer. Repair poorly aligned or poorly made cover joints, perforations, detachments, fish mouths and other damaged parts with a piece of air / vapor barrier membrane. The patch must be centered on the damaged spot and must extend by 50 mm in all directions.
- .2 Repair any damage the the air/vapour barrier membrane. (misplaced anchor, opening, etc).
- .3 Membrane must be checked after masonry anchor or precast anchor installation and prior to insulation installation.
- .4 Perform membrane repairs as manufacturer instructions.

3.8 REPAIRS

- .1 Ensure that no sheet bears defaults. Repair holes and tear with joint sealing tape before concrete pour or gypsum finishing boards.
- .2 All breakings, tears or damages must be repaired with pieces of same materials and sealed with joint sealing tape.

3.9 CLEANING

- .1 Proceed in accordance with Section 01 74 00 - 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 06 10 00 – Rough carpentry
- .2 Section 07 62 00 – Sheet metal flashing and trims
- .3 Section 07 92 00 – Joint sealants

1.2 REFERENCES

- .1 American Society for Testing and Materials International (ASTM)
 - .1 ASTM D1970/D1970M–11, Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection.
 - .2 ASTM D3018/D3018M–11, Standard Specification for Class A Asphalt Shingles Surfaced with Mineral Granules
 - .3 ASTM D3161–09, Standard Test Method for Wind-Resistance of Asphalt Shingles (Fan-Induced Method)
 - .4 ASTM D3462/D3462M-10a, Standard Specification for Asphalt Shingles Made from Glass Felt and Surfaced with Mineral Granules
 - .5 ASTM E108–11, Standard Test Methods for Fire Tests of Roof Coverings
- .2 Canadian General Standards Board (CGSB).
 - .1 CAN/CGSB-37.4-M89, Fibrated, Cutback Asphalt, Lap Cement for Asphalt Roofing.
 - .2 CAN/CGSB-37.5-M89, Cutback Asphalt Plastic Cement.
 - .3 CAN/CGSB-51.32-M77, Sheathing, Membrane, Breather Type.
 - .4 CAN/CGSB-51.34-M86, Vapour Barrier Polyethylene Sheet, for Use in Building Construction.
- .3 Canadian Roofing Contractors' Association (CRCA).
 - .1 CRCA Roofing Specification Manual - 1997.
- .4 Association des Maîtres couvreurs du Québec
 - .1 Devis couverture AMCQ.
- .5 Canadian Standards Association (CSA International).
 - .1 CAN/CSA-A123.5-16, Asphalt Shingles Made From Organic Felt and Surfaced With Mineral Granules/Asphalt Shingles Made From Glass Felt and Surfaced With Mineral Granules.
 - .2 CSA A123.2-2003 (R2018), Asphalt-Coated Roofing Sheets.
 - .3 CAN/CSA-A123.3-05 (R2010), Asphalt Saturated Organic Roofing Felt.
 - .4 CAN/CSA A123.51-14 (R2018), Asphalt Shingle Application on Roof Slopes 1:3 and Steeper.
 - .5 CSA B111-1974 (R2005), Wire Nails, Spikes and Staples.

1.3 SUBMITTALS

- .1 Submit product data in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit product data sheets for asphalt shingles. Include:
 - .1 Product characteristics.
 - .2 Performance criteria.
 - .3 Installation instructions.
 - .4 Limitations.
 - .5 Colour and finish.

1.4 SAMPLES

- .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit duplicate samples of full-size specified shingles.

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, handle, store and protect materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Provide and maintain dry, off-ground weatherproof storage.
- .3 Remove only in quantities required for same day use.

1.6 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 19 - Construction/Demolition Waste Management And Disposal.

1.7 EXTRA MATERIALS

- .1 Provide maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.
- .2 All unused shingles remain property of owner.

Part 2 Products**2.1 MATERIALS**

- .1 Asphalt shingles: to ASTM D3018, ASTM D3462, ASTM D146, ASTM D228 et CSA A123.5M.
 - .1 Type: Heavy shingle with 3 legs, length of 1067mm and exposure of 152mm.
 - .2 Fire resistance: class A
 - .3 Minimum bitumen weight: 2,0 kg/m² – ASTM D228
 - .4 Colours: Antique slate as existing shingles.

SHINGLES

- .2 Eaves protection sheet: Self-adhesive membrane composed of a fiberglass mat and modified bitumen as CAN/CSA-A123.22 and ASTM D1970. Sanded on its top.
- .3 Roofing felt: to CSA A123.3, organic felt No.15.
- .4 Asphaltic Cement:
 - .1 Plastic cement: to CAN/CGSB-37.5.
 - .2 Lap cement: to CAN/CGSB-37.4.
- .5 Pre-painted drip edge: see section 07 62 00 – Sheet metal flashing and trims.
- .6 Nails: to CSA B111, of galvanized steel, sufficient length to penetrate 19 mm into deck.
- .7 Staples: chisel point galvanized steel 1.5 mm thick, 25mm head, sufficient length to penetrate 20 mm into deck.
- .8 Roof vent: Static roof vent, model and dimensions as required for ventilation. Gauge 24. Interior and exterior powder coated polyester baked paint with UV protection.

Part 3 Execution**3.1 APPLICATION**

- .1 Install eaves protections as recommended by the manufacturer.
- .2 Install roofing felt on the entire roof.
- .3 Do asphalt shingle work in accordance with the most restrictive standard CAN/CSA-A123.51, ACEC specification and AMCQ specification.
- .4 Install roof vent following manufacturer recommendations.
- .5 Install drip edge along eaves, overhanging 12 mm, with minimum 50 mm flange extending onto roof decking. Nail to deck at 400 mm on centre.
- .6 Install bottom step flashing (soaker base flashing) interleaved between shingles at vertical junctions.
- .7 Install asphalt shingles on roof slopes 1:3 and steeper in accordance with CAN3-A123.51.

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Section 04 22 00 – Concrete unit masonry
- .2 Section 06 10 00 – Rough carpentry
- .3 Section 07 21 13 – Board insulation
- .4 Section 07 21 16 – Blanket insulation
- .5 Section 07 26 00 – Vapour retarders
- .6 Section 07 46 13 – Preformed metal siding
- .7 Section 07 62 00 – Sheet metal flashing and trims
- .8 Section 07 92 00 – Joint sealants
- .9 Section 09 21 16 – Gypsum board
- .10 Section 09 22 16 – Non-structural metal framing

1.2 RÉFÉRENCES

- .1 AA DAF 45-2003 (2009), Designation System For Aluminum Finishes.
- .2 AAMA 2603-17a, Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels.
- .3 AAMA 2604-17a, Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Architectural Extrusions and Panels.
- .4 ASTM A123/A123M-17, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- .5 ASTM B209M-10, Specification for Aluminum and Aluminum-Alloy Sheet and Plate (Metric).
- .6 ASTM B221M-14, Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric).
- .7 CAN/CSA-S136-16, North American Specification for the Design of Cold-Formed Steel Structural Members.
- .8 CAN/CSA-S157-17/S157.1-17, Strength design in aluminum / Commentary on CSA S157-17, strength design in aluminum.
- .9 CAN/ULC-S102:2018, Standard Method of Test for Surface Burning Characteristics of building Materials and Assemblies
- .10 CAN/ULC-S114:2018, Standard method of test for determination of non-combustibility in building materials.

1.1 SUBMITTALS

- .1 Provide Submittal submissions: in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product data
 - .1 Provide technical data sheet, specifications and manufacturer's written informations. Include manufacturer's information on:
 - .1 Product characteristics;
 - .2 Performace criteria;
 - .3 Constraints.
- .3 Shop drawings
 - .1 Indicate, using shop drawings, dimensions of elements, bays, materials and finishes as well as details of lintels, studs, thresholds and anchors, and specify requirements for works related as well as the normative documents making it possible to assess compliance with the calculation criteria.
 - .2 Submit shop drawing bearing stamp of a qualified professional engineer member in good standing with the Ordre des ingénieurs du Québec.

1.2 SAMPLES

- .1 Provide samples in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit to the architect two (2) 600 mm x 600 mm samples of the wall cladding system panels, fasteners, support rails, anchor moldings, screw covers, adjustable anchor angles and showing a representative part of the materials, colors and finishes.
- .3 Submit a full-scale mock-up of the wall covering for examination by the architect; the dimensions of the model must include a typical joint and a corner.
- .4 Execute the model in the place indicated by the architect.
- .5 Consider the model, once accepted, as the reference standard with regard to the minimum quality of work covered by this section.
- .6 The model can be part of the finished work if it is accepted by the architect.

1.3 MAINTENANCE INSTRUCTIONS

- .1 Provide the required maintenance sheets in accordance with the prescriptions of section 01 78 00 – Closeout submittals.
- .2 Provide instructions necessary for the maintenance of aluminum products and sealants

1.4 DESIGN CRITERIA

- .1 Design the wall covering system for aluminum panels so that it can absorb expansion and contraction of its component materials, observed in an ambient temperature range of 100 ° C between -40 ° C and +60 ° C, without deformation and without rupture of the seals (between the coating and the adjacent parts of the enclosure), excessive overloads exerted on the fastening devices or other damaging effects.

- .2 The expansion joints must absorb the expansion and contraction movements between the wall panels as well as between the panels and the building frame; these movements are attributable to the movements of the frame (dead loads and live loads, creep, seismic load or wind load) and must not cause permanent deformation or damage to the filling materials, or breakage of seals or packing. sealing and no water infiltration.
- .3 Design the elements making up the coating system so that they can withstand the permanent loads and overloads due to wind in accordance with the National Building Code of Canada (CNB) and the relevant municipal by-laws, the maximum allowable bending being 1 / 180th of the litter.
- .4 Ensure an efficient flow, towards the exterior face of the walls, of the condensation water which forms inside the cavities and rain water possibly penetrating through the joints, according to the principle of the barrier screen. - rain defined by the National Research Council of Canada (NRC).
- .5 Design the wall covering taking into account the tolerances prescribed for the assembly of the frame.
- .6 Design the wall covering taking into account the air circulation of the outside atmosphere and the cavity between the internal face of the covering and the back wall

1.5 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for recycling in accordance with Section 01 74 19 - Construction/Demolition Waste Management and Disposal.

1.6 SCHEDULE

- .1 Coordinate the work described in this section with the implementation of thermal insulation, windows, air barrier, flashing, adjacent materials and elements.

Part 2 Products

1.7 MATERIAL

- .1 Extruded aluminum for fasteners, anchor moldings and reinforcements for flat panels, pressure plates, and other elements: alloy 6063 T5 or T6, in accordance with ASTM B221M; minimum thickness of 2.3 mm and in accordance with the design loads. Anchor for aluminum panels: 38 mm deep.
- .2 Siding identified RM5 : Flat aluminum sheets: alloy 3003 for prepainted finish in accordance with ASTM B209M; minimum thickness of 3.2 mm and in accordance with design loads.
- .3 Steel profile anchors: steel in accordance with CSA-S136 standard, hot-dip galvanized in accordance with ASTM A123 / A123M and ASTM A446 / A446M.
- .4 Self-adhesive dielectric insulating tape to be placed between the aluminum of the system and the angles of steel anchors or any other material which could cause corrosion of the aluminum.

- .5 Sealing products: products used around the perimeter of the panels; for description, see section 07 92 10 - Sealants.
- .6 Stainless steel screws.
- .7 Noise damper in CPV.
- .8 Screw cover.

1.8 FABRICATION

- .1 Manufacturing tolerances for aluminum panels:
 - .1 length: 0.8 mm up to 1219 mm and 1.6 mm up to 3538 mm.
 - .2 height: 0.8 mm up to 1219 mm and 1.6 mm up to 3538 mm.
 - .3 arc at 0.02% of the length or the height: 5 mm maximum.
 - .4 diagonal: 5 mm.
 - .5 camber: 0.8 mm.
- .2 Aluminum panels manufactured in accordance with performance criteria and levels, design, dimensions and thickness prescribed with the appropriate aluminum profiles welded to the back of the flat panels to obtain the required flatness.
- .3 Visible parts designed to respect and ensure the continuity of the design.
- .4 Joints between the different parts aligned with precision and rigid to the assembly and allowing the movements of expansion, creep and others induced by the materials, the frame or the winds, joints of the folded aluminum sheets, curved then welded, ground and polished.
- .5 No trace of distortion or discoloration of visible materials left by welding work.
- .6 Finish panels and extrusions once they are manufactured and shaped.
- .7 Aluminum flashing type SM-2, 3.2 mm thick or 22 gauge where indicated on the plans, with a prepainted finish, the selected finish identical to that of the panels and secured by means of concealed fasteners .

1.9 FINISHES

- .1 Finishing coatings: according to the designation AAMA 605.2.
- .2 Exposed surfaces in prepainted aluminum: fluorocarbon paint finish, based on KYNAR 500 resin, thermosetting in the oven, in accordance with AAMA 605.2 standard; Duranar XL red color chosen by the architect in the RAL color range.
- .3 Hidden elements in galvanized steel according to ASTM A123 / A123M standard at a rate of 600 g / m2 coated with paint for primary layers with iron oxide.
- .4 Concealed aluminum and steel surfaces which come into contact with materials containing hydraulic binders or materials of dissimilar nature must be coated with a layer of bituminous paint.

Part 3 Execution**1.10 PREPARATION WORK**

- .1 Protect with an insulating coating on metal surfaces in contact with concrete, masonry mortar, plaster or any other product based on hydraulic binder.

1.11 INSTALLATION

- .1 Set up level, square and plumb all component elements respecting the following tolerances for the installation of panels.
- .2 Flatness of the elements: 6 mm by length 10 meters or 10 mm by length > 10 meters;

Maximum offset of 0.75 mm in the alignment of two adjacent elements side by side, in the same plane.
- .3 Observe thermal, seismic or structural movements (creep, dead or live loads).
- .4 Screw and adjust the galvanized steel anchors on the back wall or any other type of support element (column, etc.) with maximum spacing of 600 mm c / c depending on the size of the panels and the bottom of screwing.
- .5 Protect galvanized steel and aluminum from corrosive contact with each other or with other materials, which could lead to their deterioration.
- .6 Screw load-bearing aluminum profiles to anchors; install the noise dampers on the supporting rails.
- .7 Screw the aluminum panels to the profiles, respecting the maximum spacing of 450 mm c / c.
- .8 Install associated flashing by coordinating this work with related work to install the air barrier.
- .9 Protect installations against the risk of damage caused by other work.

1.12 CLEANING

- .1 Proceed in accordance with Section 01 74 00 - 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 SECTIONS**

- .1 Section 04 22 00 – Concrete unit masonry
- .2 Section 06 10 00 – Rough carpentry
- .3 Section 07 21 13 – Board insulation.
- .4 Section 07 21 16 – Blanket insulation.
- .5 Section 07 26 00 – Vapour retarders.
- .6 Section 07 62 00 – Sheet metal flashing and trims.
- .7 Section 07 92 00 - Joint Sealing.
- .8 Section 08 11 00 – Metal doors and frames.
- .9 Section 08 36 13.02 – Sectional metal doors.
- .10 Section 08 44 13 – Glazed aluminum curtain walls.
- .11 Section 09 22 16 – Non structural metal framing
- .12 See also mechanical and electrical documents.

1.2 REFERENCES

- .1 American National Standards Institute (ANSI).
 - .1 ANSI B18.6.4-98 (R2005), Thread Forming and Thread Cutting Tapping Screws and Metallic Drive Screws.
- .2 American Society for Testing and Materials International, (ASTM).
 - .1 ASTM A653/A653M-19a, Standard Specification for Steel Sheet, Zinc-Coated (galvanized) by the Hot-Dip Process, Structural (physical) Quality A.
 - .2 ASTM A924/924M-08a, Standard Specification for General Requirements for Steel Sheet, Zinc Coated (galvanized) by the Hot-Dip Process.
 - .3 ASTM D2369-10, Test Method for Volatile Content of Coatings.
 - .4 ASTM D2832-92(R2016), Guide for Determining Volatile and Nonvolatile Content of Paint and Related Coatings.
 - .5 ASTM D5116-06, Guide For Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products.
- .3 Canadian Sheet Steel Building (CSSBI).
 - .1 CSSBI 20M-15, Standard for Sheet Steel Cladding for Architectural, Industrial and Commercial Building Applications.
- .4 Canadian Standards Association (CSA International).
 - .1 CAN/CSA B111-1974(R2003), Wire Nails, Spikes and Staples.
 - .2 CAN/CSA S136-16, North American specification for the design of cold-formed steel structural members.
 - .3 CAN/CSA S16-01 (R2007), Limit states design of steel structure.

1.3 SUBMITTALS

- .1 Shop Drawings:
 - .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Indicate dimensions, profiles, attachment methods, schedule of wall elevations, trim and closure pieces, soffits, fascia, metal furring and related work.
 - .3 The shop drawings submitted must bear the seal and signature of an engineer, member of the *Ordre des Ingénieurs du Québec* (OIQ)
- .2 Samples:
 - .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Submit two samples of siding material, of colour and profile specified.

1.4 CALCULATOIN CRITERIA

- .1 Preformed metal siding must comply to CAN/CSA-A136.
- .2 Preformed metal siding must be able to undergo expansion and contraction caused by a variation in temperature of -35°C in winter and + 35°C in summer and at a differential temperature of approximately 80°C without breaking sealing joints, damaging seals, overload fasteners and other damaging effects on components.
- .3 The joints must absorb the movements of expansion and contraction between the panels themselves and between the panels and the building frame. Movements caused by frame displacement must not cause permanent deformation, damage filling materials, breaking construction and sealing joints or cause water infiltration.
- .4 Components must support dead load, positive and negative wind load in accordance with NBC for its location. Maximum deflexion is 1/180.
- .5 Preformed metal siding must be designed to accommodate on site tolerances.

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Prefinish material must be protected during transportation, on site storage and during installation as per CSSBI standards.
- .2 Follow manufacturer's storage instructions.

1.6 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.

1.7 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for recycling in accordance with Section 01 74 19 - Construction/Demolition Waste Management and Disposal.

Part 2 Products**2.1 STEEL CLADDING AND COMPONENTS**

- .1 Girts: galvanized sheet metal, to ASTM A653/A653M, grade 230, galvanized Z275, thickness 1,21mm min., Z and J profiles with thermal break, dimensions as per drawings.
- .2 Omega : galvanized sheet metal, grade A, galvanized Z275, thickness 1,21mm x 22 mm depth.
- .3 Siding: galvanized sheet metal, to ASTM A653/A653M, grade 230, galvanized Z275, nominal thickness 0,46 mm min., prefinished with silicone modified polyester system.
 - .1 Siding identified RM1: hidden fastener profile, width of 300mm without stiffener rib. Color #9740 Carbon as existing.
 - .1 Acceptable products : Vicwest profile AD300SR, Ideal Roofing profile Urban Accent or equivalent accepted by Departemental representative.
 - .2 Siding identified RM2: hidden fastener profile, width of 300mm without stiffener rib, with perforations. Color #9740 Carbon as existing.
 - .1 Acceptable products : Vicwest profile AD300SR, Ideal Roofing profile Urban Accent or equivalent accepted by Departemental representative.
 - .3 Siding identified RM3: 7/8" Corrugated siding – Color #2897 Tin as existing.
 - .4 Siding identified RM4: 7/8" Corrugated siding – Color #16080 Bright Red as existing.
 - .5 Siding identified RM5: Prepainted siding – Standard color chosen by Departmental Representative.
 - .1 Acceptable products: Serie CL508 de Vicwest, 11mm thick, serie LC17 de Duchesne, 13mm thick, série Munic-Mur de Métalunic, 16mm thick or equivalent accepted by Departemental representative.

2.2 ACCESSORIES

- .1 Exposed trim: inside corners, outside corners, cap strip, drip cap, undersill trim, starter strip and window/door trim of same material, colour and gloss as cladding, with fastener holes pre-punched.
- .2 Non-exposed accessories: Galvanized steel.

2.3 FASTENERS

- .1 Screws: to ANSI B18.6.4. Purpose made cadmium plated steel. Adequate diameter and length, color match siding, self tapping hexa head screws with conical neoprene washer.

2.4 CAULKING

- .1 Sealing tape: 100% solid Polyisobutylene cross-linked butyl, preformed sealant, 3mm x 13mm.
- .2 Self-adhesive thermal break: tape for girts, 3mm x 25mm foam rubber.
- .3 Sealant: see section 07 92 00 – Joint sealants.

2.5 GUTTER

- .1 Seamless gutter, dimensions: 100mm high x 130mm deep. Color match adjacent siding.
- .2 3mm thick galvanized steel downspouts 100mm x 100mm. Must extend 450mm below grade to connect with drainage by civil engineer.
- .3 Twisted stainless steel nails from 200mm long to 300mm to be painted in the factory with an anti-rust paint. Color match adjacent siding.
- .4 Include all required accessories, such as gooseneck, discharge, basket strainer, leaves net and fasteners.
- .5 Soften edges and round corners of elements within 900mm of finished ground to avoid dogs injuries.

Part 3 Execution**3.1 MANUFACTURER'S INSTRUCTIONS**

- .1 Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

3.2 INSTALLATION

- .1 Install cladding in accordance with CSSBI and manufacturer's written instructions
- .2 Install continuous starter strips, inside and outside corners, edgings, soffit, drip, cap, sill and window/door opening flashings as indicated.
- .3 Plumb and level assemblies to prevent twist and warping. Preserve dimensional tolerances: flatness of 6 mm per length of 10m or 10 mm for length exceeding 10 m.
- .4 Screw and assemble galvanized girts to the support. Spacing must be 600 mm c/c maximum depending on panel size and support.
- .5 Protect galvanized steel and aluminum from any corrosive contact with each other or with other materials such as concrete, mortar, etc. with an insulating coating.
- .6 Caulk junctions with adjoining work with sealant. Do work in accordance with Section 07 92 00 - Joint Sealing.

3.3 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 05 51 29 – Metal stairs and ladders
- .2 Section 06 10 00 – Rough carpentry.
- .3 Section 07 62 00 – Sheet metal flashing and trim.
- .4 Section 07 92 00 – Joint sealants.
- .5 Section 08 44 13 – Glazed aluminum curtain walls.
- .6 See also mechanical and electrical documents.

1.2 REFERENCES

- .1 American Society for Testing and Materials:
 - .1 ASTM C203-05a (2017) : Standard Test Methods for Breaking Load and Flexural Properties of Block-Type Thermal Insulation.
 - .2 ASTM C473-17 : Standard Test Methods for Physical Testing of Gypsum Panel Products.
 - .3 ASTM C518-17 : Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
 - .4 ASTM C1002-18 : 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.
 - .5 ASTM D1621-16 : Standard Test Method for Compressive Properties of Rigid Cellular Plastics.
 - .6 ASTM D2126-15 : Standard Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging.
 - .7 ASTM D2842-19 : Standard Test Method for Water Absorption of Rigid Cellular Plastics.
 - .8 ASTM D3617/D3617M-17 : Standard Practice for Sampling and Analysis of Built-Up Roof Systems During Application.
 - .9 ASTM E84-19a : Standard Test Method for Surface Burning Characteristics of Building Materials.
 - .10 ASTM E96/E96M-16 : Standard Test Methods for Water Vapor Transmission of Materials.
- .2 Canadian General Standards Board (CGSB)
 - .1 CGSB 37-GP-56M (9th AMEND), Modified Bituminous membrane, Prefabricated, and Reinforced for Roofing.
- .3 Canadian Roofing Contractors Association (CRCA)
 - .1 CRCA Roofing Specifications Manual, most recent edition
- .4 CSA, Canadian standard Association
 - .1 A123.21-14 - Standard test method for the dynamic wind uplift resistance of membrane-roofing systems.

- .5 ULC, Underwriters Laboratories of Canada
 - .1 CAN/ULC-S102.2:2018 : Standard method of test for surface burning characteristics of flooring, floor coverings, and miscellaneous materials and assemblies.
 - .2 CAN/ULC-S107-10(2016) : Methods of fire tests of roof coverings..
 - .3 CAN/ULC-S701.1:2017 : Standard for thermal insulation, polystyrene boards.
 - .4 CAN/ULC-S702-14 : Standard for mineral fibre thermal insulation for buildings.
 - .5 CAN/ULC-S704.1:2017 : Standard for Thermal Insulation, Polyurethane and Polyisocyanurate, Boards, Faced.
 - .6 CAN/ULC-S706.1:2016 : Standard for wood fibre insulating boards for buildings.
 - .7 CAN/ULC-S770-15 : Standard test method for determination of long-term thermal resistance of closed-cell thermal insulating foams
 - .8 Factory Mutual Engineering Corporation (FM):
 - .9 Roof Assembly Classifications, class FM 1-90.
- .6 Quebec Master Roofers Association (QMRA-AMCQ)
 - .1 Roofing specification manual AMCQ / QMRA.

1.3 ADMINISTRATIVE REQUIREMENTS

- .1 One (1) week prior to commencement of work, demand a meeting with the Departmental Representative, as per section 01 32 16.07 – Construction progress table barr (Gantt) chart, during which will be discussed;
 - .1 Project details requirements;
 - .2 Existing conditions of roofs;
 - .3 Coordination between work included in this section and work to be executed by other trades;
 - .4 Installation specifications submitted by the product manufacturers and the guaranties offered.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Provide digital versions of most recent technical roofing components data sheets describing materials' physical properties and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Submit 2 copies of the MSDA data sheet in accordance with SIMDUT, section 01 35 29.06 health and security and section 01 35 43, environment protection. The data shall indicate the COV contents for:
 - .1 Primers
 - .2 Bituminous
 - .3 Water sealing products
- .3 Manufacturer's Certificate: certify that products meet or exceed specified requirements.
- .4 Manufacturers' install procedures: indicate any special precautions pertaining to lapping of membrane sheets.

- .5 Submit all reports done by manufacturers upon visiting the site, as per section 01 45 00. Reports have to indicate installation methods used, ambient temperature and wind speed while installing.

1.5 FIRE PROTECTION

- .1 Fire Extinguishers:
 - .1 Maintain one stored pressure rechargeable type with hose and shut-off nozzle,
 - .2 ULC labelled for A, B and C class protection.
 - .3 Size 9 kg on roof per torch applicator, within A 6 m reaching distance.
- .2 Maintain fire watch for 1 hour after each day's roofing operations cease or any time work has to be halted. The employee will have the following equipment: telephone, extinguisher and an infrared thermometer.

1.6 DELIVERY, STORING AND HANDLING

- .1 Deliver, store and handle materials and equipment according to manufactures' instructions and as per Section 01 61 00 – Common product requirements.
- .2 Storage and handling:
 - .1 Security: conform to procedures from the Système d'information sur les matières dangereuses utilisées au travail (SIMDUT) pertaining to usage, handling, storage and elimination of bitumen, as well as for all primers, caulking and sealants.
 - .2 Store materials in a dry, protected against weather conditions place, and avoiding all contact with the ground.
 - .3 All felt and membrane rolls to be store vertically; in the case of membranes, selvedge facing up.
 - .4 Remove from storage only materials to will be applied that day.
 - .5 Protect work with plywood runways for workers and equipment.
 - .6 Ensure that all adhesives, primers and sealants are stored at least at 5 Celsius degree temperature. In the case of polyurethane based products, ensure 20 Celsius degree temperature during twelve (12) hours and until usage.
 - .7 Protect all insulation products against direct sunlight, weather conditions and other harmful factors.

1.7 FIELD CONDITIONS

- .1 Ambient Conditions
 - .1 Do not install roofing when temperature remains below -10 degrees C, including wind chill factor, for torch application, or 5 degrees Celsius in the case of cold applied membranes.
 - .2 Minimum temperature for solvent-based adhesive is 5 degrees C or the temperature indicated on the manufacturer spec sheet.
- .2 Install roofing on dry deck, free of snow and ice, use only dry materials and apply only during weather that will not introduce moisture into roofing system.
- .3 According to the QMRA's spec book, cap sheet to be installed no more than five (5) days after base sheet.

- .4 The modifications and the waterproofing of all mechanic bases walls shall be done in continuous work and completed in 3 hours maximum between the shot down and the restarting.

1.8 QUALITY ASSURANCE

- .1 Roofing materials representative will have access to the site during the period of this work. The observations on the installation quality shall be transmitted to the Departmental Representative.
- .2 Roofing contractor to ensure close coordination between all required roofing work to guarantee that all materials shall not be damaged in any way.
- .3 Roofing work inspection described herein and relevant tests will be carried out by an independent inspection firm, specialized in the roofing field, accredited by the Association des maîtres couvreurs du Québec, designated and paid by the Departmental Representative.
- .4 This firm will have to proceed with a preliminary inspection as to verify the substrates prior to receive roofing materials, verify its slopes, its soundness, its cleanliness, and all work related preparation for approvals, such as: walls, parapets, eaves, downspouts, plumbing vents, and any other required work.
- .5 Furthermore prior commencing work, this firm shall verify conformity between the specifications and the Quebec Master Roofers Association the minimal prescriptions.
- .6 As such, all through the roofing materials installation period, the firm inspector presences on site shall be continuous without interruption. If he must leave the site for valid reasons, he shall take all dispositions to ascertain at his return that work have been properly executed since he assumes full responsibilities in the respect of the specifications prescriptions.
- .7 The inspector presence is not required during the substrates cleaning, no matter if it regards getting rid of the materials surplus m of snow and/or ice accumulations or drying of surfaces. If the roofing contractor convenes the inspector by mistake for period is presence is not required, the contractor will have to assume inspector's fees.
- .8 After metal installation, the inspector will make sure that the sheet metal work is conforming to drawings and specifications and meets applicable installation prescriptions. The continuous presence of the inspector is not required during sheet metal installation.
- .9 Roofing work inspection will assure the execution conformity with drawings and specifications and will include among others the following verifications:
- Surfaces to seal cleanliness and soundness.
 - Sealing membranes types, thickness, weight, and layer numbers.
 - Joints sealing and overlapping.
 - Bituminous and metal flashing construction at walls or control or expansion joints.
 - Mechanical, electrical and other equipment base sealing,
 - Rain water run-off to different drains.
- .10 After work acceptance, the inspector shall give to the roofing contractor a certificate that attest work quality and the respect of installation prescriptions.

1.9 SUBCONTRACTING

- .1 No subcontract may be awarded to a non-AMCQ member for roofing installation and its components.

1.10 OTHER CONDITIONS

- .1 When a basin has a slope greater than 10%, blockages must be installed to prevent the membrane from slipping. Refer to the manufacturer for recommendations.
- .2 Ensure an adequate slope (minimum 5%) of drip above the parapets following the work of membrane flashings. Inspect and notify the Departmental Representative of any work that does not have an adequate slope before the start of work. Any parapet ledge designed level or with a negative slope towards the outside will be taken back at the Contractor's expense.
- .3 Check levels of bridging after installation of vapor barrier to detect depressions which may cause accumulation of water on the surface of the finished membrane. If depressions are present, immediately notify the Departmental Representative.
- .4 Following the installation of the base layer, a water test will be required, in case of doubt, in order to validate if there is any accumulation of water that does not comply with the AMCQ criteria. A report must be submitted to the Contracting Authority. If necessary, corrective specifications will be established by the Departmental Representative. The Roofing Contractor must comply with it.
- .5 Ensure perfect continuity in the execution of roofing work so that the materials which are incorporated into such work are not damaged in any way.

1.11 WARRANTY

- .1 For all work related to the present Section 07 52 00 – Modified bituminous membrane roofing, the guarantee period of 12 months shall be prolonged as per following:
 - .1 Submit a written and signed guarantee from the manufacturer, naming Canada as the beneficiary, stating that the modified bitumen membranes are to be free of all defects, for a period of ten (10) years following the date of the Certificate of Substantial Performance.
 - .2 Submit a written and signed guarantee, naming Canada as the beneficiary, certifying that all work (materials and labor) are conjointly guaranteed by roofing contractor and manufacturer against all defects for a period of five (5) years following the date of the Certificate of Substantial Performance.

Part 2 Products**2.1 PERFORMANCE CRITERIA**

- .1 Compatibility between components of roofing system is essential. Provide written declaration to Departmental Representative stating that materials and components, as assembled in system, meet this requirement.
- .2 Roofing System: to CSA A123.21 for wind uplift resistance.
 - .1 Kennel
 - .1 Corner width : 2.0m

- .2 Parapet width : 1.0m
- .3 Corners loads : -3.6kPa / -76lbs/pi²
- .4 Parapet loads : -2.5kPa / -52lbs/pi²
- .5 Roof center loads : -1.8kPa / -37lbs/pi²

.2 Hangar

- .1 Corner width : 3.7m
- .2 Parapet width : 3.7m
- .3 Corners loads : -3.4kPa / -72lbs/pi²
- .4 Parapet loads : -1.8kPa / -37lbs/pi²
- .5 Roof center loads : -1.3kPa / -28lbs/pi²

2.2 MEMBRANE

- .1 Vapour retarder: self-adhesive membrane Styrene-Butadiene-Styrene (SBS) elastomeric polymer sheet, surface woven of trilaminar polyethylene reinforcement, having nominal weight of 0,77 kg/m².
 - .1 Thickness: 0.8 mm.
 - .2 Surface: woven of trilaminar polyethylene.
 - .3 Underside: Self-adhesive.
 - .4 Tensile strength L / T (ASTM D5147): 9.5 / 13 kN / m.
 - .5 Elongation at break L / T (ASTM D5147): 33/25%.
 - .6 Tear resistance L / T (ASTM D1970): 423/458 N.
 - .7 Resistance to static punching (ASTM D5602): 400 N.
 - .8 Water absorption (ASTM D5147): 0.1% max.
 - .9 Peel resistance on steel (ASTM D903): 950 N / m.
 - .10 Water vapor permeance (ASTM E96 - procedure B): 1.7 ng / Pa.s.m²
 - .11 Air permeance (ASTM E2178): <0.001 L / s.m².
- .2 Self-adhesive base sheet membrane for vertical surfaces (flashing), membrane is composed of a non-woven with 3,5 kg/ m² polyester reinforcement and SBS modified bitumen. Conform to CGSB 37-GP-56M, 9th amend.
 - .1 Thickness: 3.0 mm
 - .2 Reinforcement: Composite.
 - .3 Surface: hot melt.
 - .4 Underside: Self-adhesive.
 - .5 Resistance to deformation: 7.8 / 7.2 kN / m.
 - .6 Tensile strength: 15 / 13.5 kN / m.
 - .7 Elongation at break: 60/65%.
 - .8 Tear resistance: 125 N.
 - .9 Resistance to static punching: 560 N.
- .3 Base sheet for horizontal surfaces: High performance base sheet membrane composed of SBS modified bitumen and a composite reinforcement laminated on a polyisocyanurate panel. The surface is covered with a thermo fusible plastic film. Total weight of 4,15 kg/m².

- .1 Panel thickness: 12.7 mm.
- .2 Thickness of the membrane: 2.2 mm.
- .3 Frame: Non-woven polyester.
- .4 Tensile strength L / T (CAN / CGSB-37.56M): 17.0 / 12.5 kN / m.
- .5 L / T breaking strength (CAN / CGSB-37.56M): 60/65%.
- .6 Tear resistance (CAN / CGSB-37.56M): 60 N.
- .7 Thermal resistance (ASTM C518): Rsi 0.44.
- .8 Compressive strength (ASTM D1621): 550 to 759 kPa.
- .9 Dimensional stability (ASTM D2126): <0.5% linear change.
- .10 Water absorption (ASTM C209): <3% by volume.
- .11 Mold resistance (ASTM D3273): Passed.
- .4 The Cap sheet membrane for horizontal and vertical surfaces, prefabricated sheet, is a high performance cap sheet membrane composed of SBS modified bitumen and a composite reinforcement. The surface is protected by white coloured granules, while the under face is covered with a thermo fusible plastic film. Total weight of 4,9 kg/m².
 - .1 Thickness: 4.0 mm.
 - .2 Reinforcement: Composite.
 - .3 Surface: highly reflective white granules.
 - .4 Underside: hot melt.
 - .5 Resistance to deformation L / T: 11.9 / 9.5 kN / m.
 - .6 Tensile strength L / T: 19.5 / 15.1 kN / m.
 - .7 Elongation at break L / T: 61/75%.
 - .8 Tear resistance: 70 N.
 - .9 Resistance to static punching: 470 N.
 - .10 Dimensional stability: L / T: -0.2 / 0.1%.
 - .11 Stability of the compound:> 110oC.
 - .12 SRI: 82.
- .5 Lapping membrane, Styrene-Butadiene-Styrene (SBS) elastomeric polymer sheet, non-woven polyester reinforcement, 2,2 mm thick, having nominal weight of 180 g/m², of 152 mm width or more, for lapping and coverage of mechanical fixations.

2.3 FASTENERS

- .1 Fasteners for base sheet membrane: hardened carbon steel no 14 Phillips head fasteners with anticorrosion coating that withstands twice the current required Kesternich exposure. They are designed for heavy duty attachments of high performance roofing membranes to a 16 mm plywood decking. The fasteners have to be wood type screws with filets until the head of the screw.
- .2 Other Screws: for concrete or wood substrates, galvanized or other rust proofing.

2.4 SUPPORT PANELS

- .1 Support panel: composed of a core treated against water and humidity, coated with glass fibers on both sides, absorbing 10% or less of water (according to ASTM C473), having a propagation index flame of not more than 5 and a smoke evolution index of 0 (according to CAN / ULC S102), of thickness indicated in the drawings.
- .2 Support panel: composed of a core treated against water and humidity, coated with glass fibers on both sides, the upper face of which is primed, absorbing 5% or less of water (according to ASTM D1177) , non-combustible (according to ASTM E84 and CAN / ULC S107), of thickness indicated in the drawings.
- .3 Lightweight concrete panel: made of Portland cement, aggregates, polymers and fiberglass mesh, non-combustible, absorbing 5% or less of water (according to ASTM D1037)
- .4 Plywood: in accordance with CAN / CSA-O121 or CAN / CSA-O151, coating category, thicknesses indicated on drawings.

2.5 PRIMERS

- .1 Primer for weldable membranes, modified bitumen based, containing a minimum of 35% solids, for use on concrete, gypsum board, primed gypsum board, metals and compatible with used membranes.
- .2 Primer for self-adhesive membranes, modified bitumen based, containing a minimum of 24% of solids, for use on porous materials such as wood, primed gypsum board, metal and compatible with used membranes.

2.6 ROOF DRAINS

- .1 Anti-vandal roof drain: drain made of copper of at least 24 oz, with rigid pipe welded to the mig to the deck, dimensions according to mechanical documents, including molded aluminum strainer with anti-vandalism cover fitted with a screw.
- .2 Overflow drain: drain made of copper of at least 24 oz, with rigid pipe welded to the mig to the deck, dimensions according to mechanical documents, including strainer made of cast aluminum with cover fitted with a screw, fixed to the deck with welded retaining tabs, including a welded copper pipe 140 mm longer than the deck.
- .3 Sealing adapter: adjustable device for connecting the drains of the drains to the downspouts, of diameter according to the drain.
- .4 Drain indicator: fiberglass rod, non-conductive of electricity, at least 7.6 mm in diameter, 1210 mm in height, with threaded connection sleeve in corrosion-protected steel.

2.7 WATERPROOFING MASTICS FOR EXTERIOR USE.

- .1 Fabricated with a mix of bituminous and rubber products, contains at least 70 % of solids as per CAN/CGSB-37.5-M89.

- .2 Fabricated with a mix of bituminous and polyurethane products, contains at least 80% of solids, with a trench coefficient of 500% as per ASTM D412w.
- .3 See section 07 92 00 – Joint sealants.

2.8 VENT FLASHING

- .1 One piece molded aluminum flashing cap, as per existing diameters (allow for 25mm insulation), with screwed-on cap.
- .2 Use pre-moulded foam insulation between roof vent and flashing.

2.9 INSULATION

- .1 Use the type of insulation according to the roofing composition selected based on wind wrench tests (CSA-123.21).
- .2 Option 1
 - .1 Flat insulation: closed cell polyisocyanurate panel, covered on two sides with an organic coating reinforced with glass fiber, having an RSI thermal resistance of at least 0.0389 / mm (0.99 / 25.4 mm) at 24 ° C, compressive strength of at least 138 kPa (according to ASTM D1621), straight edges, of thicknesses indicated in the drawings.
 - .2 Slope insulation: closed cell polyisocyanurate panel, covered on two sides with an organic coating reinforced with glass fiber, having an RSI thermal resistance of at least 0.0389 / mm (0.99 / 25.4 mm) at 24 ° C, compressive strength of at least 138 kPa (according to ASTM D1621), tapered to ensure a slope with the ratios indicated in the drawings.
- .3 Option 2:
 - .1 Flat insulation: type II expanded polystyrene panel, with an RSI thermal resistance of at least 0.0275 / mm (0.7 / 25 mm) (according to ASTM C177 and C518), compression resistance of at least 120 kPa (according to ASTM D1621), straight edges, thickness indicated in the drawings.
 - .2 Slope insulation: expanded polystyrene type II panel, having an RSI thermal resistance of at least 0.0275 (0.7 / 25 mm) (according to ASTM C177 and C518), compression resistance of at least 120 kPa (according to ASTM D1621), tapered to ensure a slope with the ratios indicated in the drawings.
- .4 Bowl insulation: rigid insulation panel of the same material as the basin insulation, with 4% slopes towards its center.
- .5 Donkey and locusts: rigid insulation panels of the same material as the basin insulation, with a slope of 4% or otherwise indicated in the drawings.
- .6 Rock fiber insulation wool, in accordance with ASTM C518, when required to seal the openings and gaps between the insulation panels.

2.10 ACCESSORIES

- .1 Adhesive: ULC listed (see guide no 360R13 – Roof Deck Construction Materials) and AMCQ adhesives synoptic schedule, to material manufacturer recommendations, designed to withstand foreseeable climatic conditions for implementation.

Note: for polyurethane adhesive, use recommended applicator by manufacturer and keep at all time adhesive until application at a temperature of at least 20 degrees C and as per strict manufacturer's recommendations.

- .2 Joint backing: extruded polyethylene foam, hardness 20 on shore A scale, traction resistance 140 to 200 kPa, oversized by 30 to 50%, compatible with primers and sealants.
- .3 Sealing sleeve:
- .1 Resin curb: made of polyester or nylon, round or square model depending on use, of appropriate diameter.
 - .2 Structural adhesive: made of rubber, wet cure.
 - .3 Self-leveling sealant: rubber-based, self-leveling, wet cure.
 - .4 Sealant for vertical applications: made entirely of solids, non-sagging, UV resistant, wet cure.
- .4 Rubber mat made from recycled materials. Hexagon relief type surface (honeycomb). Bottom composed of longitudinal grooves every 25 mm to allow water drainage. 4.8 mm wide by 3.2 mm deep grooves. Thickness of 19 mm and dimensions 1220 x 1830 mm. To be cut according to required dimensions and applications.

Part 3 EXECUTION**3.1 QUALITY OF WORK**

- .1 Do examination, preparation and roofing Work in accordance with Roofing Manufacturer's Specification Manual AMCQ, particularly for fire safety precautions, and to FM.
- .2 Do priming in accordance with manufacturers written recommendations.
- .3 The interface of the walls and roof assemblies will be fitted with durable rigid material sheet metal providing connection point for continuity of air barrier membranes.
- .4 Assembly, component and material connections will be made in consideration of appropriate design loads.

3.2 EXAMINATION OF ROOF DECKS

- .1 Verification of Conditions:
- .1 Inspect with Departmental Representative and inspection firm deck conditions including parapets, construction joints, roof drains, plumbing vents and ventilation outlets to determine readiness to proceed.
- .2 Evaluation and Assessment:

- .1 Prior to beginning of work ensure:
 - .1 Decks are firm, straight, smooth, dry, free of snow, ice or frost, and swept clean of dust and debris. Do not use calcium or salt for ice or snow removal.
 - .2 Curbs have been built.
 - .3 Roof drains have been installed at proper elevations relative to finished roof surface.
 - .4 Plywood and lumber nailer plates have been installed to deck, walls and parapets as indicated.
 - .5 Roof drains have been installed at an appropriate level relative to that of the finished surface of the roof.
 - .6 Bridging does not present depressions or low points which do not coincide with the drains of the roof drains. Notify the Ministerial representative before continuing the work.
- .3 Do not install roofing materials during rain or snowfall.

3.3 PROTECTION OF IN-PLACE CONDITIONS

- .1 Cover walls, circulation paths, inclined roofs and adjacent work where materials hoisted or used, especially in the case of adhesives.
- .2 Use warning signs and barriers. Maintain in good order until completion of Work.
- .3 Clean off drips and smears of bituminous material and adhesive immediately.
- .4 Dispose of rain water off roof and away from face of building until roof drains or hoppers installed and connected.
- .5 Protect roof from traffic and damage. Comply with precautions deemed necessary by Departmental Representative.
- .6 At end of each day's work or when stoppage occurs due to inclement weather, provide protection for completed Work and materials out of storage.
- .7 Metal connectors and decking will be treated with rust proofing or galvanization.

3.4 SUPPORT PANELS INSTALLATION ON STEEL DECK

- .1 Adhesive
 - .1 Adhere panels to steel decking. Clean galvanized steel decks before applying adhesives, using a soft cloth and acetone. Test the adhesive in a 1220 x 1220 mm square to make sure that the bypass does not contain any oil or other foreign matter before applying the adhesive. When the adhesive does not adhere well to the bypass, use the primer recommended by the adhesive manufacturer.
- .2 Apply a bead of at least 13 mm of adhesive to the center of the deck ribs.
 - .1 The spacing of the cord according to the selected roofing system and according to the wind tear tests (CSA123.21-14).
- .3 Ensure a weight on the panel during the setting time of the adhesive to adhere the panel to the steel deck.
- .4 Mechanical fixing:
 - .1 Mechanically secure the panels to the steel decking using mechanical fasteners with washers, positioned on the middle of the ribs.
 - .2 The number and spacing of the screws according to the selected roofing system and according to the wind tear tests (CSA123.21-14).

3.5 SELF-ADHESIVE VAPOUR RETARDER

- .1 Apply primer as recommended by manufacturer, when required. The primer should be dry when installing the vapor barrier.
- .2 Starting from the bottom of the slope, unroll the membrane on the surface without making it adhere so as to be able to align it. Keep the detachable silicone film for this step.
- .3 Clear one end of the detachable silicone plastic film to adhere this part of the membrane to the surface. Then remove this protective film at an angle of 45 °, so as to avoid causing wrinkling of the membrane.
- .4 Overlap adjacent rollers at least 75mm or as directed by manufacturer. All transverse joints will be 150 mm. Space the transverse joints at least 300 mm.
- .5 Extend the vapor barrier under the bevelled battens, mechanical bases and support lintels and overlap it with the vapor barrier on the wall.
- .6 Attach the roof vapor barrier to that of the adjacent walls to ensure the continuity of the building's watertightness against vapor.
- .7 Apply a vapor barrier flashing on all vertical roofing works (eg parapet walls, control joints, expansion joints, mechanical bases), so that the vapor barrier membrane forms watertight basins separated from each other.
- .8 Reassemble to exceed by a maximum of 50 mm the height of the underlayment membrane in the running part.

3.6 INSULATION INSTALLATION

- .1 Install insulation, in a layer or two, of thickness indicated on drawings and specifications. Stagger joints of successive thicknesses by at least 150 mm. Install the slopes and crickets shown in the drawings over the insulation, following the same installation instructions as those described for slope or flat insulation.
- .2 Install slope insulation first where required in drawings using the same method as for roof insulation. Install the slope insulation so as to achieve the prescribed slopes.
- .3 Install insulation in a regular arrangement to obtain a uniform insulation value over the entire area of the roof. The panels must be joined. Fill in mat insulation any open joint wider than 3.2 mm.
- .4 Protect exposed edges of insulation with a vapor barrier flashing when work is interrupted. Remove this protection when resuming work.
- .5 Adhesive installation: Adhere the insulation to the vapor barrier with the adhesive following the recommendations of the adhesive manufacturer. Use the adhesive manufacturer's applicator. Apply continuous and parallel cords 13 to 19 mm wide.

3.7 ROOF PLAN MEMBRANE INSTALLATION

- .1 Unroll the rolls of membranes and allow the membranes to flatten for at least 20 minutes, taking into account the weather conditions and the manufacturer's instructions.
- .2 Ensure that supports, constructions and related elements do not present a fire risk when using the torch. Do not weld on wood or in places where chimney or draft effects could project the flame to combustible materials sometimes hidden.
- .3 Align the edge of the base layer with the center of the drain channel, going perpendicular to the axis of the slope of the basin. Position the first transverse overlap at least 915 mm from the drain drain.
- .4 At transverse overlaps, cut at an angle the corner of the area which will be covered by the next sheet of membrane.
- .5 Vertical anchoring: reassemble the base layer to an approximate height of 50 mm on the vertical surfaces at the perimeter of the basin and on other vertical surfaces more than 610 mm in height; this requirement is not required for mechanically fixed base layers in a horizontal part. Anchor with an anchor bar fixed with number 12 steel screws treated against corrosion every 152 mm with a recess of at least 25 mm in a wooden substrate or that the self-tapping head exceeds the metal screw base ;
- .6 The base coat will be free of blistering, wrinkling and yawning.
- .7 Specific instructions for laying the laminated base layer:
 - .1 Install the panels so that they are joined and ensuring that they will be at the same level;
 - .2 Align the transverse joints of the successive base layer panels;

- .3 Adhere laminate to insulation with adhesive as per adhesive manufacturer's recommendations. Use the adhesive manufacturer's applicator. Apply continuous and parallel cords 13 to 19 mm wide.
- .4 Sealing of overlapping membranes: press with a roller to smooth the combined self-adhesive braids (ie duos) provided for this purpose and finish by welding with a torch the edge of these braids when required by the maker. For only self-adhesive braids, press with a roller to smooth the braids and slightly heating the top of the braid, apply pressure to seal the bitumen from the braid to the adjacent base layer. When no braid is available, seal the overlaps with a covering strip at least 228 mm wide, welded with a torch and centered on the joint.
- .8 Specific instructions:
 - .1 Unroll the top layer starting at the bottom of the slope and centered on the drain, taking care to align it parallel to the base layer. Position the first transverse overlap at least 915 mm from the drain drain;
 - .2 Wind again the two ends of the aligned finishing layer;
 - .3 Failing to use a top coat with a stripped strip on each of the two banks, degranulate the second bank to a width of 75 mm;
 - .4 Weld the finishing layer with a blowtorch directly on the base layer by simultaneously melting the two bituminous surfaces in order to obtain a uniform and continuous weld. Keep the torch cup facing down. Weld so that the bitumen of the membrane overflows 3 to 6 mm to ensure the sealing of the joint;
 - .5 Distribute the transverse joints of the finishing layer at least 300 mm;
 - .6 At transverse overlaps, cut at an angle the corner of the area which will be covered by the next sheet of membrane.
 - .7 All coverings on a granulated surface must be made on degranulated surfaces;
 - .8 Overlap the joints of the top coat 75 mm on the longitudinal side and 150 mm on the transverse side. Distribute the joints well to avoid any excess thickness;
 - .9 The top coat will be free of blistering, wrinkling and yawning.

3.8 FLEXIBLE FLASHING

- .1 Substrate inspection:
 - .1 Inspect the structures to receive the membrane flashings to ensure that the substrates:
 - .1 Are good material to receive the membrane flashings and include the screw bases at the locations of the fixing of the membrane flashings;
 - .2 Are complete and solid, their vertical surfaces being square and plumb, their horizontal surfaces having a flow slope of at least 5%;
 - .3 Are dry, no frost, no dirt or other substances that may affect the adhesion of membrane flashings;
 - .4 Are without sharp edges or changes in angle which could affect the membrane flashings;
 - .5 Notify the Ministerial representative for any condition that contravenes these criteria before starting work.

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- .2 Ensure that supports, constructions and related elements do not present a fire risk when using the torch. Do not weld on wood or in places where chimney or draft effects could project the flame to combustible materials sometimes hidden.
 - .1 On combustible works, or which may contain combustible materials, which will receive welded base layers or which will have their joints welded, apply a flame retardant tape on the joints and openings to prevent the passage of the flame.
 - .2 General notes:
 - .1 Complete the installation of the base layers of the membrane flashing before applying the finishing layer in the running part.
 - .2 Apply primer as per manufacturer's recommendations. The primer should be dry when installing the base coat.
 - .3 Install membrane strips vertically.
 - .4 Overlap the base layer of the membrane flashing at least 100 mm over the base layer of the main section. Overlap the longitudinal joints of the base layers by 75 mm.
 - .5 Overlap the top layer of membrane flashing at least 150 mm over the top part of the running surface. Overlap the longitudinal joints of the 75 mm top layers. Offset the longitudinal joints of the top layers by at least 300 mm with those of the base layers;
 - .6 Turn the membrane over on the outside of the parapets and immediately fix it with washer nails every 300 mm;
 - .7 At transverse overlaps, cut at an angle the corner of the area which will be covered by the next sheet of membrane;
 - .8 Burn the plastic film of the base layers to receive self-adhesive base layers or any other self-adhesive waterproofing membrane;
 - .9 Install torch welding reinforcement gussets for all interior and exterior angles;
 - .10 Basecoats and topcoats will be free of puffiness, puckering, and yawning.
 - .3 Specific indications for the installation of the heat-sealed base layer:
 - .1 Cut the base layers according to the required lengths;
 - .2 .2 Start laying the base layer with a blowtorch from the current part of the roof and climb up on the parapet. Press the base coat to ensure complete adhesion over the entire surface and at angle changes;
 - .3 .3 On the outside of the parapets, cover with a self-adhesive base layer or a self-adhesive air / vapor barrier membrane. Use a masking roller on this self-adhesive membrane to ensure adhesion at all points. Turn the hot melt base layer over this self-adhesive membrane without welding it. Fix it immediately with washer nails every 300 mm.
 - .4 Specific indications for the self-adhesive layer:
 - .1 Cut base layers according to required lengths. Unroll the membrane from the top of the statement, gradually removing the protective film diagonally. At the parapets, cover the entire outside with the base layer;
 - .2 Press the adhesive base layer on the substrate using a tool recommended by the membrane manufacturer. Ensure full adhesion over the entire surface of the base coat and at angle changes. Pass a masking roller over the entire membrane flashing;
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- .3 Fix the base layer at the top point of the survey with washer nails every 300 mm, without ever drilling the base layer within 150 mm of the current part of the roof. For surveys more than 300 mm high, add a row of washer nails at mid-height.
- .4 Sealing of overlaps of membranes: press using a roller to smooth the combined self-adhesive braids (ie duos) provided for this purpose and finish by welding with a torch the edge of these braids when required by the maker. For only self-adhesive braids, press with a roller to smooth the braids and slightly heating the top of the braid, apply pressure to seal the bitumen from the braid to the adjacent base layer.
- .5 Specific instructions for applying the heat-sealed top coat:
 - .1 Degranulate the finishing layer in the running part over a width of 150 mm at the foot of the surveys which will receive membrane flashings;
 - .2 Start laying the finishing layer with a blowtorch from the current part of the roof and reassemble on the parapet. Press the topcoat with a tool recommended by the membrane manufacturer to ensure complete adhesion over the entire surface and at angle changes. Pass a masking roller over the entire top coat;
 - .3 Weld so that the membrane bitumen overhangs 3 to 6 mm to ensure the seal of the joint.

3.9 DRIP EDGE FLASHING INSTALLATION

- .1 Install metal aprons on base layer in a full bed of elastomeric sealer recommended by the manufacturer.
- .2 Zigzag the deck to its rear end every 100 mm.
- .3 Prime the top of the metal deck with a manufacturer recommended weld membrane primer.
- .4 Weld a 200 mm reinforcement strip (welded base layer) on the metal deck, covering the metal deck with 100 mm and the base layer with 100 mm.
- .5 Weld the finishing layer up to the nose of the metal deck without going beyond the nose and cleaning all traces of bitumen.
- .6 Seal the end of the membranes to the nose of the metal deck with an aluminum-colored sealant.

3.10 CIRCULATION MEMBRANE INSTALLATION

- .1 Install circulation membranes in locations indicated on drawings.
- .2 Degranulate the finishing membrane to receive the circulation membrane over a width of at least 150 mm. Prime at the rates recommended by the manufacturer.
- .3 Cut the non-granulated braid of the circulation membrane.
- .4 Blow torch the circulation membrane following the same procedure as for the finishing membrane.

3.11 ROOF DRAINS

- .1 The following requirements apply to roof drains (drains) as well as overflows.

- .2 Install wooden blockings according to the height of the insulation.
- .3 Create a 13 mm depression in the insulation on a 1070 mm square centered on the drain. Make cuts with beveled edges.
- .4 Burn the hot melt plastic film of the base layer with the blowtorch.
- .5 Prime top of gutter deck with primer recommended by membrane manufacturer.
- .6 Install the gutter deck on the base layer in a sealant bath. Secure it with screws on the wooden screw base.
- .7 Then cover with a 1000 x 1000 mm covering strip laid with a torch and centered on the deck.
- .8 Follow with the top coat.
- .9 Make the connection between the gutter and the downspout with a sealing adapter.
- .10 Install strainers on drains, when required.
- .11 Install the drain indicators on the strainers.

3.12 VENT FLASHINGS

- .1 Ensure that the height of the vent duct conforms to the final height of the new waterproofing complex and the vent flashings to be installed.
- .2 Burn the hot melt plastic film of the base layer with the blowtorch.
- .3 Install pre-molded insulation around vents to fill all annular space with vent flashing.
- .4 Prime the top of the vent flashing deck with the primer recommended by the membrane manufacturer.
- .5 Install the vent flashing deck on the base layer in a sealant bath. Center the vent flashing over the vent and correct the pre-molded insulation to fill the entire annular space with the vent flashing.
- .6 Then cover with a 1000 x 1000 mm torch reinforcement strip centered on the deck.
- .7 Follow with the top coat.
- .8 Seal the termination of the membrane to the vent flashing with a sealant.
- .9 Seal the top of the vent flashing with a sealant on a compressible tube and install the cap with screws.

3.13 FIELD QUALITY CONTROL

- .1 The laboratory that will monitor the execution of multilayer waterproofing and modified bitumen work will be authorized to take samples for analysis. The tests will be performed in accordance with ASTM D3617.
- .2 Repair the structures affected by the tests.

3.14 PROTECTION

- .1 When work is completed, protect it with 12 mm thick plywood panels.

3.15 CLEANING

- .1 Remove bituminous markings from finished surfaces.
- .2 In areas where finished surfaces are soiled caused by work of this section, consult manufacturer of surfaces for cleaning advice and complying with their documented instructions.
- .3 Repair or replace defaced or disfigured finishes caused by works on the roof during the contract period.
- .4 Clean all surfaces for all debris found on the roofs, even the ones owned by “others”. If this case, roofing contractor will negotiate with the general contractor to be paid.

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Section 06 10 00 – Rough carpentry.
- .2 Section 07 31 12 – Asphalte shingles.
- .3 Section 07 46 13 – Preformed metal sifing.
- .4 Section 07 52 00 – Modified bituminous roofing membrane.
- .5 Section 07 92 00 – Joints sealants.
- .6 Section 08 44 13 – Glazed aluminum curtain walls

1.2 REFERENCES

- .1 American Society for Testing and Materials International (ASTM)
 - .1 ASTM A606-09a, Standard Specification for Steel, Sheet and Strip, High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, with Improved Atmospheric Corrosion Resistance.
 - .2 ASTM A653/A653M-10, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - .3 ASTM D523-08, Standard Test Method for Specular Gloss.
- .2 Canadian Standards Association (CSA International)
 - .1 CSA B111-1974 (R2005), Wire Nails, Spikes and Staples.
- .3 Association des maîtres couvreurs du Québec
 - .1 Devis couverture - l'AMCQ 2018.
- .4 Canadian Roofing Contractors Association (CRCA)
 - .1 Roofing Specifications Manual 1997.
- .5 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-51.32-M77, Sheating, membrane, breather type.
 - .2 CAN/CGSB-93.1-M85. Sheet aluminum alloy, prefinished, residential.

1.3 SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Samples:
 - .1 Submit two 75 x 75 mm samples of each type of sheet metal material, finishes and colours.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.

1.5 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for recycling in accordance with Section 01 74 19 - Construction/Demolition Waste Management and Disposal.

Part 2 Products**2.1 SHEET METAL MATERIALS**

- .1 Zinc coated steel sheet: 0,701 mm thickness, commercial quality to ASTM A653/A653M, with Z275 designation zinc coating. Prefinished steel with factory applied silicone modified polyester.
 - .1 Colour match adjacent siding.
 - .2 Coating thickness: not less than 25 micrometres, ASTM D3756
 - .3 Film hardness: F2H
- .2 Aluminum sheet: Commercial quality, plain, to CAN/CGSB-93.1.

2.2 ACCESSORIES

- .1 Isolation coating: alkali resistant bituminous paint.
- .2 Plastic cement: to CAN/CGSB 37.5.
- .3 Sheet metal flashing coating: dry coating as per CAN/CGSB-51.32..
- .4 Sealants: as per section 07 92 00 – joint sealants.
- .5 Cleats: of same material, and temper as sheet metal, minimum 50 mm wide. Thickness same as sheet metal being secured.
- .6 Fasteners: of same material as sheet metal, to CSA B111, ring thread flat head roofing nails of length and thickness suitable for metal flashing application.
- .7 Washers: of same material as sheet metal, 1 mm thick with rubber packing.
- .8 Paint retouching: as per prefinished steel manufacturer's recommendations.

2.3 FABRICATION

- .1 Fabricate metal flashings and other sheet metal work in accordance with applicable CRCA 'FL' series details and as indicated.
- .2 Form pieces in 2400 mm maximum lengths. Make allowance for expansion at joints.
- .3 Hem exposed edges on underside 12 mm. Mitre and seal corners with sealant.
- .4 Form sections square, true and accurate to size, free from distortion and other defects detrimental to appearance or performance.
- .5 Apply isolation coating to metal surfaces to be embedded in concrete or mortar.

2.4 METAL FLASHINGS

- .1 Flashing SM-1: Form flashings, copings and fascias to profiles indicated galvanized prefinished steel.
- .2 Flashing SM-2 : Clear anodize aluminum sheet : alloy AA-5005-H14, stretched, thickness 0,812mm, shaped as per drawings.

Part 3 Execution**3.1 MANUFACTURER'S INSTRUCTIONS**

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

3.2 INSTALLATION

- .1 Install sheet metal work in accordance with CRCA FL series details, FL as detailed.
- .2 Use concealed fastenings except where approved before installation.
- .3 Counterflash bituminous flashings at intersections of roof with vertical surfaces and curbs.
- .1 Flash joints using S-lock forming tight fit over continuous hook strips. Hook strips to be installed in sealant.
- .4 Lock end joints and caulk with sealant.
- .5 Insert metal flashing into reglets to form weather tight junction.
- .6 Turn top edge of flashing into recessed reglet or mortar joint minimum of 25 mm. Lead wedge flashing securely into joint.
- .7 Caulk flashing at reglet with sealant.
- .8 All flashing ends at a height of 1200mm and less must be rounded to avoid injury to animals

3.3 CLEANING

- .1 Proceed in accordance with Section 01 74 00 - Cleaning.
- .2 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.
- .3 Leave work areas clean, free from grease, finger marks and stains.

END OF SECTION

Approved: 2007-03-31

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 07 92 00 – Joint sealants
- .2 Section 09 21 16 – Gypsum board
- .3 Divisions 22 and 23 – see also mechanical and electrical document

1.2 REFERENCES

- .1 Underwriter's Laboratories of Canada (ULC)
 - .1 ULC-S115-2018, 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.
- .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.

1.5 QUALITY ASSURANCE

- .1 Quality assurance submittals: submit following in accordance with Section 01 45 00 - Quality Control.
- .2 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.
- .3 Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.
- .4 Manufacturer's Instructions: submit manufacturer's installation instructions and special handling criteria, installation sequence and cleaning procedures.
- .5 Manufacturer's Field Reports: submit to manufacturer's written reports within 3 days of review, verifying compliance of Work, as described in PART 3.

1.6 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Deliver, store and handle materials in accordance with manufacturer's written instructions.
- .3 Deliver materials to the site in undamaged condition and in original unopened containers, marked to indicate brand name, manufacturer, ULC markings.
- .4 Storage and Protection:
 - .1 Store materials in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Replace defective or damaged materials with new.

Part 2 Products**2.1 MATERIALS**

- .1 Fire stopping and smoke seal systems: in accordance with CAN-ULC-S115.
 - .1 Asbestos-free materials and systems capable of maintaining effective barrier against flame, smoke and gases in compliance with requirements of CAN-ULC-S115 and not to exceed opening sizes for which they are intended.
 - .2 Fire stop system rating: same rating as wall, ceiling or roof.
- .2 Service penetration assemblies: systems tested to CAN-ULC-S115 and ULC guide No. 40U19.
- .3 Service penetration fire stop components: certified by test laboratory to CAN-ULC-S115.
- .4 Fire-resistance rating of installed fire stopping assembly in accordance with NBC.

- .5 Fire stopping and smoke seals at openings intended for ease of re-entry such as cables: elastomeric seal.
- .6 Fire stopping and smoke seals at openings around penetrations for pipes, ductwork and other mechanical items requiring sound and vibration control: elastomeric seal.
- .7 Primers: to manufacturer's recommendation for specific material, substrate, and end use.
- .8 Water (if applicable): potable, clean and free from injurious amounts of deleterious substances.
- .9 Damming and backup materials, supports and anchoring devices: to manufacturer's recommendations, and in accordance with tested assembly being installed as acceptable to authorities having jurisdiction.
- .10 Sealants for vertical joints: non-sagging.

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 Verify that the penetrations have the required dimensions and that their condition allows the application of materials.
 - .2 The surfaces on which a fire-resistant material will be applied must not contain dirt, grease, oil, rust, laitance, release agent, water repellents or any other substance liable to affect its adhesive performance.
 - .3 Mask where necessary to avoid spillage and over coating onto adjoining surfaces; remove stains on adjacent surfaces.
 - .4 Comply with manufacturer's recommendations for temperature and humidity conditions before, during and after installation of firebreaks.
- .2 Examine the size and condition of the voids to be filled in order to determine the thickness of material required and the implementation method to be used. Ensure that substrates and surfaces are clean, dry and frost free.
- .3 Prepare surfaces in contact with fire stopping materials and smoke seals to manufacturer's instructions.
- .4 Do not proceed with the work until all the inadequate conditions have been corrected.

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 Tighten the self-tapping screws securely to the flanges to ensure a tight and permanent seal.

3.4 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 Allow access to work areas until inspection by Ministerial Representatives.
- .3 Perform at this stage the repair and repair work on firebreaks damaged by cutting or penetration by other trades of firebreak elements already in place.
- .4 Install warning sign near all large and medium size openings likely to be re-entered. The sign must include the following information:
 - .1 A warning sign indicate that the opening as been fireproofed.
 - .2 Fireproof material used.
 - .3 F or FT rating.
 - .4 Material used.
 - .5 The name and phone number of the person to contact in case of modification or re-penetration.

3.5 FIRE STOPPING LOCATION

- .1 Provide fire and smoke protection in the locations indicated below and according to the drawings.
 - .1 Crossings of partitions, floors and ceilings with fire resistance degree.
 - .2 Perimeter of pipes and other mechanical and electrical equipment passing through fire partitions.
 - .3 Rigid conduits with a cross section greater than 129 cm²: fire protection provided by means of a cord of fire protection material placed between the retaining angle and the fire-resistant partition, and between the retaining angle and the conduit, on both sides of the firewall.

3.6 CLEANING

- .1 Proceed in accordance with Section 01 74 00 - 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 SECTIONS**

- .1 This section describes the waterproofing products that are not prescribed in the other sections of this specification.
- .2 See other sections for all other sealants.

1.2 REFERENCES

- .1 American Society for Testing and Materials International, (ASTM)
 - .1 ASTM C794-18, Standard Test Method for Adhesion-in-peel of Elastomeric Joint Sealants.
 - .2 ASTM C919-19, Standard Practice for Use of Sealants in Acoustical Applications.
 - .3 ASTM C920-18, 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 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).

1.3 SUBMITTALS

- .1 Submit submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Provide manufacturer's printed product literature and data sheets for sealants and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Manufacturer's data sheets must cover:
 - .1 Caulking products
 - .2 Primers
 - .3 Sealants types and compatibility.
 - .3 Duplicate of product data WHMIS to 01 35 29.06 – Health and safety requirements.
- .3 Samples:
 - .1 Submit duplicate samples of colour charts for each product.
 - .2 If necessary, to harmonize with adjacent materials, submit dried samples of sealants.
- .4 Manufacturer's instructions
 - .1 The instructions submitted must relate to each of the products used.

1.4 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.

1.5 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.

1.6 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 19 - Construction/Demolition Waste Management And Disposal

1.7 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 5 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.

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 offgas to exterior, are contained behind air barriers, or are applied several months before occupancy to maximize offgas time.
- .3 Where sealants are qualified with primers use only these primers.

2.2 SEALANT MATERIAL DESIGNATIONS

- .1 One-component sealant, urethane based

- .1 Self-spreading product, compliant with standard CAN / CGSB 19.13, type 1, class B. Color by Departmental Representative.
- .2 One-component sealant, urethane based
 - .1 Non-sagging product, compliant with CAN / CGSB 19.13, type 2, MCG 2 40. Color by Departmental Representative.
- .3 One-component sealant, silicone based
 - .1 Product compliant with CAN / CGSB 19.13 standard, based on acetoxysilicone, matured like a flexible rubber when exposed to humidity present in the ambient air, containing a fungicide, suitable for bathrooms, premises at very high humidity and other similar applications where the joints must be protected against fungi and bacteria.
- .4 One-component sealant, acrylic based
 - .1 To CAN/CGSB-19.17
- .5 Preformed Compressible and Non-Compressible back-up materials.
 - .1 Polyethylene, Urethane, Neoprene or Vinyl Foam.
 - .1 Extruded closed 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/m³ 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.

2.3 JOINT SEALANTS – USE

- .1 Perimeter of openings made in exterior walls and whose frames are adjacent to the finishing coating: One-component waterproofing sealant, based on non-sagging urethane.
- .2 Crown gaskets and crown gaskets / facade: product of the type one-component waterproofing sealant, based on non-sagging urethane.
- .3 Expansion and fractionation joints provided in floors, inside: product of the type One-component waterproofing sealant, based on self-spreading urethane.
- .4 Perimeter of sanitary appliances (sinks, baths, urinals, seats, W.C., sinks, counter-vanity): One-component waterproofing sealant, based on acetoxysilicone.
- .5 Exposed fractioning joints provided in drywall constructions: One-component waterproofing sealant, based on an emulsion with acrylic resins.
- .6 Joints concealed in partitions and acoustic ceiling: Sealing putty for sound insulation

- .7 Colors of sealing products (caulks): color by Departmental representative from the manufacturer's standard range to match adjacent surface.

2.4 JOINT CLEANER

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

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.

3.7 CLEANING

- .1 Immediately clean adjacent surfaces and leave works clean and in perfect condition
- .2 As the work progresses, remove excess and burrs of sealant using the recommended cleaning products.
- .3 Remove masking tape at the end of the initial sealant setting period.

END OF SECTION

**DOORS AND FRAMES
SCHEDULE**

LEGENDGENERAL

larg.	:	width
ht.	:	height
ép.	:	thickness
mat.	:	material
rés. feu	:	fire resistance
quinc.	:	hardware group (voir section 08 71 00)

WAY

MD	:	right hand
MG	:	left hand
MDR	:	inverse right hand
MGR	:	inverse left hand
Suffixe A	:	active
coul.	:	sliding door

MATERIAL

al	:	aluminum
ali	:	aluminum with thermal break
ac	:	steel
aci	:	steel with thermal break
bo	:	wood

FINISHES

A	:	anodized
G	:	mill galvanized
P	:	paint
T	:	stained and varnished
V	:	varnished

Note : In general the third letter of the materials index indicates the finish that this material should receive
. Exemples : bo = wood ; boP = painted wood

REMARKS

Note : he following remarks are part of the door and frame slip and relate to the numbers entered in the remarks column (REM).

N° REMARKS

- 1 Hinged lifting door (see specifications - section 08 36 12 - see building elevations for reference to profiles and details) Structural steel frame (for frame type see structure).
- 2 Insulated frame with thermal break, refer to specific and typical details in the drawings.
- 3 Metal fire damper with vertical winding (see specifications - section 08 33 25)
- 4 Stick a protective panel on the doors, same product as on the walls (see section 10 26 00).

KENNEL

LOCALISATION			PORTES						CADRES		AUTRES		SEUIL	REMARQUES
NO.	DE	À	TYPE	SENS	LARG.	HT.	ÉP.	MAT.	TYPE	MAT.	RÉS. FEU	QUINC.	MAT.	
D.K101.1	EXT.	K-101	P4	MDR	915	2135	51	aliA	SEE ELEV.	aliA		025		
D.K101.2	K-103	K-101	P4	MDR	915	2135	44	alA	C1	alA		027		
D.K101.3	EXISTING	K-101	P4	MD	915	2135	45	acP	C3	acP		021		
D.K101.4	EXT.	K-101	P4	MDR	915	2135	51	aliA	SEE ELEV.	aliA		025		
D.K102.1	K-101	K-102	P1	MD	915	2135	45	acP	C3	acP		012		
D.K104.1	K-103	K-104	P3	MG	915	2135	45	acP	C3	acP		012		
D.K105.1	K-103	K-105	P1	MD	915	2135	45	acP	C3	acP		012		
D.K106.1	K-103	K-106	P5	MG	915	2135	45	acP	C3	acP		012		
D.K107.1	K-103	K-107	P1	MD	915	2135	45	acP	C3	acP		024		
D.K108.1	K-103	K-108	P2	MDR	915	2135	45	acP	C3	acP		022		
D.K108.2	EXT.	K-108	P3	MGR	915	2135	45	aciP	C3	aciP		014		2
D.K109.1	K-108	K-109	P1	MGR	915	2135	45	acP	C3	acP	0hre	008		
D.K110.1	K-108	K-110	P1	MDR	915	2135	45	acP	C3	acP		001		
D.K111.1	K-101	K-111	P1	Coul.	2(940)	2135	35	boP	-	-		031		4
D.K112.1	K-101	K-112	P1	Coul.	2(940)	2135	35	boP	-	-		031		4

HANGAR

LOCALISATION			PORTES						CADRES		AUTRES		SEUIL	REMARQUES
NO.	DE	À	TYPE	SENS	LARG.	HT.	ÉP.	MAT.	TYPE	MAT.	RÉS. FEU	QUINC.	MAT.	
D.E101.1	EXT.	E-101	P4	MDRA / MGR	2(915)	2135	51	aliA	SEE ELEV.	aliA		026	al	
D.E101.2	E-102	E-101	P4	MGA / MD	2(915)	2135	44	alA	C2	alA		029		
D.E103.1	E-102	E-103	P4	MGR	915	2135	44	alA	C1	alA		028		
D.E103B.1	EXT.	E-103B	P4	MDR	915	2135	44	aliA	SEE ELEV.	aliA		025	al	
D.E103B.2	E-103	E-103B	P4	MG	915	2135	44	alA	C5	alA		027		
D.E104.1	E-103	E-104	P2	MG	915	2135	44	boT	C3	acP		017		
D.E105.1	E-103	E-105	P2	MG	915	2135	44	boT	C3	acP		017		
D.E106.1	E-103	E-106	P2	MG	915	2135	44	boT	C3	acP		017		
D.E106.2	E-105	E-106	P2	MD	915	2135	44	boT	C3	acP		018		
D.E107.1	E-103	E-107	P2	MD	915	2135	44	boT	C3	acP		017		
D.E108.1	E-103	E-108	P2	MD	2(915)	2135	44	boT	C6	acP		019		
D.E109.1	E-150	E-109	P3	MG	915	2135	45	acP	C3	acP	45	009		
D.E109.2	E-109	E-108	P2	MDR	915	2135	45	acP	C3	acP		010		
D.E110.1	E-109	E-110	P1	MG	915	2135	45	acP	C3	acP		010		
D.E111.1	E-109	E-111	P1	MG	915	2135	45	acP	C3	acP		010		
D.E112.1	E-109	E-112	P1	MG	915	2135	45	acP	C3	acP		010		
D.E113.1	E-109	E-113	P1	MG	915	2135	45	acP	C3	acP		010		
D.E114.1	E-103	E-114	P1	MG	915	2135	45	acP	C3	acP		002		
D.E115.1	E-114	E-115	P1	MDR	915	2135	45	acP	C3	acP		002		
D.E115.2	E-116	E-115	P1	MGR	915	2135	45	acP	C3	acP		002		
D.E116.1	E-103	E-116	P1	MD	915	2135	45	acP	C3	acP		002		
D.E118.1	E-102	E-118	P1	MG	915	2135	45	acP	C3	acP		011		
D.E119.1	E-102	E-119	P1	MD	915	2135	45	acP	C3	acP	0hre	012		
D.E120.1	E-102	E-120	P1	MG	915	2135	45	acP	C3	acP		012		
D.E121.1	E-102	E-121	P2	MG	915	2135	45	acP	C3	acP		012		
D.E121.2	E-122	E-121	P2	MDR	915	2135	45	acP	C3	acP		004		
D.E122.1	E-170	E-122	P2	MD	915	2135	45	acP	C3	acP	45	009		
D.E123.1	E-102	E-123	P1	MG	915	2135	45	acP	C3	acP		011		
D.E124.1	E-102	E-124	P2	MG	915	2135	44	boT	C3	ac		004		
D.E124.2	E-125	E-124	P2	MG	915	2135	44	boT	C3	acP		020		
D.E125.1	E-102	E-125	P4	MDR	915	2135	44	boT	C1	alA		021		
D.E126.1	E-125	E-126	P1	MD	915	2135	45	acP	C3	acP		002		
D.E127.1	E-126	E-127	P1	MGR	915	2135	45	acP	C3	acP		003		
D.E127.2	E-129	E-127	P1	MDR	915	2135	45	acP	C3	acP		003		
D.E128.1	E-127	E-128	P1	MGR	760	2135	45	acP	C3	acP		001		
D.E129.1	E-125	E-129	P1	MG	915	2135	45	acP	C3	acP		002		
D.E130.1	E-125	E-130	P3	MD	915	2135	45	acP	C3	acP	60	012		
D.E130.2	E-170	E-130	P3	MD	915	2135	45	acP	C3	acP	60	009		
D.E130.3	E-170	E-130	-	-	4590	3000	45	acG	C5	acG				3
D.E130.4	EXT.	E-130	P5	MGR	915	2135	45	aciP	C4	aciP		014	al	2

DOORS AND FRAMES SCHEDULE

LOCALISATION			PORTES						CADRES		AUTRES		SEUIL	REMARQUES
NO.	DE	À	TYPE	SENS	LARG.	HT.	ÉP.	MAT.	TYPE	MAT.	RÉS. FEU	QUINC.	MAT.	
D.E130.5	EXT.	E-130	-	-	4590	4100	45	aci	-	aciG		-		1
D.E130.6	EXT.	E-130	-	-	4590	4100	45	aci	-	aciG		-		1
D.E131.1	E-130	E-131	P1	MD	915	2135	45	acP	C3	acP	60	011		
D.E150.1	EXT.	E-150	P4	MDR	915	2135	51	aliA	SEE ELEV.	aliA		025	al	
D.E150.2	EXT.	E-150	P4	MDR	915	2135	51	aliA	SEE ELEV.	aliA		025	al	
D.E150.3	EXT.	E-150	P5	MGR	915	2135	45	aciP	C4	aciP		015	al	2
D.E150.4	E-102	E-150	P3	MDA / MGR	2(915)	2135	45	aciP	C3	aciP	45	016		
D.E151.1	E-150	E-151	P3	MD	915	2135	45	acP	C3	acP		004		
D.E152.1	E-150	E-152	P3	MG	915	2135	45	acP	C3	acP		004		
D.E152.2	E-152	E-151	P3	MGR	915	2135	45	acP	C3	acP		005		
D.E153.1	EXT.	E-153	P5	MGR	915	2135	45	aciP	C4	aciP		014	al	2
D.E154.1	E-150	E-154	P1	MD	915	2135	45	acP	C3	acP		030		
D.E155.1	E-150	E-155	P1	MG	915	2135	45	acP	C3	acP	0hre	008		
D.E156.1	E-150	E-156	P1	MG	915	2135	45	acP	C3	acP		030		
D.E157.1	E-150	E-157	P3	MDR	915	2135	45	acP	C3	acP		006		
D.E158.1	E-157	E-158	P1	MGR	1050	2135	45	acP	C3	acP		013		
D.E159.1	E-157	E-159	P1	MDR	1050	2135	45	acP	C3	acP		013		
D.E160.1	E-157	E-160	P1	MGR	1050	2135	45	acP	C3	acP		013		
D.E161.1	E-157	E-161	P1	MDR	1050	2135	45	acP	C3	acP		013		
D.E162.1	E-150	E-162	P3	MGR	915	2135	45	acP	C3	acP		007		
D.E162.2	E-157	E-162	P3	MD	915	2135	45	acP	C3	acP		007		
D.E163.1	E-157	E-163	P1	MGR	1050	2135	45	acP	C3	acP		013		
D.E164.1	E-157	E-164	P1	MDR	1050	2135	45	acP	C3	acP		013		
D.E165.1	E-157	E-165	P1	MGR	1050	2135	45	acP	C3	acP		013		
D.E166.1	E-157	E-166	P1	MDR	1050	2135	45	acP	C3	acP		013		
D.E167.1	EXT.	E-167	P5	MGR	915	2135	45	aciP	C4	aciP		015	al	2
D.E167.2	EXT.	E-167	P5	MGR	915	2135	45	aciP	C4	aciP		015	al	2
D.E168.1	E-167	E-168	P1	MD	915	2135	45	acP	C3	acP		030		
D.E169.1	E-167	E-169	P1	MD	915	2135	45	acP	C3	acP	0hre	008		
D.E170.1	EXT.	E-170	P5	MDR	915	2135	45	aciP	C4	aciP		015	al	2
D.E171.1	E-170	E-171	P1	MG	915	2135	45	acP	C3	acP	45	008		

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Section 06 10 00 – Rough carpentry
- .2 Section 07 21 16 – blanket insulation
- .3 Section 07 92 00 – Joint sealants
- .4 Section 08 71 00 – Door hardware
- .5 Section 08 80 50 – Glazing
- .6 Section 09 21 16 – Gypsum board
- .7 Section 09 91 23 – Interior painting
- .8 See also mechanical and electrical documents.

1.2 REFERENCES

- .1 American Society for Testing and Materials International (ASTM)
 - .1 ASTM A653/A653M-19A, Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - .2 ASTM C553-13 (R2019), Standard Specification for Mineral Fiber Blanchet Insulation for Commercial and Industrial Application.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-1.181-99, Ready-Mixed Organic Zinc-Rich Coating.
- .3 Canadian Standards Association (CSA International)
 - .1 CSA-G40.20-13/G40.21-13, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
 - .2 CSA W59-18, Welded Steel Construction (Metal Arc Welding).
- .4 Canadian Steel Door Manufacturers' Association (CSDMA)
 - .1 CSDMA, Recommended Specifications for Commercial Steel Doors and Frames, 2017.
 - .2 CSDMA, Selection and Usage Guide for Commercial Steel Doors, 2014.
- .5 National Fire Protection Association (NFPA)
 - .1 NFPA 80-2019, Standard for Fire Doors and Fire Windows.
 - .2 NFPA 252-2017, Standard Methods of Fire Tests of Door Assemblies.
 - .3 SCAQMD Rule 1168-[05], Adhesives and Sealants Applications.
- .6 Underwriters' Laboratories of Canada (ULC)
 - .1 CAN/ULC-S702-14, Standard for Thermal Insulation, Mineral Fibre, for Buildings.
 - .2 CAN4-S104-M80 (R1985), Standard Method for Fire Tests of Door Assemblies.
 - .3 CAN4-S105-M85 (R1992), 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 Steel fire rated doors and frames: labelled and listed by an organization accredited by Standards Council of Canada in conformance with CAN4-S104 NFPA 252 for ratings specified or indicated.
 - .3 Provide fire labelled frames for openings requiring fire protection ratings. Test products in conformance with CAN4-S104, ASTM E152 or NFPA 252 and listed by nationally recognized agency having factory inspection services.

1.4 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 Indicate each type of door, material, steel core thicknesses, mortises, reinforcements, location of exposed fasteners, openings, glazed, louvred, arrangement of hardware and fire rating and finishes.
 - .2 Include schedule identifying each unit, with door marks and numbers relating to numbering on drawings and door schedule.

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.

1.6 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for recycling in accordance with Section 01 74 19 - Construction/Demolition Waste Management and Disposal.

Part 2 Products**2.1 MATERIALS**

- .1 Hot dipped galvanized steel sheet: to ASTM A653M, ZF75, minimum base steel thickness in accordance with CSDMA Table 1 - Thickness for Component Parts.
- .2 Reinforcement channel: to CSA G40.20/G40.21, Type 44W, coating designation to ASTM A653/A653M, ZF75.

2.2 DOOR CORE MATERIALS

- .1 Honeycomb construction:

- .1 Structural small cell, 24.5 mm maximum kraft paper 'honeycomb', weight: 36.3 kg per ream minimum, density: 16.5 kg/m³ minimum sanded to required thickness.
- .2 Insulated core:
 - .1 Polyurethane: to CAN/ULC-S704 rigid, modified polyisocyanurate, closed cell board. Density 32 kg/m³.
- .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, ASTM E152 or NFPA 252, 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.
- .2 Lock-seam doors: fire resistant, resin reinforced polychloroprene, high viscosity, sealant/adhesive.

2.4 PRIMER

- .1 Touch-up prime CAN/CGSB-1.181.

2.5 PAINT

- .1 Field paint steel doors and frames in accordance with Section 09 91 23 - Interior Painting. Protect weatherstrips and tags from paint. Provide final finish free of scratches or other blemishes.

2.6 ACCESSORIES

- .1 Door silencers: single stud rubber/neoprene type.
- .2 Thermal break: rigid polyvinylchloride extrusion conforming to CGSB 41-GP-19Ma.
- .3 Fabricate glazing stops as formed channel, minimum 16 mm height, accurately fitted, butted at corners and fastened to frame sections with counter-sunk oval head sheet metal screws.
- .4 Metallic paste filler: to manufacturer's standard.
- .5 Fire labels: metal rivited.
- .6 Sealant: see Section 07 92 00 - Joint Sealants.
- .7 Glazing: see Section 08 80 50 - Glazing
- .8 Make provisions for glazing as indicated and provide necessary glazing stops.
 - .1 Provide removable stainless steel glazing beads for use with glazing tapes and compounds and secured with countersunk stainless steel screws.
 - .2 Design exterior glazing stops to be tamperproof.

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 Exterior frames: 2.0 mm welded thermally broken type construction.
- .4 Interior frames: 1.6 mm welded type construction.
- .5 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.
- .6 Protect mortised cutouts with steel guard boxes.
- .7 Prepare frame for door silencers, 3 for single door, 2 at head for double door.
- .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.
- .10 Insulate exterior frame components with mineral fiber insulation.

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 Exterior doors: [hollow steel construction. Interior doors: honeycomb construction.
- .3 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.
- .4 Blank, reinforce, drill doors and tap for mortised, templated hardware and electronic hardware.
- .5 Factory prepare holes 12.7 mm diameter and larger except mounting and through-bolt holes, on site, at time of hardware installation.
- .6 Reinforce doors where required, for surface mounted hardware. Provide flush PVC top caps to exterior doors. Provide inverted, recessed, spot welded channels to top and bottom of interior doors.
- .7 Provide factory-applied touch-up primer at areas where zinc coating has been removed during fabrication.
- .8 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.
- .9 Manufacturer's nameplates on doors are not permitted.

2.11 DOORS: HONEYCOMB CORE CONSTRUCTION

- .1 Form face sheets for exterior doors from 2.0 mm sheet steel with polyurethane core laminated under pressure to face sheets.
- .2 Form face sheets for interior doors from 1.6 mm sheet steel with honeycomb or temperature rise rated as required core laminated under pressure to face sheets.

2.12 HOLLOW STEEL CONSTRUCTION

- .1 Form face sheets for exterior doors from 2.0 mm sheet steel.
- .2 Form face sheets for interior doors from 1.6 sheet steel.
- .3 Reinforce doors with vertical stiffeners, securely welded to face sheets at 150 mm on centre maximum.
- .4 Fill voids between stiffeners of exterior doors with polyurethane core.
- .5 Fill voids between stiffeners of interior doors with fibreglass or temperature rise rated core.

2.13 THERMALLY BROKEN DOORS AND FRAMES

- .1 Fabricate thermally broken doors by using insulated core and separating exterior parts from interior parts with continuous interlocking thermal break.
- .2 Thermal break: rigid polyvinylchloride extrusion conforming to CGSB 41-GP-19Ma.
- .3 Fabricate thermally broken frames separating exterior parts from interior parts with continuous interlocking thermal break.
- .4 Apply insulation.

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.
- .6 Maintain continuity of air barrier and vapour retarder.

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, noncombustible sill and 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 RELATED SECTIONS**

- .1 Section 04 22 00 – Concrete unit masonry
- .2 Section 06 10 00 – Rough carpentry
- .3 Section 09 21 16 – Gypsum board
- .4 See also mechanical and electrical documents.

1.2 SHOP DRAWINGS

- .1 Submit drawings in accordance with Section 01 33 00 – submittal procedures.
- .2 Submit catalogue details for each type of door illustrating profiles, dimensions and methods of assembly.

1.3 SAMPLES

- .1 Submit for review and acceptance with Section 01 33 00 – submittal procedures.

1.4 CLOSEOUT SUBMITTALS

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

1.5 WASTE MANAGEMENT

- .1 Separate waste materials in accordance with Section 01 74 19 - Construction/Demolition Waste Management and Disposal.

1.6 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Apply temporary protective coating to finished surfaces. Remove coating after installation. Use coatings in accordance with manufacturer's written instructions that are easily removable.
- .3 Leave protective coating in place until final cleaning of building.

Part 2 Products**2.1 ACCESS DOORS**

- .1 Sizes: unless otherwise indicated, the access doors must have the minimum dimensions as indicated.
 - .1 Manhole: 600 mm x 600 mm.
 - .2 Handhole: 300 mm x 300 mm.
 - .2 Regular access doors: Primed steel ready to paint, 16 gage door and frame, gypsum flange for dry walls or visible frame with round corners for masonry walls. Hidden hinges, screwdriver lock mechanism, 180 degree door opening.
-

- .3 Fire rated access doors: Primed steel ready to paint, 16 gage door and frame, visible frame with round corners. Hidden hinges, screwdriver lock mechanism, 180 degree door opening. Continuous piano hinge, auto lock mechanism, 180 degree door opening. In accordance with CAN/ULC S104.
- .4 Options: gasket required for doors in rooms E-109, E-110, E-111, E-112, E-113, E-122, E-151, E-152 et E-171

2.2 EXCLUSIONS

- .1 Lay-in tile ceilings: use unobtrusive identification locators.

Part 3 Execution

3.1 INSTALLATION

- .1 Plumb and level access doors.
- .2 Secure anchors.
- .3 Ensure smooth and regular operation.

3.2 POSITION

- .1 Access doors to be positioned where equipment will be easy of access and will not require any special tool to do the maintenance.

3.3 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 00 - Cleaning.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 - 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 SECTIONS**

- .1 Section 04 22 00 – concrete unit masonry.
- .2 Section 05 50 00 – Architectural metal fabrications.
- .3 Section 08 71 00 – Door hardware.
- .4 Section 09 21 16 – Gypsum board
- .5 See also electrical documents.

1.2 REFERENCES

- .1 Aluminum Association (AA).
 - .1 DAF 45-03, Designation System for Aluminum Finishes.
- .2 American Architectural Manufacturers Association (AAMA).
 - .1 Voluntary Guide Specification for Cleaning and Maintenance of Architectural Anodized Aluminum.
- .3 American Society for Testing and Materials International, (ASTM).
 - .1 ASTM A167-99, Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet and Strip.
 - .2 ASTM A276-02a, Specification for Stainless and Heat-Resisting Steel Bars and Shapes.
 - .3 ASTM A480/A480M-02, Standard Specification for Flat Rolled Stainless Steel and Heat-Resisting Steel Plate, Sheet and Strip.
 - .4 ASTM A653/A653M-02a, Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- .4 Architectural Woodwork Manufacturers' Association of Canada (AWMAC).
 - .1 Quality Standards for Architectural Woodwork.
- .5 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-1.105-M91, Quick-Drying Primer.
 - .2 CAN/CGSB-12.1-M90, Tempered or Laminated Safety Glass.
 - .3 CAN/CGSB-12.12-M90, Plastic Safety Glazing.
- .6 CSA International
 - .1 CSA O141-05, Softwood Lumber.
 - .2 CSA Z809-08, Sustainable Forest Management.
- .7 Environmental Choice Program (ECP)
 - .1 CCD-047, Architectural Surface Coatings.
 - .2 CCD-048, Surface Coatings - Recycled Water-borne.
- .8 Electrical and Electronic Manufacturers' Association of Canada (EEMAC)
- .9 National Hardwood Lumber Association (NHLA)

- .1 Rules for the Measurement and Inspection of Hardwood and Cypress 2007.
- .10 National Lumber Grades Authority (NLGA)
 - .1 Standard Grading Rules for Canadian Lumber 2007.
- .11 National Fire Protection Association (NFPA).
 - .1 ANSI/NFPA 80-1999, Standard for Fire Doors and Fire Windows.
- .12 Underwriters Laboratories of Canada (ULC)
 - .1 CAN4-S104-10, Standard Method for Fire Tests of Door Assemblies.
 - .2 CAN/ULC-S105-09, Standard Specification for Fire Door Frames.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for door components and include product characteristics, performance criteria, physical size, finish and limitations in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Shop Drawings:
 - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Quebec, Canada.
 - .2 Indicate each type of door, arrangement of hardware, required clearances, electrical characteristics including voltage, size of motors, auxiliary controls and wiring diagrams.
 - .3 Indicate assembly details and dimensions of fabrication, required clearances and electrical connections.

1.4 SAMPLES

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures
- .2 Submit duplicate 300 mm long pieces of selected insert sections.
- .3 Manufacturer's instructions.
 - .1 Submit manufacturer's instructions and printed product literature.
- .4 Manufacturer's Field Reports: submit manufacturer's written reports.

1.5 CLOSEOUT SUBMITTALS

- .1 Operation and Maintenance Data: submit operation and maintenance data for overhead coiling doors, and hardware for incorporation into manual.

1.6 QUALITY ASSURANCE

- .1 Regulatory Requirements:
 - .1 Overhead coiling doors: labelled and listed by an organization accredited by Standards Council of Canada to CAN4-S104 and CAN/ULC-S105 for ratings specified or indicated.
 - .2 Fabricate and install overhead coiling doors to ANSI/NFPA 80 to suit fire protection rating required.

- .2 Test reports: submit test reports certifying that the products, materials and equipment meet the requirements for physical characteristics and performance criteria
- .3 Certifications: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

Part 2 Products**2.1 MATERIALS**

- .1 Rolling doors.
- .2 Galvanized steel sheet: lock-forming quality to ASTM A653, Coating Designation G-90.
- .3 Doors:
 - .1 Door face sheets to interior doors 0,91 mm base thickness.
- .4 Aluminum sheet metal: mill finish utility sheet.
- .5 Aluminum sheet metal: mill finish plain pattern utility sheet.
- .6 Aluminum extrusions: Aluminum Association alloy AA6063-T5.
- .7 Stainless steel sheet metal: to ASTM A167, Type 304 with no4 finish.
- .8 Stainless steel bars, wire and shapes: to ASTM A276, Type 304 with no4 finish.
- .9 Primer: to CAN/CGSB-1.105 and CGSB 1.213.

2.2 DOOR FABRICATION

- .1 Fabricate rolling metal fire doors to ANSI/NFPA 80 with 1,5 hours fire rating and bearing label.
- .2 Coiling door curtain interlocking slat sections:
 - .1 Roll formed steel, 0,91 mm base metal thickness x 65 mm wide, prime painted.
 - .2 Profile: flat.
- .3 Rivet end locks to slat ends.
- .4 Ensure bottom bar of double equal weight steel angles is equipped with tubular neoprene weatherstrip.
- .5 Form guides of metal angles of sections of 5 mm minimum thickness for face of wall installation. Equip guides with tubular neoprene weatherstrip.
- .6 Construct counterbalance assembly of heat treated torsion spring with 25% overload factor. Enclose spring in steel pipe to support door curtain and counterbalance mechanism with maximum deflection of 1/360th of opening width. Include ball bearings at rotating points and spring tension adjusting wheel, accessible for setting.
- .7 Support counterbalance assembly on 5 mm minimum thickness steel plate brackets, forming end enclosures.
- .8 Enclose counterbalance assembly with galvanized steel sheet formed hood, equipped with weatherstripping.
- .9 Attach to hood sheet metal flame and smoke baffle to drop in place automatically when activated by temperature rise and melting of fusible link.

2.3 OPERATION

- .1 Equip door for operation by:
 - .1 Chain operator with continuous hand chain with gear reduction.
 - .2 Electric motor operator.
- .2 Install fusible link activated automatic closing device to close door at controlled slow even speed in case of fire.
- .3 Arrange automatic closing device to permit manual lifting of curtain for emergency exit after automatic closing with curtain returning to closed position when released.
- .4 Connect automatic closing device to heat and smoke detection equipment.

2.4 ELECTRICAL OPERATOR

- .1 Electrical motors, controller units, remote pushbutton stations, relays and other electrical components: to CSA and ULC approval.
- .2 Power supply: Heavy duty 3/4HP, 208V, 3 phases, 60Hz
- .3 Motor: high starting torque, instant reversing, capacity to operate grille at 200 mm per second, removable without affecting emergency chain device or setting of limit switches. Equip motor with overload protection, centrifugal clutch and electric brake.
- .4 Motor size matching gear reducer with gears running in oil bath.
- .5 Controller units with integral motor reversing starter, 3 heater elements for overload protection, including pushbuttons and control relays as applicable.
- .6 Operation:
 - .1 Remote push button stations: surface mounted, with “OUVRIR-ARRÊT-FERMER » push buttons. other electrical equipment required for the proper functioning of the door: approved by CSA and ULC.
 - .2 Cable control: on each side of the door.
- .7 Design brake to stop and hold doors in any position.
- .8 Include hand chain interlocked auxiliary operator to disconnect motor mechanically and electrically when engaged and allow manual operation of door.
- .9 Safety switch: electro mechanical or electro pneumatic device full length of bottom rail of bottom section of door, to reverse door to open position when coming in contact with object on closing cycle.
- .10 Door speed: 200 mm/s.
- .11 Mounting brackets: galvanized steel, size and thickness to suit conditions.
- .12 Control circuit: 24 VAC, 60Hz.

Part 3 Execution**3.1 MANUFACTURER'S INSTRUCTIONS**

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

3.2 INSTALLATION

- .1 Install doors in accordance with manufacturer's printed instructions.
- .2 Install electrical motors, controller units, pushbutton stations, relays and other electrical equipment required for door operation.
- .3 Install electric wiring from power supply located near door.
- .4 Adjust door operating components to ensure smooth opening and closing of doors.
- .5 Test labelled coiling doors for proper operation by activating fusible link. Test coiling door in presence of Departmental Representative.

3.3 FIELD QUALITY CONTROL

- .1 Have manufacturer of products supplied under this Section review Work involved in handling, installation, protection and cleaning of its products, and submit written reports in acceptable format to verify compliance of Work with Contract.
- .2 Submit 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 at stages listed:
 - .1 After delivery and storage of products, and when preparatory Work on which Work of this Section depends is complete, but before installation begins.
 - .2 Upon completion of Work, after cleaning is carried out.
- .4 Manufacturer's Field Services: Obtain written reports from manufacturer verifying compliance of Work, in handling, installing, applying, protecting and cleaning of product within 3 days.

3.4 CLEANING

- .1 Perform cleaning of aluminum components in accordance with: AAMA 609.
- .2 Once installation is complete, clean the site to remove dirt and debris accumulated, attributable to construction work and the environment.
- .3 Clean aluminum and stainless steel surfaces with a damp cloth and approved non-abrasive cleaning product, in accordance with manufacturer's instructions.
- .4 Remove all traces of primer and caulking and waterproofing products. Clean doors / grilles and frames
- .5 Once installation work is completed, remove surplus materials, waste materials, tools and safety barriers from the site.

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Section 04 22 00 – Concrete unit masonry.
- .2 Section 05 50 00 – Architectural metal fabrications.
- .3 Section 07 46 13 – Preformed metal siding.
- .4 See also electrical documents.

1.2 REFERENCES

- .1 ASTM International
 - .1 ASTM A653M-10, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process.
 - .2 ASTM D523-99(R1999), Test Method for Specular Gloss.
 - .3 ASTM D822-01, Standard Practice for Filtered Open-Flame Carbon-Arc Exposures of Paint and Related Coatings.
 - .4 ASTM E283-04, Standard Test for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Differences Across the Specimen.
 - .5 ASTM E547-00 (2009), Standard Test Method for Water Penetration for Exterior Window, Skylights, Doors and Curtain Walls by cyclic Air Pressure Difference.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-1.181-99, Ready-Mixed, Organic Zinc-Rich Coatings.
- .3 CSA International
 - .1 CAN/CSA-G164-M92(R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.
- .4 ANSI Z9.2-1979 «Fundamentals Governing the Design and Operation of Local Exhaust Systems».
- .5 NFCC (National Fire Code of Canada).
- .6 CSA-PLUS 2203 HAXLOC «Hasardous Locations : A Guide for the Design, Construction and Installation of Electrical Equipment;
- .7 NFPA 30 «Flammable and Combustible Liquids Code.
- .8 NFPA 77 «Recommended Practice on Static Electricity.
- .9 NFPA 497 «Classification of Flammable Liquids, Gases or Vapors and of Hasardous Locations for Electrical Insallations in Chemical Process Areas.
- .10 Regulation respecting occupational health and safety Act respecting occupational health and safety, section VII «Flammable vapours and gases ».

1.3 DESIGN REQUIREMENTS

- .1 Design requirement:
 - .2 Design exterior door assembly to withstand wind load of 1 kPa with a maximum horizontal deflection of 1/240 of opening width.

- .3 Design door panel assemblies with thermal insulation factor 2.8 RSI.
- .4 Design door assembly to withstand minimum 10,000 cycles per annum.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for doors, hardware, and accessories and include product characteristics, performance criteria, physical size, finish and limitations in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Shop Drawings:
 - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Quebec, Canada.
 - .2 Indicate sizes, service rating, types, materials, operating mechanisms, glazing locations and details, hardware and accessories, required clearances and electrical connections.
 - .3 Submit templates and other data from manufacturer and installer to other trades, to coordinate the various stages of door installation.
- .3 Manufacturers instructions:
 - .1 Submit installation instructions provided by manufacturer
- .4 Manufacturer's Field Reports: submit manufacturer's written reports.

1.5 CLOSEOUT SUBMITTALS

- .1 Submit in accordance with Section 01 78 00 - Closeout Submittals. Operation and Maintenance Data: submit operation and maintenance data for sectional metal doors 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 Certificates: submit documents signed by the manufacturer, certifying that the products, materials and equipment meet the requirements for physical characteristics and performance criteria
- .3 Pre-implementation meeting: hold a meeting during which the work requirements, the manufacturer's installation instructions and the terms of the warranty offered by the latter will be examined.
- .4 Proceed with the operation of each door in the presence of the employees responsible for the client.

1.7 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for recycling in accordance with Section 01 74 19 - Construction/Demolition Waste Management and Disposal.

1.8 MAINTENANCE MATERIAL SUBMITTALS

- .1 Submit in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Spare parts:

- .1 Supply spare parts for sectional metal doors as follows:
 - .1 Door panels: 0.
 - .2 Door rollers: 0.
 - .3 Weatherstripping: 1 set / door.
 - .4 Springs and cables: 1 set / door.
- .2 Store where directed. Identify each part and reference to appropriate door.

Part 2 Products

2.1 MATERIALS

- .1 Galvanized sheet steel, in accordance with ASTM A653 and ASTM A653M, coating class G-60, 26 gauge, manufacturer's standard color. Galvanized sheet with a minimum of 180 g / m² of zinc.
- .2 The finish of the polyester paint, 2 coats, will comply with ASTM A924 and ASTM A924M standards and will be 1.0 mil thick. The surface of the steel sheet will be smooth and decorated with horizontal grooves. Color chosen by the Departmental Representative in the manufacturer's standard and premium range
- .3 Thermal insulation: CFC-free polyurethane foam, injected at high pressure between the walls of the panels, density of 40.4 kg / m³ having a thermal resistance RSI 1.6 by 25 mm thick, the total insulating value will be RSI 2.8.
- .4 Steel screw plates of a minimum thickness of 1.8 mm will be inserted inside the door panels, in order to ensure a superior fastening for the face of the hinges and the electric door opener plates. with central trolley.
- .5 The end caps of the door sections will be made of a solid piece of pine (grade 4), guaranteed against cracking and decay. The wooden ends must ensure an effective thermal break with the outside of the door and a higher resistance for the screwing of the lateral hinges and the supports of top and bottom of the door.
- .6 The galvanized steel sheets of each door section will be assembled by a mechanically imbricated weather stripping, of type Interlok TM with triple contact ensuring a thermal break, the integrity and the solidity of the assembly.
- .7 Window: none.

2.2 HEAVY DUTY INDUSTRIAL HARDWARE

- .1 Track: standard hardware with 75 mm size 2.66 mm core thickness galvanized steel track.
- .2 Track Supports: 2.8 mm core thickness continuous galvanized steel angle track supports.
- .3 The torsion spring lifting system will include all the parts and accessories necessary for its assembly. All doors weighing more than 454 kg, including surface hardware, must be approved by a qualified professional as to the choice of hardware parts (drums, galvanized cables, springs, fixing plates, 25 mm solid shaft).
- .4 Top roller carrier: galvanized Steel 3.1 mm thick.
- .5 Rollers: full floating grease packed hardened steel, ball bearing 75 mm diameter solid steel tire.
- .6 Roller brackets: adjustable, minimum 2.5 mm galvanized steel.

- .7 Hinges: heavy duty, 3.1 mm thick galvanized, riveted.
- .8 Cable: 7 x 19 galvanized steel aircraft cable with 50 000 cycles security factor.
- .9 Garage door rollers for 76 mm rails will be U.H.M.W. (nylon), mounted on stainless steel rod.

2.3 ACCESSORIES

- .1 Overhead horizontal track and operator supports: galvanized steel, type and size to suit installation.
- .2 Track guards: 5 mm thick "Z" formed sheet, 1500 mm high track guards.
- .3 For doors larger than 15 m², hardware with regular movement or reduced space, will be equipped with spring-launchers at the end of the horizontal rails to avoid loosening of the lifting cables.
- .4 Sliding lock bolts
 - .1 As existing.
- .5 Weatherstripping:
 - .1 Sills: bulb type full width extruded neoprene weatherstrip.
 - .2 At the intersection of each panel, a flexible, rigid Interlok TM interlayer PVC interlayer weatherstripping type triple contact will ensure effective thermal breakage as well as a double seal meeting the following standards: at a pressure of 0.075 kPa equivalent to a wind load of 40 km / hour, air infiltration measured according to the ASTM standard E-283 will be 0.033 liter / sec. per meter of joint between the door sections
 - .3 At door jambs and lintels, exterior side, supply and install a weather strip composed of an aluminum profile and a double lip arctic vinyl bib
- .6 Finish ferrous hardware items with minimum zinc coating of 300 g/m² to CAN/CSA-G164.
- .7 Galvanized steel caps: end caps made of 16 gauge galvanized steel profiles will be installed at the ends of each section at the hinge locations, for car / truck washes or to meet Agriculture Canada requirements.
- .8 Exhaust hatch: in order to evacuate the exhaust gases using flexible hoses, hatches will be installed at the factory on each door. Their diameter will be 76.2 mm.

2.4 ELECTRICAL OPERATOR

- .1 Electrical jack shaft side mounted type operator.
- .2 Remote pushbutton stations: surface mounted, interior side of door, with "OPEN-STOP-CLOSE" designations on pushbuttons in French: approved by CSA and ULC.
- .3 Power supply: ¾ HP, 208V, 3 phases, 60 Hz.
- .4 Controller units with integral motor reversing starter, solenoid operated brake, 3 heater elements for overload protection, including 3 pushbuttons and control relays as applicable.
- .5 An automatic infrared reversing system will be added to each door opener. This device should cause the door to stop and go up immediately when it meets an object.

- .6 For jack shaft operators:
 - .1 Provide floor level disconnect device to allow for manual operation in event of power failure.
 - .2 Equip Operator with:
 - .1 Electrical interlock switch to disconnect power to operator when in manual operation.
 - .2 Built-in chain hoist for manual operation in event of power failure.
- .7 Operation speed: 200 @ 280 mm / s.
- .8 Safety switch: combination roll rubber with limit switches for full length of bottom rail of bottom section of door, to reverse door to open position when coming in contact with object on closing cycle.
- .9 Control transformer: for 24 VAC control voltage 60Hz.
- .10 Mounting brackets: galvanized steel, size and gauge to suit conditions.
- .11 The door openers will be equipped with a remote-control system. Provide 5 openers per door. Each command must be able to be programmed to open the two garage doors separately.
- .12 Any side latch will be equipped with an electrical switch system preventing the use of the electric door opener when the door is locked.

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 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 Install doors and hardware in accordance with manufacturer's instructions.
- .3 Rigidly support rail and operator and secure to supporting structure.
- .4 Touch-up steel doors with primer where galvanized finish damaged during fabrication.
- .5 Install operator including electrical motors, controller units, pushbutton stations, relays and other electrical equipment required for door operation.
- .6 Lubricate and adjust door operating components to ensure smooth opening and closing of doors.
- .7 Adjust weatherstripping to form a weather tight seal.
- .8 Adjust doors for smooth operation.

3.3 CLEANING

- .1 Once the installation of the doors is completed, proceed with the cleaning of the site to remove dirt and accumulated debris, attributable to construction work and the environment
- .2 Remove all traces of primer, caulking, epoxy resin and filler. Clean doors and frames
- .3 Once installation work is completed, remove surplus materials, waste materials, tools and safety barriers from the site

END OF SECTION

Partie 1 Généralités**1.1 SECTIONS CONNEXES**

- .1 Section 04 22 00 – Maçonnerie d'éléments en béton
- .2 Section 05 50 00 – Ouvrages métalliques
- .3 Section 07 21 16 – Isolants en matelas
- .4 Section 07 26 00 – Pare-vapeur
- .5 Section 07 92 00 – Produits d'étanchéité des joints

1.2 RÉFÉRENCES

- .1 The Aluminum Association Inc. (AAI)
 - .1 Designation System for Aluminum Finishes -2003.
- .2 American Society for Testing and Materials International (ASTM)
 - .1 ASTM A1008/A1008M-06a, Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.
 - .2 ASTM A653/A653M-06a, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - .3 ASTM D523-89(1999), Standard Test Method for Specular Gloss.
 - .4 ASTM D822-01(2006), Standard Practice for Filtered Open-Flame Carbon-Arc Exposures of Paint and Related Coatings.
- .3 Office des normes générales du Canada (CGSB)
 - .1 CAN/CGSB-1.105-M91, Peinture pour couche primaire à séchage rapide.
 - .2 CAN/CGSB-1.181-99, Enduit riche en zinc, organique et préparé.
- .4 Association canadienne de normalisation (CSA)/CSA International
 - .1 CAN/CSA-G164-FM92 (C1998), Galvanisation à chaud des objets de forme irrégulière.
- .5 Green Seal Environmental Standards
 - .1 Standard GC-03-93, Anti-Corrosive Paints.
 - .2 Standard GS-11-97, Architectural Paints.

1.3 CRITÈRES DE PERFORMANCE

- .1 Exigences de conception
 - .1 Les ensembles de portes extérieures doivent être conçus pour résister à une charge due au vent de 1 kPa, avec un fléchissement dans le plan horizontal ne dépassant pas 1/240 de la largeur de la baie.
 - .2 Les portes doivent avoir un coefficient de résistance thermique RSI 7.5.
 - .3 Les ensembles de portes doivent être conçus pour au moins 50 cycles de manœuvre par année, et pour un total de 1000 cycles durant leur vie utile..

1.4 DOCUMENTS/ÉCHANTILLONS À SOUMETTRE

- .1 Soumettre les documents et les échantillons requis conformément à la section 01 33 00 - Documents et échantillons à soumettre.
- .2 Soumettre les fiches techniques requises conformément à la section 01 33 00 - Documents et échantillons à soumettre.
- .3 Soumettre les dessins d'atelier requis conformément à la section 01 33 00 - Documents et échantillons à soumettre.
 - .1 Les dessins doivent porter le sceau et la signature d'un ingénieur compétent reconnu ou habilité à exercer au Canada.
 - .2 Les dessins d'atelier doivent indiquer la nature des matériaux, le genre de mécanisme de manœuvre et les dégagements requis.
- .4 Soumettre les échantillons requis conformément à la section 01 33 00 - Documents et échantillons à soumettre.
- .5 Documents à soumettre aux fins du contrôle de la qualité
 - .1 Instructions du fabricant : instructions d'installation fournies par le fabricant.
 - .2 Rapports des contrôles effectués sur place par le fabricant : soumettre les rapports prescrits.
- .6 Documents/Éléments à remettre à l'achèvement des travaux
 - .1 Fournir les instructions nécessaires à l'entretien des portes à guillotine et de leurs pièces de quincaillerie, et les joindre au manuel mentionné à la section 01 78 00 - Documents/Éléments à remettre à l'achèvement des travaux.

1.5 MATÉRIAUX OU PRODUITS ACCEPTABLES

- .1 Lorsque des matériaux ou des produits sont prescrits par leur marque de commerce, consulter les Instructions aux soumissionnaires afin de connaître la marche à suivre concernant la demande d'approbation de matériaux ou de produits de remplacement.

1.6 TRANSPORT, ENTREPOSAGE ET MANUTENTION

- .1 Transporter, entreposer et manutentionner les matériaux et les matériels conformément à la section 01 61 00 - Exigences générales concernant les produits.

1.7 GESTION ET ÉLIMINATION DES DÉCHETS

- .1 Trier et recycler les déchets conformément à la section 01 74 19 - Gestion et élimination des déchets de construction/démolition, ainsi qu'aux exigences du plan de réduction des déchets.
- .2 Élaborer un plan de réduction des déchets pour les travaux faisant l'objet de la présente section, conformément à la section 01 74 19 - Gestion et élimination des déchets de construction/démolition.
- .3 Récupérer et trier tous les matériaux d'emballage en papier, en plastique, en polystyrène, en carton ondulé et les placer dans des bennes appropriées installées sur place aux fins de recyclage, conformément au plan de gestion des déchets.
- .4 Gestion des déchets d'emballage : récupérer les déchets d'emballage aux fins de réutilisation/réemploi et de reprise des palettes, des caisses, du matelassage, des autres matériaux d'emballage par leur fabricant, selon les directives du plan de réduction des déchets et,

conformément à la section 01 74 19 - Gestion et élimination des déchets de construction/démolition.

- .5 Acheminer les éléments métalliques inutilisés vers une installation de recyclage du métal approuvée par le Représentant du Ministère

Partie 2 Produits

2.1 MATÉRIAUX/MATÉRIEL

- .1 Plastique ABS blanc de 6mm d'épaisseur dans le cas du parement intérieur et extérieur.
- .2 Acier galvanisé : de qualité commerciale selon la norme ASTM A653/A653M, avec zingage de désignation Z275.
- .3 Profilés d'aluminium : alliage AA6063-T5 de l'Aluminum Association.
- .4 Peinture pour couche primaire : conforme à la norme CAN/CGSB-1.181 dans le cas des ouvrages en acier galvanisé.
- .5 Isolant thermique : conforme aux critères de calcul, certifié Energy Star et approuvé par le NAHB.
 - .1 Produits acceptables :
 - .1 Insulated Dog Door de Stone Mountains Pet Product
 - .2 Ou produit de remplacement approuvé par addenda conformément aux Instructions aux soumissionnaires.

2.2 FINIS DES SURFACES EN ALUMINIUM

- .1 Éléments en aluminium : surfaces apparentes finies selon le système de désignation des finis de l'Aluminum Association.
 - .1 Fini anodisé transparent : désignation AA-M10C22A41.

2.4 PORTES

- .1 Portes : à angle pour prévenir une ouverture faites par les chiens et fabriquées avec du plastique blanc ABS, d'au moins 6 mm d'épaisseur, selon les indications.
- .2 Panneaux isolant : faits de panneau cellulaire de polystyrène fermé, formant une barrière efficace à l'air, au bruit et à l'eau. Les panneaux doivent être faits d'un matériau non toxique et résistant aux morsures

2.5 RAILS GUIDES

- .1 Le profil inférieur de la porte doit coulisser dans un profilé d'aluminium clair anodisé en U, et les profils latéraux, dans un rail formé par des cornières en aluminium clair anodisé.
- .2 L'ensemble de guidage doit être constitué d'un cadre préassemblé, fixé directement au mur.
- .3 L'ensemble de guidage doit être muni, à la partie inférieure, d'une poignée, et être fixé solidement au montant de porte frontale avec un ensemble de montage en acier galvanisé revêtu de cadmium.
- .4 Une barre d'écartement faite d'un profilé d'acier de forte épaisseur doit relier les rails à leur partie supérieure.

2.6 ACCESSOIRES

- .1 Joints d'étanchéité en vinyle posés sur les surfaces de contact de la porte et du linteau de la porte et garde en acier avec amortisseur en caoutchouc-mousse installé au bas de chaque cornière de guidage.
- .2 Les pièces de quincaillerie doivent être en acier inoxydable.
- .3 Le câble en acier inoxydable tressé doit passer dans une poulie à angle ajustable pour pouvoir assurer une opération excentrée aisée.

Partie 3 Exécution**3.1 INSTRUCTIONS DU FABRICANT**

- .1 Conformité : se conformer aux exigences, recommandations et spécifications écrites du fabricant, y compris aux bulletins techniques et aux instructions d'installation précisées dans les catalogues de produits et sur les cartons d'emballage, ainsi qu'aux indications des fiches techniques.

3.2 INSTALLATION

- .1 Installer les portes et les pièces de quincaillerie connexes.
- .2 Retoucher les portes avec de la peinture pour couche primaire aux endroits où le fini galvanisé a été endommagé durant l'assemblage.
- .3 Lubrifier les ressorts et ajuster les éléments de manœuvre de façon que les portes fonctionnent en souplesse.
- .4 Ajuster les pièces mobiles de façon que les portes fonctionnent en souplesse.
- .5 Ajuster les coupe-bise de façon à réaliser une installation étanche aux intempéries.

3.3 CONTRÔLE DE LA QUALITÉ SUR PLACE

- .1 Vérification des conditions : avant de procéder à l'installation des portes, s'assurer que l'état des surfaces/supports préalablement mis en œuvre aux termes d'autres sections ou contrats est acceptable et permet de réaliser les travaux conformément aux instructions du fabricant.
 - .1 Faire une inspection visuelle des surfaces/supports en présence du Représentant du Ministère.
 - .2 Informer immédiatement le Représentant du Ministère de toute condition inacceptable décelée.
 - .3 Commencer les travaux d'installation seulement après avoir corrigé les conditions inacceptables.
- .2 Contrôles effectués sur place par le fabricant
 - .1 Le fabricant doit formuler des recommandations quant à l'utilisation du ou des produits, et effectuer des visites périodiques pour vérifier si l'installation a été réalisée selon ses recommandations.

3.4 NETTOYAGE

- .1 Nettoyage en cours de travaux : effectuer les travaux de nettoyage conformément à la section 01 74 00 - Nettoyage.
 - .1 Laisser les lieux propres à la fin de chaque journée de travail.

- .2 Nettoyage final : évacuer du chantier les matériaux/matériels en surplus, les déchets, les outils et l'équipement conformément à la section 01 74 00 - Nettoyage.
- .3 Gestion des déchets : trier les déchets en vue de leur réutilisation/réemploi et de leur recyclage, conformément à la section 01 74 19 - Gestion et élimination des déchets de construction/démolition.
 - .1 Retirer les bacs et les bennes de recyclage du chantier et éliminer les matériaux aux installations appropriées.

3.5**PROTECTION**

- .1 Protéger les matériels et les éléments installés contre tout dommage pendant les travaux de construction.
- .2 Réparer les dommages causés aux matériaux et aux matériels adjacents par l'installation des ouvrages métalliques.

FIN DE LA SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Section 04 05 00 – Common work: Result for masonry
- .2 Division 05 – See structure.
- .3 Section 06 10 00 – Rough carpentry.
- .4 Section 07 21 13 – Board insulation.
- .5 Section 07 26 00 – Vapour retarders.
- .6 Section 07 46 13 – Preformed metal siding.
- .7 Section 07 52 00 – Modified bituminous roofing membrane.
- .8 Section 07 62 00 – Sheet metal flashing and trim.
- .9 Section 07 92 00 – Joint sealants.
- .10 Section 08 71 00 – Door hardware.
- .11 Section 08 80 50 – Glazing
- .12 Section 09 21 16 – Gypsum board.

1.2 REFERENCES

- .1 Aluminum Association (AA)
 - .1 AA DAF 45-03(R2009), Designation System for Aluminum Finishes.
- .2 American Architectural Manufacturers Association (AAMA)
 - .1 AAMA CW-10-15, Care and Handling of Architectural Aluminum From Shop to Site.
 - .2 AAMA CW-11-85, Design Wind Loads and Boundary Layer Wind Tunnel Testing.
 - .3 AAMA T1R-A1-04, Sound Control for Fenestration Products.
 - .4 AAMA 501-05, Methods of Test for Exterior Walls.
 - .5 AAMA 611-14, Voluntary Specifications for Anodized Finishes Architectural Aluminum.
 - .6 AAMA 612-20, Voluntary Specifications, Performance Requirements, and Test Procedures for Combined Coatings of Anode Oxide and Transparent Organic Coatings on Architectural Aluminum.
 - .7 AAMA 2603-20, Voluntary Specification Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels.
 - .8 AAMA 2604-20, Voluntary Specification Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels.
- .3 ASTM International
 - .1 ASTM A36/A36M-[08], Specification for Carbon Structural Steel.

- .2 ASTM A123/A123M-19, Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- .3 ASTM A167-99(2009), Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
- .4 ASTM A653/A653M-19a, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- .5 ASTM B209-14, Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
- .6 ASTM B221-14, Specification for Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
- .7 ASTM E283-19, Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
- .8 ASTM E330-14, Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights, and Curtain Walls, by Uniform Static Air Pressure Difference.
- .9 ASTM E331-00(2016), Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform Static Air Pressure Difference.
- .10 ASTM E413-16, Classification for Rating Sound Insulation.
- .11 ASTM E1105-15, Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform or Cyclic Static Air Pressure Difference.
- .4 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB 1.108-M89, Bituminous Solvent Type Paint.
 - .2 CAN/CGSB-12.20-M89, Structural Design of Glass for Buildings.
- .5 CSA International
 - .1 CSA G40.20/G40.21-13, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
 - .2 CSA S136-16, North American Specification for the Design of Cold Formed Steel Structural Members.
 - .3 CAN/CSA-S157/S157.1-05 (R2010), Strength Design in Aluminum/Commentary on CAN/CSA-S157, Strength Design in Aluminum.
 - .4 CSA W59.2-2018, Welded Aluminum Construction.
- .6 Society for Protective Coatings (SSPC)
 - .1 SSPC - Paint 20-02(R2004), Zinc Rich Coating, Type I - Inorganic and Type II - Organic.
 - .2 SSPC - Paint 25 - 97(R2004), BCS, Zinc Oxide, Alkyd, Linseed Oil and Primer for Use Over Hand Cleaned Steel Type 1 and Type 2.

1.3 ADMINISTRATIVE REQUIREMENTS

- .1 Co-ordination: co-ordinate work of this Section with installation of air barrier placement, vapour retarder placement, flashing placement and components or materials.
- .2 Hold project meetings every week.

- .3 Ensure site supervisor and subcontractor representatives 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 curtain wall components, anchorage and fasteners, glass and infill, and internal drainage details and include product characteristics, performance criteria, physical size, finish and limitations and water flow diagrams.
- .3 Shop Drawings:
 - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Quebec, Canada.
 - .2 Indicate system dimensions, framed opening requirements and tolerances, adjacent construction, anchor details anticipated deflection under load, affected related Work, weep drainage network, expansion and contraction joint location and details, and field welding required.
- .4 Samples:
 - .1 Submit for review and acceptance of each unit.
 - .2 Samples will be returned for inclusion into work.
 - .3 Submit 2 samples 305 mm in size illustrating prefinished aluminum surface, finish, colour, texture, specified glass units, insulated infill panels, glazing materials illustrating edge and corner.
- .5 Delegated Design Submittals:
 - .1 Include framing member structural and physical characteristics, calculations, dimensional limitations, special installation requirements.
- .6 Test Reports:
 - .1 Submit substantiating engineering data, test results of previous tests by independent laboratory which purport to meet performance criteria, and supportive data.

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 glazed aluminum curtain wall for incorporation into manual.

1.6 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 Handle work of this Section in accordance with AAMA CW-10.
 - .2 Store materials off ground and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .3 Store and protect aluminum glazed curtain wall components from nicks, scratches, and blemishes.
 - .4 Protect prefinished aluminum surfaces with strippable coating. Do not use adhesive papers or sprayed coatings which bond when exposed to sunlight or weather.
 - .5 Replace defective or damaged materials with new.

1.7 AMBIENT CONDITIONS

- .1 Install sealants when ambient and surface temperature is above 5 degrees C minimum.
- .2 Maintain this minimum temperature during and for 48 hours minimum after installation of sealants.

1.8 WARRANTY

- .1 Contractor hereby warrants that glazed aluminum curtain wall will function as specified in accordance with CCDC 24, but for 24 months.

Part 2 Products

2.1 SYSTEMS

- .1 Description:
 - .1 Vertical glazed aluminum curtain wall system includes thermally broken tubular aluminum sections with self supporting framing, shop fabricated, factory prefinished, vision glass, spandrel infill; related flashings, anchorage and attachment devices.
 - .2 Assembled system to permit re-glazing of individual glass (and infill panel) units from exterior without requiring removal of structural mullion sections.
- .2 Performance Requirements:
 - .1 Design and size components to withstand dead and live loads caused by pressure and suction of wind, acting normal to plane of system as calculated in accordance with NBC.
 - .2 Design and size components to withstand seismic loads and sway displacement as calculated in accordance with applicable codes.
 - .3 Limit mullion deflection to L/175 and a maximum of 19 mm with full recovery of glazing materials.
 - .4 Size glass units and glass dimensions to limits established in CAN/CGSB-12.20.

- .5 Ensure system is designed to accommodate the following without damage to components or deterioration of seals:
 - .1 Movement within system.
 - .2 Movement between system and perimeter framing components.
 - .3 Dynamic loading and release of loads.
 - .4 Deflection of structural support framing.
 - .5 Shortening of building concrete structural columns.
 - .6 Creep of concrete structural members.
 - .7 Mid-span slab edge deflection of 25 mm (L/360).
- .6 Limit air infiltration through assembly to 0.0003 m³/s/m² of wall area, measured at a reference differential pressure across assembly of 300 Pa as measured in accordance with ASTM E283.
- .7 Vapour seal with interior atmospheric pressure of 25 mm sp, 22 degrees C, 40% RH: no failure.
- .8 Water leakage: none, when measured to ASTM E331.
- .9 Ensure system allows for expansion and contraction within system components when temperature range is 95 degrees C over 12 hour period without causing detrimental affect to system components.
- .10 Drain water entering joints, condensation occurring in glazing channels, or migrating moisture occurring within system, to exterior by weep drainage network.
- .11 Maintain continuous air barrier and vapour retarder throughout assembly, primarily in line with [inside] pane of glass and heel bead of glazing compound.
 - .1 Position thermal insulation on exterior surface of air barrier and vapour retarder.
- .12 Ensure no vibration harmonics, wind whistles, noises caused by thermal movement transmitted to other building elements, loosening, weakening, or fracturing of attachments or components of system occur.
- .13 Reinforce curtain wall system to accommodate window washing guide rails.
 - .1 Supply sufficiently rigid anchors to resist loads caused by equipment platform, without damage to wall system.

2.2 MATERIALS

- .1 Extruded aluminum: to ASTM B221.
- .2 Sheet aluminum: to ASTM B209.
- .3 Sheet steel: to ASTM A653/A653M] galvanized in accordance with ASTM A123/A123M.
- .4 Steel sections: to CSA G40.20/G40.21; shaped to suit mullion sections.
- .5 Anchors: 3-way adjustable hot-dip galvanized cast iron.
- .6 Fasteners: aluminum, finish to match curtain wall.
- .7 Bituminous paint: CAN/CGSB 1.108, Type 1, without thinner.

- .8 Vertical glass units:
 - .1 Glass in exterior lights: Type V3.
 - .2 Glass in entrance lights: Type V3.
 - .3 Interior vestibule : Type V1.
- .9 Sealant:
 - .1 See Section 07 92 00 – Joint sealants.

2.3 COMPONENTS

- .1 Mullion profile:
 - .1 Vertical members: 65 x 130 mm nominal dimension.
 - .2 Horizontal members: 65 x 130 mm nominal dimension.
 - .3 Thermally broken with interior tubular section insulated from exterior pressure plate.
 - .4 Matching stops and pressure plate of sufficient size and strength to ensure adequate bite on glass.
 - .5 Drainage holes, deflector plates and internal flashings to accommodate internal weep drainage system.
 - .6 Internal mullion baffles to eliminate "stack effect" air movement within internal spaces.
 - .7 Pressure plate cover same finish as mullions.
 - .1 Exterior 50 mm.
 - .2 Interior: 22 mm.
 - .3 Window washing rails: as indicated.
- .2 Flashings: specified in Section 07 62 00 – Sheet Metal Flashing and trim.
- .3 Vapour retarder: specified in Section 07 26 00 - Vapour Retarders.
- .4 Interior modular flush glazing system
 - .1 Frame fabricated of 44 mm x 114 mm aluminium extrusions assembled with concealed brackets.
 - .2 Hidden reinforcements must be incorporated into the members to obtain the rigidity required by design criteria.
 - .3 If necessary, make and assemble in the workshop the different parts or different assemblies necessary to immediately install on site
 - .4 Cover bituminous paint with aluminum surfaces that come into contact with another metal, concrete surfaces or masonry work
 - .5 Aluminum finishing angle of 51 x 51 (or less if required and applicable) x 3.2 mm. The same finish as the adjacent framing.
- .5 Aluminum doors
 - .1 Insulated glass doors: fitted on the inside with an aluminum siding mechanically retained in a rigid vinyl thermal separation. Door thickness of 51mm.
 - .2 Glass doors: Door thickness of 45mm.

- .3 The head and sides will be reinforced with folded plates of galvanized steel inside. The reinforcements will be 3 mm thick on the hinge side and 3 mm thick on the strike side and at the head. The reinforcements at the height of the mortise locks will be fitted with flanges designed to firmly hold the mechanism in position. Reinforce the insulated aluminum doors with thermal break, of thick aluminum plate adapted to the conditions at the place of fixing of the finishing hardware (handles, door closer, panic bar and push bars).
- .4 Doors must have the exact dimensions indicated on doors and frames schedule.
- .5 Components size
 - .1 Head: 166mm or 142mm according to the manufacturers.
 - .2 Bottom: 254mm or 177mm according to the manufacturers.
 - .3 Jamb: 127mm or 146mm according to the manufacturers.
- .6 Mechanically interlocked door corner joints: reinforced for greater strength.
- .7 Glazing beadings: fixing type by pressure with invisible screw.
- .8 Exterior doors with thermal break.
- .9 Aluminum sill with thermal break. The threshold will be installed over the full width of the opening and the full depth of the mullions. The thermal break must be under the door.
- .10 Provide and install door bottom weatherstripping
- .6 Aluminium door frame
 - .1 Frames will be fabricated with tubular profiles, assembled using concealed shear fasteners.
 - .2 The necessary and hidden reinforcements must be incorporated into the members to obtain the rigidity required by the design criteria.
 - .3 If necessary, fabricate and assemble in the workshop the different parts or assemblies necessary to immediately install on site.
 - .4 Cover bituminous paint with aluminum surfaces that come into contact with another metal, concrete surfaces or masonry work
 - .5 Adapter for 51mm door (sub-frame) fitted with a 25 x 114 mm thermal barrier and an inserted weather strip (aluminum profile and "mohair"), for jambs and heads
 - .6 Adapter for 45mm door (sub-frame) 13 x 50 mm and an inserted weather stripping (aluminum profile and "mohair"), for jambs and heads.
 - .7 Aluminum finishing angle of 51 x 51 (or less if required and applicable) x 3.2 mm. The same finish as the adjacent framing
 - .8 Door stop: aluminum bars natural anodized finish 13 mm x 50 mm continuous at the head and the jambs

2.4 FABRICATION

- .1 Fabricate system components with minimum clearances and shim spacing around perimeter of assembly, yet enabling installation and dynamic movement of perimeter seal.
- .2 Accurately fit and secure joints and corners. Make joints flush, hairline and weatherproof.
- .3 Prepare components to receive anchor devices. Install anchors.

- .4 Arrange fasteners and attachments to ensure concealment from view.
- .5 Prepare system components to receive hardware specified in Section 08 71 00 – Door Hardware.
- .6 Reinforce interior horizontal head rail to receive track brackets and attachments.
- .7 Reinforce framing members for external imposed loads.
- .8 Visible manufacturer's identification labels not permitted.
- .9 Finishes:
 - .1 Finish coatings: conform to AA-M12-C22-A41.
 - .2 Exterior exposed aluminum surfaces: anodized to clear colour, 18 microns thick.
 - .3 Interior exposed aluminum surfaces: anodized to clear colour, 18 microns thick.
 - .4 Shop and touch-up primer for steel components: SSPC 25 Paint red oxide.
 - .5 Touch-up primer for galvanized steel surfaces: SSPC 20 Paint zinc rich.
 - .6 Concealed steel items: [galvanized in accordance with ASTM A123 to primed with iron oxide paint.
 - .7 Apply 1 coat of bituminous paint to concealed aluminum and steel surfaces in contact with cementitious or dissimilar materials.

2.5 SOURCE QUALITY CONTROL

- .1 Perform work in accordance with AAMA CW-I-9. Maintain 1 copy on site.
- .2 Design structural support framing components to CAN/CSA-S157 under direct supervision of a Professional Structural Engineer experienced in design of this Work and licensed in the Province of Quebec, Canada.
- .3 Perform welding Work in accordance with CSA W59.2.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for aluminum curtain wall installation in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate in presence of Departmental Representative.
 - .2 Verify dimensions, tolerances, and method of attachment with other work.
 - .3 Verify wall openings and adjoining air barrier and vapour retarder materials are ready to receive work of this Section.
 - .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 INSTALLATION

- .1 Install curtain wall system in accordance with manufacturer's instructions.
- .2 Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.
- .3 Use alignment attachments and shims to permanently fasten system to building structure. Clean weld surfaces; apply protective primer to field welds and adjacent surfaces.
- .4 Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances and align with adjacent work.
- .5 Use thermal isolation where components penetrate or disrupt building insulation.
- .6 Install flashings.
- .7 Co-ordinate attachment and seal of perimeter air barrier and vapour retarder materials.
- .8 Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.
- .9 Install fire-safing in areas as indicated.
- .10 Install perimeter sealant to method required to achieve performance criteria. Backing materials and installation criteria in accordance with Section 07 92 00 - Joint Sealants.

3.3 SITE TOLERANCES

- .1 Maximum variation from plumb: 1.5 mm/m non-cumulative or 12 mm/30 m, whichever is less.
- .2 Maximum misalignment of two adjoining members abutting in plane: 0.8 mm.
- .3 Maximum sealant space between curtain wall and adjacent construction: 15 mm.

3.4 FIELD QUALITY CONTROL

1. The Departmental Representative will retain or may retain the services of an independent, recognized and approved test laboratory to conduct the tests, to verify compliance with performance requirements, on-site and completed work sample, including thermographic tests, waterjet testing of the fountain terminal, etc., in accordance with Section 01 40 00 requirements.
 - .1 Test system to: ASTM E1105.
- .2 Manufacturer's Field Services:
 - .1 Obtain written report from manufacturer of curtain wall and glass verifying compliance of Work, in handling, installing, applying, protecting and cleaning of products, and submit written reports in acceptable format to verify compliance of Work with Contract within 5 days of review.

- .2 Submit 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 Ensure manufacturer's representative of curtain wall and of glass is present before and during critical periods of installation.
- .4 Schedule site visits to review Work at stages listed:
 - .1 After delivery and storage of products, and when preparatory Work on which Work of this Section depends is complete, but before installation begins.
 - .2 Once during progress of Work at 25% complete.
 - .3 Upon completion of Work, after cleaning is carried out.

3.5 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 00 - Cleaning.
 - .1 Leave Work area clean at end of each day.
 - .2 Remove protective material from prefinished aluminum surfaces.
 - .3 Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths. Take care to remove dirt from corners. Wipe surfaces clean.
 - .4 Remove excess sealant by moderate use of mineral spirits or other solvent acceptable to sealant manufacturer.
 - .5 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 - Cleaning.
- .2 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 19 - Construction/Demolition Waste Management and Disposal.
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.6 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by glazed aluminum curtain wall installation.

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Section 08 11 00 – Metal doors and frames
- .2 Section 08 33 23.01 – Overhead coiling doors and grilles.
- .3 Section 08 44 13 – Glazed aluminum curtain walls.
- .4 See also electrical drawings.

1.2 REFERENCES

- .1 American National Standards Institute (ANSI) / Builders Hardware Manufacturers Association (BHMA)
 - .1 ANSI/BHMA A156.1-2006, American National Standard for Butts and Hinges.
 - .2 ANSI/BHMA A156.2-2003, Bored and Preassembled Locks and Latches.
 - .3 ANSI/BHMA A156.3-2008, Exit Devices.
 - .4 ANSI/BHMA A156.4-2008, Door Controls - Closers.
 - .5 ANSI/BHMA A156.5-2001, Auxiliary Locks and Associated Products.
 - .6 ANSI/BHMA A156.6-2005, Architectural Door Trim.
 - .7 ANSI/BHMA A156.8-2005, Door Controls - Overhead Stops and Holders.
 - .8 ANSI/BHMA A156.10-2005, Power Operated Pedestrian Doors.
 - .9 ANSI/BHMA A156.12-2005, Interconnected Locks and Latches.
 - .10 ANSI/BHMA A156.13-2002, Mortise Locks and Latches Series 1000.
 - .11 ANSI/BHMA A156.15-2006, Release Devices - Closer Holder, Electromagnetic and Electromechanical.
 - .12 ANSI/BHMA A156.16-2008, Auxiliary Hardware.
 - .13 ANSI/BHMA A156.17-2004, Self-closing Hinges and Pivots.
 - .14 ANSI/BHMA A156.18-2006, Materials and Finishes.
 - .15 ANSI/BHMA A156.19-2007, Power Assist and Low Energy Power - Operated Doors.
 - .16 ANSI/BHMA A156.20-2006, Strap and Tee Hinges and Hasps.
- .2 Canadian Steel Door and Frame Manufacturers' Association (CSDMA)
 - .1 CSDMA Recommended Dimensional Standards for Commercial Steel Doors and Frames - 2009.

1.3 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 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 Submit samples at least 15 days before the presentation of the hardware schedule.
 - .3 Samples will be returned for inclusion into work.
 - .4 Identify each sample by label indicating applicable specification paragraph number, brand name and number, finish and hardware package number.
 - .5 After approval samples will be returned for incorporation in Work.
 - .6 Electrical diagrams: submit for final electrical connection diagrams. These must be compatible with the computer security and fire alarm management systems. They must be explicit (show the terminal to terminal connections and indicate the colors of wires if applicable).
- .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.

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.

1.8 WASTE MANAGEMENT

- .1 Packaging Waste Management: remove for reuse and return of pallets, crates, padding and packaging materials as specified in Section 01 74 19 - Construction/Demolition Waste Management and Disposal.

1.9 WARRANTY

- .1 All the finishing hardware supplied according to this section will be guaranteed against defects in material or installation not attributable to normal wear and tear, for a period of two (2) years except for door closers which will be guaranteed for a period of ten (10) years and the closed retaining electromagnets which will be guaranteed for life.
- .2 Items that prove to be defective in any way will be replaced and the damage caused due to these defects will be repaired at no additional cost to the Departmental Representative.
- .3 In the event of a defect in the access or security systems or any component part of these systems, the contractor who installed these systems must respond within twenty-four (24) hours (during the days) on any service call by the departmental representative, failing which the departmental representative may call on another contractor and all costs relating to such a service call will be borne by the contractor in this section.

Part 2 Products

2.1 GENERAL

- .1 Use one manufacturer's products only for similar items.
- .2 The hardware schedule is provided as a guide to establish the type, function, quality and minimum weight of the items required, but should not be interpreted as a list of quantities. The contractor must therefore verify the list of plans and must supply any additional hardware items that are not on this list, but still required to complete the installation of the doors.

2.2 DOOR HARDWARE

- .1 See article 3.8 of the current section.

2.3 MISCELLANEOUS HARDWARE

- .1 Indexed key control system: to ANSI/BHMA A156.5, designated by letter E and numeral identifiers.

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 VANDALISM PROTECTION

- .1 Even if they are not specifically described in this section or indicated on the hardware slip, provide the protective parts such as bolt protectors, hinges with non-removable plugs, etc., for all exterior doors.

2.6 KEYING

- .1 Doors, padlocks and cabinet locks to be keyed alike existing system. Prepare detailed keying schedule in conjunction with Departmental Representative.
- .2 All locks and cylinders will be subject to the master key system to be defined with the owner. Provide 10 copies of each master key, regardless of level. All keys and cylinders will be with Best's restricted key path.
- .3 Supply 3 keys for every lock in this Contract.
- .4 Supply 3 master keys for each master key or grand master key group.
- .5 Stamp keying code numbers on keys and cylinders.
- .6 Supply construction cores and keys. They will remain the project manager property at the end of the contract.
- .7 Hand over permanent cores and keys to Departmental Representative.
- .8 Provide the necessary assistance to establish the key coding charter and submit it for approval by the departmental representative.

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 Use only manufacturer's supplied fasteners.
 - .1 Use of "quick" type fasteners, unless specifically supplied by manufacturer, is unacceptable.
- .7 Remove construction cores when directed by Departmental Representative.
 - .1 Install permanent cores and ensure locks operate correctly.

3.2 ELECTRIFIED HARDWARE

- .1 Where specified, all electrical connections for electrified hinges, electrified locks and electrified panic locks will be made using quick connectors of the Molex type according to the E-Lynx system from ASSA ABLOY. All E-Lynx type electrical cables specified on the hardware slip must be coordinated with the elevations of the doors, the locations of the electrical boxes and the components with which they are used.

3.3 RESPONSIBILITY

- .1 The finishing hardware will be suitably suited to the specified use and will be suitable for the designated location. In the event that any hardware as indicated, specified or requested does not meet the requirements planned or required, a modification may suit or adapt to the designated location. The hardware supplier will promptly seek the necessary correction or modification well in advance to avoid delays in the manufacture and delivery of the hardware.
- .2 During construction, he will make the necessary checks to ensure that the finishing hardware he supplies is properly installed and he will inform the contractor.

3.4 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.

3.5 DEMONSTRATION

- .1 Keying System Setup and Cabinet:
 - .1 Set up key control system with file key tags, duplicate key tags, numerical index, alphabetical index and key change index, label shields, control book and key receipt cards.
 - .2 Place file keys and duplicate keys in key cabinet on their respective hooks.
 - .3 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.

3.6 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by door hardware installation.

3.7 CLEANING

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

3.8 LIST OF HARDWARE GROUPS

GROUP 001

3 Hinges TA314 - 114mm x 101mm NRP 630	MCKINNEY
1 Storeroom lockset PBR8805FL 2153 (MAIN) 1-3/4" 630 2815 202 (0 BITTED)	YALE
1 Mortise cylinder 100200T19__M CT-Z01 - EMK x KD	MEDECO
1 Collar CP-180021 619	MEDECO
1 Overhead surface holder 9-226 630 (90deg)	RIXSON
1 Kickplate K0050 - 305mm x 722mm RC-1/4-KP ADH 630	TRIMCO
1 Kickplate K0050 - 305mm x 735mm RC-1/4-KP ADH 630	TRIMCO

GROUP 002

3 Hinges TA386 - 114mm x 101mm NRP 630	MCKINNEY
1 Push plate 1001-3 ADH 630	TRIMCO
1 Door pull 1018-3B D134 630	TRIMCO
1 Door closer 7500 DA 7700P 689 (REGULIER)	NORTON
1 Kickplate K0050 - 305mm x 878mm RC-1/4-KP ADH 630	TRIMCO
1 Kickplate K0050 - 305mm x 890mm RC-1/4-KP ADH 630	TRIMCO
1 Wall stop 1277/79 619	TRIMCO

NOTE(S):

- Install push plate at 1220mm C/L above the finish floor.
- Install door pull at 1066mm C/L above the finish floor.

GROUP 003

3 Hinges TA386 - 114mm x 101mm NRP 630	MCKINNEY
1 Push plate 1001-3 ADH 630	TRIMCO
1 Door pull 1018-3B D134 630	TRIMCO
1 Door closer CPS7500 DA 7700P 689 (90deg)	NORTON
1 Kickplate K0050 - 305mm x 878mm RC-1/4-KP ADH 630	TRIMCO
1 Kickplate K0050 - 305mm x 890mm RC-1/4-KP ADH 630	TRIMCO

NOTE(S):

- Install push plate at 1220mm C/L above the finish floor.
- Install door pull at 1066mm C/L above the finish floor.

GROUP 004

3 Hinges TA386 - 114mm x 101mm NRP 630	MCKINNEY
1 Classroom lockset PBR8808FL 2153 (MAIN) 1-3/4" 630 2815 202 (0 BITTED)	YALE
1 Cylinder Mortise cylinder 100200T19__M CT-Z01 - EMK x KD	MEDECO
1 Collar CP-180021 619	MEDECO
1 Door closer 7500 DA 7700P 689 (REGULIER)	NORTON
1 Kickplate K0050 - 305mm x 878mm RC-1/4-KP ADH 630	TRIMCO
1 Kickplate K0050 - 305mm x 890mm RC-1/4-KP ADH 630	TRIMCO
1 Wall stop 1277/79 619	TRIMCO

GROUP 005

3 Hinges TA386 - 114mm x 101mm NRP 630	MCKINNEY
1 Classroom lockset PBR8801FL (MAIN) 1-3/4" 630 2815 202	YALE
1 Door closer 7500 DA 7700P 689 (REGULIER)	NORTON
1 Kickplate K0050 - 305mm x 878mm RC-1/4-KP ADH 630	TRIMCO
1 Kickplate K0050 - 305mm x 890mm RC-1/4-KP ADH 630	TRIMCO
1 Wall stop 1277/79 619	TRIMCO

GROUP 006

3 Hinges TA386 - 114mm x 101mm NRP 630	MCKINNEY
1 Classroom lockset PBR8808FL 2153 (MAIN) 1-3/4" 630 2815 202 (0 BITTED)	YALE
1 Mortise cylinder 100200T19__M CT-Z01 - EMK x KD	MEDECO
1 Collar CP-180021 619	MEDECO
1 Door closer PR7500 DA 7700P 689	NORTON
1 Kickplate K0050 - 305mm x 878mm RC-1/4-KP ADH 630	TRIMCO
1 Kickplate K0050 - 305mm x 890mm RC-1/4-KP ADH 630	TRIMCO
1 Wall stop 1277/79 619	TRIMCO

GROUP 007

3 Hinges TA386 - 114mm x 101mm NRP 630	MCKINNEY
1 Classroom lockset PBR8808FL 2153 (MAIN) 1-3/4" 630 2815 202 (0 BITTED)	YALE
1 Mortise cylinder 100200T19__M CT-Z01 - EMK x KD	MEDECO
1 Collar CP-180021 619	MEDECO
1 Door closer CPS7500 DA 7700P 689 (90deg)	NORTON
1 Kickplate K0050 - 305mm x 878mm RC-1/4-KP ADH 630	TRIMCO
1 Kickplate K0050 - 305mm x 890mm RC-1/4-KP ADH 630	TRIMCO

GROUP 008

3 Hinges TA314 - 114mm x 101mm NRP 630	MCKINNEY
1 Storeroom lockset PBR8805FL 2153 (MAIN) 1-3/4" 630 2815 202 (0 BITTED)	YALE
1 Mortise cylinder 100200T19__M CT-Z01 - EMK x KD	MEDECO
1 Collar CP-180021 619	MEDECO
1 Door closer 7500 DA 7700P 689 (REGULIER)	NORTON
1 Kickplate K0050 - 305mm x 878mm RC-1/4-KP ADH 630	TRIMCO
1 Mop plate KM050 - 152mm x 890mm RC-1/4-KP ADH 630	TRIMCO
1 Wall stop 1277/79 619	TRIMCO

GROUP 009

3 Hinges TA386 - 114mm x 101mm NRP 630	MCKINNEY
1 Electric strike 712-75-24D-LBMLCM 630	FA
1 Adapter 2004M	HES
1 Storeroom lockset PBR8805FL 2153 (MAIN) 1-3/4" 630 2815 202 (0 BITTED)	YALE
1 Mortise cylinder 100200T19__M CT-Z01 - EMK x KD	MEDECO
1 Collar CP-180021 619	MEDECO
1 Concealed overhead stop 1-336 630 (90deg)	RIXSON
1 Door closer 7500 DA 7700P 689 (REGULIER)	NORTON
1 Mounting plate 7786OH 689	NORTON
1 Kickplate K0050 - 305mm x 878mm RC-1/4-KP ADH 630	TRIMCO
1 Mop plate KM050 - 152mm x 890mm RC-1/4-KP ADH 630	TRIMCO
1 Smoke seal CF-12 x 5185mm (17') CLR	UNIQUE
1 Concealed automatic door bottom 320V x 915mm 719	UNIQUE

1	Door position switch DPS-M-BK	SECURITRON
1	Card reader	(BY OTHERS)
1	Request to exit sensor	(BY OTHERS)
1	Quick connect cable QC-C3000P	MCKINNEY
1	Wiring diagram LMT-PC316-GR009	LMT

NOTE(S):

- Electric conduits, electric junction boxes and pull cords are all supplied and installed by ELECTRICITY.
- 24VDC electric power source, card readers, request to exit sensor(s), controller(s) and access control software are supplied, wired and installed BY OTHERS.
- Use 7786OH mounting plate to avoid conflict between door closer screws and concealed overhead stop.

DESCRIPTION OPERATION:

- Door is normally closed and locked.
- A valid credential unlocked the electric strike.
- The request to exit sensor send an "AUTHORIZED OPEN DOOR" signal to the access control software.
- The door position switch send a "DOOR OPEN" signal to the access control software.
- Free egress at all time.

GROUP 010

3	Hinges TA386 - 114mm x 101mm NRP 630	MCKINNEY
1	Electric strike 712-75-24D-LBMLCM 630	FA
1	Adapter 2004M	HES
1	Storeroom lockset PBR8805FL 2153 (MAIN) 1-3/4" 630 2815 202 (0 BITTED)	YALE
1	Mortise cylinder 100200T19 __M CT-Z01 - EMK x KD	MEDECO
1	Collar CP-180021 619	MEDECO
1	Door closer 7500 DA 7700P 689 (REGULIER)	NORTON
1	Kickplate K0050 - 305mm x 878mm RC-1/4-KP ADH 630	TRIMCO
1	Mop plate KM050 - 152mm x 890mm RC-1/4-KP ADH 630	TRIMCO
1	Wall stop 1277/79 619	TRIMCO
1	Door position switch DPS-M-BK	SECURITRON
1	Card reader	(BY OTHERS)
1	Request to exit sensor	(BY OTHERS)
1	Quick connect cable QC-C3000P	MCKINNEY
1	Wiring diagram LMT-PC316-GR010	LMT

NOTE(S):

- Electric conduits, electric junction boxes and pull cords are all supplied and installed by ELECTRICITY.
- 24VDC electric power source, card readers, request to exit sensor(s), controller(s) and access control software are supplied, wired and installed BY OTHERS.

DESCRIPTION OPERATION:

- Door is normally closed and locked.
- A valid credential unlocked the electric strike.
- The request to exit sensor send an "AUTHORIZED OPEN DOOR" signal to the access control software
- The door position switch send a "DOOR OPEN" signal to the access control software.
- Free egress at all time.

GROUP 011

3 Hinges TA314 - 114mm x 101mm NRP 630	MCKINNEY
1 Electric strike 712-75-24D-LBMLCM 630	FA
1 Adapter 2004M	HES
1 Storeroom lockset PBR8805FL 2153 (MAIN) 1-3/4" 630 2815 202 (0 BITTED)	YALE
1 Mortise cylinder 100200T19__M CT-Z01 - EMK x KD	MEDECO
1 Collar CP-180021 619	MEDECO
1 Door closer 7500 DA 7700P 689 (REGULIER)	NORTON
1 Kickplate K0050 - 305mm x 878mm RC-1/4-KP ADH 630	TRIMCO
1 Wall stop 1277/79 619	TRIMCO
1 Door position switch DPS-M-BK	SECURITRON
1 Card reader	(BY OTHERS)
1 Request to exit sensor	(BY OTHERS)
1 Quick connect cable QC-C3000P	MCKINNEY
1 Wiring diagram LMT-PC316-GR011	LMT

NOTE(S):

- Electric conduits, electric junction boxes and pull cords are all supplied and installed by ELECTRICITY.
- 24VDC electric power source, card readers, request to exit sensor(s), controller(s) and access control software are supplied, wired and installed BY OTHERS.

DESCRIPTION OPERATION:

- Door is normally closed and locked.
- A valid credential unlocked the electric strike.
- The request to exit sensor send an "AUTHORIZED OPEN DOOR" signal to the access control software
- The door position switch send a "DOOR OPEN" signal to the access control software.
- Free egress at all time.

GROUP 012

3 Hinges TA314 - 114mm x 101mm NRP 630	MCKINNEY
1 Electric strike 712-75-24D-LBMLCM 630	FA
1 Adapter 2004M	HES
1 Storeroom lockset PBR8805FL 2153 (MAIN) 1-3/4" 630 2815 202 (0 BITTED)	YALE
1 Mortise cylinder 100200T19__M CT-Z01 - EMK x KD	MEDECO
1 Collar CP-180021 619	MEDECO
1 Door closer 7500 DA 7700P 689 (REGULIER)	NORTON
1 Kickplate K0050 - 305mm x 878mm RC-1/4-KP ADH 630	TRIMCO
1 Mop plate KM050 - 152mm x 890mm RC-1/4-KP ADH 630	TRIMCO
1 Wall stop 1277/79 619	TRIMCO
1 Smoke seal CF-12 x 5185mm (17') CLR	UNIQUE
1 Concealed automatic door bottom 320V x 915mm 719	UNIQUE
1 Door position switch DPS-M-BK	SECURITRON
1 Card reader	(BY OTHERS)
1 Request to exit sensor	(BY OTHERS)
1 Quick connect cable QC-C3000P	MCKINNEY
1 Wiring diagram LMT-PC316-GR012	LMT

NOTE(S):

- Electric conduits, electric junction boxes and pull cords are all supplied and installed by ELECTRICITY.
- 24VDC electric power source, card readers, request to exit sensor(s), controller(s) and access control software are supplied, wired and installed BY OTHERS.

DESCRIPTION OPERATION:

- Door is normally closed and locked.
- A valid credential unlocked the electric strike.
- The request to exit sensor send an "AUTHORIZED OPEN DOOR" signal to the access control software
- The door position switch send a "DOOR OPEN" signal to the access control software.
- Free egress at all time.

GROUP 013

3 Hinges TA386 - 127mm x 101mm NRP 630	MCKINNEY
1 Classroom lockset PBR8801FL (MAIN) 1-3/4" 630 2815 202	YALE
1 Kickplate K0050 - 305mm x 1012mm RC-1/4-KP ADH 630	TRIMCO
1 Kickplate K0050 - 305mm x 1025mm RC-1/4-KP ADH 630	TRIMCO
1 Wall stop 1277/79 619	TRIMCO

GROUP 014

4 Hinges TA386 - 114mm x 101mm NRP 630	MCKINNEY
1 Electric strike 712-75-24D-LBMLCM 630	FA
1 Adapter 2004M	HES
1 Exit device 7130-L5-36" 630 (MAIN) 1-3/4"	YALE
1 Exit trim PB656F 630 (MAIN)	YALE
1 Mortise cylinder 2153-1-1/2 619 (0 BITTED)	YALE
1 Mortise cylinder 105200T19__M CT-Z01 - EMK x KD	MEDECO
1 Door closer CPS7500 7700P 689 (90deg)	NORTON
1 Kickplate K0050 - 305mm x 864mm RC-1/4-KP ADH 630	TRIMCO
1 Electric Strike protector 150 630	HES
1 Weatherstrip 17S x 915mm 628	UNIQUE
2 Weatherstrip 17S x 2135mm 628	UNIQUE
1 Door bottom R-480-TP x 915mm 628	UNIQUE
1 Threshold AB2-ABBT-AB_ x 1016mm 719	UNIQUE
1 Threshold stop AB2-V22 x 915mm 719	UNIQUE
1 Door position switch DPS-M-BK	SECURITRON
1 Card reader	(BY OTHERS)
1 Request to exit sensor	(BY OTHERS)
1 Wiring diagram LMT-PC316-GR014	LMT

NOTE(S):

- Electric conduits, electric junction boxes and pull cords are all supplied and installed by ELECTRICITY.
- 24VDC electric power source, card readers, request to exit sensor(s), controller(s) and access control software are supplied, wired and installed BY OTHERS.
- Install door closer 6mm lower to allow installation of its arm above the weatherstrip 17S.

DESCRIPTION OPERATION:

- Door is normally closed and locked.
- A valid credential unlocked the electric strike.
- The request to exit sensor send an "AUTHORIZED OPEN DOOR" signal to the access control software.
- The door position switch send a "DOOR OPEN" signal to the access control software.
- Free egress at all time.

GROUP 015

4 Hinges TA386 - 114mm x 101mm NRP 630	MCKINNEY
1 Exit device 7130-L5-36" 630 (MAIN) 1-3/4"	YALE
1 Door closer CPS7500 7700P 689 (90deg)	NORTON
1 Kickplate K0050 - 305mm x 864mm RC-1/4-KP ADH 630	TRIMCO
1 Electric strike protector 150 630	HES
1 Weatherstrip 17S x 915mm 628	UNIQUE
2 Weatherstrip 17S x 2135mm 628	UNIQUE
1 Door bottom R-480-TP x 915mm 628	UNIQUE
1 Threshold AB2-ABBT-AB_ x 1016mm 719	UNIQUE
1 Threshold stop AB2-V22 x 915mm 719	UNIQUE
1 Door position switch DPS-M-BK	SECURITRON
1 Wiring diagram LMT-PC316-GR015	LMT

NOTE(S):

- Electric conduits, electric junction boxes and pull cords are all supplied and installed by ELECTRICITY.
- Install door closer 6mm lower to allow installation of its arm above the weatherstrip 17S

DESCRIPTION OPERATION:

- Door is normally closed and locked.
- The door position switch send a "DOOR OPEN" signal to the access control software.
- Free egress at all time.

GROUP 016

8 Hinges TA386 - 127mm x 101mm NRP 630	MCKINNEY
2 Power transfert EL-CEPT 630	SECURITRON
1 Electrified exit device 7160F-D-36" 630 LHR 1-3/4" (VERS E-150)	YALE
1 Electrified exit device 7160F-B-36" 630 LHR 1-3/4" (VERS E-102)	YALE
1 Mortise cylinder 2153-1-1/8 619 (0 BITTED)	YALE
1 Mortise cylinder 100200T19_M CT-Z01 - EMK x KD	MEDECO
2 Concealed overhead stop 1-336 630 (90deg)	RIXSON
2 Door closer PR7500 DA 7700P 689	NORTON
2 Kickplate K0050 - 305mm x 878mm RC-1/4-KP ADH 630	TRIMCO
2 Kickplate K0050 - 305mm x 890mm RC-1/4-KP ADH 630	TRIMCO
1 Smoke seal CF-12 x 6096mm (20') CLR	UNIQUE
1 Astragal 383FS-AA x 2135mm 628	ZERO
2 Concealed automatic door bottom 320V x 915mm 719	UNIQUE
2 Door position switch DPS-M-BK	SECURITRON
1 Card reader	(BY OTHERS)
2 Quick connect cable QC-C006P	MCKINNEY
2 Quick connect cable QC-C3000P	MCKINNEY
1 Wiring diagram LMT-PC316-GR016	LMT

NOTE(S):

- Electric conduits, electric junction boxes and pull cords are all supplied and installed by ELECTRICITY.
- 24VDC electric power source, card readers, request to exit sensor(s), controller(s) and access control software are supplied, wired and installed BY OTHERS.

DESCRIPTION OPERATION:

-- TO E-150 MULTI-FUNCTION ROOM --

- Door is normally closed and locked.
- Depressing the pushpad for less than three seconds will cause the device to beep without initiating the alarm. Depressing the pushpad for three seconds or longer will initiate an irreversible local audible beeping tone. The person depressing the pushpad is denied egress for 15 or 30 seconds while alarm signals unauthorized egress. After the factory-set delay time (15 seconds), the device releases for egress, the beep changes to a steady tone which continues to alarm until reset.
- A valid credential shunt momentary the 3/15 seconds feature.
- Upon fire alarm the door unlocked.
- The door position switch send a "DOOR OPEN" signal to the access control software.
- Free egress at all time. (3/15 seconds)

-- TO E-102 CORRIDOR --

- Door is normally closed and unlocked.
- Depressing the exit device pushpad send a "REQUEST TO EXIT" signal to the access control software.
- The door position switch send a "DOOR OPEN" signal to the access control software.
- Free egress at all time.

GROUP 017

3 Hinges TA314 - 114mm x 101mm NRP 630	MCKINNEY
1 Electric strike 712-75-24D-LBMLCM 630	FA
1 Adapter 2004M	HES
1 Storeroom lockset PBR8805FL 2153 (MAIN) 1-3/4" 630 2815 202 (0 BITTED)	YALE
1 Mortise cylinder 100200T19__M CT-Z01 - EMK x KD	MEDECO
1 Collar CP-180021 619	MEDECO
1 Door closer 7500 DA 7700P 689 (REGULIER)	NORTON
1 Kickplate K0050 - 305mm x 878mm RC-1/4-KP ADH 630	TRIMCO
1 Mop plate KM050 - 152mm x 890mm RC-1/4-KP ADH 630	TRIMCO
1 Wall stop 1277/79 619	TRIMCO
1 Smoke seal CF-12 x 5185mm (17") CLR	UNIQUE
1 Concealed automatic door bottom 50MHD x 915mm 719	UNIQUE
1 Door position switch DPS-W-BK	SECURITRON
1 Card reader	(BY OTHERS)
1 Request to exit sensor	(BY OTHERS)
1 Quick connect cable QC-C3000P	MCKINNEY
1 Wiring diagram LMT-PC316-GR017	LMT

NOTE(S):

- Electric conduits, electric junction boxes and pull cords are all supplied and installed by ELECTRICITY.
- 24VDC electric power source, card readers, request to exit sensor(s), controller(s) and access control software are supplied, wired and installed BY OTHERS.

DESCRIPTION OPERATION:

- Door is normally closed and locked.
- A valid credential unlocked the electric strike.
- The request to exit sensor send an "AUTHORIZED OPEN DOOR" signal to the access control software.
- The door position switch send a "DOOR OPEN" signal to the access control software.
- Free egress at all time.

GROUP 018

3 Hinges TA314 - 114mm x 101mm NRP 630	MCKINNEY
1 Electric strike 712-75-24D-LBMLCM 630	FA
1 Adapter 2004M	HES
1 Storeroom lockset PBR8805FL 2153 (MAIN) 1-3/4" 630 2815 202 (0 BITTED)	YALE
1 Mortise cylinder 100200T19__M CT-Z01 - EMK x KD	MEDECO
1 Collar CP-180021 619	MEDECO
1 Door closer CLP7500 DA 7700P 689 (95deg)	NORTON
1 Kickplate K0050 - 305mm x 878mm RC-1/4-KP ADH 630	TRIMCO
1 Mop plate KM050 - 152mm x 890mm RC-1/4-KP ADH 630	TRIMCO
1 Smoke seal CF-12 x 5185mm (17') CLR	UNIQUE
1 Concealed automatic door bottom 50MHD x 915mm 719	UNIQUE
1 Door position switch DPS-W-BK	SECURITRON
1 Card reader	(BY OTHERS)
1 Request to exit sensor	(BY OTHERS)
1 Quick connect cable QC-C3000P	MCKINNEY
1 Wiring diagram LMT-PC316-GR018	LMT

NOTE(S):

- Electric conduits, electric junction boxes and pull cords are all supplied and installed by ELECTRICITY.
- 24VDC electric power source, card readers, request to exit sensor(s), controller(s) and access control software are supplied, wired and installed BY OTHERS.

DESCRIPTION OPERATION:

Door is normally closed and locked.

- A valid credential unlocked the electric strike.
- The request to exit sensor send an "AUTHORIZED OPEN DOOR" signal to the access control software.
- The door position switch send a "DOOR OPEN" signal to the access control software.
- Free egress at all time.

GROUP 019

3 Hinges TA386 - 114mm x 101mm NRP 630	MCKINNEY
1 Electric strike 712-75-24D-LBMLCM 630	FA
1 Adapter 2004M	HES
1 Storeroom lockset PBR8805FL 2153 (MAIN) 1-3/4" 630 2815 202 (0 BITTED)	YALE
1 Mortise cylinder 100200T19__M CT-Z01 - EMK x KD	MEDECO
1 Collar CP-180021 619	MEDECO
1 Concealed overhead stop 1-336 630 (90deg)	RIXSON
1 Door closer 7500 DA 7700P 689 (REGULIER)	NORTON
1 Mounting plate 7786OH 689	NORTON
1 Kickplate K0050 - 305mm x 878mm RC-1/4-KP ADH 630	TRIMCO
1 Mop plate KM050 - 152mm x 890mm RC-1/4-KP ADH 630	TRIMCO
1 Smoke seal CF-12 x 5185mm (17') CLR	UNIQUE
1 Concealed automatic door bottom 50MHD x 915mm 719	UNIQUE
1 Door position switch DPS-W-BK	SECURITRON
1 Card reader	(BY OTHERS)
1 Request to exit sensor	(BY OTHERS)
1 Quick connect cable QC-C3000P	MCKINNEY
1 Wiring diagram LMT-PC316-GR019	LMT

NOTE(S):

- Electric conduits, electric junction boxes and pull cords are all supplied and installed by ELECTRICITY.
- 24VDC electric power source, card readers, request to exit sensor(s), controller(s) and access control software are supplied, wired and installed BY OTHERS.

DESCRIPTION OPERATION:

- Door is normally closed and locked.
- A valid credential unlocked the electric strike.
- The request to exit sensor send an "AUTHORIZED OPEN DOOR" signal to the access control software.
- The door position switch send a "DOOR OPEN" signal to the access control software.
- Free egress at all time.

GROUP 020

3 Hinges TA386 - 114mm x 101mm NRP 630	MCKINNEY
1 Classroom lockset PBR8808FL 2153 (MAIN) 1-3/4" 630 2815 202 (0 BITTED)	YALE
1 Mortise cylinder 100200T19__M CT-Z01 - EMK x KD	MEDECO
1 Collar CP-180021 619	MEDECO
1 Concealed overhead stop 1-336 630 (90deg)	RIXSON
1 Door closer 7500 DA 7700P 689 (REGULIER)	NORTON
1 Mounting plate 7786OH 689	NORTON
1 Kickplate K0050 - 305mm x 878mm RC-1/4-KP ADH 630	TRIMCO
1 Kickplate K0050 - 305mm x 890mm RC-1/4-KP ADH 630	TRIMCO

GROUP 021

3 Hinges TA386 - 114mm x 101mm NRP 630	MCKINNEY
1 Push plate 1001-3 ADH 630	TRIMCO
1 Door pull 1018-3B D134 630	TRIMCO
1 Door closer PR7500 DA 7700P 689	NORTON
1 Kickplate K0050 - 305mm x 878mm RC-1/4-KP ADH 630	TRIMCO
1 Kickplate K0050 - 305mm x 890mm RC-1/4-KP ADH 630	TRIMCO
1 Wall stop 1277/79 619	TRIMCO

NOTE(S):

- Installer la Poignée à tirer à 1066mm C/L du plancher fini. / Install door pull at 1066mm C/L above the finish floor.

GROUP 022

3 Hinges TA386 - 114mm x 101mm NRP 630	MCKINNEY
1 Electric strike 712-75-24D-LBMLCM 630	FA
1 Adapter 2004M	HES
1 Storeroom lockset PBR8805FL 2153 (MAIN) 1-3/4" 630 2815 202 (0 BITTED)	YALE
1 Mortise cylinder 100200T19__M CT-Z01 - EMK x KD	MEDECO
1 Collar CP-180021 619	MEDECO
1 Concealed overhead stop 1-336 630 (90deg)	RIXSON
1 Door closer PR7500 DA 7700P 689	NORTON
1 Kickplate K0050 - 305mm x 878mm RC-1/4-KP ADH 630	TRIMCO
1 Kickplate K0050 - 305mm x 890mm RC-1/4-KP ADH 630	TRIMCO
1 Smoke seal CF-12 x 5185mm (17') CLR	UNIQUE
1 Concealed automatic door bottom 320V x 915mm 719	UNIQUE
1 Door position switch DPS-M-BK	SECURITRON
1 Card reader	(BY OTHERS)
1 Request to exit sensor	(BY OTHERS)
1 Quick connect cable QC-C3000P	MCKINNEY
1 Wiring diagram LMT-PC316-GR022	LMT

NOTE(S):

- Electric conduits, electric junction boxes and pull cords are all supplied and installed by ELECTRICITY.
- 24VDC electric power source, card readers, request to exit sensor(s), controller(s) and access control software are supplied, wired and installed BY OTHERS.

DESCRIPTION OPERATION:

- Door is normally closed and locked.
- A valid credential unlocked the electric strike.
- The request to exit sensor send an "AUTHORIZED OPEN DOOR" signal to the access control software.
- The door position switch send a "DOOR OPEN" signal to the access control software.
- Free egress at all time.

GROUP 023

3 Hinges TA314 - 114mm x 101mm NRP 630	MCKINNEY
1 Electric strike 712-75-24D-LBMLCM 630	FA
1 Adapter 2004M	HES
1 Storeroom lockset PBR8805FL 2153 (MAIN) 1-3/4" 630 2815 202 (0 BITTED)	YALE
1 Mortise cylinder 100200T19__M CT-Z01 - EMK x KD	MEDECO
1 Collar CP-180021 619	MEDECO
1 Door closer PR7500 DA 7700P 689	NORTON
1 Kickplate K0050 - 305mm x 878mm RC-1/4-KP ADH 630	TRIMCO
1 Kickplate K0050 - 305mm x 890mm RC-1/4-KP ADH 630	TRIMCO
1 Wall stop 1277/79 619	TRIMCO
1 Smoke seal CF-12 x 5185mm (17') CLR	UNIQUE
1 Concealed automatic door bottom 320V x 915mm 719	UNIQUE
1 Door position switch DPS-M-BK	SECURITRON
1 Card reader	(BY OTHERS)
1 Request to exit sensor	(BY OTHERS)
1 Quick connect cable QC-C3000P	MCKINNEY
1 DiaWiring diagram LMT-PC316-GR023	LMT

NOTE(S):

- Electric conduits, electric junction boxes and pull cords are all supplied and installed by ELECTRICITY.
- 24VDC electric power source, card readers, request to exit sensor(s), controller(s) and access control software are supplied, wired and installed BY OTHERS.

DESCRIPTION OPERATION:

- Door is normally closed and locked.
- A valid credential unlocked the electric strike.
- The request to exit sensor send an "AUTHORIZED OPEN DOOR" signal to the access control software.
- The door position switch send a "DOOR OPEN" signal to the access control software.
- Free egress at all time.

GROUP 024

3 Hinges TA314 - 114mm x 101mm NRP 630	MCKINNEY
1 Privacy lockset PBR8802FL (MAIN) 1-3/4" 630 2815 202	YALE
1 Door closer 7500 DA 7700P 689 (REGULIER)	NORTON
1 Kickplate K0050 - 305mm x 878mm RC-1/4-KP ADH 630	TRIMCO
1 Mop plate KM050 - 152mm x 890mm RC-1/4-KP ADH 630	TRIMCO
1 Wall stop 1277/79 619	TRIMCO
1 Coat hook 1139S 630	FROST

NOTE(S):

- Install coat hook at 1220mm C/L above the finis floor.

GROUP 025

1 Continuous hinge FM100 x 2110mm 628	MARKAR
1 Electric strike 9500-LBSM 630	HES
4 Spacer 9000-108 630	HES
1 Adapter 2004M	HES
1 Exit device 7200-36" 630 121NL	YALE
1 Rim cylinder 1109 619 (0 BITTED)	YALE
1 Rim cylinder 100400HT19_M CT-Y32	MEDECO
1 Door pull 1171 x 1830mm OA - MTG N - D200 630	TRIMCO
1 Concealed overhead stop 6-336 630 (90deg)	RIXSON
1 Door closer JL7500 7700P 689	NORTON
1 Mounting plate 7786 689	NORTON
1 Door position switch DPS-M-BK	SECURITRON
1 Card reader	(BY OTHERS)
1 Request to exit sensor	(BY OTHERS)
1 Quick connect cable QC-C3000P	MCKINNEY
1 Wiring diagram LMT-PC316-GR025	LMT

NOTE(S):

- Threshold and gasketing all supplied and installed by the aluminum door and frame supplier.
- Electric conduits, electric junction boxes and pull cords are all supplied and installed by ELECTRICITY.
- 24VDC electric power source, card readers, request to exit sensor(s), controller(s) and access control software are supplied, wired and installed BY OTHERS.

DESCRIPTION OPERATION:

- Door is normally closed and locked.
- A valid credential unlocked the electric strike.
- The request to exit sensor send an "AUTHORIZED OPEN DOOR" signal to the access control software.
- The door position switch send a "DOOR OPEN" signal to the access control software.
- Free egress at all time.

GROUP 026

2	Continuous hinge FM100-CTP x 2110mm 628 (EL-CEPT @ 722mm C/L FROM TOP)	MARKAR
2	Power transfert EL-CEPT 630	SECURITRON
1	Electrified exit device 7220-B-P-S-36" 630 LHR	YALE
1	Electrified exit device 7220-B-S-36" 630 RHR	YALE
1	Exit trim 503F 630 LHR	YALE
1	Mortise cylinder 1109 619 (0 BITTED)	YALE
1	Rim cylinder 100400HT19__M CT-Y32	MEDECO
1	Collar CP-180021 619	MEDECO
2	Door pull 1171 x 1830mm OA - MTG N - D200 630	TRIMCO
2	Concealed overhead stop 1-336 630 (90deg)	RIXSON
1	Door closer JL7500 7700P 689	NORTON
1	Mounting plate 7786 689	NORTON
1	Automatic door operator SW200i - SIMPLE - POUSSER - 120V @ 10A 628 RH	BESAM
1	Presence sensor BODYGUARD BLK	BEA
1	Door actuator CM-60/2WR 630 (EXTÉRIEUR)	CAMDEN
1	Door actuator CM-60/2 630 (INTÉRIEUR)	CAMDEN
1	Interrupter BESAM-3P	BESAM
2	Door position switch DPS-M-BK	SECURITRON
1	Power supply 782 600	YALE
1	Card reader	(BY OTHERS)
1	Wiring diagram LMT-PC316-GR026	LMT

NOTE(S):

- Threshold and gasketing all supplied and installed by the aluminum door and frame supplier.
- 120V, Electric conduits, electric junction boxes and pull cords are all supplied and installed by ELECTRICITY.
- 24VDC electric power source, card readers, request to exit sensor(s), controller(s) and access control software are supplied, wired and installed BY OTHERS.

DESCRIPTION OPERATION:**-- PULL SIDE --**

- Doors are normally closed and locked.
- A valid credential retract active door exit device latchbolt.
- On schedule active door exit device latchbolt is retracted.
- Once exit device latchbolt is retracted, push button activate automatic door operator.

-- PUSH SIDE --

- Depressing exit devices send an "AUTHORIZED OPEN DOOR" signal to the access control software.
- Push button retract exit device latchbolt and activate automatic door operator.
- The door position switch send a "DOOR OPEN" signal to the access control software.
- Free egress at all time.

GROUP 027

1	Continuous hinge FM100 x 2110mm 628	MARKAR
1	Push bar 1171 x 838mm OA - MTG N - D134 630	TRIMCO
1	Door pull 1171 x 1830mm OA - MTG N - D200 630	TRIMCO
1	Door closer 7500 DA 7700P 689 (REGULIER)	NORTON
1	Mounting plate 7786 689	NORTON
1	Wall stop 1277/79 619	TRIMCO

NOTE(S):

- Install push bar at 1066mm C/L above the finish floor.

GROUP 028

1	Continuous hinge FM100 x 2110mm 628	MARKAR
1	Electric strike 9500-LBSM 630	HES
4	Spacer 9000-108 630	HES
1	Adapter 2004M	HES
1	Exit device 7200-36" 630 121NL	YALE
1	Mortise cylinder 1109 619 (0 BITTED)	YALE
1	Rim cylinder 100400HT19__M CT-Y32	MEDECO
1	Door pull 1171 x 1830mm OA - MTG N - D200 630	TRIMCO
1	Door closer JL7500 7700P 689	NORTON
1	Mounting plate 7786 689	NORTON
1	Wall stop 1277/79 619	TRIMCO
1	Door position switch DPS-M-BK	SECURITRON
1	Card reader	(BY OTHERS)
1	Request to exit sensor	(BY OTHERS)
1	Quick connect cable QC-C3000P	MCKINNEY
1	Wiring diagram LMT-PC316-GR028	LMT

NOTE(S):

- Electric conduits, electric junction boxes and pull cords are all supplied and installed by ELECTRICITY.
- 24VDC electric power source, card readers, request to exit sensor(s), controller(s) and access control software are supplied, wired and installed BY OTHERS.

DESCRIPTION OPERATION:

- Door is normally closed and locked.
- A valid credential unlocked the electric strike.
- The request to exit sensor send an "AUTHORIZED OPEN DOOR" signal to the access control software.
- The door position switch send a "DOOR OPEN" signal to the access control software.
- Free egress at all time.

GROUP 029

2	Continuous hinge FM100-CTP x 2110mm 628 (EL-CEPT @ 722mm C/L FROM TOP)	MARKAR
2	Power transfert EL-CEPT 630	SECURITRON
1	Electrified exit device 7220-B-P-S-36" 630 LHR	YALE
1	Electrified exit device 7220-B-S-36" 630 RHR	YALE
1	Exit trim 503F 630 LHR	YALE
1	Mortise cylinder 1109 619 (0 BITTED)	YALE
1	Rim cylinder 100400HT19__M CT-Y32	MEDECO
1	Collar CP-180021 619	MEDECO
2	Door pull 1171 x 1830mm OA - MTG N - D200 630	TRIMCO
2	Concealed overhead stop 1-336 630 (90deg)	RIXSON
1	Door closer JL7500 7700P 689	NORTON
1	Mounting plate 7786 689	NORTON
1	Automatic door operator SW200i - SIMPLE - POUSSER - 120V @ 10A 628 RH	BESAM
1	Presence sensor BODYGUARD BLK	BEA
2	Door actuator CM-60/2 630	CAMDEN
1	Interrupter BESAM-3P	BESAM
2	Door position switch DPS-M-BK	SECURITRON
1	Power supply 782 600	YALE
1	Card reader	(BY OTHERS)
1	Wiring diagram LMT-PC316-GR029	LMT

NOTE(S):

- Threshold and gasketing all supplied and installed by the aluminum door and frame supplier.
- 120V, Electric conduits, electric junction boxes and pull cords are all supplied and installed by ELECTRICITY.
- Card readers, request to exit sensor(s), controller(s) and access control software are supplied, wired and installed BY OTHERS.

DESCRIPTION OPERATION:**-- PULL SIDE --**

- Doors are normally closed and locked.
- A valid credential retract active door exit device latchbolt.
- On schedule active door exit device latchbolt is retracted.
- Once exit device latchbolt is retracted, push button activate automatic door operator.

-- PUSH SIDE --

- Depressing exit devices send an "AUTHORIZED OPEN DOOR" signal to the access control software.
- Push button retract exit device latchbolt and activate automatic door operator
- Push button retract exit device latchbolt and activate automatic door operator.

GROUP 030

3	Hinges TA314 - 114mm x 101mm NRP 630	MCKINNEY
1	Storeroom lockset PBR8805FL 2153 (MAIN) 1-3/4" 630 2815 202 (0 BITTED)	YALE
1	Mortise cylinder 100200T19__M CT-Z01 - EMK x KD	MEDECO
1	Collar CP-180021 619	MEDECO
1	Kickplate K0050 - 305mm x 878mm RC-1/4-KP ADH 630	TRIMCO
1	Mop plate KM050 - 152mm x 890mm RC-1/4-KP ADH 630	TRIMCO
1	Wall stop 1277/79 619	TRIMCO

GROUPE 031

1	Track set C-500 x 1830mm – 2DR KIT	KNC
1	Guide rail C-914 x 915mm 719	KNC
1	Floor guide C-913	KNC
1	Fascia C-150 x 1830mm 628	KNC
2	Flush pull 1060 619	TRIMCO

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Section 07 92 00 – Joint sealants
- .2 Section 08 11 00 – Metal doors and frames
- .3 Section 08 44 13 – Glazed aluminum curtain walls
- .4 Section 10 22 13 – Wire mesh partitions

1.2 REFERENCES

- .1 ASTM International
 - .1 ASTM C542-05 (R2017), Standard Specification for Lock-Strip Gaskets.
 - .2 ASTM D790-17, Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
 - .3 ASTM D2240-15e1, Standard Test Method for Rubber Property - Durometer Hardness.
 - .4 ASTM E84-19b, Standard Test Method for Surface Burning Characteristics of Building Materials.
 - .5 ASTM E330-14, Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
 - .6 ASTM F1233-08 (R2019), Standard Test Method for Security Glazing Materials and Systems.
- .2 American National Standards Institute (ANSI) / National Fire Protection Agency (NFPA)
 - .1 ANSI/NFPA 80-2019, Standard for Fire Doors and Other Opening Protectives.
- .3 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-12.1-M90, Tempered or Laminated Safety Glass.
 - .2 CAN/CGSB-12.2-M91, Flat, Clear Sheet and float Glass.
 - .3 CAN/CGSB-12.4-M91, Heat Absorbing Glass.
 - .4 CAN/CGSB-12.8-97, Insulating Glass Units.
 - .5 CAN/CGSB-12.8-97 (Amendment), Insulating Glass Units.
- .4 Glass Association of North American (GANA)
 - .1 GANA Glazing Manual - 2008.
 - .2 GANA Laminated Glazing Reference Manual - 2009.

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 glass, sealants, and glazing accessories and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Samples:
 - .1 Submit for review and acceptance of each unit, 300 mm x 300 mm.
- .4 Certificates: submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .5 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
 - .1 Submit [testing and analysis of glass under provisions of Section 01 45 00 - Quality Control.
 - .2 Submit shop inspection and testing for glass.
- 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 glazing for incorporation into manual.
- 1.5 QUALITY ASSURANCE**
 - .1 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- 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 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 [wrapping] [strippable coating].
 - .4 Replace defective or damaged materials with new.
- 1.7 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.

1.8 WASTE MANAGEMENT

- .1 Packaging Waste Management: remove for recycling and return by manufacturer of pallets, crates, padding, and packaging materials in accordance with Section 01 74 19 - Construction/Demolition Waste Management and Disposal.

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 Size glass to withstand wind loads, dead loads and positive and negative live loads to ASTM E330.
 - .3 Limit glass deflection to 1/200 with full recovery of glazing materials.
- .2 Flat Glass:
 - .1 Safety glass: to CAN/CGSB-12.1, transparent, 6 mm thick or as indicated.
 - .1 Type 2-tempered.
 - .2 Class B-float.
 - .2 Fire-rated glass ceramic identified V2: clear and polished with surface safety film, 90min. fire-rated, in accordance to UL 9, 10B, UL 10C, NFPA 80, NFPA 252, NFPA 257 et CAN/ULC S104, S106. 5 mm thick ± 0.4 mm. Product must comply with :
 - .1 Shock resistance to CPSC 16CFR 1201-CAT I & II et ANSI Z97.1.
 - .2 Visible light transmission: 80%
 - .3 Weight: 16,55 kPa (2.4 lbs/po²)
 - .4 STC min.: 31.
- .3 Insulating Glass Units:
 - .1 Insulating glass units identified V3: to CAN/CGSB-12.8, double unit with low-E argon.
 - .1 Exterior glass: 6 mm tempered glass with face 2 low-E.
 - .2 Inter-cavity space thickness: 12.5 mm with black low conductivity spacers filled with argon (85% per unit).
 - .3 Interior glass: 6 mm tempered glass.
 - .2 Specifications.
 - .1 Visible light
 - .1 Transmission : 69%
 - .2 Exterior reflection: 11%
 - .3 Interior reflection: 11%
 - .2 Solar Heat Gain Coefficient
 - .1 Transmission: 34%

- .2 Exterior reflection: 29%
 - .3 U value
 - .1 Summer/day: 0.22
 - .2 Winter/night: 0.24
 - .4 Shading coefficient
 - .1 SC: 0.46
 - .5 Relative heat gain
 - .1 95 Btu/he/p.c.
- .4 Sealant products: see Section 07 92 00 – Sealant joints.

2.2 ACCESSORIES

- .1 Setting blocks: neoprene, 80-90 Shore A durometer hardness to ASTM D2240, length to suit glazing method, glass light weight and area.
- .2 Spacer shims: neoprene 50-60 Shore A durometer hardness to ASTM D2240, 75 mm long x one half height of glazing stop x thickness to suit application. Self adhesive on one face.
- .3 Glazing splines: compressible hollow neoprene profile.
- .4 Glazing tape:
 - .1 Preformed butyl compound with integral resilient tube spacing device, 10-15 Shore A durometer hardness to ASTM D2240; coiled on release paper; 3 mm x 10 mm size; black colour. For steel doors and frames.
- .5 Glazing clips: manufacturer's standard type.
- .6 Lock-strip gaskets: to ASTM C542.
- .7 Caulker: one component silicone caoutchouc. Gun applied.

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.

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.

3.3 INSTALLATION: EXTERIOR - DRY METHOD (PREFORMED GLAZING)

- .1 Manufacturer's Instructions: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.
- .2 Perform work in accordance with GANA Glazing Manual and GANA Laminated Glazing Reference Manual for glazing installation methods.
- .3 Cut glazing tape to length; install on glazing light. Seal corners by butting tape and sealing junctions with sealant.
- .4 Place setting blocks at 1/3 points, with edge block maximum 150 mm from corners.
- .5 Rest glazing on setting blocks and push against fixed stop with sufficient pressure to attain full contact.
- .6 Install removable stops without displacing glazing tape. Exert pressure for full continuous contact.
- .7 Trim protruding tape edge.

3.4 INSTALLATION: INTERIOR - DRY METHOD (TAPE AND TAPE)

- .1 Perform work in accordance with GANA Glazing Manual and GANA Laminated Glazing Reference Manual for glazing installation methods.
- .2 Cut glazing tape to length and set 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 for full contact at perimeter of light or unit.
- .5 Place glazing tape on free perimeter of glazing in same manner described.
- .6 Install removable stop without displacement of tape. Exert pressure on tape for full continuous contact.
- .7 Knife trim protruding tape.

3.5 CLEANING

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

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.

END OF SECTION

FINISH SCHEDULE

LEGENDMATÉRIALS

al	aluminum
bb	concrete block
bé	concrete
bo	wood
br	brick
ca	caoutchouc
ce	ceramic tiles
ci	acoustical ceiling
cp	plywood
ec	cement plaster
ei	fire retardant coating
en	acrylic coating
gr	granit (see spec section for finishes)
gy	gypsum board or lightweight concrete panel
im	waterproofing
lb	wood blades
li	linoleum
m	steel
mm	membrane
pp	fiberglass reinforced plastic panels
pca	caoutchouc baseboard
pe	wall epoxy paint
pvi	vinyl baseboard
re	epoxy coating
req	epoxy-quartz coating
rf	semi-rigid sheet coating
sa	exposed structure
ta	carpet
tc	carpet tiles
te	terrazzo
tp	epoxy terrazzo
tr	terracotta
vc	vinyl tiles
vf	vinyl sheathing
vi	vinyl
v	glass

FINISHES

A	anodize
D	hardener
E	epoxy paint
J	sandblast
P	paint
S	sealer
T	stained and varnished
V	varnished
1	type 1
2	type 2
3	type 3
etc.	

Note : *The capital letter of the materials index indicates the finish that this material should receive.*

Ex. : bé = concrete béP = painted concrete

REMARKS

Note : The following remarks are part of the finish schedule and relate to the numbers entered in the "remarks" column.

General remarks :

Finish all exposed concrete columns (be) with concrete sealer (S) unless otherwise indicated.

Finish with concrete sealer (S) all exposed concrete walls unless otherwise indicated.

Paint all primed metal stairs and all metal ladders.

Provide and install stop and transition moldings for each material change

Weld all joints of flexible finishes (floor, baseboard and wall).

If applicable, refer to the enlarged plans for details on the application of finishes.

Baseboard identified « re » are the same material type as the floor finish.

NO. REMARK

1. Existing gypsumboard to be repaired and painted.
 2. Existing floor finish to be repaired.
 3. Wall protection at 1200mm above floor finish on every walls.
 4. Wall ceramic tiles with finish molding at 1200mm above floor finish on every walls.
 5. Floor markings. See sheet A07.
 6. Metal-working to be painted in the room.
-

REV.	ROOMS		FLOORS	BASEBOARD	WALLS		CEILINGS		REMARKS
	#	NAME							
KENNEL									
	3.0	Grooming Area	re2	re	gy	P1	gy	P1	1,2
	K-101	Entry lock	re2	pvi1	gy	P1	gy ci1	P1	3
	K-102	Electric Room	re2	re	gy	P1	gy	P1	
	K-103	Corridor	re2	pvi1	gy	P1	ci1		3
	K-104	Techniciens office	re1	pvi1	gy	P1	ci1		
	K-105	Storage	re1	pvi1	gy	P1	gy	P1	
	K-106	Evaluation Room	re1	pvi1	gy	P1	gy	P1	3
	K-107	Washroom	re2	pvi1	gy	pe1	gy	P1	
	K-108	Kennel	re1	re	gy bb	P1 re3	gy pp		3
	K-108A	Interior Paddock	re1	re	bb	re3	gy pp		
	K-108B	Interior Paddock	re1	re	bb	re3	gy pp		
	K-108C	Interior Paddock	re1	re	bb	re3	gy pp		
	K-108D	Interior Paddock	re1	re	bb	re3	gy pp		
	K-108E	Interior Paddock	re1	re	bb	re3	gy pp		
	K-108F	Interior Paddock	re1	re	bb	re3	gy pp		
	K-108G	Interior Paddock	re1	re	bb	re3	gy pp		
	K-108H	Interior Paddock	re1	re	bb	re3	gy pp		
	K-108J	Interior Paddock	re1	re	bb	re3	gy pp		
	K-108K	Interior Paddock	re1	re	bb	re3	gy pp		
	K-108L	Interior Paddock	re1	re	bb	re3	gy pp		
	K-108M	Interior Paddock	re1	re	bb	re3	gy pp		
	K-108N	Exterior Paddock	-	-	bb	S	-	-	
	K-108P	Exterior Paddock	-	-	bb	S	-	-	
	K-108Q	Exterior Paddock	-	-	bb	S	-	-	
	K-108R	Exterior Paddock	-	-	bb	S	-	-	
	K-108S	Exterior Paddock	-	-	bb	S	-	-	
	K-108T	Exterior Paddock	-	-	b	S	-	-	
	K-108U	Exterior Paddock	-	-	bb	S	-	-	
	K-108V	Exterior Paddock	-	-	bb	S	-	-	
	K108W	Exterior Paddock	-	-	bb	S	-	-	
	K-108X	Exterior Paddock	-	-	bb	S	-	-	
	K-108Y	Exterior Paddock	-	-	bb	S	-	-	

REV.	ROOMS		FLOORS	BASEBOARD	WALLS		CEILINGS		REMARKS
	#	NAME							
	K-108Z	Exterior Paddock	-	-	bb	S	-	-	
	K-109	Janitor	re2	re	gy	pe1	gy	P1	
	K-110	Storage	re2	pvi1	gy	P1	gy	P1	
HANGAR									
	E-101	Vestibule	ce1	ce1	gy	P2	gy	P2	3
	E-102	Corridor	ce1	ce1	gy	P2	ci1		3
	E-103	Corridor	ce1	ce1	gy	P2	ci1		3
	E-103B	Vestibule	ce1	ce1	gy	P2	gy	P2	3
	E-104	Meeting room	vc1	pvi2	gy	P2	ci1 gy	P2	
	E-105	Assistant manager	vc1	pvi2	gy	P2	ci1 gy	P2	
	E-106	Manager	vc1	pvi2	gy	P2	ci1 gy	P2	
	E-107	Supervisors	vc1	pvi2	gy	P2	ci1 gy	P2	
	E-108	Instructors	vc1	pvi2	gy	P2	ci1 gy	P2	
	E-109	Preparation room / Search articles	vc1	pvi2	gy	P2	ci1		
	E-110	Free storage	re2	pvi2	gy bb	pe2	ci1		
	E-111	Money/currencies storage	re2	pvi2	gy	pe2	ci1		
	E-112	Drugs storage	re2	pvi2	gy	pe2	ci1		
	E-113	AVA products storage	re2	pvi2	gy	pe2	ci1		
	E-114	Washroom	ce2	ce2	gy	ce3 P2	gy	P2	
	E-115	Instructors locker room	ce2	ce2	gy	P2	gy	P2	
	E-116	Washroom	ce2	ce2	gy	ce3 P2	gy	P2	
	E-117	Kichenette	ce1	ce1	gy	P2	ci1		
	E-118	Telecom	vc1	pvi2	gy	P2	sa	P2	
	E-119	Janitor	re2	re	gy bb	pe2	sa	P2	
	E-120	Electrical room	re2	pvi2	gy bb	P2	sa	P2	
	E-121	False drug storage	re2	pvi2	gy	P2	ci1		
	E-122	False drug preparation room	re2	pvi2	gy	pe2	ci1		
	E-123	Fire arms storage	re2	pvi2	gy	P2	ci1		
	E-124	Classroom	vc1	pvi2	gy	P2	gy ci1	P2	
	E-125	Corridor	vc1	pvi2	gy	P2	ci1		3
	E-126	Washroom	ce2	ce2	gy	ce3 P2	gy	P2	
	E-127	Students locker room	ce2	ce2	gy	P2	gy	P2	
	E-128	Water inlet	re2	pvi2	gy	P2	sa	P2	

REV.	ROOMS		FLOORS	BASEBOARD	WALLS		CEILINGS		REMARKS
	#	NAME							
	E-129	Washroom	ce2	ce2	gy	ce3 P2	gy	P2	
	E-130	Garage	re2	re	bb	pe2	sa	-	6
	E-131	Mechanical room	re2	pvi2	gy bb	P2	sa	P2	
	E-150	Multifunctional room	beS	pvi2	bb	P2	sa	-	5
	E-151	Socialization for dogs	re1	re	bb	pe2	-	-	
	E-152	Intro room for odors	re1	re	bb	pe2	-	-	
	E-153	Agility courses	beS	pvi2	bb	pe2	sa gy	P2	
	E-154	Storage	re2	pvi2	bb	P2	-	-	
	E-155	Janitor	re2	re	bb	pe2	gy	P2	
	E-156	Electrical room	re2	pvi2	bb	P2	-	-	
	E-157	Cell corridor	re2	re	bb	pe2	-	-	
	E-158	Cell	re2	re	bb	pe2	-	-	
	E-159	Cell	re2	re	bb	pe2	-	-	
	E-160	Cell	re2	re	bb	pe2	-	-	
	E-161	Cell	re2	re	bb	pe2	-	-	
	E-162	Common area	re2	re	bb	pe2	-	-	
	E-163	Cell	re2	re	bb	pe2	-	-	
	E-164	Cell	re2	re	bb	pe2	-	-	
	E-165	Cell	re2	re	bb	pe2	-	-	
	E-166	Cell	re2	re	bb	pe2	-	-	
	E-167	Airport carroussel	beS	pvi2	bb	pe2	sa	-	5
	E-168	Storage	re2	pvi2	bb	pe2	-	-	
	E-169	Janitor	re2	re	bb	pe2	gy	P2	
	E-170	Vehicule search	beS	pvi2	bb	pe2	sa	-	5
	E-171	Balls / leashes storage	re2	pvi2	bb	pe2	sa	P2	
	E-201	Mezzanine	vc1	pvi2	bb	pe2	sa	-	6

FIN DE SECTION
END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Section 02 41 16 – Structure demolition.
- .2 Section 05 50 00 – Architectural metal fabrications.
- .3 Section 05 51 29 – Metals stairs and ladders.
- .4 Section 06 10 00 – Rough carpentry.
- .5 Section 06 40 00 – Architectural woodwork .
- .6 Section 07 21 16 – Blanket insulation.
- .7 Section 07 24 10.03 – Exterior finish – Direct applied.
- .8 Section 07 26 00 – Vapour retarders.
- .9 Section 07 84 00 – Fire stopping.
- .10 Section 07 92 00 – Joint sealants.
- .11 Section 08 11 00 – Metal doors and frames.
- .12 Section 08 31 00.01 – Access doors – mechanical.
- .13 Section 08 33 23.01 – Overhead coiling doors and grilles.
- .14 Section 08 44 13 – Glazed aluminum curtain walls.
- .15 Section 09 22 16 – Non structural metal framing.
- .16 Section 09 58 00 – Integrated ceiling assemblies.
- .17 Section 09 65 19 – Resilient tile flooring.
- .18 Section 09 91 23 – Interior painting.
- .19 Section 10 11 13 – Chalkboard.
- .20 Section 10 21 13.19 – Plastic toilet compartments.
- .21 Section 10 22 26.33 – Folding panel partitions.
- .22 Section 10 26 00.01 – Wall and corner guards.
- .23 Section 10 28 10 – Toilet and bath accessories.
- .24 Section 10 51 13 – Metal lockers.
- .25 Section 12 35 53.13 – Steel laboratory casework
- .26 Supply and installation of mechanical devices, diffusers, grilles, etc. – See also mechanical documents.
- .27 Supply and installation of electrical devices, switches, sockets, etc. – See also electrical documents.

1.2 REFERENCES

- .1 Aluminum Association
 - .1 Designation for Aluminum Finishes-2003.

- .2 American Society for Testing and Materials International, (ASTM)
 - .1 ASTM C36/C36M-01, Specification for Gypsum Wallboard.
 - .2 ASTM C79/C79M-01, Standard Specification for Treated Core and Non-treated Core Gypsum Sheathing Board.
 - .3 ASTM C442/C442M-01, Specification for Gypsum Backing Board, Gypsum Coreboard, and Gypsum Shaftliner Board.
 - .4 ASTM C475-01, Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
 - .5 ASTM C630/C630M-01, Specification for Water-Resistant Gypsum Backing Board.
 - .6 ASTM C840-01, Specification for Application and Finishing of Gypsum Board.
 - .7 ASTM C954-00, Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs From 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness.
 - .8 ASTM C1002-01, Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.
 - .9 ASTM C1047-99, Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.
 - .10 ASTM C1280-99, Specification for Application of Gypsum Sheathing Board.
 - .11 ASTM C1178/C1178M-01, Specification for Glass Mat Water-Resistant Gypsum Backing Board.
 - .12 ASTM F1267-07, Standard Specification for Metal, Expanded, Steel.
- .3 Association of the Wall and Ceilings Industries International (AWEI)
- .4 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-51.34-M86 (R1988), Vapour Barrier, Polyethylene Sheet for Use in Building Construction.
- .5 Underwriters' Laboratories of Canada (ULC)
 - .1 CAN/ULC-S102-1988 (R2000), Surface Burning Characteristics of Building Materials and Assemblies.

1.3 DELIVERY, STORAGE AND HANDLING

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

1.4 SITE ENVIRONMENTAL REQUIREMENTS

- .1 Maintain temperature minimum 10 degrees C, maximum 21 degrees C for 48 hours prior to and during application of gypsum boards and joint treatment, and for at least 48 hours after completion of joint treatment.
- .2 Apply board and joint treatment to dry, frost free surfaces.

- .3 Ventilation: Ventilate building spaces as required to remove excess moisture that would prevent drying of joint treatment material immediately after its application.

1.5 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 19 - Construction/Demolition Waste Management And Disposal.

Part 2 Products

2.1 MATERIALS

- .1 Standard board: to ASTM C36/C36M regular and Type X, mm thickness indicated, 1200 mm wide x maximum practical length, ends square cut, edges rounded, squared, or bevelled as usage.
- .2 Gypsum sheathing board: to ASTM C79/C79M, regular and Type X, thickness indicated, 1200 mm wide x maximum practical length.
- .3 Backing board and coreboard: to ASTM C442/C442M regular, and Type X, thickness indicated, rounded, squared or bevelled edges as per usage.
- .4 Water-resistant board: to ASTM C630/C630M regular, and Type X, thickness indicated, wide x maximum practical length.
- .5 Abuse-resistant fibre-reinforced gypsum wallboard: 16 mm thick, 1220 x 2440 mm or 1220 x 3658 mm, edges tapered, CCMC 12525-R, fibreglass reinforcing mesh backing, bearing Ecologo to ECP/PCE-50-93.
- .6 Glass mat water resistant gypsum wallboard: to ASTM C1178/C1178M thickness indicated.
- .7 Shaft wall panels: to ASTM C442/C442M, 25 mm thick, 600 mm wide, square edges.
- .8 Cement board: made of Portland cement, aggregate and glass mesh. 12,7mm thick or as indicated.
- .9 Ultra-resistant gypsum board: to ASTM C1629, type resistant to impact, indentation, cracking and warping. Thickness indicated in the drawings.

2.2 ACCESSORIES

- .1 Metal furring runners, hangers, tie wires, inserts, anchors, to ASTM C1047.
- .2 Drywall furring channels: 0.5 mm core thickness galvanized steel channels for screw attachment of gypsum board.
- .3 Resilient drywall furring: 0.5 mm base steel thickness galvanized steel for resilient attachment of gypsum board.
- .4 Steel drill screws: to ASTM C1002.
- .5 Casing beads, corner beads, control joints and edge trim: to ASTM C1047, zinc-coated by hot-dip process, 0.5 mm base thickness, perforated flanges, one piece length per location.
- .6 Sealants: in accordance with Section 07 92 00 – Joint Sealing.
- .7 Acoustic sealant: in accordance with section 07 92 00 – Joint Sealing.
- .8 Polyethylene: to CAN/CGSB-51.34, Type 2.
- .9 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.

- .10 Joint compound: to ASTM C475, asbestos-free.
- .11 Secured partitions mesh: Galvanized steel sheet, 16gage, opening of 13mm @ 18mm c/c max. Partition mesh must be riveted to metal studs.
- .12 Lead sheet of 1.6 mm uniform thickness, lead of 11g / cm³ density, radiology quality. In quantity and thickness required to comply with the prescriptions in the drawings.
- .13 Contact adhesive for lead sheets.
- .14 Lead washer 25 mm in diameter, the same thickness as the prescribed lead.

2.3 FINISHES

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

Part 3 Execution

3.1 ERECTION

- .1 Do application and finishing of gypsum board in accordance with ASTM C840 except where specified otherwise.
- .2 Erect hangers and runner channels for suspended gypsum board ceilings in accordance with ASTM C840 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 Install work level to tolerance of 1:1200.
- .5 Frame with furring channels, perimeter of openings for access panels, light fixtures, diffusers, grilles, etc.
- .6 Install 19 x 64 mm furring channels parallel to, and at exact locations of steel stud partition header track.
- .7 Furr for gypsum board faced vertical bulkheads within and at termination of ceilings.
- .8 Furr above suspended ceilings for gypsum board fire and sound stops and to form plenum areas as indicated.
- .9 Install wall furring for gypsum board wall finishes in accordance with ASTM C840, except where specified otherwise.
- .10 Furr openings and around built-in equipment, cabinets, access panels, etc, on four sides. Extend furring into reveals. Check clearances with equipment suppliers.
- .11 Furr duct shafts, beams, columns, pipes and exposed services where indicated.
- .12 Erect drywall resilient furring transversely across studs, spaced maximum 600 mm on centre and not more than 150 mm from ceiling/wall juncture. Secure to each support 25 mm drywall screw.
- .13 Install 150 mm continuous strip of 12.7 mm gypsum board along base of partitions where resilient furring installed.
- .14 Install metal mesh as indicated.

3.2 APPLICATION

- .1 Do not apply gypsum board until bucks, anchors, blocking, sound attenuation, electrical and mechanical work are approved.
- .2 Apply single layer gypsum board to metal furring or framing using screw fasteners for first layer, screw fasteners for second layer. Maximum spacing of screws 300 mm on centre.
 - .1 Single-Layer Application:
 - .1 Apply gypsum board on ceilings prior to application of walls in accordance with ASTM C840.
 - .2 Apply gypsum board vertically or horizontally, providing sheet lengths that will minimize end joints.
 - .2 Double-Layer Application:
 - .1 Install gypsum board for base layer and exposed gypsum board for face layer.
 - .2 Apply base layer to ceilings prior to base layer application on walls; apply face layers in same sequence. Offset joints between layers at least 250 mm.
 - .3 Apply base layers at right angles to supports unless otherwise indicated.
 - .4 Apply base layer on walls and face layers vertically with joints of base layer over supports and face layer joints offset at least 250 mm with base layer joints.
- .3 Apply water-resistant gypsum board where wall tiles or coating to be applied and adjacent to slop sinks janitors closets and toilet room. 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.
- .4 Apply 12 mm diameter bead of acoustic sealant continuously around periphery of each face of partitioning to seal gypsum board/structure junction where partitions abut fixed building components. Seal full perimeter of cut-outs around electrical boxes, ducts, in partitions where perimeter sealed with acoustic sealant.
- .5 Install ceiling boards in direction that will minimize number of end-butt joints. Stagger end joints at least 250 mm.
- .6 Install gypsum board on walls vertically to avoid end-butt joints. At stairwells and similar high walls, install boards horizontally with end joints staggered over studs, except where local codes or fire-rated assemblies require vertical application.
- .7 Install gypsum board with face side out.
- .8 Do not install damaged or damp boards.
- .9 Locate edge or end joints over supports. Stagger vertical joints over different studs on opposite sides of wall.
- .10 When the exposed gypsum board is not covered with another material, the panel must be ultra-resistant type, full height of the wall.

3.3 INSTALLATION

- .1 Erect accessories straight, plumb or level, rigid and at proper plane. Use full length pieces where practical. Make joints tight, accurately aligned and rigidly secured. Mitre and fit corners accurately, free from rough edges. Secure at 150 mm on centre.
- .2 Install casing beads around perimeter of suspended ceilings.

- .3 Install casing beads where gypsum board butts against surfaces having no trim concealing junction and where indicated. [Seal joints with sealant.]
 - .4 Install insulating strips continuously at edges of gypsum board and casing beads abutting metal window and exterior door frames, to provide thermal break.
 - .5 Construct control joints of preformed units or two back-to-back casing beads set in gypsum board facing and supported independently on both sides of joint.
 - .6 Provide continuous polyethylene dust barrier behind and across control joints.
 - .7 Locate control joints at changes in substrate construction or at approximate 10 m spacing on long corridor runs and at approximate 15 m spacing on ceilings.
 - .8 Install control joints straight and true.
 - .9 Construct expansion joints as detailed, at building expansion and construction joints. Provide continuous dust barrier.
 - .10 Install expansion joint straight and true.
 - .11 Install access doors to electrical and mechanical fixtures specified in respective sections.
 - .1 Rigidly secure frames to furring or framing systems.
 - .12 Finish face panel joints and internal angles with joint system consisting of joint compound, joint tape and taping compound installed according to manufacturer's directions and feathered out onto panel faces.
 - .13 Gypsum Board Finish: finish gypsum board walls and ceilings to following levels in accordance with Association of the Wall and Ceiling Industries (AWCI) International Recommended Specification on Levels of Gypsum Board Finish:
 - .1 Levels of finish:
 - .1 Level 3: Embed tape for joints and interior angles in joint compound and apply two separate coats of joint compound over joints, angles, fastener heads and accessories; surfaces smooth and free of tool marks and ridges.
 - .2 Level 4: Embed tape for joints and interior angles in joint compound and apply three separate coats of joint compound over joints, angles, fastener heads and accessories; surfaces smooth and free of tool marks and ridges.
 - .14 Finish corner beads, control joints and trim as required with two coats of joint compound and one coat of taping compound, feathered out onto panel faces.
 - .15 Fill screw head depressions with joint and taping compounds to bring flush with adjacent surface of gypsum board so as to be invisible after surface finish is completed.
 - .16 Sand lightly to remove burred edges and other imperfections. Avoid sanding adjacent surface of board.
 - .17 Completed installation to be smooth, level or plumb, free from waves and other defects and ready for surface finish.
 - .18 Apply one coat of white primer sealer over surface to be textured. When dry apply textured finish in accordance with manufacturer's instructions.
 - .19 Mix joint compound slightly thinner than for joint taping.
 - .20 Apply thin coat to entire surface using trowel or drywall broadknife to fill surface texture differences, variations or tool marks.
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- .21 Allow skim coat to dry completely.
- .22 Remove ridges by light sanding or wiping with damp cloth.
- .23 Provide protection that ensures gypsum drywall work will remain without damage or deterioration at time of substantial completion.

3.4 CLEANING

- .1 A complete cleaning with a vacuum must be carried out at the bottom of the partitions and any other element of the partition in order to remove all construction residues such as dust, waste and others prior to gypsum board or insulation installation.

3.5 EXISTING SURFACES REPAIRS

- .1 Ensure consistency in finish surfaces. In case of continuous surfaces, execute the finish up to the nearest intersection. It may be required to finish the entire wall section.

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Section 02 41 16 – Structure demolition.
- .2 Section 07 21 16 – Blanket insulation.
- .3 Section 07 24 10.03 – Exterior finish – Direct applied.
- .4 Section 07 42 00 – Aluminium siding
- .5 Section 07 46 13 – Preformed metal siding.
- .6 Section 09 21 16 – Gypsum board.

1.2 REFERENCES

- .1 American Society for Testing and Materials International, (ASTM).
 - .1 ASTM C645-18, Specification for Nonstructural Steel Framing Members.
 - .2 ASTM C754-18, Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.
- .2 Canadian General Standards Board (CGSB).
 - .1 CAN/CGSB-1.40-97, Primer, Structural Steel, Oil Alkyd Type.

1.3 QUALITY ASSURANCE

- .1 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

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.

1.5 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.

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 inside in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect framing material from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.

Part 2 Products

2.1 MATERIALS

- .1 Non-load bearing channel stud framing: to ASTM C645 and ASTM A879/A879M, stud size as indicated in drawings or in the table below (the most severe prevail), roll formed hot dipped galvanized steel sheet and minimal thickness as per table below. For high impact gypsum board or cement board, use 0,87mm thick and 32 mm wide studs at least.
- .2 Floor and ceiling tracks: to ASTM C645, in widths to suit stud sizes.
- .3 Non-load bearing framing system:
 - .1 Frame to be design to hold gypsum board panels, opening at mid height for pipes and studs at 610mm c/c maximum or as indicated.
 - .2 Floor and ceiling tracks: to ASTM C645 same thickness and width as studs. 32 mm legs for interior partitions or 50mm for exterior walls or as required.
 - .3 Shaftwall studs: C-H studs and all necessary components to obtain required fire resistance.
 - .4 Stiffeners: galvanized steel 1,367 mm thick "U" shape profile according to AISI and manufacturer's recommendations.
 - .5 Other profiles including secondary "Z" shaped galvanized steel frame, or other forms of metallic furring, moldings, concealed fasteners, fittings and all the accessories required to complete the work
 - .6 Screwing strips: same material as studs with a minimum thickness of 1,372 mm. Appropriate dimension and profile for usage.

Depth				
thickness*	Gauge**	1 panel/side	2 panels/side	Furring
41 mm				
0,46 (0,48) mm	(25)	2 900	3 200	2 510
64 mm				
0,46 (0,48) mm	(25)	3 810	4 190	3 350
0,84 (0,87) mm	(20)	4 215	4 900	3 960
92 mm				
0,46 (0,48) mm	(25)	4 875	5 105	4 420
0,84 (0,87) mm	(20)	5 460	6 145	5 255
152 mm				
0,46 (0,48) mm	(25)	6 095	6 095	6 095
0,84 (0,87) mm	(20)	7 945	8 685	7 770

* Thickness: minimum as per CSSBI.

** IMPORTANT: Gauge must not be used to specified or order framing material.

- .4 Acoustical sealant: see Section 07 92 00 – Joint sealants
- .5 Insulation strip: rubberized foam strip 3 mm thick and 12 mm wide, moisture resistant, self-adhesive on one side, cut to the required length.

Part 3 Execution**3.1 ERECTION**

- .1 Install floor and ceiling tracks aligned with precision. Fix them at 600 mm c/c at most.
- .2 Install insulations trip under floor track.
- .3 Install steel studs vertically, spacing as indicated and at 50 mm of adjacent walls and openings. Frame to be braced as required by the manufacturer or calculations.
- .4 Erect metal studding to tolerance of 1:1000.
- .5 Screw studs to floor track.
- .6 Coordinate framing with pipework. Align services holes between studs.
- .7 Coordinate framing with doors and windows frames. Also coordinate screwing strip or anchors required in other Sections.
- .8 Double the studs, over the entire height of the room, on each side of the openings of a width greater than the spacing prescribed. Space doubled studs by 50 mm and secure it to each other with snap fasteners or other approved fixing devices.
- .9 At openings, install simple heavy steel studs as studs
- .10 Build lintels formed with 4 interlocked beams. Beam dimensions according to the manufacturer's allowable spans according to the size of the opening.
- .11 Install beams above windows and doors and under the window sills and side panels so that intermediate studs can be installed. Secure beams at each end in accordance with the manufacturer's instructions. Place intermediate studs above and below bays, in the same way and at the same spacing as the studs forming the wall frame.
- .12 Mount frames around the four faces of building openings, built-in equipment, cabinets and access panels. Check required clearances with equipment suppliers.
- .13 Fasten studs to allow installation of sanitary appliances and accessories such as towel bar, grab bar or racks.
- .14 Install steel studs or screwing strips between studs in order to fix junction boxes and other electrical installation material.
- .15 Erect studs slab-to-slab.
- .16 Leave a clearance between the structure and the frame to avoid load transmission.
- .17 Install insulation strip between frame and non insulated surfaces.
- .18 Install acoustical caulking and insulations trip around acoustical partitions.

3.2 CLEANING

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

3.3 PROTECTION

- .1 Protect installed material and components from damage during construction.
- .2 Repair damages to adjacent surfaces resulting of framing installation.

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Section 03 35 00 – Concrete finishing.
- .2 Section 10 21 13.19 – Plastic toilet compartments.
- .3 Section 10 28 10 – Toilet and bath accessories.
- .4 Section 12 48 00 – Floor grating.

1.2 REFERENCES

- .1 American National Standards Institute (ANSI)/Ceramic Tile Institute (CTI)
 - .1 ANSI A108.1-18, Specification for the Installation of Ceramic Tile (Includes ANSI A108.1A-C, 108.4-.13, A118.1-.10, ANSI A136.1).
 - .2 CTI A118.3-13, 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 A118.4-19, Specification for Latex Cement Mortar (included in ANSI A108.1).
 - .4 CTI A118.5-16, Specification for Chemical Resistant Furan Resin Mortars and Grouts for Tile Installation (included in ANSI A108.1).
 - .5 CTI A118.6-19, Specification for Ceramic Tile Grouts (included in ANSI A108.1).
- .2 American Society for Testing and Materials International (ASTM)
 - .1 ASTM C144-18, Specification for Aggregate for Masonry Mortar.
 - .2 ASTM C207-11, Specification for Hydrated Lime for Masonry Purposes.
 - .3 ASTM C847-18, Specification for Metal Lath.
 - .4 ASTM C979-16, 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 A123.3-2005 (R2015), Asphalt Saturated Organic Roofing Felt.
 - .2 CAN/CSA-A3000-13, Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005).
- .5 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 SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Provide product data in accordance with Section 01 33 00 - Submittal Procedures.
 - .1 Include manufacturer's information on:
 - .1 Ceramic tile, marked to show each type, size, and shape required.
 - .2 Chemical resistant mortar and grout (Epoxy and Furan).
 - .3 Cementitious backer unit.
 - .4 Dry-set cement mortar and grout.
 - .5 Divider strip.
 - .6 Elastomeric membrane and bond coat.
 - .7 Reinforcing tape.
 - .8 Levelling compound.
 - .9 Latex cement mortar and grout.
 - .10 Commercial cement grout.
 - .11 Organic adhesive.
 - .12 Slip resistant tile.
 - .13 Waterproofing isolation membrane.
 - .14 Fasteners.
- .3 Provide samples in accordance with Section 01 33 00 - Submittal Procedures.
 - .1 Floor tile: submit 2 samples, 300 x 300 mm sample panels of each colour, texture, size, and pattern of tile.
 - .2 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.

1.4 QUALITY ASSURANCE

- .1 Quality Assurance Submittals:
 - .1 Manufacturer's Instructions: manufacturer's installation instructions.
 - .2 Manufacturer's Field Reports: manufacturer's field reports specified.

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Packing, shipping, handling and unloading:
 - .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Waste Management and Disposal:
 - .1 Separate waste materials for recycling in accordance with Section 01 74 19 - 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 1 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 FLOOR TILE

- .1 Ceramic tile identified ce1: to CAN/CGSB-75.1, Type 4, Class MRI, 300 x 600 x 9 mm size, rectified edges, smooth surface, R10 slip coefficient, colour as selected by Departmental Representative.
- .2 Ceramic mosaic tile identified ce2: to CAN/CGSB-75.1, Type 4, Class MRI, 50 x 50 x 6 mm size, rectified edges, smooth surface, R10 slip coefficient, colour as selected by Departmental Representative.

2.2 WALL TILE

- .1 Ceramic mosaic tile identified ce3: to CAN/CGSB-75.1, Type 4, Class MRI, 50 x 50 x 6 mm size, rectified edges, smooth surface, plain color, mat finish, colour as selected by Departmental Representative

2.3 BASE TILE

- .1 Base: type, size, colour and texture to match adjacent flooring material. Dimensions 300 mm x 100 mm. Finish trim on top of the base tile.

2.4 MORTAR AND ADHESIVE MATERIALS

- .1 Cement: to CSA-A5, type 10.
- .2 Sand: to ASTM C144, passing 16 mesh.
- .3 Hydrated lime: to ASTM C207, Type N.
- .4 Latex additive: formulated for use in cement mortar and thin set bond coat.
- .5 Water: potable and free of minerals and chemicals which are detrimental to mortar and grout mixes.

2.5 BOND COAT

- .1 Dry set cement mortar: to ANSI A108.1.
- .2 Organic adhesive: to CGSB 71-GP-22M, Type 1, ANSI A136.1.
- .3 Latex Cement mortar: to ANSI A108.1, two-component universal dry-set mortar.
- .4 Epoxy bond coat: non-toxic, non-flammable, non-hazardous during storage, mixing, application, and when cured. To produce shock and chemical resistant mortars having the following physical characteristics:
 - .1 Compressive Strength: 246 kg/cm².
 - .2 Bond Strength: 53 kg/cm².
 - .3 Water Absorption: 4.0% Max.
 - .4 Ozone Resistance, 200 hours @ 200 ppm: no loss of strength.
 - .5 Smoke Contribution Factor: 0.
 - .6 Flame Contribution Factor: 0.
 - .7 Finished mortar and grout to be resistant to urine, dilute acid, dilute alkali, sugar, brine and food waste products, petroleum distillates, oil and aromatic solvents.
- .5 Chemical-Resistant Bond Coat:
 - .1 Epoxy Resin Type: CTI A118.3.
 - .2 Furan Resin Type: CTI A118.5.

2.6 GROUT

- .1 Colouring Pigments:
 - .1 Pure mineral pigments, limeproof and nonfading, complying with ASTM C979.
 - .2 Colouring pigments to be added to grout by manufacturer.
 - .3 Job coloured grout are not acceptable.
 - .4 Use in Commercial Cement Grout, Dry-Set Grout, and Latex Cement Grout.
- .2 Cement Grout: to ANSI A108.1.
 - .1 Use one part white cement to one part white sand passing a number 30 screen.
- .3 Commercial Cement Grout: to CTI A118.6.
- .4 Dry-Set Grout: to CTI A118.6.
- .5 Latex Cement Grout: to ANSI A108.1, fast curing, high early strength, polymer-modified, stain resistant, sanded mix for floors, unsanded mix for walls and floors with polished tiles commercial tile grout.

2.7 ACCESSORIES

- .1 Reinforcing mesh: 50 x 50 x 1.6 x 1.6 mm galvanized steel wire mesh, welded fabric design, in flat sheets.
- .2 Cleavage plane: polyethylene film to CGSB 51-34.

- .3 Metal lath: to ASTM C847 galvanized finish, 10 mm rib at 2.17 kg/m².
- .4 Transition Strips: purpose made metal extrusion; anodized aluminum type.
- .5 Reducer Strips: purpose made metal extrusion; anodized aluminum type; maximum slope of 1:2.
- .6 Reducer Strips: purpose made metal extrusion; anodized aluminum type; maximum slope of 1:5. ADA Compliant required.
- .7 Prefabricated Movement Joints: purpose made, having a Shore A Hardness not less than 60 and elasticity of plus or minus 40 percent when used in accordance to TTMAC Detail 301EJ.
- .8 Sealant: in accordance with Section 07 92 00 - Joint Sealants.
- .9 Floor sealer and protective coating: to tile and grout manufacturers recommendations].

2.8 MIXES

- .1 As recommended by the manufacturer.

2.9 PATCHING / LEVELLING AND SLOPE COMPOUND

- .1 One-component, shrinkage-compensated, polymer-modified, fast-setting cementitious mortar with a corrosion inhibitor. Products containing gypsum are not acceptable.
- .2 Have not less than the following physical properties after 7 days:
 - .1 Compressive strength : 25 MPa.
 - .2 Flexural strength : 7 MPa.
 - .3 Volume change : <-0,05%
- .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.

2.10 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.

2.11 WATERPROOFING MEMBRANE

- .1 Application: shower and undressing floor and up to 1200 mm on walls.
- .2 Premixed waterproofing and crack bridging membrane based on liquid rubber and extremely fast drying, for installation under ceramic tiles. As per ANSI A118.10, A118.12 and ASTM C627, E-96.

- .3 Latex primer as recommended by the manufacturer.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

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

3.2 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. Correct if necessary.
- .5 Make joints between tile uniform and width as indicated, plumb, straight, true, even and flush with adjacent tile. Ensure sheet layout not visible after installation. Align patterns.
- .6 Joint width: 1.5 mm.
- .7 Lay out tiles so perimeter tiles are minimum 1/2 size.
- .8 Sound tiles after setting and replace hollow-sounding units to obtain full bond.
- .9 Make internal angles square, external angles finished with trim.
- .10 Install divider trim at junction of tile flooring and dissimilar materials and at tiles exposed edges.
- .11 Allow minimum 24 hours after installation of tiles, before grouting.
- .12 Clean installed tile surfaces after installation and grouting cured.
- .13 Make control joints at 5 m in each direction or where indicated. Make joint width same as tile joints. Fill control joints with sealant in accordance with Section 07 92 00 - Joint Sealants. Keep building expansion joints free of mortar and grout.
- .14 Install tiles behind mirrors, toilet accessories or any wall mounted equipment.

3.3 MEMBRANE

- .1 Use the recommended primer after preparing the surfaces to be covered according to the manufacturer's recommendations
- .2 Apply membrane on floors and walls as required.

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 00 - Cleaning.

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Section 09 21 16 – Gypsum board.
- .2 Section 10 22 26.33 – Folding panel partitions
- .3 See also mechanical and electrical documents.

1.2 REFERENCES

- .1 American Society for Testing and Materials International, (ASTM).
 - .1 ASTM C635-17, Standard Specifications for Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-In Panel Ceilings.
 - .2 ASTM C636-19, Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels.
 - .3 ASTM E84-19b, Standard Test Method for Surface Burning Characteristics of Building Materials.
 - .4 ASTM E580/E580M - 17 Standard Practice for Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions
 - .5 ASTM E1264-19, Standard Classification for Acoustical Ceiling Product.
 - .6 ASTM E1477-98a (2017) e1, Standard Test Method for Luminous Reflectance Factor of Acoustical Materials by use of Integrated-Sphere Reflectometers.
 - .7 ASTM C423-17, Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method
- .2 Underwriter Laboratories
 - .1 CAN/ULC S102-10, Standard method of test for surface burning characteristics of building materials and assemblies.
- .3 Ceiling Systems Installation Handbook (CISCA).

1.3 DESIGN AND PERFORMANCE REQUIREMENTS

- .1 Maximum deflexion: 1/360 span to ASTM C635.
- .2 Suspension system to be capable of withstanding seismic acceleration and velocity forces in areas of the country subject to seismic events.

1.4 SUBMITTALS

- .1 Submittals in accordance with Section 01 33 00 - Submittal Procedures. 2 samples of suspension grid and tiles.

1.5 EXTRA MATERIALS

- .1 Provide maintenance materials in accordance with Section 01 78 00 - Closeout Submittals. Provide 3% of ceiling area.

1.6 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for recycling in accordance with Section 01 74 19 - Construction/Demolition Waste Management and Disposal.

Part 2 Products**2.1 MATERIALS**

- .1 Suspension system to ASTM C635 et ICC-ES (ESR-1222, ESR-1308):
 - .1 Commercial grade G60 hot-dip galvanized steel of superior strength, factory painted finish.
 - .2 Main tee: 43mm x 24mm riveted, 305mm perforated.
 - .3 Cross tee: 43mm x 24mm with hooked ends.
 - .4 Wall trim: 22 x 22 mm.
 - .5 Accessories: as required by manufacturer.
- .2 Acoustic units:
 - .1 Acoustic units for suspended ceiling system identified Ci1:
 - .1 Wet-formed mineral fibre tile
 - .1 To ASTM E1264, type III, form 2, pattern CE, dimensions: 610 x 1220 x 16 mm
 - .2 Flame spread: 25 or less.
 - .3 Smoke developed index: 50 or less, to ASTM E84 et CAN/ULC S102
 - .4 Straight edges
 - .5 Texture: Fine non directional.
 - .6 NRC: 0,50.
 - .7 CAC: 30.
 - .8 Class A.
 - .9 Light reflection: 0,83.
 - .10 Sag and deflection superior resistance.
 - .11 Mold and mildew protection.

Part 3 Execution**3.1 INSTALLATION**

- .1 Install integrated ceiling suspension system to ASTM C636 and ASTM E580 with hangers supported from building structural members at indicated heights.
- .2 Main tee support at 1200 mm c/c minimum using suspension rods fixes to structure. The assembly must support any imposed load. The maximum deflection must not exceed 1/360 of the span.

- .3 Do not erect ceiling suspension system until anchors, blocking, sound or fire barriers, electrical and mechanical work above ceiling are inspected and approved by Departmental Representative.
- .4 Layout system according to reflected ceiling plan.
- .5 Ensure suspended system is co-ordinated with location of related components.
- .6 Establish ceiling elevation using laser. Install wall mould to provide correct ceiling height.
- .7 Install electrical light fixtures and air diffusers to manufacturer's instructions. Provide stabilizing reinforcement as per manufacturer's instructions.
- .8 Provide supports at 600 mm c/c around any light fixture and diffuser.
- .9 Install acoustic units, sprinklers, detectors, speakers, light fixtures, in suspension system as per details.
- .10 In fire rated ceiling systems, secure lay-in panels with hold-down clips and protect over light fixtures, diffusers, air return grilles and other appurtenances according to ULC requirements.

3.2 VERIFICATION

- .1 Ensure ceiling is free of finger marks
- .2 Touch-up scratched surfaces.

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Section 03 35 00 – Concrete finishing.
- .2 Section 09 00 10 – Finish schedule.
- .3 Section 09 21 16 – Gypsum board.

1.2 REFERENCES

- .1 American Society for Testing and Materials International (ASTM)
 - .1 ASTM F150-06, Standard method for Electrical Resistance of Construction and Static Dissipative Resilient Flooring.
 - .2 ASTM F1344-04 (R2010), Standard Specification for Rubber Floor Tile.
- .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.

1.3 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 samples in accordance with Section 01 33 00 - Submittal Procedures.
 - .1 Submit duplicate tile and base in size specified, 300 mm long.
- .4 Closeout Submittals:
 - .1 Provide maintenance data for resilient flooring 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.

1.5 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for recycling in accordance with Section 01 74 19 - Construction/Demolition Waste Management and Disposal.

1.6 INSTALLATION

- .1 Maintain ambient temperature and support temperature above 20 degree C 48 hours before, during and 48 hours after installation.

1.7 MAINTENANCE

- .1 Extra Materials:

- .1 Provide maintenance materials of resilient tile flooring, base and adhesive in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Provide 2% of each colour, pattern and type flooring material required for this project for maintenance use.
- .3 Extra materials from same production run as installed materials.
- .4 Identify each container of floor tile and each container of adhesive.
- .5 Deliver to Departmental Representative, upon completion of the work of this section.
- .6 Store where directed by Departmental Representative.

Part 2 Products

2.1 MATERIALS

- .1 Vinyl composition tile: to ASTM F1066, Composition 1 - non asbestos Class 2 - through pattern tile, 3 mm, 300 x 300 mm size, in standard colour selected by Departmental Representative.
- .2 Vinyl composition tile: to ASTM F1066, Composition 1 - non asbestos Class 2 - through pattern tile, 3 mm, 300 x 300 mm size, in standard colour selected by Departmental Representative. Electrical resistance of 106 at 109 ohms to ESD-S7.1 and ASTM F150. Statics charge less than 100V (AATCC-134), 5000V to 0V in less than 0.2 seconds to Federal testing method 4046 (101c) with grounding coper strip and dissipative tile polish.
- .3 Resilient base: to vinyl coved, minimum 1200 mm length and 100 mm high x 3 mm thick, including premoulded end stops and external corners for coved base only, colour selected by Departmental Representative.
- .4 Primers and adhesives: waterproof, standard or dissipative recommended by flooring manufacturer for specific material on applicable substrate, above, at or below grade.
- .5 Sub-floor filler and leveller: 2 part latex-type filler requiring no water as recommended by flooring manufacturer for use with their product.
- .6 Grounding coper strips: as Manufacturer recommendations.
- .7 Transition metal edge strips: aluminum extruded, smooth, and polished with lip to extend under floor finish, shoulder flush with top of adjacent floor finish.
- .8 Wax: type recommended by flooring manufacturer.
- .9 Dissipative wax: Commercial dissipative wax system recommended by the Manufacturer.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

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

3.2 INSPECTION

- .1 Ensure concrete floors are dry, by using test methods recommended by tile manufacturer.

3.3 SUB-FLOOR TREATMENT

- .1 Remove existing resilient flooring.
- .2 Remove or treat old adhesives to prevent residual, old flooring adhesives from bleeding through to new flooring and/or interfering with the bonding of new adhesives.
- .3 Clean floor and apply filler; trowel and float to leave smooth, flat hard surface. Prohibit traffic until filler cured and dry.
- .4 Remove sub-floor ridges and bumps. Fill low spots, cracks, joints, holes and other defects with sub-floor filler.
- .5 Prime concrete slab to flooring manufacturer's printed instructions.

3.4 TILE APPLICATION

- .1 Provide high ventilation rate, with maximum outside air, during installation, and for 48 to 72 hours after installation. If possible, vent directly to outside. Do not let contaminated air recirculate through district or whole building air distribution system. Maintain extra ventilation for at least one month following building occupation.
- .2 Apply adhesive uniformly using recommended trowel in accordance with flooring manufacturer's instructions. Do not spread more adhesive than can be covered by flooring before initial set takes place.
- .3 Lay flooring with joints parallel to building lines to produce symmetrical tile pattern. Border tiles minimum half tile width.
- .4 Install grounding copper strip to flooring manufacturer's printed instructions.
- .5 As installation progresses, and after installation, roll flooring in 2 directions with 45 kg minimum roller to ensure full adhesion.
- .6 Cut tile and fit neatly around fixed objects.
- .7 Install feature strips and floor markings where indicated. Fit joints tightly.
- .8 Install flooring in pan type floor access covers. Maintain floor pattern.
- .9 Continue flooring through areas to receive movable type partitions without interrupting floor pattern.
- .10 Terminate flooring at centerline of door in openings where adjacent floor finish or colour is dissimilar.
- .11 Install metal edge strips at unprotected or exposed edges where flooring terminates.

3.5 BASE APPLICATION

- .1 Lay out base to keep number of joints at minimum. Base joints at maximum length available or at internal or premoulded corners.
- .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, minimum [300] [] mm each leg. Wrap around toeless base at external corners.
- .8 Use straight pre-molded sections to form projecting angles that are not square and allow at least 300 mm for each wing.

3.6 CLEANING

- .1 Proceed in accordance with Section 01 74 00 - Cleaning.
- .2 Remove excess adhesive from floor, base and wall surfaces without damage.
- .3 Clean, seal and wax floor and base surface to flooring manufacturer's instructions. In carpeted areas clean, seal and wax base surface before carpet installation.

3.7 PROTECTION

- .1 Protect new floors from time of final set of adhesive] until final inspection.
- .2 Prohibit traffic on floor for 48 hours after installation.

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Cast in place concrete – See structure.
- .2 Section 03 35 10 – Concrete finishing.
- .3 Section 04 22 00 – Concrete unit masonry.
- .4 Section 09 00 10 – Finish schedule.
- .5 Section 10 22 13 – Wiremesh partitions.

1.2 RÉFÉRENCES

- .1 American Society for Testing and Materials (ASTM)
 - .1 ASTM C413-18: Standard Test Method for Absorption of Chemical-Resistant Mortars, Grouts, and Monolithic Surfacing and Polymer Concretes
 - .2 ASTM C579-18: Standard Test Methods for Compressive Strength of Chemical-Resistant Mortars, Grouts, Monolithic Surfacing, and Polymer Concretes
 - .3 ASTM C884/C884M-16: Standard Test Method for Thermal Compatibility Between Concrete and an Epoxy-Resin Overlay
 - .4 ASTM D635-18: Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position
 - .5 ASTM D2240- 15e1: Standard Test Method for Rubber Property—Durometer Hardness
 - .6 ASTM D2369-10 (2015) e1: Standard Test Method for Volatile Content of Coatings
 - .7 ASTM D2794-93 (2019): Standard Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact)
 - .8 ASTM D3273-16: Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber
 - .9 ASTM D4060-19: Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser
 - .10 ASTM F2170-19a: Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes
 - .11 ASTM F2659-10 (2015): Standard Guide for Preliminary Evaluation of Comparative Moisture Condition of Concrete, Gypsum Cement and Other Floor Slabs and Screeds Using a Non-Destructive Electronic Moisture Meter.
 - .12 ASTM G21-15 : Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi.
- .2 Canadian Standards Association (CSA)
 - .1 CSA A23.1-14/A23.2-14 : Concrete Materials And Methods Of Concrete Construction / Test Methods And Standard Practices For Concrete
- .3 International Concrete Repair Institute (ICRI)
 - .1 Directive ICRI N° 310.2R-2013 : Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair.

- .4 United States Department of Defense :
 - .1 MIL-PRF-24613A (SH) 11-2007 : Performance specification: deck covering materials, interior, cosmetic polymeric.

1.3 QUALITY ASSURANCE

- .1 The painting work must be performed by qualified workers holding a "Tradesman's Competency Certificate". Apprentices can also be hired on the condition that they work under the direct supervision of a skilled worker, in accordance with the regulations governing this trade.
- .2 Comply with the latest MPI requirements for interior paint coatings, including those for surface preparation and the application of primer or paint.
- .3 The products used, either primary or printing products, paints, coatings, varnishes, stains, lacquers, fillers, thinners, solvents and others, must appear on the List of approved products presented in the MPI Architectural Painting Specification Manual .
- .4 The products used, either primers or printing products, paints, coatings, varnishes, stains, lacquers, fillers, thinners, solvents and others, must appear on the List of approved products presented in the MPI Architectural Painting Specification Manual. and come from the same manufacturer for a specific system.
- .5 Linseed oil, shellac varnish and turpentine must be top quality products on the List of approved products presented in the MPI Architectural Painting Specification Manual and they must be compatible with other coating products used.
- .6 Keep purchase slips, invoices and other documents used to prove that the products and materials used for the execution of the work provided for in the contract comply with the prescriptions of this section. These documents must be produced at the request of the Ministerial Representative.
- .7 Acceptance level:
 - .1 Walls: no defect must be visible from a distance of 1000 mm, at an angle of 90 degrees to the surface.
 - .2 Ceilings / fallout: no defect must be visible from the floor when looking at the ceiling at a 45° angle, in lighting provided by the final light source.
 - .3 The color and gloss of the last layer must be uniform over the entire surface.

1.4 SUBMITTALS

- .1 Submit Submittal submissions: in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product data
 - .1 Submit manufacturer's product data sheet, including physical properties, including appearance options, serial colors, variable surface textures and surface gloss.
 - .2 Manufacturer's safety data sheet for each product used.
- .3 Samples
 - .1 Submit samples of each type of paint in accordance with section 01 33 00 – Submittal procedures.
 - .2 Provide two (2) sample panels of each paint stain special finish product prescribed colorless finish product of each color, texture and degree of gloss or luster required. Format of 100 x 100 mm.

- .3 Use 12.7 mm hardboard for samples.
- .4 Obtain written approval of samples from the Departmental Representative before beginning work on this section. The accepted samples will constitute the final reference for the approval of the finish.
- .4 Maintenance
 - .1 Submit maintenance documents in accordance with section 01 78 00 – Closeout submittals.
 - .2 Directions for use and maintenance data: Submit manufacturer's written maintenance guidelines for repair, cleaning and maintenance procedures; be sure to include the name of the original installer and contact information.

1.5 DELIVERY, STORAGE, AND HANDLING

- .1 Packaging, shipping, handling and unloading
 - .1 Pack, ship, handle and unload materials and products in accordance with the indications in section 01 61 00 – Common product requirements and the manufacturer's written instructions.
- .2 Identify paint and plaster products as well as materials and products used by means of labels indicating the following:
 - .1 Manufacturer's name and address;
 - .2 Type of paint or coating;
 - .3 Compliance with relevant standards or requirements;
 - .4 Color number, according to the list of colors specified.
- .3 Remove damaged, opened or rejected materials and products from site.
- .4 Provide a secure storage area, well dry and maintained at a controlled temperature, and maintain it properly.
- .5 Follow manufacturer's instructions for storage and handling.
- .6 Store materials and products away from heat sources.
- .7 Store materials and products in a well ventilated place, the temperature is between 7 degrees Celsius to 30 degrees Celsius.
- .8 The storage temperature of heat-sensitive products must never be lower than the minimum temperature recommended by the manufacturer.
- .9 Keep areas used for storage, cleaning and surface preparation clean and in good order. Once the work is finished, restore these areas to their original state of cleanliness.
- .10 Remove from the storage area only the quantities of products that will be applied the same day.
- .11 Fire safety requirements
 - .1 Provide one (1) 9 kg ABC fire extinguisher and place it near the storage area.
 - .2 Place in oily containers, ULC approved, oily rags, waste, empty containers and materials susceptible to spontaneous combustion, and remove these containers from site daily.
 - .3 Handle, store, use and dispose of flammable and combustible products and materials in accordance with the requirements of the National Fire Code of Canada.

1.6 SITE CONDITIONS

- .1 Do not carry out work outside the temperature ranges and conditions:
 - .1 Material temperature: Pre-condition materials for at least 24 hours between 18 and 30°C.
 - .2 Ambient and substrate temperature: Minimum / Maximum = 10/30 °C.
 - .3 Substrate temperature must be at least 3 °C above the measured dew point.
 - .4 Any mixing and implementation operation carried out when the substrate and / or ambient temperatures are below 18 °C will have the effect of reducing the workability of the product and slowing down the curing rates.
 - .5 Relative ambient humidity: maximum ambient humidity 85% (during processing and ripening).
 - .6 Measure and confirm acceptable test results for relative ambient humidity, substrate and ambient temperature and dew point.
- .2 Support humidity :
 - .1 The moisture content of the concrete substrate must be $\leq 4\%$ by mass as measured using a moisture meter calibrated for concrete of the Tramex® CME / CMExpert type.
 - .2 In addition, it is possible to carry out relative internal humidity tests of the concrete in accordance with ASTM F2170 and the values obtained must be $\leq 85\%$.
 - .3 If the moisture content of the concrete substrate is greater than 4% by mass and / or if the results of the relative humidity tests exceed 85% RH, the Departmental Representative may suggest adding mitigation systems to humidity or moisture tolerant primers.
- .3 Provide temporary public services, including electricity, water, temporary ventilation system and lighting to be used by the applicator.
- .4 Maintain a higher ambient temperature during the 48 hours preceding and following the implementation or until complete ripening. Minimum temperature of 10 °C and maximum temperature of 30 °C. Do not apply the product when temperatures (ambient and substrate) increase.
- .5 Install appropriate protection and signaling devices at site entrances to prevent traffic and other trades from intervening in the work area during application and curing of the flooring.
- .6 Ensure there is sufficient ventilation and air circulation in the work area.

1.7 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 19 - Construction/Demolition Waste Management and Disposal.

Part 2 Products**2.1 MATERIAL**

- .1 Resin flooring system identified rel in documents: self-leveling epoxy flooring system, solid color, ultra smooth, with a shiny finish, rich in resin, containing fine aggregates and with the following properties:
 - .1 Compressive strength: 56 to 28 days, in accordance with ASTM C579
 - .2 Thermal compatibility: Passed, in accordance with ASTM C884

- .3 Indentation: 8.0%, in accordance with MIL-PRF-24613
 - .4 Impact resistance: 2.71 joules, in accordance with ASTM D2794
 - .5 Abrasion resistance: 0.11 g, in accordance with ASTM D4060. (CS17 / 1000 cycles / 1000 g)
 - .6 Hardness: 76 Shore D, in accordance with ASTM D2240
 - .7 Water absorption: 0.3%, in accordance with ASTM C413
 - .8 Pullout resistance: > 2 with concrete failure, in accordance with CSA / CAN A23.2-6B
 - .9 Flammability: 35 mm, in accordance with ASTM D635
 - .10 Resistance to proliferation of fungi: Rated 1, in accordance with ASTM G21
 - .11 Resistance to the proliferation of mold: Rated 10, in accordance with ASTM D3273
 - .12 VOC content: ≤ 50 g / L, in accordance with ASTM D2369
 - .13 System thickness: minimum 4 mm.
- .1 Resin floor covering identified re2 in documents: glossy two-component epoxy finish, solid color, high solids content, silicone-free, low viscosity and self-priming, with the following properties:
- .1 Thickness :
 - .1 Primer : 203 μ m (e.f.m.)
 - .2 System body : 635 μ m (e.f.m.)
 - .2 Compressive strength: 56 MPa (8122 psi), in accordance with ASTM D695
 - .3 Flexural strength: 7.4 MPa, in accordance with ASTM D638
 - .4 Pull-out resistance: > 2 MPa, in accordance with ASTM D4541
 - .5 Hardness: 76 Shore D, in accordance with ASTM D2240
 - .6 VOC content: ≤ 50 g / L, in accordance with ASTM D2369
 - .7 Impact resistance: 5.88 joules, in accordance with ASTM D2794
 - .8 Abrasion resistance: 0.11 g of loss, in accordance with ASTM D4060 (CS17 / 1000 cycles / 1000 g).
- .2 Resin-based wall covering system identified re3 in documents: water-based, two-component epoxy wall coating, pigmented, high solids content, low odor, low VOC content and finely textured once applied. It will create durable interior surfaces, easy to clean and with a level of satin shine.
- .1 Transmission of water vapor (ASTM E96 - procedure B): 3.8 perms.
 - .2 Abrasion resistance (ASTM D4060): 97 mg loss.
 - .3 Resistance to accelerated aging (ASTM G53): Slight yellowing.
 - .4 Tensile strength (ASTM D638): 15.5 MPa.
 - .5 Elongation (ASTM D638): 5.3%.
 - .6 Pull-out resistance (ASTM D4541): 4.2 MPa.
 - .7 Flame spread (CAN / ULC S-102): 15.
 - .8 Smoke development (CAN / ULC S-102): 35.
 - .9 VOC content (satin): 58 g / L.

2.2 COMPONENTS

- .1 System primer and self-leveling re1: two-component epoxy finish, shiny, solid color, high solid content, low odor, low VOC content, with the following properties:
 - .1 Thickness :
 - .1 Primer : (8 mils) (e.f.m.)
 - .2 Self leveling component : (80 mils) (e.f.m.)
 - .2 Compressive strength: 56 MPa, in accordance with ASTM D695
 - .3 Tensile strength: 7.4 MPa, in accordance with ASTM D638
 - .4 Pull-out resistance:> 2 MPa, in accordance with ASTM D4541
 - .5 Hardness: 76 Shore D, in accordance with ASTM D2240
 - .6 VOC content: ≤ 50 g / L, in accordance with ASTM D2369
 - .7 Impact resistance: 5.88 joules, in accordance with ASTM D2794
 - .8 Abrasion resistance: 0.11 g of loss, in accordance with ASTM D4060 (CS17 / 1000 cycles / 1000 g).
 - .9 Filler aggregates for resin: silica sand n ° 70
 - .10 Self-leveling layer: 50/50 mix of silica sand and spice
 - .11 Chemical resistant top coat of the re1 system: smooth colored or transparent two-component top coat, based on 100% solid novolac epoxy, chemical resistant, with the following properties:
 - .1 VOC content: 100g / L, in accordance with ASTM D2369
 - .2 Abrasion resistance: 0.082 g of loss, in accordance with ASTM D4060 (CS17 / 1000 cycles / 1000 g)
 - .3 Tear resistance:> 5.8 MPa, in accordance with ASTM D4541
 - .4 Classification relating to fire propagation: 5, in accordance with standard CAN / ULC S102
 - .5 Classification of smoke produced: 94, in accordance with standard CAN / ULC S102
 - .6 Application thickness:
 - .1 Colored finish coat (7500) (20 mils)
 - .2 Clear finish coat (7500) (20 mils)
 - .12 Chemical resistant top coat of the re2 system: smooth two-component aliphatic urethane top coat, transparent, UV resistant and non-yellowing, with the following properties:
 - .1 VOC content: ≤ 240 g / L, in accordance with ASTM D2369
 - .2 Abrasion resistance: 0.082 g of loss, in accordance with ASTM D4060 (CS17 / 1000 cycles / 1000 g)
 - .3 Pull-out resistance:> 5.8 MPa in accordance with ASTM D4541
 - .4 Classification relating to fire propagation: 5, in accordance with standard CAN / ULC S102
 - .5 Classification of smoke produced: 94, in accordance with standard CAN / ULC S102
 - .6 Non-slip texture containing fine aggregates, size 32, low odor and low VOC content, formulated to improve the resistance to alteration of transparency over time; 0.0488 kg / m².

- .13 Epoxy mortar for grooved baseboards in the re1 system: three-component, low-odor, solid-color, low-VOC epoxy mortar with primer for making grooved baseboards and vertical finishes.
 - .1 Compressive strength: 41 MPa at 28 days, in accordance with ASTM D695
 - .2 Tensile strength: 36 MPa at 28 days, in accordance with ASTM D638.
 - .3 Hardness: 83 Shore D, in accordance with ASTM D2240.
 - .4 VOC content: ≤ 5 g / L, in accordance with ASTM D2369.
 - .5 Pullout resistance: > 1.7 MPa with 100% concrete failure, in accordance with ASTM D4541.

2.3 ACCESSOIRES

- .1 Provide all cleaning products, cleaning cloths, sanding materials and final cleaning products required in accordance with manufacturer's specifications.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

- .1 Compliance: Comply with the manufacturer's recommendations or written instructions, including product bulletins and data sheets as well as product handling, storage and processing instructions.

3.2 GENERAL

- .1 Unless otherwise indicated, prepare interior surfaces and perform painting work in accordance with the requirements of the MPI Architectural Painting Specifications Manual.
- .2 Apply paint products in accordance with manufacturer's written instructions.

3.3 INSPECTION

- .1 Examine the surfaces on which the flooring system will be installed. Submit a written notice to the Departmental Representative and the contractor if the surfaces are not acceptable. Do not begin surface preparation or installation until the unacceptable conditions have been corrected. Do not apply the flooring system to substrate treatments for mold, repair or leveling that are not produced by the same manufacturer.
- .2 The surface must be clean, solid and dry.
- .3 Preliminary tests:
 - .1 Support humidity :
 - .1 Measure and confirm acceptable test results for substrate moisture content, relative ambient humidity, substrate and ambient temperature and dew point.
 - .2 Confirm and record the above results at least one (1) time every three (3) hours during installation or more frequently when conditions change (e.g. rise or fall in ambient temperature, increase or reduction of relative humidity, etc.).
 - .2 The compressive strength of the substrate must be at least 25 MPa at 28 days and the tensile strength at least 1.5 MPa at the time of implementation.

- .3 A water flow test must be done prior to the application of the flooring. Correct slope if required.
- .4 Ensure that the concrete substrate meets the minimum requirements stipulated by the manufacturer of the flooring.
- .5 Do not apply the flooring system on sand-cement type laying beds. Strip the sand-cement beds to the structural concrete substrate. Level or restore the slope to obtain a slope and / or drainage in accordance with the minimum requirements of the manufacturer.
- .6 Do not apply the flooring system on asphalt (or bitumen), soft wood, aluminum, copper or vinyl / polyester ester composite reinforced with glass fibers.
- .7 Apply on bricks or vitrified or varnished tiles, structural frames and steel only with the written recommendation of the manufacturer concerning the appropriate methods for the preparation of the surface.

3.4 SURFACE PREPARATION

- .1 Prepare the surface on which the flooring systems will be installed in accordance with the manufacturer's written instructions.
- .2 Remove all traces of dirt, oil, grease, wax, laitance, curing agents, aqueous concrete hardeners and all other surface contaminants.
- .3 Remove all traces of sealer, topcoat and paint.
- .4 All roughness, rough areas, etc. must be treated in order to obtain a flat surface before proceeding with the implementation.
- .5 Remove any part of concrete in poor condition (degraded) using appropriate mechanical means.
- .6 Concrete: Clean and prepare for shot blasting or any other equivalent mechanical means in order to obtain a textured surface, free of all traces of laitance and contaminant. Provide a level of CSP in accordance with ICRI Directive No. 310-2R and the manufacturer's written recommendations.
- .7 Surface chemical preparation: Chemical surface preparation (acid bush hammering) is prohibited and will void the manufacturer's warranty.
- .8 .8 Control joints and cracks: Repair and treat control joints and surface cracks using standard products from the manufacturer's range and in accordance with their instructions for use.
- .9 Vertical masonry surfaces: Mortar joints must be at least 28 days old before applying a sealer. Clean and remove all traces of efflorescence, disintegrated mortar, splashes of mortar, oxidation powder and any other foreign body by scraping and brushing with a wire brush. Vacuoles, cracks and other irregularities must be sealed and leveled using a mortar.

3.5 INSTALLATION

- .1 All glass or other surfaces must be covered and protected to avoid contact during application. It is suggested that you keep clean rags and warm water on hand to clean up any accidental splashes.
- .2 Mix and apply material in accordance with manufacturer's written instructions and implementation procedures. Apply at manufacturer's recommended coverage rates unless thicker coverage is specified in this section.

- .3 Follow manufacturer's written recommendations for ends and connections to walls, drains, door sills, columns and transitions from one floor to another.
- .4 Do not apply when temperatures (ambient and substrate) increase.
- .5 Apply resin-based flooring carefully to avoid overlapping, voids, traces or irregularities that may remain visible in the end. Apply in order to obtain a uniform result, whether in terms of color, shine and texture, within the limits imposed by the materials and the area in question.
- .6 Match colors and textures to those of samples accepted by the Departmental Representative.
- .7 Form 100 mm Throat plinth with 25 mm radius in accordance with manufacturer's written instructions. Make the throat plinth with a minimum thickness of 3 mm.
- .8 Install white alloy or zinc-based "T" rods at specified heights, straight and level.

3.6 NETTOYAGE

- .1 Discard all waste from the implementation of resin-based flooring in accordance with the environmental legislation applicable to the site of the site and all the requirements of the authorities having jurisdiction in the matter.
- .2 Dispose of containers at approved waste management facilities for recycling or disposal as appropriate.

3.7 PROTECTION

- .1 Protect the finished floor so that other trades that must intervene afterwards do not damage it.
- .2 Protect other recently implemented products from humidity, condensation and contact with water for at least 72 hours.
- .3 Monitor air circulation and its fluctuations. Protect the work area against the introduction of dust, debris, particles, etc. which could lead to imperfections and other defects in the finished surface.
- .4 Comply with the manufacturer's written recommendations regarding ripening, waiting times and return to service.

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Section 02 41 16 – Structure demolition.
- .2 Section 04 22 00 – Concrete unit masonry.
- .3 Section 05 50 00 – Architectural metal fabrications.
- .4 Section 05 51 29 – Metals stairs and ladders.
- .5 Section 06 40 00 – Architectural woodwork.
- .6 Section 08 00 10 – Doors and frames schedule.
- .7 Section 08 11 00 – Metal doors and frames.
- .8 Section 09 00 10 – Finish schedule.
- .9 Section 09 21 16 – Gypsum board.
- .2 Section 32 31 13 – Chainlink fence and gates
- .1 Steel structure – See structure documents.
- .2 Mechanical components – See mechanical documents.
- .3 Electrical components – See electrical documents.

1.1 REFERENCES

- .1 American Society for Testing and Materials (ASTM)
 - .1 ASTM D 3960-05, Practice for Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings
- .2 Master Painters Institute (MPI)
 - .1 MPI Architectural Painting Specifications Manual, 2004.
- .3 Society for Protective Coatings (SSPC)
 - .1 SSPC Painting Manual, Volume Two, 8th Edition, Systems and Specifications Manual.
- .4 Test Method for Measuring Total Volatile Organic Compound Content of Consumer Products, Method 24 (for Surface Coatings) of the Environmental Protection Agency (EPA).
- .5 National Fire Code of Canada.

1.2 QUALITY ASSURANCE

- .1 Qualified journeymen who have a "Tradesman Qualification Certificate of Proficiency" shall be engaged in painting work. Apprentices may be employed provided they work under the direct supervision of a qualified journeyman in accordance with trade regulations.
 - .2 Conform to latest MPI requirements for interior painting work including preparation and priming.
 - .3 Materials (primers, paints, coatings, varnishes, stains, lacquers, fillers, thinners, solvents, etc.) shall be in accordance with MPI Painting Specification Manual "Approved Product" listing and shall be from a single manufacturer for each system used.
-

- .4 Other paint materials such as linseed oil, shellac, turpentine, etc. shall be the highest quality product of an approved manufacturer listed in MPI Painting Specification Manual and shall be compatible with other coating materials as required.
- .5 Retain purchase orders, invoices and other documents to prove conformance with noted MPI requirements when requested by Departmental Representative.
- .6 Standard of Acceptance:
 - .1 Walls: No defects visible from a distance of 1000 mm at 90° to surface.
 - .2 Bulkheads/Ceilings: No defects visible from at 45° to surface when viewed using final lighting source.
 - .3 Final coat to exhibit uniformity of color and uniformity of sheen across full surface area.

1.3 SAMPLES

- .1 Submit sample colors of each paint type specified in accordance with Section 01 01 50.
- .2 Submit duplicate sample panels of each paint, stain, clear coating, special finish, type colour texture specified.
- .3 Use 10 mm D-Fir plywood for finishes over natural wood surfaces. Use 12.5 mm gypsum board for finishes over smooth surfaces.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00.
- .2 Labels shall clearly indicate:
 - .1 Manufacturer's name and address.
 - .2 Type of paint or coating.
 - .3 Compliance with applicable standard.
 - .4 Color number in accordance with established color schedule.
- .3 Remove damaged, opened and rejected materials from site.
- .4 Provide and maintain dry, temperature controlled, secure storage.
- .5 Observe manufacturer's recommendations for storage and handling.
- .6 Store materials and supplies away from heat generating devices.
- .7 Store materials and equipment in a well ventilated area with temperature range 7° C to 30° C.
- .8 Store temperature sensitive products above minimum temperature as recommended by manufacturer.
- .9 Keep areas used for storage, cleaning and preparation, clean and orderly to approval of Departmental Representative. After completion of operations, return areas to clean condition to approval of Consultant.
- .10 Remove paint materials from storage only in quantities required for same day use.
- .11 Fire Safety Requirements:
 - .1 Provide one 9 kg Type ABC dry chemical fire extinguisher adjacent to storage area.

- .2 Store oily rags, waste products, empty containers and materials subject to spontaneous combustion in ULC approved, sealed containers and remove from site on a daily basis.
- .3 Handle, store, use and dispose of flammable and combustible materials in accordance with the National Fire Code of Canada.

1.5 ENVIRONMENTAL PERFORMANCE REQUIREMENTS

- .1 Provide paint products meeting MPI "Environmentally Friendly"E2, E3 rating based on VOC (EPA Method 24) content levels.

1.6 WASTE MANAGEMENT

- .1 Separate and recycle waste materials in accordance with Section 01 01 50 - General Instructions for Waste Management And Disposal.

1.7 SITE REQUIREMENTS

- .1 Heating, Ventilation and Lighting:
 - .1 Perform no painting work unless adequate and continuous ventilation and sufficient heating facilities are in place to maintain ambient air and substrate temperatures above 10 ° C for 24 hours before, during and after paint application until paint has cured sufficiently.
 - .2 Where required, provide continuous ventilation for seven days after completion of application of paint.
 - .3 Coordinate use of existing ventilation system with Departmental Representative and ensure its operation during and after application of paint as required.
 - .4 Provide temporary ventilating and heating equipment where permanent facilities are not available or supplemental ventilating and heating equipment if ventilation and heating from existing system is inadequate to meet minimum requirements.
 - .5 Perform no painting work unless a minimum lighting level of 323 Lux is provided on surfaces to be painted. Adequate lighting facilities is provided by General Contractor.
- .2 Temperature, Humidity and Substrate Moisture Content Levels:
 - .1 Unless specifically pre-approved by the specifying body, Paint Inspection Agency and the applied product manufacturer, perform no painting work when:
 - .1 Ambient air and substrate temperatures are below 10 ° C.
 - .2 Substrate temperature is over 32 ° C unless paint is specifically formulated for application at high temperatures.
 - .3 Substrate and ambient air temperatures are expected to fall outside MPI or paint manufacturer's prescribed limits.
 - .4 Relative humidity must be below 85% or dew point. Do not apply paint systems if the difference of temperature is 3 degree C between ambient temperature and the surface. Relative humidity must be determined by a sling psychrometer before starting the work.

- .5 The ambient conditions during the product drying or the applied coating comply with the specified ranges, until the new coating can withstand current climatic conditions.
- .2 Perform no painting work when the maximum moisture content of the substrate exceeds:
 - .1 12% after a 28 days cure period for new concrete or masonry.
 - .2 15% for wood.
 - .3 12% for gypsum board.
 - .3 Conduct moisture tests using a properly calibrated electronic Moisture Meter.
 - .4 Test concrete, masonry and plaster surfaces for alkalinity as required.
- .3 Surface and Environmental Conditions:
 - .1 Apply paint finish only 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 only to adequately prepared surfaces and to surfaces within moisture limits noted herein.
 - .3 Apply paint only when previous coat of paint is dry or adequately cured.
- .4 Additional Interior Application Requirements:
 - .1 Apply paint finishes only when temperature at location of installation can be satisfactorily maintained within manufacturer's recommendations.
 - .2 Schedule operations to approval of Departmental Representative such that painted surfaces will have dried and cured sufficiently before occupants are affected.

2 Products

2.1 MATERIALS

- .6 The paint products and coatings listed in the List of approved products of the MPI can be used for this work.
- .7 All products forming the chosen paint system must come from the same manufacturer.
- .8 Comply with the latest MPI requirements for interior paint coatings, including those for surface preparation and the application of primer or paint.
- .9 The products used, either primary or printing products, paints, coatings, varnishes, stains, lacquers, fillers, thinners, solvents and others, must appear on the List of approved products presented in the MPI - Architectural Painting Specification Manual.
- .10 Linseed oil, shellac varnish and turpentine must be high quality products on the List of approved products presented in the MPI - Architectural Painting Specification Manual and they must be compatible with other products of coating used.
- .11 Flash point: 61.0° degrees Celsius or more in the case of water-based coatings and recycled water-based coatings.

2.2 COLOURS

- .1 Departmental Representative will provide Colour Schedule after Contract award.
- .2 The list of colors will be established based on the selection of five (5) base colors and three (3) accent colors. A maximum of eight (8) colors will be chosen for all of the work.
- .3 Colors will be chosen from the full range of colors and shades offered by manufacturers.

- .4 Where specific products are available in a restricted range of colours, selection will be based on the limited range.
- .5 Second coat in a three coats system to be tinted slightly lighter colour than top coat to show visible difference between coats.

2.3 MIXING AND TINTING

- .1 Perform colour tinting operations prior to delivery of paint to site. On-site tinting of painting materials is allowed only with Departmental Representative's written permission.
- .2 Paste, powder or catalyzed paint mixes shall be mixed in strict accordance with manufacturer's written instructions.
- .3 Where thinner is used, addition shall not exceed paint manufacturer's recommendations. Do not use kerosene or any such organic solvents to thin water-based paints.
- .4 Thin paint for spraying according in strict accordance with paint manufacturer's instructions. If directions are not on container, obtain instructions in writing from manufacturer and provide copy of instructions to Departmental Representative.
- .5 Re-mix paint in containers prior to and during application to ensure break-up of lumps, complete dispersion of settled pigment, and colour and gloss uniformity.

2.4 GLOSS/SHEEN RATINGS

- .1 Paint gloss shall be defined as the sheen rating of applied paint, in accordance with the following MPI values:

Gloss Level	Description	Units @ 60 degrees	Units @ 85 degrees
G1	Matte or Flat finish	0 to 5	10 max.
G2	Velvet finish	0 to 10	10 to 35
G3	Eggshell finish	10 to 25	10 to 35
G4	Satin finish	20 to 35	35 min.
G5	Semi-Gloss finish	35 to 70	
G6	Gloss finish	70 to 85	
G7	High-Gloss finish	> 85	

- .2 Gloss level ratings of painted surfaces as specified.

2.5 INTERIOR PAINTING SYSTEMS

- .1 System 1: Stain and / or varnish all natural wood surfaces to be stained and / or varnished as follows:
 - .1 One (1) layer of pigmented paint (if applicable), type 2, for transparent interior surfaces (number of layers to be determined according to the colors chosen by the architect).
 - .2 Three (3) layers of gloss varnish, type 1 for interior surfaces.
 - .3 One (1) coat of semi-gloss varnish, type 2 for interior surfaces.
 - .4 Note: the varnishes will be colorless flame retardant class B bottom varnishes applied with a spray gun with flame spread index less than 150 according to U.L.C. tests.
- .2 System 2: Paint all ceilings and ceiling details in gypsum as follows:

- .1 One (1) coat of latex sealer.
- .2 Two (2) coats of 100% velor finish acrylic latex for ceiling.
- .3 System 3: Paint the ventilation and electrical conduits on the surface as follows:
 - .1 One (1) coat of galvanized metal latex primer.
 - .2 Two (2) coats of 100% acrylic velvet latex paint.
- .4 System 4: Paint all walls with concrete blocks and poured concrete as follows:
 - .1 One (1) latex primer sealer for concrete.
 - .2 Two (2) coats of 100% acrylic paint, buff latex finish.
- .5 System 5: Paint the primed ferrous metal surfaces as follows:
 - .1 Touch-up with primer paint.
 - .2 Two (2) coats of semi-gloss enamel paint.
- .6 System 6: Paint the interior galvanized metal surfaces as follows:
 - .1 One (1) coat of latex primer-sealer paint.
 - .2 Two (2) coats of semi-gloss enamel paint.
- .7 System 7: Paint wood surfaces, doors and wooden frames, woodwork, etc. as follows :
 - .1 One (1) coat of wood oil primer.
 - .2 Two (2) coats of 100% acrylic chamois latex paint.
 - .3 Note: when required isolate knots with shellac.
- .8 System 8: Paint the walls of gypsum board and / or concrete panels as follows:
 - .1 One (1) coat of latex sealer.
 - .2 Two (2) coats of 100% acrylic velor latex finish paint.
- .9 System 9: Paint the gypsum with epoxy as follows (identified "pe" on the finish slip):
 - .1 One (1) coat of latex sealer.
 - .2 Two (2) coats of semi-gloss water-based epoxy paint.
- .10 System 10: Paint the concrete blocks and poured concrete with epoxy as follows (identified "pe" on the finish schedule):
 - .1 One (1) coat of 100% solids epoxy base primer.
 - .2 Two (2) coats of epoxy putty
- .11 System 11: Paint the steel frames and doors as follows:
 - .1 One (1) coat of VOC-free, odorless acrylic emulsion paint.
 - .2 Two (2) layers of semi-gloss, VOC-free, odorless two-component acrylic epoxy enamel.
- .12 System 12: Paint the steel handrails, handrails and handrail fasteners as follows:
 - .1 Touch-up with primer paint.
 - .2 Two (2) coats of 2 component water catalyzed epoxy paint. Semi gloss finish.
- .13 System 13: Concrete floor sealer: Seal concrete floors with a concrete sealer as follows:
 - .1 Preparation: Remove oil, dirt, grease and other chemical contaminants by cleaning with cleaner/degreaser, detergent, or other suitable cleaner. Rinse with water. Etch concrete with cleaning & etching solution. Rinse thoroughly and immediately, and allow to dry

- .2 Three (3) layers of clear water-based epoxy (2 components).

2.6 EXTERIOR PAINTING SYSTEMS

- .1 System 20: Paint the primed ferrous metal surfaces as follows: Railing type steel elements.
 - .1 Prepare all steel according to SSPC-SP-02 and SSPC-SP-03.
 - .2 One (1) layer of anti-rust primer paint, 1: 1 ratio two-component high performance sealant coating, high solid content (78 to 84% by volume), VOC compliant at less than 340 g / l.
 - .3 Two (2) layers of high solids two component aliphatic acrylic polyurethane.
- .2 System 21: Sealant for exterior concrete blocks in dog enclosures.
 - .1 One (1) coat of commercial grade water repellent sealer that penetrates an absorbent surface to form a seal against the elements, such as water and chlorides, on concrete, masonry, mortar, brick and stone. Penetrates surface to form a seal against the elements such as water and chlorides, which can cause freeze thaw damage to the surface. Will not change the surface appearance and resists the growth of fungi and moss.

3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

- .1 Compliance: Comply with the manufacturer's recommendations or written instructions, including product bulletins and data sheets, as well as product handling, storage and processing instructions.

3.2 GENERAL

- .1 Perform preparation and operations for interior painting in accordance with MPI Painting Specifications Manual except where specified otherwise.
- .2 Apply paint materials in accordance with paint manufacturer's written application instructions.

3.3 EXISTING CONDITIONS

- .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 a properly calibrated electronic moisture meter. Do not proceed with work until conditions fall within acceptable range as recommended by manufacturer.

3.3 PRELIMINARY WORK

- .1 Protection
 - .1 Protect interior and exterior building surfaces not to be painted from paint spatters, markings and other damage. If damaged, clean and restore such surfaces as directed by Departmental Representative.
 - .2 Cover or mask windows and other ornamental hardware adjacent to areas being painted to prevent damage and to protect from paint drops and splatters. Use non-staining coverings.
 - .3 Protect items that are permanently attached such as Fire Labels on doors and frames.
 - .4 Protect factory finished products and equipment.
- .3 Surfaces preparation

- .1 Remove electrical cover plates, light fixtures, surface hardware on doors, accessories and other surface mounted equipment, fittings and fastenings prior to undertaking any painting operations by General Contractor. Securely store and re-install items after painting is completed by General Contractor.
- .2 If necessary, cover or move the furniture elements and transportable materials to facilitate painting work. Put these elements and materials back in place as the work progresses.
- .3 As painting operations progress, place "WET PAINT" signs in all areas to approval of Departmental Representative.
- .4 Clean and prepare surfaces in accordance with MPI Painting Specification Manual requirements. Refer to MPI Manual in regard to specific requirements and as follows:
 - .1 Remove dust, dirt, and other surface debris by vacuuming, wiping with dry, clean cloths.
 - .2 Wash surfaces with a biodegradable detergent and bleach where applicable and clean warm water using a stiff bristle brush to remove dirt, oil and other surface contaminants.
 - .3 Rinse scrubbed surfaces with clean water until foreign matter is flushed from surface.
 - .4 Allow surfaces to drain completely and allow to dry thoroughly.
 - .5 Prepare surfaces for water-based painting, water-based cleaners should be used in place of organic solvents.
 - .6 Use trigger operated spray nozzles for water hoses.
 - .7 Many water-based paints cannot be removed with water once dried. However, minimize the use of kerosene or any such organic solvents to clean up water-based paints.
- .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 surfaces of new wood surfaces before installation. Use same primers as specified for exposed surfaces.
 - .1 Apply vinyl sealer to MPI #36 over knots, pitch, sap and resinous areas.
 - .2 Apply wood filler to nail holes and cracks.
 - .3 Tint filler to match stains for stained woodwork.
- .7 Sand and dust between coats as required to provide adequate adhesion for next coat and to remove defects visible from a distance up to 1000 mm.
- .8 Clean metal surfaces to be painted by removing rust, loose mill scale, welding slag, dirt, oil, grease and other foreign substances in accordance with MPI requirements. Remove traces of blast products from surfaces, pockets and corners to be painted by brushing with clean brushes, or vacuum cleaning.
- .9 Touch up of shop primers with primer as specified in applicable section. Major touch-up including cleaning and painting of field connections, welds, rivets, nuts, washers, bolts, and damaged or defective paint and rusted areas, shall be by supplier of fabricated material.
- .10 Do not apply paint until prepared surfaces have been accepted by Departmental Representative.

3.5 APPLICATION

- .1 Method of application to be as approved by Departmental Representative. Apply paint by brush, roller, airless sprayer. Conform to manufacturer's application instructions unless specified otherwise.
- .2 Brush and Roller Application:

- .1 Apply paint in a uniform layer using brush and/or roller of types suitable for application.
- .2 Work paint into cracks, crevices and corners.
- .3 Paint surfaces and corners not accessible to brush using spray, daubers and/or sheepskins.
- .4 Paint surfaces and corners not accessible to roller using brush, daubers or sheepskins.
- .5 Brush and/or roll out runs and sags, and over-lap marks. Rolled surfaces shall be free of roller tracking and heavy stipple unless approved by Consultant Departmental Representative.
- .3 Use dipping, sheepskins or daubers only when no other method is practical in places of difficult access and only when specifically authorized by Departmental Representative.
- .4 Apply coats of paint as a continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.
- .5 Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.
- .6 Sand and dust between coats to remove visible defects.
- .7 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.
- .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.

3.6 MECHANICAL/ELECTRICAL EQUIPMENT

- .1 Unless otherwise specified, paint finished area exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment with colour and finish to match adjacent surfaces, except as noted otherwise.
- .2 Mechanical and electrical installations: paint the piping, electrical conduits, ventilation ducts, supports / suspensions as well as other visible electrical and mechanical elements. Paint the bases of cleanliness and other borders before the installation of electromechanical units
- .3 Other unfinished areas: leave exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment in original finish and touch up scratches and marks.
- .4 Touch up scratches and marks on factory painted finishes and equipment with paint as supplied by manufacturer of equipment.
- .5 Do not paint over nameplates.
- .6 Keep sprinkler heads free of paint.
- .7 Paint inside of ductwork where visible behind grilles, registers and diffusers with primer and one coat of matt black paint.
- .8 Paint all piping in the fire protection network in red.
- .9 Apply a red enamel paint on the switches of the fire alarm system and the emergency exit lighting system.
- .10 Paint all piping in the natural gas network in yellow.

- .11 Paint both sides and sides of electrical and telephone equipment connection panels before installation. Leave the equipment in its original condition, with the exception of necessary alterations if necessary, and paint the conduits, mounting accessories and other unfinished items.
- .12 Do not paint transformers and interior equipment of electrical distribution substations.

3.7 FIELD QUALITY CONTROL

- .1 Interior work of decoration and coating of paint or coating must be The interior surfaces to be coated with paint or coating must be inspected, before the start of paint work or after the application of a coat of printing having revealed defects in the substrate, by the paint work inspection agency which will inform the Ministerial Representative and the General Contractor in writing of the various defects and problems noted.
- .2 When using "special" paints, coatings or decoration systems (eg elastomer products) or products or systems not on the MPI list of products , the manufacturer of the paint or plaster used must, as part of their duties, ensure the approval of existing surfaces and conditions for the application of the particular paint or plaster system prescribed, as well as on-site supervision, inspection and approval of painting or coating work, as required, at no additional cost to the Ministerial Representative.
- .3 Quality standards
 - .1 Walls: no visible defect at a distance of 1000 mm, at an angle of 90 degrees to the surface examined.
 - .2 Ceilings: no visible defect by an observer on the ground, at an angle of 45 degrees from the surface examined, under the final lighting provided.
 - .3 The color and gloss of the top coat must be uniform over the entire surface examined.
- .4 Advise Departmental Representative when each applied coating is ready for inspection. Do not proceed with subsequent coats until previous coat has been approved.
- .5 Keep purchase slips, invoices and other documents making it possible to establish, at the request of the Ministerial Representative, the compliance of the work with the MPI requirements specified.

3.8 RESTORATION

- .1 Clean and re-install all items that were removed before undertaking painting operations.
- .2 Remove protective coverings and warning signs as soon as practical after operations cease.
- .3 Remove paint splashings on exposed surfaces that were not painted. Remove smears and spatter immediately as operations progress, using compatible solvent.
- .4 Protect surfaces from paint droppings and dust to approval of Departmental Representative. Avoid scuffing newly applied paint.
- .5 Restore areas used for storage, cleaning, mixing and handling of paint to clean condition as approved by Departmental Representative.

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Section 06 10 00 – Rough carpentry.
- .2 Section 09 21 16 – Gypsum board.

1.2 REFERENCES

- .1 Aluminum Association (AA).
 - .1 DAF 45-03, Designation System for Aluminum Finishes.
- .2 American National Standards Institute (ANSI).
 - .1 ANSI 208.1-79, Particleboard, Mat-formed Wood.
 - .2 ANSI A208.2-2002, Medium Density Fiberboard for Interior Use.
- .3 American Society for Testing and Materials International, (ASTM).
 - .1 ASTM A653/A653M-02a, Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- .4 Canadian General Standards Board (CGSB).
 - .1 CAN/CGSB-11.3-M87, Hardboard.
- .5 Porcelain enamel institute.
 - .1 PEI 501 Porcelain enamel.
- .6 Underwriters' Laboratories of Canada (ULC).
 - .1 CAN/ULC-S706-02, Wood Fibre Thermal Insulation for Buildings.

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 Shop Drawings:
 - .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Indicate location, type, size, panel arrangement, backing, hardware, anchor or mounting details, frame or trim and accessories.
- .3 Samples:
 - .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Submit duplicate 300 x 300 mm sample of each type chalkboard and 300 mm long sample of each type trim.
- .4 Manufacturer's instructions
 - .1 Submit written Manufacturer's instructions.

- .5 Manufacturer's on-site inspections: submit copies of inspection reports.

1.4 CLOSEOUT SUBMITTALS

- .1 Provide operation and maintenance data for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.
- .2 Affix maintenance instruction labels to chalkboards.

1.5 QUALITY ASSURANCE

- .1 Test reports: submit test reports certifying that the products, materials and equipment meet the requirements for physical characteristics and performance criteria.
- .2 Certificates: submit documents signed by the manufacturer, certifying that the products, materials and equipment meet the requirements for physical characteristics and performance criteria.

1.6 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 19 - 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 Laminating adhesive: to manufacturer's standard.
- .2 Joint reinforcement: concealed mechanical jointing system to provide straight, rigid, continuously supported, tight butt, flush joints at surface.
- .3 Anchor clips, brackets and fasteners: concealed type recommended by chalkboard manufacturer.
- .4 Facings:
 - .1 Steel sheet: commercial quality to ASTM A653, pre-cleaned and treated to ensure maximum adhesion of an acid resistant type A for Whiteboard.
- .5 Core
 - .1 MDF board, 11mm thick: to ANSI A208.2.
- .6 Backing:
 - .1 Steel sheet: 0,5mm thick, commercial quality, to ASTM A653.

2.2 COMPONENTS

- .1 Extruded aluminum: aluminum Association alloy AA6063-T5. Minimum 1.5 mm thick.

- .2 Chalkboard trim and framing : perimeter trim or frame with black vinyl insert, map rail with coloured vinyl insert, bottom rail with integral chalk trough and end closures, panel dividers, movable panel frames, guides, tracks and housing of manufacturer's standard sections appropriate for installation conditions.

2.3 ACCESSORIES

- .1 Manufacturer's standard accessories.

2.4 FABRICATION

- .1 Fabricate chalkboard panels to sizes indicated.
- .2 Factory laminate chalkboards, consisting of facing sheet, with core and backing sheet. Adhesive in accordance with manufacturers recommendations.
- .3 Make finished panels flat and rigid and fit with joint reinforcement.
- .4 Fit joints between abutting chalkboard panels with joint reinforcement except where covering trim is required.
- .5 Install trim on panels in factory. Make mitres and joints to hair-line fit, free of rough edges. Use concealed brackets to reinforce and hold joints tight and flush. No exposed fasteners permitted.
- .6 Overlap trim 6 mm onto panels. Provide closed ends for chalktroughs and open-end extrusions.
- .7 Factory fit assemblies too large for shipment to site in one piece, disassemble for delivery and site assembly.

2.5 FINISHES

- .1 Chalkboard writing surfaces:
 - .1 Porcelain enamel: to Porcelain Enamel Institute Standards PEI 501 regards durability, smoothness of texture, colour continuity. Gloss factor of 6-8 as measured by 45 degree glossmeter:
 - .1 Surface finish for hydrosoluble markers and suitable for use as a projection screen: white colour.
- .2 Aluminum trim finishes:
 - .1 Finish exposed surfaces of aluminum components in accordance with Aluminum Association Designation System for Aluminum Finishes.
 - .1 Clear anodic finish: designation AA-6063-T-5.
 - .2 Appearance and properties of anodized finishes designated by the Aluminum Association as Architectural Class 1, Architectural Class 2, and Protective and Decorative.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

- .1 Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

3.2 INSTALLATION

- .1 Install chalkboards in accordance with manufacturer's instructions, parallel to floor [with uniform vertical surface, plumb and level, to provide rigid, secure writing surface.
- .2 Install trim and framing around chalkboard panels. Make mitres and joints to hair-line fit, free of rough edges. Use concealed brackets to reinforce and hold joints tight and flush. No exposed fasteners permitted. Overlap trim 6 mm onto panels.
- .3 Mechanical attachment:
 - .1 To concrete or solid masonry use lag screw and expansion bolts or screws and fibre plugs as appropriate for stresses involved.
 - .2 To hollow masonry use toggle bolts or equivalent.
 - .3 To wood or sheet metal use screws. Secure into framing members in stud walls.

3.3 ON SITE QUALITY CONTROL

- .1 Arrange for the manufacturer of the products supplied under this section to review the work relating to the handling, installation / application, protection and cleaning of sound and submit written reports, in an acceptable format, which will make it possible to verify whether the work is carried out according to the terms of the contract.
- .2 Manufacturer's services insured on site: retain the services of the manufacturer, who will make recommendations on the spot regarding the use of the product (s), and will carry out periodic visits to verify if the implementation has been carried out according to his recommendations.

3.4 CLEANING

- .1 Perform cleaning after installation to remove construction and accumulated environmental dirt.
- .2 Clean surfaces after installation using manufacturer's recommended cleaning procedures.
- .3 Clean aluminum with damp rag and approved non-abrasive cleaner.
- .4 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Section 06 10 00 – Rough carpentry.
- .2 Section 07 92 00 – Joint sealants.
- .3 Section 09 21 16 – Gypsum board.
- .4 Section 09 30 13 – Ceramic tiling.
- .5 Section 10 28 10 – Toilet and bath accessories.

1.2 REFERENCES

- .1 American Society for Testing and Materials International (ASTM)
 - .1 ASTM A167-99 (2009), 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 CSA-B651-18, Accessible Design for the Built Environment.
- .4 Forest Stewardship Council (FSC)
 - .1 FSC-STD-01-001, FSC Principle and Criteria for Forest Stewardship.
 - .2 FSC-STD-20-002, Structure and Content of Forest Stewardship Standards V2-1.
 - .3 FSC Accredited Certification Bodies.
- .5 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).

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 for toilet partitions or components, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop Drawings:
 - .1 Shop drawings: submit drawings stamped and signed by professional engineer registered or licensed in Province of Quebec, Canada.
 - .2 Indicate fabrication details, plans, elevations, hardware, and installation details.
- .4 Samples:
 - .1 Submit duplicate 300 x 300mm 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.
- .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 for [reuse] [and] [recycling] in accordance with Section 01 74 19 - Construction/Demolition Waste Management and Disposal.
- Part 2 Products**
- 2.1 MATERIALS**
 - .1 Solid plastic toilet and shower partitions.
 - .2 Solid laminated plastic panels: by CAN3-A172-M79, freestanding, 19mm thick, color and finish by Department Representative..
 - .3 Stainless steel sheet metal: to ASTM A167, Type 304 with brush finish.
 - .4 Sealer: see Section 07 92 00 – Joint sealants
 - .5 Headrails: stainless steel tubing, size as manufacturer recommendations, heavy duty and vandal proof.
 - .6 Pilaster shoe: 0.8 mm stainless steel.
 - .7 Attachment: stainless steel tamper proof type screws and bolts.
- 2.2 COMPONENTS**
 - .1 Hinges:
 - .1 Heavy duty, nylon bushings.
 - .2 Material/finish: stainless steel casting.
 - .3 Swing: as indicated.
 - .4 Return movement: gravity].
 - .5 Adjustable door-open angle.
 - .6 Emergency access feature.
 - .2 Latch set: built-in, combination latch, door-stop, keeper and bumper, stainless steel [emergency access feature.

- .3 Wall and connecting brackets: stainless steel]extrusion or casting.
- .4 Coat hook: combination hook and rubber door bumper, stainless steel.
- .5 Door pull: Barrier-free type suited for outswinging doors, stainless steel.

2.3 FABRICATION

- .1 Doors, panels and screens: 25 mm thick, solid plastic laminate panels, to sizes indicated.
- .2 Pilasters: 32 mm thick, constructed same as door, to sizes indicated.
- .3 Laminate plastic to core material ensuring core and laminate profiles coincide to provide continuous support and bond over entire surface.
- .4 Finish edges of composite laminated plastic panels with laminated plastic strip and mitre corners.
 - .1 Chamfer exposed edges uniformly at approximately 20 degrees.
- .5 Provide internal reinforcement at areas of attached hardware and fittings.
 - .1 Temporarily mark location of reinforcement for [grab bars] [and] [benches].

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 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 Provide templates for locating threaded studs through finished ceilings.

- .7 Equip each door with hinges, latch set, and each stall with coat hook mounted on door, mounting heights 1500mm. Adjust and align hardware for proper function. Set door open position at 90 degrees to front. Install door bumper wall mounted.
- .8 Equip outswinging doors with door pulls on inside and outside of door in accordance with CSA-B651.
- .9 Install hardware.
- .2 Floor supported and overhead braced partition erection:
 - .1 Attach pilasters to floor with pilaster supports and level, plumb, and tighten installation with levelling device.
 - .2 Secure pilaster shoes in position.
 - .3 Secure headrail to pilaster face with not less than two fasteners per face.
 - .4 Set tops of doors parallel with overhead brace when doors are in closed position.

3.4 FIELD QUALITY CONTROL

- .1 Manufacturer's Field Services:
 - .1 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

3.5 CLEANING

- .1 Proceed in accordance with Section 01 74 00 - 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 SECTIONS**

- .1 Section 04 22 00 – Concrete unit masonry.
- .2 Section 08 80 50 –Glazing.
- .3 Section 09 67 00 – Fluid-applied flooring.

1.2 REFERENCES

- .1 American Society for Testing and Materials International (ASTM)
 - .1 ASTM A653/A653M-01a, Standard Specification for Steel Sheet, Zinc-Coated, (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-1.81-M90, Air Drying and Baking Alkyd Primer for Vehicles and Equipment.
 - .2 CAN/CGSB-1.88-92, Gloss Alkyd Enamel, Air Drying and Baking.
 - .3 CAN/CGSB-1.104-M91, Semigloss Alkyd, Air Drying and Baking Enamel.
- .3 Canadian Standards Association (CSA International)
 - .1 CSA-G40.20-04/G40.21-02, 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 W59-03, Welded Steel Construction (Metal Arc Welding).
- .4 The Master Painters Institute (MPI)
 - .1 Architectural Painting Specification Manual - February 2004.
 - .1 Produit MPI numéro 76, Quick Dry Alkyd Metal Primer.
 - .2 Produit MPI numéro 81, Machinery Enamel.
 - .3 Produit MPI numéro 96, Quick Dry Enamel Gloss.

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 for wire mesh partitions or components, specifications and datasheet 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.
 - .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 proposed partition and colour and finish on actual base metal.
 - .2 Sample to show basic construction, door construction, hardware, and finishes.
 - .3 Temporarily mount, on site, at the location designated by the Departmental Representative, a sample made up of at least two modules of each type of partition proposed.
- .5 Quality control: submit the documents and samples required in accordance with section 01 45 00 - Quality control.
 - .1 Manufacturer's instructions: submit the installation instructions provided by the manufacturer, including any indication concerning specific methods of handling, implementation and cleaning.
 - .2 .2 Reports of controls carried out on site by the manufacturer: submit no later than three (3) days after the execution of the controls prescribed in the article QUALITY CONTROL ON SITE, of PART 3, copies of the reports of the manufacturer indicating that the work complies with the specified criteria.

1.4 ACCEPTABLE MATERIALS OR PRODUCTS

- .1 When materials or products are prescribed by their trade mark, consult the Instructions to Bidders for the procedure to follow regarding the request for approval of materials or replacement products.

1.5 QUALITY ENSURANCE

- .1 Mock-up
 - .1 Construct samples of required work in accordance with section 01 45 00 Quality control.
 - .2 Install one door of each type and two partitions of each type.
 - .3 Wait 24 hours before starting the work to allow the Departmental Representative to inspect the sample of the work.
 - .4 Once accepted, the sample of the work will constitute the minimum quality standard to be met for this work.
 - .5 The sample may be incorporated into the finished work.
- .2 Pre-installation meeting: One (1) week before the start of the work covered by this section, hold a meeting with the Contractor's representative and the Departmental representative in accordance with section section 01 32 16.07 – Construction progress schedule – Bar (GANTT) chart, during which will be examined:
 - .1 the needs of the work;
 - .2 the execution conditions and the state of the support;
 - .3 coordination of work with that performed with other trades;
 - .4 the manufacturer's instructions for installation and the terms of the warranty offered by the latter.

1.6 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 recycling in accordance with Section 01 74 19 - Construction/Demolition Waste Management and Disposal.

Part 2 Products

2.1 MATERIALS

- .1 Partition and door mesh:
 - .1 The frames of the partitions will be made of square tube 25mm stainless steel, 16 gauge (304 A-554) welded. Each corner of the frame must be welded with inert Tungsten gas.
 - .2 The partitions will be made of 304 stainless steel wire 8mm in diameter in the vertical direction and 6mm in the horizontal direction. The vertical wires will be spaced 25mm apart, the horizontal wires will be spaced 90mm apart. The horizontal and vertical wires must be electrically welded at each intersection and each wire will be inserted into the frame.
 - .3 The hinges will be made of two stainless steel screws with a hexagonal head 9mm in diameter which will be screwed into a stainless steel threaded plug inserted in the top and bottom of the door frame. Each cap should contain a nylon pivot pad for precise and smooth rotation.
 - .4 The lock will be made of stainless steel allowing the opening inwards and outwards. The lock must secure automatically when the door is closed from the outside position. When closed from the inside position the lock must be able to lock and be open from inside the enclosure. The lock must be designed to accept a padlock. All components of the lock must be made of 304 stainless steel.
 - .5 Glass panels between enclosures: Constructed of 6mm tempered glass, insert into a frame will be constructed of U-shaped 19mm x 19mm x 3mm thick made of 6063-T52 aluminum. The panels must be fixed to the peripheral frames by means of stainless steel fasteners.
 - .6 Acceptable products:
 - .1 "Galvanized Welded Wire Gates" de Mason Company
 - .2 "T-Kennel run systems" de Shor-Line
 - .3 "Kennel" de TristarVet
 - .4 Or replacement product approved by addendum in accordance with the Instructions to Bidders

2.2 ACCESSORIES

- .1 Master Key Systems, Deadlocks and Locksets: refer to Manufacturer.

2.3 FABRICATION

- .1 Panels:
 - .1 Fabricate panels 2400 x length as indicated and special sizes or shapes as required consisting of wire mesh 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 Full height with floor and ceiling plates for fixing.

- .2 Include corner, wall, door and other special posts to manufacturer's standard.
- .3 Swing doors: single door.
 - .1 Dimensions as indicated.
 - .2 Construct doors and transom above of angle frame and wire mesh as indicated, same as panels.
 - .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.
- .4 Swing door hardware:
 - .1 Equip doors with stops, keeper, lock guard provision for deadlock.
 - .2 Equip standard doors with three 1-1/2 hinges.

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 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 adjust for proper closing, locking and smooth operation.
- .5 All projecting corners and angles must be rounded in order to avoid injury to animals (ex: anchor plates).
- .6 Fill the entire free space under the anchor plates with a mortar without shrinkage before applying the floor finish.
- .7 Every anchor bolt must be cap type to prevent injury to animals.

3.3 QUALITY CONTROL

- .1 Manufacturer's field quality control :
 - .1 The manufacturer must make recommendations regarding the use of the product (s), and carry out periodic visits to verify if the installation was carried out according to his recommendations.

3.4 CLEANING

- .1 Proceed in accordance with Section 01 74 00 - 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 SECTIONS**

- .1 Steel structure – See structure documents.
- .2 Section 05 50 00 – Architectural metal fabrications.
- .3 Section 06 10 00 – Rough carpentry.
- .4 Section 09 21 16 – Gypsum board.
- .5 Section 09 58 00 – Integrated ceiling assemblies.

1.2 REFERENCES

- .1 American National Standards Institute (ANSI)
 - .1 ANSI A208.1-2009, Particleboard, Mat-Formed Wood.
 - .2 ANSI A208.2-2016, Medium Density Fiberboard (MDF) for Interior Application.
- .2 American Society for Testing and Materials International (ASTM)
 - .1 ASTM E90-09 (2016), Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
 - .2 ASTM E336-19a, Standard Test Method for Measurement of Airborne Sound Insulation in Buildings.
- .3 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-11.3-M87, Hardboard.
- .4 Canadian Standards Association (CSA International)
 - .1 CSA O115-M1982 (R2001), Hardwood and Decorative Plywood.
 - .2 CSA O151-17, Canadian Softwood Plywood.
- .5 Forest Stewardship Council (FSC)
 - .1 FSC-STD-01-001, FSC Principle and Criteria for Forest Stewardship.
 - .2 FSC-STD-20-002, Structure and Content of Forest Stewardship Standards V2-1.
 - .3 FSC Accredited Certification Bodies.
- .6 Underwriters Laboratories' of Canada (ULC)
 - .1 CAN/ULC-S102-10, Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.

1.3 DESIGN REQUIREMENTS

- .1 Design and fabricate folding partitions with minimum STC of 49, tested to ASTM E90.
- .2 Use vinyl fabric for covering with maximum:
 - .1 flame spread -25;
 - .2 fuel contributed -35;

- .3 smoke developed -50; when tested to CAN/ULC-S102.

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 WHMIS MSDS - Material Safety Data Sheets in accordance with Section 02 81 01 - Hazardous Materials.
- .3 Shop Drawings:
 - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Quebec, Canada.
 - .1 Indicate installation requirements including dimensions, head and jamb conditions, track layout, stacking arrangement, switching, hardware, finish and colour, operating mechanism and location.
- .4 Samples:
 - .1 Submit duplicate 300 x 300mm samples of partition finish for each colour selected.
- .5 Quality assurance/control submittals: submit following in accordance with Section 01 45 00 - Quality Control.
 - .1 Test reports: submit certified test reports for folding panel partitions from approved independent testing laboratories, indicating compliance with specifications for specified performance characteristics and physical properties.
 - .2 Submit test data indicating compliance with design requirements regarding sound transmission and fire hazard classification.
 - .3 Submit acoustical test data to ASTM E90 and ensure construction details and weight are provided.
 - .4 Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.
 - .5 Manufacturer's Instructions: submit manufacturer's installation instructions. Indicate special handling criteria, installation sequence, cleaning procedures.
 - .6 Manufacturer's Field Reports: manufacturer's field reports specified.
- .6 Closeout Submittals: Provide operation and maintenance data for folding panel partitions for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

1.5 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for recycling in accordance with Section 01 74 19 - Construction/Demolition Waste Management and Disposal.

Part 2 Products**2.1 MATERIALS**

- .1 Folding steel partition in individual panels. The partitions will be operated manually and will be stacked sideways and supported from above. Top and bottom mechanical seals.
- .2 The panels must have a nominal thickness of 92mm and be of the manufacturer's standard width. The faces of the panels must be removable and able to be replaced on site. 18 gauge steel "U" reinforcements will be installed horizontally inside all panels and will be spaced 610mm to 762mm c / c. The "U" reinforcements will have dimensions of 51mm X 51mm and will provide increased resistance to impact and torsion
- .3 The frame will surround the entire perimeter of the panel, thus providing protection for the coating when handling and stacking the movable partition. The panels will be framed in steel of at least 1.6mm with a powder-coated paint finish of the choice of the Departmental Representative
- .4 Panels that do not have a protective frame and do not allow the replacement of faces on the site will not be accepted. All vinyl and polyvinyl chloride trim must match the colors of the framing available in the standard range
- .5 The vertical soundproofing joints will be made of a continuous alignment molding in aluminum ensuring an acoustic seal. It will be installed in the field of the panels, guiding the installation and will distribute the impact over the entire field of the panel
- .6 The horizontal seals must not exceed the width of the panels to avoid damage during handling. The lower retractable seals must be made of folded steel and be fitted with 6mm vinyl seals ensuring adequate soundproofing when actuated
 - .1 Upper seals will be composed of flexible vinyl trim offering a minimum of four (4) points of contact with the rail.

2.2 COMPONENTS

- .1 Overhead suspension system:
 - .1 The suspension system must consist of a natural anodized hardened aluminum rail of architectural quality (bent steel rail not acceptable), fixed to the frame by means of threaded rods installed in pairs and supplied by the manufacturer. Guide rods will ensure perfect alignment of the rail joints. "L" or "T" intersections must be assembled and welded at the factory and must not include moving parts or mechanical action or assembly. The ceiling protector must be in one piece and an integral part of the rail. It must offer a clearance of 25mm in order to avoid any contact of the panels with the ceiling. A section of the rail must be removable to allow the removal of the panels for subsequent maintenance.
 - .2 Each panel must be suspended by a carriage made up of four precision steel ball bearings aligned vertically and covered with nylon tires. A report demonstrating that an endurance test covering a distance of 160km has been completed and must be available on request from the Departmental Representative.

- .2 Panel finishes
 - .1 Selected by the Departmental representative.
- .3 Hardware:
 - .1 Equip partition with manufacturer's standard hardware. Hardware finish selected from manufacturer's standard finishes.

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 Secure and level track.
- .2 Install folding partitions in accordance with manufacturer's printed instructions.
- .3 Touch up damaged finishes, repair damage to partitions to match original finish.
- .4 Clean folding partition system and protect from damage.
- .5 Adjust and leave partitions in smooth operating condition.

3.3 FIELD QUALITY CONTROL

- .1 Site Tests:
 - .1 Acoustic field testing: have field sound performance certified by independent acoustical consultant in accordance with ASTM E336.
- .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.

3.4 CLEANING

- .1 Proceed in accordance with Section 01 74 00 - 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 SECTIONS**

- .1 Section 06 10 00 – Rough carpentry.
- .2 Section 09 21 16 – Gypsum board.

1.2 REFERENCES

- .1 Aluminum Association (AA).
 - .1 DAF 45-03 (R2009), Designation System for Aluminum Finishes.

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 1 copy of WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 33 00 - Submittal Procedures. Indicate VOC's:
 - .1 For caulking materials during application and curing.
 - .2 For adhesives.
- .2 Shop Drawings.
 - .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Indicate, by large scale details, materials, finishes, dimensions, anchorage and assembly.
- .3 Samples.
 - .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Submit duplicate 300 mm long samples of profiles and colours for corner and wall guards.
- .4 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.

1.5 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 19 - Construction/Demolition Waste Management And Disposal.

- .2 Collect and separate plastic, paper packaging and corrugated cardboard in accordance with Waste Management Plan.

Part 2 Products

2.1 MATERIALS

- .1 Metal corner guards: 50 mm x 50 mm size x 1100 mm long, 1,58mm thick, type 304, no4 finished stainless steel, with removable protective paper cover, surface installation and mechanically mounted.
- .2 Wall guards: 1200mm height, 10mm thick, polyethylene with matching trims. Surface mounted with adhesive. Color by Departmental Representative.
 - .1 Wall protection in rooms: E-101, E-102, E-103, E-103B, E-125, K-101, K-103, K-106 et K-108 on gypsum board.
- 1. Ceiling protectors identified as PP to documents: Fiberglass-reinforced plastic panels for ceiling application with the following features:
 - 1. Surface: Smooth.
 - 2. Fire resistance: Category A, to ASTM E84.
 - 3. Thick: 1.9mm minimum.
 - 4. Duration: 35, to ASTM D2583.
 - 5. Water absorption: 0.2% to ASTM D570.
 - 6. Related items: mouldings, tips, rivets recommended by the manufacturer.
 - 7. Color : by Departmental Representative.

2.2 ACCESSORIES

- .1 Fasteners: self-tapping stainless steel, flush mounting.
- .2 Adhesive: water resistant type as recommended by manufacturer for substrate.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

- .1 Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

3.2 INSTALLATION

- .1 Install units on solid backing and erect with materials and components straight, tight and in alignment.
- .2 Adhere wall guards with top surface 1200 mm above finish floor line, straight and level to variation plus or minus 3 mm over 3000 mm straight edge, non-cumulative.

- .3 Mechanically fasten corner guards to substrate at 200 mm on centre. Align fasteners. Install corner guards above cove, top surface 1200 mm above finish floor line.
- 1. Ceiling protectors:
 - 1. Install products strictly following manufacturer instructions and approved documents.
 - 2. Clean the substrate to remove dirt, dust, wax and other substances that prevent adhesion before starting installation.
 - 3. Install the panels by positioning the bottom edge to clear the top of the resilient base.
 - 4. Apply adhesive evenly over the entire back surface of the panels, going all the way to the edge (100% cover) and using a trowel recommended by the adhesive manufacturer.
 - 5. Put the fiberglass-reinforced plastic panels in place leaving about 3mm between the panels and 6mm of space at the top and bottom.
 - 6. Follow the recommendations for the hardening speed and duration of the adhesive manufacturer' application.
 - 7. Apply pressure to the entire surface of the panel with a roller, removing trapped air and ensuring proper grip between surfaces.

3.3 CLEANING

- .1 Perform cleaning after installation to remove construction and accumulated environmental dirt.
- .2 Clean surfaces after installation using manufacturer's recommended cleaning procedures.
- .3 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Section 04 22 00 – Concrete unit masonry.
- .2 Section 06 10 00 – Rough carpentry.
- .3 Section 09 21 16 – Gypsum board.
- .4 Section 09 30 13 – Ceramic tiling.
- .5 Section 10 21 13.19 – Plastic toilet compartments.

1.2 REFERENCES

- .1 American Society for Testing and Materials International (ASTM)
 - .1 ASTM A167-99(2009), Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
 - .2 ASTM A 269-08, Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service
 - .3 ASTM A276-08a, Standard Specification for Stainless Steel Bars and Shapes
 - .4 ASTM A653/A653M-09, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - .5 ASTM A666-03, Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar
 - .6 ASTM A924/A924M-09, Standard Specification for Généralités Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process
 - .7 ASTM B456-03, Standard Specification for Electrodeposited Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium.
- .2 CSA International
 - .1 CAN/CSA-B651-04, Accessible Design for the Built Environment.
 - .2 CAN/CSA-G164-M92(R2008), 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.

1.4 CLOSEOUT SUBMITTALS

- .1 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 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.

1.7 WASTE MANAGEMENT

- .1 Packaging Waste Management: remove for recycling in accordance with Section 01 74 19 - Construction/Demolition Waste Management and Disposal.

Part 2 Productsmaterials

- .1 Sheet steel: to ASTM A653/A653M with Z275 designation zinc coating.
- .2 Stainless steel sheet metal: to ASTM A167, Type 302 or 304, with no 4 finish, 0,75 mm thick.
- .3 Stainless steel tubing: to ASTM A269, Type 304, commercial grade, seamless welded, 1.2 mm wall thickness.
- .4 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.

2.2 COMPONENTS

- .1 Toilet tissue dispenser: double roll type up to 135mm diameter rolls, surface mounted, stainless steel frame. One per toilet.
- .2 Combination towel dispenser/waste receptacle: semi-recessed wall unit, approximately 443 mm wide, 1429 mm high, 208 mm deep. Material 0.8 mm thick stainless steel. Suitable for dispensing folded paper towels. Lockable and removable stainless steel waste receptacle. 1 per toilet room.

- .3 Soap dispenser: Above the counter, chrome plated ABS plastic spout. Unit equipped with a spring loaded 180° rotatable lid with concealed locking mechanism for top filling. Rotatable lid mechanism consists of metal components. Integrated to Spout are a grey plastic Dispense Tip and Activation Lens Housing. Powered by a water resistant battery pack. 1 per sink.
- .4 Feminine napkin disposal bin: stainless steel, surface unit, continuous hinged door, self closing, removable stainless steel receptacles fitted with spring clip for deodorizer block. 1 per women toilet and 1 per universal toilet.
- .5 Mirror: 6mm tempered glass mirror, stainless steel frame no 4 finish, size 610 x 915 mm. 1 per sink.
- .6 Grab bars: 32 mm diameter x 1.6 mm wall tubing stainless steel, 76 mm diameter wall flanges, concealed screw attachment, flanges welded to tubular bar, provided with steel back plates and all accessories. Grab bar material and anchorage to withstand downward pull of 2.2 kN. Straight grab bars of 610 mm, 762 mm, 1067 mm and L-shape bar of 760mm x 760mm as indicated.
- .7 Surface-mounted soap dispenser for shower: Stainless steel vertical tank. Capacity of 1.2L with refill window. Concealed wall fastening. 1 per shower.
- .8 Shower seat: 8mm phenolic plastic retractable shower bench with stainless steel support structure. 560mm x 400mm seat withstanding a load of 227kg. 1 per shower.
- .9 Curtain rod: Extra heavy-duty shower curtain rod. 32 mm diameter x 1.2 mm wall tubing stainless steel. Provide and install ends supports. Length as indicated.
- .10 Shower curtain: white anti-bacterial fire resistive self extinguishing vinyl laminated fabric shower curtain. Provide curtain hold-back hook and chain at each curtain. Length as indicated and height of 1830mm. 1 per shower.
- .11 Hook: Stainless steel strip of 3 double hooks. 610 mm x 100mm. 1 per shower.
- .12 Single hook : Bright-polished stainless steel. Flange is 50 x 50mm. Hook 25 x 165mm; projects 80mm from wall. Concealed wall plate.
- .13 Mop and broom holder : 610mm long. Type 304 stainless steel, satin finish. Anti-slip mop holders have spring-loaded rubber cam that grips handles 20–30mm diameter. Holds 3 mops 85mm from wall. Height 125mm.

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.

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 Hollow masonry units, existing plaster or drywall: use toggle bolts drilled into cell or wall cavity.
 - .2 Solid masonry, marble, stone or concrete: use bolt with lead expansion sleeve set into drilled hole.
 - .3 Toilet and shower compartments: use male to female through bolts.
- .2 Use tamper proof screws/bolts for fasteners.
- .3 Fill units with necessary supplies shortly before final acceptance of building.

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 00 - Cleaning.
 - .1 Leave Work area clean at end of each day.

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

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Section 06 10 00 – Rough carpentry.
- .2 Section 09 21 16 – Gypsum board.

1.2 REFERENCES

- .1 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-44.40-01, Steel Clothing Locker.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Provide manufacturer's printed product literature and data sheets for metal lockers 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 Quebec, Canada.
 - .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.
- .4 Samples:
 - .1 Submit duplicate 50 x 50 mm samples of colour and finish on actual base metal.
 - .2 Samples will be returned for inclusion into work.

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:
 - .1 Deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect metal lockers from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.

- .4 Packaging Waste Management: remove for reuse and return of pallets, crates, padding, and packaging materials] in accordance with Section 01 74 19 - Construction/Demolition Waste Management and Disposal.

Part 2 Products

2.1 MANUFACTURED UNITS

- .1 Lockers: to CAN/CGSB-44.40, Type 1-Single full-height locker freestanding.
 - .1 Size: 305 mm wide x 460 mm deep x 1830 mm high, steel thickness 20 MSG.
 - .2 Assembly: welded construction.
 - .3 Top: sloped.
 - .4 Doors: one-piece double-wall envelope construction No .20 MSG, door swing 170°.
 - .5 Door handle: recessed handle steel with bright chromium.
- .2 Locker bench:
 - .1 Varnished laminated wood top.
 - .2 Black steel folded bench legs freestanding.
 - .3 241mm width x 1219mm length.

2.2 ACCESSORIES

- .1 Locking system: padlock.
- .2 Options to be provided: to CAN/CGSB-44.40, steel base, steel end panels, steel trim including corner angles, jamb trim, fillers, number plates manufacturer's standards, coat hooks, metal chromium, painted steel shelf.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions: verify conditions of substrates and surfaces to receive metal lockers previously installed under other Sections or Contracts are acceptable for product installation in accordance with manufacturer's instructions prior to metal locker 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 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.

3.3 ADJUSTING

- .1 Adjust metal lockers 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 00 - Cleaning.
 - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 - Cleaning.
- .3 Waste Management: separate waste materials for recycling] in accordance with Section 01 74 19 - 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 metal locker installation.

END OF SECTION

Part 1 Generalities**1.1 RELATED SECTIONS**

- .1 Steel frame - see also structure.
- .2 Electrical and mechanical installations - see also electricity and mechanics.

1.2 References

- .1 Underwriters Laboratories of Canada (ILC)
 - .1 CAN/ULC-S102.2:2018: Standardized testing method features surface combustion of flooring and various materials and assemblies.
 - .2 CAN/ULC-S109-14: Standardized method of fire behaviour testing of flammable fabrics and film.

1.3 SUBMITTALS

- .1 Shop Drawings:
 - .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Indicate dimensions, profiles, attachment methods, schedule of wall elevations, trim and closure pieces, soffits, fascia, metal furring and related work.
 - .3 The shop drawings submitted must bear the seal and signature of an engineer, member of the *Ordre des Ingénieurs du Québec* (OIQ)
- .2 Samples
 - .1 Submit the required samples in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Provide, upon request, a sample of 300 mm x 300 mm of fabric, as well as a complete sampling of the standard colors and finishes available for approval by the Departmental representative.
- .3 Maneuver instruction and maintenance
 - .1 Provide written instructions for maneuvering and maintaining the divider curtain.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Transport, store and handle materials and equipment in accordance with the manufacturer's written instructions.
- .2 Delivery and acceptance: deliver materials and materials to the site in their original packaging, which must be labelled with the manufacturer's name and address.
- .3 Storage and handling
 - .1 Store materials and materials indoors in a clean, dry place, in accordance with the manufacturer's recommendations.
 - .2 Handle materials and materials so as not to damage them.
 - .3 Replace damaged materials and materials with new materials and materials.

1.5 WASTE MANAGEMENT AND DISPOSAL

- .1 Sort waste for recycling, in accordance with section 01 74 19 - Construction/demolition waste management and disposal.
-

Partie 2 Products**2.1 Materials**

- .1 Single wall curtain divider with the following features:
 - .1 The curtain will consist of several edges of vinyl thermoglued to each other to form a complete wall. The joints thus formed must have a resistance at least equivalent to the vinyl itself.
 - .2 Metal eyebeds will be inserted every 305mm on the width for the suspension of the curtain.
 - .3 A hem will have to be sewn at the bottom of the canvas in which a weighting chain will be inserted.
 - .4 The canvas must have a polyester-reinforced weight of 0.61 kg/m² and a 850 N tensil and 400 N tear resistance, have undergone laboratory ULC S109 fire classification tests and be permanently labelled for this purpose.
 - .5 The colour will be selected by the Departmental Representative in the manufacturer's standard color chart.

2.2 RAIL AND TROLLEYS

- .1 The rail system will be aluminum and having a double T shape, suspended by hooks every 1500mm where the curtain will be deployed and every 915mm where the curtain will be piled up. Steel ball bearing trolleys will be installed every 305mm along the entire length of the curtain. S-shaped hooks and double-loop chains allow the curtain to be suspended, using metal pillows inserted into the canvas.

Partie 3 Execution**3.1 MANUFACTURER'S INSTRUCTIONS**

- .1 Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

3.2 Installation

- .1 Install the curtain plumbed, leveled and in accordance with the manufacturer's instructions.
- .2 Allow a 10mm space between the bottom of the curtain in the deployed position and the finished floor.
- .3 Adjust the moving parts sets so the curtain works flexibly.
- .4 Clean dirty surfaces with products that do not damage finishes.
- .5 The installation will have to be done by skilled workers to allow a good execution of the manufacturer's recommendations.
- .6 All welds carried out on the site will have to be done by protecting the floor finish below..
- .7 It is strictly forbidden to pierce or cut with a blowtorch or otherwise modify an element of the existing structure without first receiving written authorization from the Departmental Representative.

- .8 Apply a coat of paint to the welds and bolted joints executed on the site and retouch on the surfaces that are burned or scraped during this work.

3.3 Cleaning

- .1 Do the cleaning work in accordance with section 01 74 00 - Cleaning
- .2 Once the installation is complete, remove surplus materials, waste materials, tools and safety barriers from the site.

3.4 Protection

- .1 Protect the curtain from damage and keep it clean during installation and until work is complete.
- .2 If necessary, repair damage to adjacent materials and equipment caused by the installation of this section.

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Cast in-place concrete – See structure.
- .2 Section 03 35 00 – Concrete finishing.
- .3 Section 09 30 13 – Ceramic tiling.

1.2 REFERENCES

- .1 Comply with the following references:
 - .1 ASTM B117-18 : Standard Practice for Operating Salt Spray (Fog) Apparatus
 - .2 CAN/CSA-G40.20/G40.21-13 : General Requirements for Rolled or Welded Structural Quality Steel / Structural Quality Steel.

1.3 SUBMITTALS

- .1 Product data:
 - .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Shop Drawings:
 - .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Indicate size and description of components, base material thicknesses, attachment devices and also hardware and accessories.
- .3 Manufacturer's written instructions:
 - .1 Submit manufacturer's installation instructions.
- .4 Manufacturer's Field Reports: submit to manufacturer's written reports within 3 days of review, verifying compliance of Work, as described in PART 3.
- .5 Closeout submittals:
 - .1 Submit operation and maintenance data for floor grating as per Section 01 78 00 – Closeout Submittals.
 - .2 Provide as prescribed in this section lifting hooks for maintenance and cleaning.

1.4 QUALITY INSURANCE

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

1.5 PACKAGING WASTE MANAGEMENT:

- .1 Remove for reuse or recycling of pallets, crates, padding, and packaging materials in accordance with Section 01 74 19 - Construction/Demolition Waste Management and Disposal.

Part 2 Products materials**2.1 MATERIALS**

- .1 Aluminum : Alloy AA6061-T6.
- .2 Stainless steel: plates, sections and other items, to CAN3-G40.21, Type 316,
- .3 Insulating coating: bituminous paint alkali resistant. To CGSB-1-GP-108C.
- .4 Anchoring devices: to manufacturer's recommendations.
- .5 Sealing trims: to manufacturer's recommendations.
- .6 Adhesive: as Manufacturers' recommendations.

2.2 DESCRIPTION

- .1 Live load:
 - .1 Grates to withstand uniform load of 2420 Newton applied on 100 sq. m. so as not to exceed a 1/180 deflexion for 1220 mm span.
- .2 The perimeter frames shall be a Z shape for finished floor installation. During installation, a silicone seal will be applied between the frame and the floor finish to prevent water infiltration (by others). For sections larger than 1828mm x 2438mm a mechanical joint is to be provided.
- .3 Blades shall be T shaped size 9.5mm x 3mm x 25mm with an anti-slip insertion of Durometer 90 vinyl 4.7mm thick locked in at each end. Overall depth from finished floor surface 60mm. Spacing between blades is not to exceed 4.7mm.
- .4 Spacing between blades and retaining rods shall be so as to meet manufacturer's specifications for the minimum weight capacity. Grate will be manufactured in sections so as to increase ease of maintenance.
- .5 The frames will be supplied with a pan with no drain. A waterproofing membrane has to be applied to concrete (by others).
- .6 The sections shall have a friction coefficient of 1,10 and a cleaning efficiency of 59 %, percentage of opening shall be 40%.
- .7 The deformation under lateral charge is not to exceed 11 (visual) after application of a maximal charge of 6130 Newton at a 45 degree angle in relation to the surface.
- .8 All sections to ASTM B117, and be able to sustain a 1000 hours salt fog without any notable changes.
- .9 Manufacturer shall be able to confirm this data and be able to supply Departmental Representative with all necessary reports and shop drawings.
- .10 All grates will be supplied with lifting hooks in order to provide easy lifting of sections without efforts or risk of damaging the grate surfaces (one per vestibule). Hooks will not be incorporated to each section.
- .11 All frame sections will be supplied with a sound gasket, as per manufacturer's specifications. The sound gasket's function is to buffer noise and vibrations that could occur between frames and blades.

- .12 Stainless steel basin 316L, of 1 mm thick with argon welded joints for completely watertight assembly, screwed to frame, bearing two (2) coats of insulating coating on all surfaces in contact with concrete.
- .13 Dimensions are indicated on drawings.

2.3 COMPLEMENTARY PRODUCTS

- .1 Mortar bed: Quick-setting mortar bed, for interior application to grate pits under basins, thicknesses as required - two-component, polymer-modified cementitious mortar, compensated shrinkage and quick-setting, with corrosion inhibitor .0 VOC.
- .2 Grout: Fluid and 15 MPa resistance after 24 hours, for leveling frames. Non-shrinkable cement-based grout having a two-step formulation of compensated shrinkage, non-metallic.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of the conditions: before proceeding with the installation of the ponds of the scraper graters, ensure that the condition of the surfaces / supports previously implemented under other sections or contracts is acceptable and allows to realize work in accordance with the manufacturer's written instructions.
- .2 Make a visual inspection of surfaces / supports in the presence of the Departmental Representative
- .3 Immediately inform the designated Departmental Representative of any unacceptable conditions detected.
- .4 Begin installation work only after correction of unacceptable conditions and receipt of written approval from Departmental Representative
- .5 Ensure that the support is clean, uniform, dry and free of contaminants such as oil or printing or curing products.
- .6 Ensure that the moisture content in the concrete meets the recommendations of the flooring manufacturer. No installation work whatsoever may begin until the humidity of the support has reached a maximum of 2.5%.

3.2 PREPARATION WORKS

- .1 Mortar bed installation
 - .1 Install a bed of mortar under all the surfaces of the catch basins, according to the required thickness following the manufacturer's written recommendations.
 - .2 Carry out the slopes and uneven floors as indicated in the drawings.
 - .3 Smooth concrete with a mechanical trowel to produce a hard, smooth and smooth surface.
 - .4 Apply the grout to allow a perfect arrangement to the profiles of the catchments.

3.3 INSTALLATION

- .1 The grate sections will be installed in their frames, as a last item, to prevent damages during construction. Install all foot grates, square and level with finished floor so as to permit easy manipulation of all sections. All frame members and intermediary supports are to be level and well supported on all their lengths in order to avoid any deflection over a long term period.
- .2 The grate will be installed only at the end of the project, in order to protect them from any breaking down. All frames and pans are to be thoroughly cleaned before installing any grate section in order for them not to exceed finished floor level. All sound gaskets damaged during installation, are to be replaced before final inspection. Protect grates from construction traffic.

3.4 CLEANING

- .1 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 - Cleaning.
- .2 Protect installed products and components from damage during construction until final inspection.

END OF SECTION

PART 1 - GENERAL**1.1 RELATED SECTIONS**

- .1 Section 03 35 00 – Concrete finishing
- .2 Section 09 91 23 – Interior painting

1.2 REFERENCES

- .1 American Society for Testing and Materials (ASTM) latest edition:
 - .1 ASTM A123/A123M-02 : Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
 - .2 ASTM C260-06 : Standard Specification for Air-Entraining Admixtures for Concrete.
 - .3 ASTM C494/C494M-05a : Standard Specification for Chemical Admixtures for Concrete.
 - .4 ASTM C1017/C1017M-03 : Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete.
- .2 Canadian Standards Association (CSA) latest edition :
 - .1 CSA-A3000-98 : Cimentitious Materials Compendium.
 - .2 CSA-A23.1-00 : Concrete Materials and Methods of Concrete Construction.
 - .3 CSA-A23.2-00 : Methods of Test for Concrete.
 - .4 CAN/CSA-G164 : Hot Dip Galvanizing of Irregularly Shaped Articles.
- .3 Canadian General Standards Board (CGSB) latest edition :
 - .1 CAN/CGSB 1.181-99 : Ready-Mixed Organic Zinc-Rich Coating.
 - .2 CAN/CGSB 138.1-96 : Fabric for Chain Link Fence.
 - .3 CAN/CGSB 138.2-96 : Steel Framework for Chain Link Fence.
 - .4 CAN/CGSB 138.3-96 : Installation of Chain Link Fence.
 - .5 CAN/CGSB 138.4-96 : Gates for Chain Link Fence.

1.3 SHOP DRAWINGS

- .1 Provide shop drawings for fences, all doors and gates and accessories.
- .2 Submit for approval to the Engineer the concrete mixture formula and the results on this mixture at least two (2) weeks prior to the beginning of the work.
- .3 Shop Drawings to clearly indicate:
 - .1 All work related to fence (concrete foundation, hydraulic equipment, electrical work, security system, fixations accessories, etc.).
 - .2 Section cuts, grooves, assemblies, openings, threaded anchors, rivets, welds and other necessary elements. Use AWS symbols to describe weld.

- .3 The general arrangement, the quality of the product, the dimensions, the finishes, spare parts, the reinforcement, the anchors, and the hooks necessary.
- .4 For all shop fabricated items, and whenever deemed necessary by Engineer to explain the proposed work, the Contractor will allow tor ample time for the approval of all the shop or assembly drawings or diagrams.
- .5 Departmental Representative will not be responsible for verifying the number, quantity, or dimensions indicated on the shop drawings : this remains the responsibility of the Contractor. Departmental Representative will not be responsible for the dimensions noted on the drawings: these will be verified on site by the Contractor

1.4 HANDLING AND STORAGE

- .1 Materials will be delivered undamaged in their original containers. Labels and seals will remains intact. Use extreme care in the handling and storage of pre-finished items to avoid inadvertent damage.
- .2 Store material so as to avoid physical injury, difficulty in the progress of the work and any damage to the work already completed.

1.5 SHIPPING

- .1 Each roll of wire mesh must show the following particulars:
 - .1 The coating quality.
 - .2 Nominal size.
 - .3 Length and nominal height of the fence.
 - .4 Number of standard CAN/CGSB-138.1-96.
 - .5 The name of the manufacturer.

1.6 INSTALLATION OF NEW FENCES, DOORS AND GATES

- .1 Work related to the installation of new fences, doors and gates consists in, but is not limited to, the supply of materials and manpower required for the installation, according to good engineering practices, of new fences, doors and gates, including:
 - .1 The supply and installation of:
 - .1 Chain link fences with barbed wire,
 - .2 Doors and Swing Gates,
 - .2 The supply and installation of:
 - .1 All the corner posts, reinforcement, ties,
 - .2 Reinforcements, clips and cable-stayed and all other accessories,
 - .3 The site clean-up and disposal of non-usable materials.

PART 2 - PRODUCTS

2.1 FENCES

- .1 Chain link fence fabric :
 - .1 Height : 3000 mm.
 - .2 Fail at point of rupture : 10 000 N minimum.

2.2 METAL FABRIC

- .1 Chain link must be in conformity with standard CAN/CGSB 138.1-96.
- .2 Chain link type:
 - .1 Galvanized steel chain link:
 - .1 In conformity with standard CAN/CGSB 138.1-96 type 1, category A and type 1 class 3, with steel wire of 3.5 mm (gauge 6) diameter with an average surface mass of zinc coating; at least 610 g/m² and with size of the meshes of 50 mm (gauge 6).
- .3 The higher edge has twisted and pointed ends, the lower edge has folded up ends. Each strand must be able to support a traction test of 552 MPa. Chain link must be attached to the higher rail and the braces using an appropriate tying wire with approximately 0,5 m interval between the intermediate posts. It must also be fixed to the intermediate posts with 0,3 m interval..
- .4 Bottom tension wire : Single strand electrogalvanized (610 g/m²) steel wire calibre 6, fasten at 0,5 m intervals.

2.3 METALLIC FRAME

- .1 The metal framework (posts, spacer and rails) must be made up of forged pipes galvanized of series 40, welded uninterrupted with a minimal weight of 5,44 kg/m in conformity with standard CAN/CGSB 138.2-96 as well with the following indications. The minimum weight of the end, gates barrier and corner posts is of 11,22 kg/m. In all the case, pipe or tubes with open joint is prohibited.
- .2 Intermediate posts:
 - .1 The pipe must be a standard schedule 40 continuously welded, galvanized, of an external diameter of 60,3 mm pipe, its length is 840 mm longer than the height of the fence and its minimum weight per metre is 5,44 kg. The use of open pipe or tube is prohibited. The maximum spacing is 3 m.

- .3 Terminal posts:
- .1 End, angle and brace posts are in continuous welded, galvanized schedule 40 standard pipe with an external diameter of 89 mm with a length of 1 070 mm longer than the height of the fence. The minimum weight per metre is 11,22 kg The use of open pipe or tube is prohibited.
- .4 Ties and braces:
- .1 Series 40 galvanized steel pipes, of an external diameter of 43 mm with single ends of common, standard length with continuous weld or high-resistance of 2,54 mm.
 - .2 The top rails are in tubular galvanized, of an external diameter of 43 mm with simple tips, common, schedule 40, standard length, with continuous weld or high-resistance hollow of 2,54 mm, with mechanical properties similar to ASTM standard A 36. The use of open pipe or tube is prohibited.
 - .3 Galvanized fittings of the outer sleeve type and a length of at least 180mm are used to join two sections of top rail. The top rail should go in the cap of the intermediate post and form a continuous element for each fence section. In addition, this brace must be tie to each terminal post with a fitting.
 - .4 The braces have an external diameter of 43 mm, are galvanized and have the same specifications as for the top rail.
 - .5 Horizontal brace is installed in the middle between the fence top and bottom rail and connects the terminal post to the first adjacent intermediate post. The end and barrier posts must have one brace compared to two for the corner and straining posts.
- .5 Framework with lower metal rail on all the fence sections.

Table 32 31 13-1: Metal framework (external diameter in mm).

Line posts (intermediate)	End posts (traction)	Angle and Gate posts	Rail
60.3	88.9	114.3	42,2

- .6 Door frames: forged pipes galvanized hot in conformity with the requirements of to standard CAN/CGSB 138.4-96. The use of open pipe or tube is prohibited. The diameters of the required elements are in tables 1 and 2.
- .1 The doors must be manufactured according to the indications with electric welded joints, and being galvanized by hot immersion after welding
 - .2 The fence chain link must be fixed at the gate so that the twisted edge is placed on top.
 - .3 The doors must be provided with hinges latches and cams, all out of galvanized malleable cast iron, lockable. The direction of swiveling is indicated on drawings.

- .7 Assembly parts and hardware: cast aluminum alloy, galvanized steel, or malleable or ductile iron. Post caps ensuring watertightness to be fixed securely on the posts.
- .8 Ensure supply and installation of bolts, latches and robust hasps out of galvanized steel to lock simple or double doors.

2.4 COATING

- .1 Galvanizing: the zinc sheets used for galvanization must be of quality in conformity with standard ASTM A123/A123M-02. The surface mass of the elements must respect the following quantities:
 - .1 For chain link fabric; 610 g/m² CAN/CGSB 138.1 grade 2.
 - .2 For pipe; 600 g/m² minimum to ASTM A 90.
 - .3 For doors; 550 g/m²
 - .4 For gates; 550 g/m².
 - .5 For barbed wire; 244 g/m² conforme à la norme CAN/CGSB 138.2.
 - .6 For other fittings: 550 g/m² conforme à la norme CAN/CSA-G164.

2.5 GATES (DOORS)

- .1 The gate will be of swiveling type, installed as specified on the gate detail.
 - .1 The clear span of the barriers will be of 1,22 m.
 - .2 The gate will be manufactured in a workshop, with the heights and openings indicated on drawings.
- .2 Posts and stop: galvanized steel pipes of specified size.
- .3 Frameworks of gate: forged pipes galvanized hot in conformity with the requirements of standard CAN/CGSB 138.4-96. In all the case, the use of pipes or tubes with open joint is prohibited.
 - .1 The gates must be manufactured according to the indications with electric welded joints, and being galvanized by hot immersion after welding.
 - .2 The fence chain link must be fixed at the gate so that the twisted edge is placed on top.
 - .3 The gates must be provided with hinges latches and cams, all out of galvanized malleable cast iron, lockable. The direction of swiveling is indicated on drawings.
 - .4 Gate chain link must match the fence on which it is assembled.
 - .5 The barrier must be equipped with three hinges of conform quality.

Table 32 31 13-2: Swiveling gate.

Gate type And opening (m)	Framework external diameter (mm)	Weight (kg/m)
One panel, 1,22	43,0	3,40
Two panel, 2,4	43,0	3,40

2.6 ACCESSOIRES

- .1 Tie wire :
 - .1 Single strand galvanized steel wire to CAN/CGSB 138.1 and other requirements regarding Chain link fences, 3,5 mm diameter (gauge 9).
- .2 Sleeves :
 - .1 Galvanized connection with a length of at least 180 mm being used to link two transversal sections.
 - .2 Galvanized connection with anchor plate (4 anchors) for vertical posts on slab.
- .3 Tension bar :
 - .1 To ASTM A653/A653M, 6 mm x 20 mm minimum galvanized steel.
- .4 Tension bars flange:
 - .1 Galvanized steel of minimum section 3 x 20 mm.
- .5 Bottom tension wire :
 - .1 Single strand, electrogalvanized steel wire (610 g/m²) calibre 6.
- .6 Assembly parts and hardware :
 - .1 Made out of moulded aluminum alloy, galvanized steel, or malleable cast or ductile iron.
 - .2 Post caps to provide waterproof fit, to fasten securely over posts.
- .7 Touch-up galvanization liquid product :
 - .1 Organic zinc rich coating to CAN/CGSB 85.10-99, CAN/CGSB 1.181-99 and ASTM A123/A123M-02.

PART 3 - EXECUTION

3.1 GENERALITIES

- .1 Unless otherwise specified, build the fences and gates according to the requirements of standards CAN/CGSB 138.3-96 and CAN/CGSB 138.4-96.

3.2 ERECTION OF FENCE

- .1 Erect fence along line as indicated on drawings. Assemble fences squared, balanced, levelled, and uniformly aligned.
- .2 Unless otherwise specified, install posts every 1,83 m c/c measured parallel to ground.
- .3 Install end posts at the ends of the fence and close to the buildings and every 30 m straight with two intermediate braces.
- .4 Install corner posts with two intermediate braces where there is a deviation of more than 250 mm and/or significant change in inclination of more than 750 mm.
- .5 Install intermediate rail (spacer) between the posts, at the middle height of the fence, parallel to the principal rail in the following cases:
 - .1 Between the end and the line, gate and corner posts.
 - .2 Between the gate posts and the line or corner posts.
 - .3 Between the corner posts and the line posts. The corner posts must be braced in the two directions.
 - .4 Between straining and line posts at every 30 m c/c posts.
 - .5 Between the posts in the case of marked change of inclination.
 - .6 Between the corner and line or corner posts. The corner posts must be braced in both directions.
 - .7 Between all posts when fence height exceed 2,4 m.
- .6 Install on the posts the overhang connections and the caps.
- .7 Install the higher rail between the posts and fix firmly on the posts and fix the overhang connections and the watertight caps.
- .8 Install the bottom chain link and tie to the fence at an interval of approximately 500 mm. Tie it to end, corner, gate and straining posts to maintain the following heights above the finished floor.
 - .1 50 mm over the paved surfaces.

- .9 Deploy chain link on the fence, strongly tend to the tension recommended by the manufacturer and attach it to the end, angle, gate and reinforcement posts, with the tension bar fixed at the post by means of supports posed to 350 mm interval. Place the folded edge down and the twisted edge on top
- .10 If required, tie the mesh to the top rails, intermediate brace and bottom wire using tie wire placed at intervals of 500 mm. Make at least two twists on the wire clip. It must be attached to the end posts using tie wire placed at 300 mm intervals.
- .11 Border fences: mesh of fence of 1,5 m in height and less must be twisted and pointed tips at the top and bottom edge. For mesh of fence more than 1,5 m in height, the upper edge must be twisted and sharp and the bottom edge must be folded tips.

3.3 GATE INSTALLATION

- .1 Install the gates where indicated on the drawings
- .2 Gate bottom at 50mm of the floor.
- .3 Hang the gates and position the hinges so that when they are in an open position, they are folded back against the fence where the hinges are located.
- .4 The gates are equipped with latches with lock accessible from both sides of the fence.
- .5 When required, install barrier bumpers as indicated.
- .6 Provide secured locks.

3.4 TOUCH-UP

- .1 Repair damaged galvanized surfaces. Clean the damaged surfaces with a metal brush removing the detached or cracked layers of zinc. Apply on damaged surfaces two layers of a galvanization product rich in zinc or treat them in accordance with the manufacturer's instructions.

3.5 CLEANING

- .1 Promptly as the work proceeds and on completion clean up and remove from the premises all rubbish and surplus materials resulting from the foregoing work.

END OF SECTION

APPENDIX 3

Instructions

Pour la rédaction du Manuel d'exploitation et d'entretien

Rédigé à l'intention du

Gestionnaire de Projet & Consultants de Conception

Avant propos

- Le présent document se veut un outil de base pour la rédaction du manuel d'exploitation et d'entretien.
- Les instructions concernant les inscriptions en *italique* peuvent différer selon les projets et seront expliquées par le gestionnaire/spécialiste de mise en service lors de la réunion de démarrage.
- Le manuel remis à la MES, 10 jours avant l'acceptation provisoire, doit contenir les versions originales des documents suivants : Dessins d'atelier, LCI, PVR, rapports d'essai, rapport de balancement divers, rapports de mise en route, revu et recommandé par l'expert-conseil. *Registre de formation ISO132*, etc.
- Inclure au début du manuel une lettre de l'expert-conseil avec l'entête de sa firme stipulant qu'il a vérifié et approuvé le manuel et que le manuel contient tous les documents requis dans l'appel d'offre et ajustements pendant la construction.



800, boul. René Levesque ouest, bureau 342-345
Montréal, Québec, H3B 1X9

Nom du projet

Nom du bâtiment

Adresse du projet

Ville, Province Code Postal

Date d'achèvement provisoire :

Projet no. : GOC XXXXXX

Manuel d'exploitation et d'entretien

Architecte : Nom, adresses, numéro de téléphone

Ingénieur mécanique : Nom, adresses, numéro de téléphone

Entrepreneur général : Nom, adresses, numéro de téléphone

Tranche du manuel d'entretien et d'opération

Nom du projet, (tel qu'indiqué au plan de projet)

Nom du bâtiment

Adresse du projet, Ville, Province, Code Postal Projet

no. : GOC XXXXXX

Table des matières

Nom du projet

Projet no. : GOC XXXXXX

Nom du bâtiment

Adresse du projet,

Ville, Province Code Postal

Date d'achèvement du projet

Coordonnées _____ Onglet A

- Inclure les coordonnées des consultants, l'entrepreneur général et tous les sous-traitants. Inclure et identifier pour chaque équipement, le nom du fabricant et de l'installateur, leur adresse, leur numéro de téléphone et un numéro de service d'urgence 24hr pour tous équipements.

Lettre de garantie _____ Onglet B

- Une lettre de garantie de l'entrepreneur général qui est datée, inclure le nom du projet, le numéro du projet (GOC#), l'adresse du bâtiment, la période de garantie, la date débutant la garantie qui concorde avec l'acceptation provisoire approuvée du Consultant. De plus, toutes autres garanties fournies par les sous-traitants et les garanties prolongées des équipements.

Dessins d'ateliers _____ Onglet C

- Les copies des dessins d'ateliers approuvés par le Consultant ou par l'Agent MES tierce.

Tous rapports _____ Onglet D

- Des copies de tous les rapports des essais, de réglage et d'équilibrage (ERE), des rapports de vérification avant mise en marche, des rapports d'essai de fonctionnement, des formulaires de contrôle des performances et des autres documents (permis ou certifications) délivrés par des autorités compétentes, *ex : vérification de câblage, certifications d'alarme incendie, certification sismique, etc., et tous les permis de construction soit électrique, bâtiment, plomberie, etc.*

Séquence d'opération _____ Onglet E

- Fournir les instructions et séquence d'opération du concepteur et/ou de l'installateur spécialisé.

Manuels spécifiques de service et de maintenance _____ Onglet F

- Les manuels spécifiques d'entretien, de la maintenance préventive et corrective avec les cédules d'entretien et les procédures de service d'entretien.

Dessins conformes à l'exécution (TQC): _____ Onglet G

- Dessins annotés en rouge par l'entrepreneur et revue par le Consultant.

Formulaire SIGE _____ Onglet H

- Une copie de tous les formulaires SIGE rempli pour tous équipements enlevés, ajoutés ou remplacés.

Rapports d'inspection de chantier _____ Onglet I

- Tous les rapports d'inspection de chantier effectué lors du projet. Les rapports d'inspection doivent inclure les copies émis par le Consultant et ceux annotés par l'entrepreneur une fois que les déficiences ont été complété.

Le manuel de mise en service final _____ Onglet J

- Une copie du rapport de mise en service préparé par le Consultant et/ou l'Agent MES tiers du projet.

Onglet A

Coordonnées

Onglet A

Coordonnées du Consultant:

Nom de la compagnie : _____

Numéro civique et adresse : _____

Ville, Province, Code postal : _____

Téléphone : _____

Fax : _____

Courriel : _____

Numéro de service d'urgence 24hr : _____

Responsable Mise en Service

Nom : _____

Titre : _____

Coordonnées de l'entrepreneur général:

Nom de la compagnie : _____

Numéro civique et adresse : _____

Ville, Province, Code postal : _____

Téléphone : _____

Fax : _____

Courriel : _____

Numéro de service d'urgence 24hr : _____

Responsable Mise en Service

Nom : _____

Titre : _____

Coordonnées du sous-traitant;

Nom de la compagnie : _____

Numéro civique et adresse : _____

Ville, Province, Code postal : _____

Téléphone : _____

Fax : _____

Courriel : _____

Numéro de service d'urgence 24hr : _____

Responsable Mise en Service

Nom : _____

Titre : _____

Coordonnées du sous-traitant;

Nom de la compagnie : _____

Numéro civique et adresse : _____

Ville, Province, Code postal : _____

Téléphone : _____

Fax : _____

Courriel : _____

Numéro de service d'urgence 24hr : _____

Responsable Mise en Service

Nom : _____

Titre : _____

Coordonnées pour les équipements;

Nom du manufacturier : _____

Nom de l'installateur : _____

Numéro civique et adresse : _____

Ville, Province, Code postal : _____

Téléphone : _____

Fax : _____

Courriel : _____

Numéro de service d'urgence 24hr : _____

Coordonnées pour les équipements;

Nom du manufacturier : _____

Nom de l'installateur : _____

Numéro civique et adresse : _____

Ville, Province, Code postal : _____

Téléphone : _____

Fax : _____

Courriel : _____

Numéro de service d'urgence 24hr : _____

Onglet B

Lettre de Garantie signé

Onglet B

L'onglet B doit contenir les items suivant;

1. La lettre de garantie de l'entrepreneur général

- a. La lettre doit être adressé à :
 - i. *BGIS*
Nom de l'immeuble
Adresse de l'immeuble
- b. La lettre doit être écrite sur du papier avec l'entête du nom de la compagnie de l'entrepreneur signé et daté.
- c. Inscrire dans l'objet le nom du projet, le numéro (GOC XXXXXX) et l'adresse du projet
- d. **BGIS et le gouvernement du Canada doivent figurer comme bénéficiaires sur toutes les garanties.**
- e. **La lettre doit stipuler que celle-ci débute à l'acceptation provisoire du projet soit le (jour/mois/année)**
- f. La lettre doit stipuler la durée de la garantie et inclure les équipements qui s'applique/installé et à la main d'œuvre et ne doit pas être restrictive.

2. La liste des équipements ayant une garantie supérieure à une année doivent être indiqué sur la lettre de garantie avec les termes de la garantie prolongée (En annexe de la lettre de garantie principale)

Exemple :

Manufacturier :	Trane
Nom de l'équipement :	Condenseur système 2-A
Pièce :	Compresseur
# de modèle :	T-224
# de série	23496377
Type de garantie :	5 ans sur compresseur

Onglet C

Dessins d'ateliers

Onglet C

L'onglet C doit contenir les items suivant;

1. Le formulaire complété du suivi des dessins d'atelier de l'expert- conseil.
2. Tous les dessins d'atelier originaux, approuvés par l'expert-conseil.

Important

L'approbation acceptée est une estampe portant le nom de firme de l'expert-conseil ainsi que la signature de l'ingénieur.

Onglet D

Tous rapports

Onglet D

L'onglet D doit contenir les items suivant :

Tous les rapports des essais, de réglage et d'équilibrage (ERE), des rapports de vérification avant mise en marche, des rapports d'essai de fonctionnement, des formulaires de contrôle des performances et des autres documents (permis ou certifications) délivrés par des autorités compétentes, *ex : vérification de câblage, certifications d'alarme incendie, certification sismique, etc., et tous les permis de construction soit électrique, bâtiment, plomberie, etc*

1. Tous les LCI originaux, revus par l'expert-conseil et signés et datés.
2. Tous les FIPVR originaux, revus par l'expert-conseil et signés et datés.
3. Tous les rapports d'essais et / ou de mise en route originaux, revu par l'expert-conseil signés et datés.
4. Tous les rapports de balancement, rapport ULC S537-04, NFPA et certificat applicable au projet vérifiés et attesté par le consultant.
5. Formulaire et document de formation.

Important

Les rapports de balancement partiels sont recevables pour l'acceptation provisoire. La liste de déficiences inclura le besoin de fournir les rapports de balancement finaux revu pas l'expert-conseil.

Onglet E

Séquence d'opération

Onglet E

L'onglet E doit contenir les items suivant:

Séquence d'opération : Élaborer sur le bon fonctionnement des systèmes installés. Les séquences devront être précises avec des instructions détaillées pour chaque mode d'opération.

Opération d'urgence : Élaborer sur les fonctions de l'équipement qui peuvent être exploités pendant ce mode versus les autres fonctions désactivées. Indiquer les méthodes d'exploitation alternatives à utiliser suivant un échec partiel, dysfonctionnement d'une composante, ou toute autre condition inhabituelle.

Procédure d'arrêt : Inclure des instructions pour arrêter et sécuriser l'équipement après opération. Si une séquence précise est requise, des instructions détaillées seront requis.

Onglet F

Manuels spécifiques de service et de
maintenance

Onglet F

L'onglet F doit contenir les items suivant:

1. Les procédures et cédules de la maintenance préventive et corrective.
2. Un programme de maintenance préventif imprimé et en format électronique compatible avec le système du client
3. La fréquence recommandée de chaque tâche de maintenance préventive, de nettoyage, d'inspection et un programme pour révision ou remise en état.
4. Nettoyage : Instructions et cédule pour tous nettoyages réguliers et inspections recommandés incluant une liste de nettoyeurs et lubrifiants conseillée.
5. Inspection : Des inspections régulières des équipements sont requises pour s'assurer de l'opération, le nettoyage ou autre raison. Un registre des inspections sera requis avec des critères d'inspection spécifiques pour des moteurs, des contrôles, des filtres et tous autres éléments de maintenance.
6. Instructions pour des réparations mineurs ou ajustements pendant la maintenance préventive
7. Liste des outils spéciaux nécessaires à l'entretien ou la maintenance de l'équipement
8. Tous les manuels d'opération et d'entretien originaux publiés par le fabricant.

Onglet G

Dessins conformes à l'exécution
« tel-que construit »

L'onglet G doit contenir les items suivant :

1. Tous les plans de constructions mis à jour (copie papier) après les travaux et approuvé par l'expert-conseil ainsi que toutes les directives de chantier et notes de chantier émises durant le chantier.
2. Une copie électronique (gravé sur CD) des plans de construction mise à jour sur CAD après les travaux.

Important concernant les TQC:

1. Les TQC annotés en rouge seront approuvés par la MES lors de l'Acceptation Provisoire.
2. Par contre, ils seront inscrits sur la liste de déficiences.
3. Cette déficience sera corrigée à l'Acceptation Finale par l'ajout des TQC corrigé et la version électronique au manuel d'entretien et d'opération.

Important l'approbation acceptée est soit:

4. L'identification dans le cartouche de la firme d'Expert-conseil, la mention « plan conforme à l'exécution » la date, et le nom de l'ingénieur et ou architecte.
5. Une estampe portant le nom de firme de l'expert-conseil ainsi que la signature de l'ingénieur.

Onglet H

Formulaire SIGE

Onglet H

L'onglet H doit contenir les items suivant;

1. Tous équipements qui seront enlevés, ajoutés ou remplacés devront avoir un formulaire SIGE de compléter et inclus au manuel d'exploitation et d'entretien.
Une copie du formulaire sera fournie par BGIS.

Onglet I

Rapports d'inspection de chantier

Onglet I

L'onglet I doit contenir les items suivant;

1. Tous les rapports d'inspection de chantier effectué lors du projet.
2. Les rapports d'inspection doivent inclure les copies émis par le Consultant et ceux annotés par l'entrepreneur une fois que les déficiences ont été complété.
3. Une copie du certificat d'acceptation provisoire du projet

Onglet J

Rapport de mise en service final

Onglet I

L'onglet J doit contenir les items suivant:

1. Une copie du rapport de mise en service préparé par le Consultant et/ou l'Agent MES tiers du projet.
2. Le rapport final sur le processus de mise en service peut contenir :
 - Rapport narratif des activités et épreuves survenues durant chaque étape du projet;
 - Les spécification de mise en service;
 - Procès-verbaux des réunions de mise en service;
 - Mise à jour finale et statut du registre des problèmes de mise en service. Toutes les lacunes, tous les problèmes et tous les points non-conformes doivent être spécifiquement inclus. Chaque point doit faire référence et correspondre à l'essai, à l'inspection ou au rapport de registre de tendance spécifique duquel il a été identifié et documenté. Inclure les recommandations aux fins de mesures correctives, d'améliorations, d'optimisation, de paramètres d'opération des systèmes et des équipements, de performance et d'efficacité, de mesures futures, de modifications au processus de mise en service, recommissioning, etc. ;
 - Correspondance confirmant que tous les essais et de vérification de performance ont rencontré les exigences des devis, de la Base de conception (le cas échéant) ainsi que les Exigences du projet;
 - Base de conception (le cas échéant);
 - Documentation sur la conception schématique (le cas échéant).

APPENDIX 4

Guide de remplissage du formulaire de collecte de données

Légende des couleurs		
Obligatoire	Informations requises dans tous les cas	
Obligatoire si pertinent	Obligatoire uniquement si c'est pertinent à ce type d'équipement, couvert par une garantie, etc.	
Automatique	Aucune entré requise; tableau d'équivalences ou informations concaténées	

Tableau de saisie		
Feuille: Édifice		
Cellule	Titre	Description de contenu
B3	Date de saisie	Inscrire la date courante (Normalement AUJOURD'HUI)
B4	Nom du demandeur	Nom de la personne responsable
B5	Courriel	Courriel de la personne responsable
B6	No. Téléphone	No. Téléphone du demandeur
B8	No. Projet	Inscrire le No. Projet s'il y a lieu
B10	No. Édifice Brookfield	No. d'Édifice BGIS ex: GOC00XXX Inscrire le numéro ou cliquez sur le menu déroulant de la cellule pour choisir l'édifice. L'adresse se remplira automatiquement
Feuille: FCD		
Rangée	Nom du champ	Astuces de saisie rapide
A	Statut	Sélectionnez l'une des options du menu déroulant
B	No. Équipement remplacé ou retiré ou Mise à jour (Ancien/Existant)	Numéro de l'ancien équipement (équipement qui a été remplacé ou équipement qui a été retiré) ou le numéro de l'équipement dont on veut mettre à jour quelques informations
C	Date du retrait	Inscrire la date de retrait de l'ancien équipement s'il y a lieu
D	Statut de retrait	Cliquer sur la cellule un menu déroulant pour choisir celui qui correspond s'il y a lieu
E	Par (Entreprise)	Inscrire le nom de l'entreprise chargé du retrait de l'équipement s'il y a lieu
F	Criticité	Sélectionnez le niveau de criticité du menu déroulant (Normalement 3 - Non critique)
G	Niveau de risque concernant la Légionnelle	Sélectionnez le niveau de risque concernant la Légionnelle du menu déroulant. Souvent «0 - Non applicable»
H	Équipement historique ou lié au patrimoine.	Est-ce que cet équipement a un attrait historique ou est lié au patrimoine? Oui ou Non
I	Type système	Sélectionnez le type de système du menu déroulant, Ex: (25 - Réfrigération).
J	Type d'équipement	Sélectionnez le type d'équipement, Ex: (414 - Themopompe - moins de 5,4 T).
K	No d'unité	Inscrire le No. Unité, dans le cas d'un remplacement ex: (25-407-6), le No. Unité sera 6.1 (Étiquette SIGE) se remplira automatiquement avec 25-407-6.1
L	Type d'équipement (SPAC)	Titre informatif. L'étiquette SIGE comportera ce numéro-ci automatiquement dans la cellule.
M	Étiquette SIGE (SPAC)	Identification SIGE automatique (Étiquette) (Présent dès que le système, type d'équipement et No. d'unité sont inscrits)
N	L'étiquette a été placée sur l'équipement	Est-ce que l'étiquette SIGE a été fixé sur l'équipement: Oui ou Non
O	Description optionnelle	Description optionnelle (Si la description dans P est trop longue ou s'il y a une méthodologie d'inscription spécifique à cet édifice) Max 64 caractères.
P	Description de l'équipement	Description qui sera inscrite dans RealSuite
Q	Appartient à l'équipement No.	Inscrire le numéro d'équipement parent s'il existe
R	Édifice	Pour le Complexe Guy Favreau, ONF, Rigaud, etc. puisque plus d'un édifice, cliquez sur la cellule un menu déroulant pour choisir l'édifice, Ex: Basilaire, A, CMF, etc.

Retrait d'un équipement qui était sur place seulement

N'est pas lié à la nauture historique ou patrimoniale de l'édifice

N'est pas directement lié au numéro SIGE de SPAC

Ces informations (abrévés) sont normalement transcrit avec la description d'équipement et

S	Étage	Sélectionnez l'étage du menu déroulant. Contactez SIGE/CMMS si aucun ne convient	Inscrire un emplacement complémentaire à l'étage
T	Description emplacement (Local)	Description du Local, Ex: (Salle Mécanique, 201-B)	Inscrire un emplacement spécifique complémentaire à l'étage
U	Desc. Empl. Spécifique	Ex: Corridor, Près AC-1, Tuile point rouge, Au fond à gauche, etc.	
V	Fabricant	Nom du fabricant de l'équipement	
W	No. Modèle	No. Modèle de l'équipement	
X	Nom du modèle	Uniquement s'il n'y a pas de numéro de modèle. Ex: Coude 90°	
Y	No. Série	No. Série de l'équipement (inscrire N/A si ce n'est pas applicable à cet équipement)	
Z	Date de fabrication	Si connu, inscrire la date de fabrication; ex: 2018-06-15 (AAAA-MM-JJ) (Si le mois n'est pas connu inscrire 01, si le jour n'est pas connu inscrire 01)	
AA	Date d'expiration du certificat émis pour cet équipement	Date d'expiration du certificat si un certificat a été émis pour cet équipement	
AB	Propriétaire	Habituellement SPAC ou Locataire	
AC	Date d'installation	Date à laquelle cet équipement a été installé	
AD	Nom du garant (Entreprise)	S'il est garanti, quel est le nom de l'entreprise qui couvre la garantie	
AE	Garantie/ Termes	Termes de la garantie	
AF	Date d'expiration de la garantie (Pièces & main d'œuvre)	Date d'expiration de la garantie pièces et main d'œuvre	
AG	Date d'expiration de la garantie (Pièces seulement)	Date d'expiration de la garantie des pièces si elle est supérieure à celle des pièces et main d'œuvre	
AH	Date de début de la maintenance par BGIS s'il est maintenu par l'installateur	Si l'équipement est entretenu par une tierce partie à quelle date BGIS commence-t-il la maintenance	
AI	Prix d'achat	Prix d'achat sans taxes de l'équipement	
AJ	TPS	Montant de la TPS	
AK	TVQ	Montant de la TVQ	
AL	Date d'achat	Date d'achat de l'équipement	
AM	Acheté de (Entreprise)	L'équipement a été acheté de quelle entreprise	
AN	Quantité de contenu environnemental	Quantité de contenu environnemental (Métrique; Kg ou Litres)	
AO	Unité de mesure (Kg ou Litres)	Unité de mesure métrique Kg ou Litres seulement	
AP	Contenu Environnemental	Sélectionner dans la liste déroulante le type de contenu environnemental	
AQ	Capacité de refroidissement (Tonnes)	Capacité de refroidissement de l'équipement en tonnes	
AR	Documents d'environnement joint avec cette demande	Est-ce que les documents environnementaux ont été fourni avec ce formulaire	
AS	Emplacement générale du réservoir	Emplacement général d'un réservoir: Extérieur hors terre, Extérieur enfoui, Intérieur (menu déroulant cellule)	
AT	Installateur Nom de l'Entreprise (ou technicien)	Nom de l'entreprise installateur (ou du technicien)	
AU	No. licence de l'installateur	Numéro de License de l'installateur du réservoir	

AV	No. d'enregistrement d'environnement Canada (8 Caractères)	No. d'enregistrement d'environnement Canada. S'il n'est pas assujéti inscrire "00000000"	
AW	Transformateur testé pour le PCB?	Oui ou Non	
AX	Si non, pour quelle raison?	Pourquoi n'a-t-il pas été testé	
AY	Concentration de PCB	Inscrire la concentration de PCB et l'unité de mesure	
AZ	Test diélectrique: (AAAAMMJJ)	Date du test diélectrique (collé)	
BA	Numéro de la voute du transformateur	Numéro de la voute du transformateur	
BB	Voltage réel (Ex: 208)	Voltage réel auquel est branché cet appareil. Dans le cas d'un panneau électrique ou d'un transformateur écrire le plus élevé	
BC	Ampérage FLA	Ampérage maximum de cet appareil	
BD	Nb Phases	Nombre de phases 1 ou 3	
BE	Puissance (CV)	Puissance en CV	
BF	RPM	Nombre de tours minute	
BG	Taille du cadre (Frame Size)	Taille du cadre	
BH	Numéro du roulement à billes	Numéro de roulement à bille	
BI	Taille de poulie	Taille de poulie sur cet équipement	
BJ	Nb Courroies	Nombre de courroies	
BK	Taille Courroies	Taille des courroies	
BL	Type Courroies ou Direct	Type de courroie; Direct s'il n'y a pas de courroies	
BM	Débit (L/s)	Débit en Litres par seconde	
BN	Pression de fonctionnement (KPa)	Pression de fonctionnement en Kpa	
BO	Capacité (& UdM)	Capacité et unité de mesure EX:Réservoir (sauf ceux spécifié pour des contenus environnementaux)	
BP	Nb de Filtres	Nombre de filtres	
BQ	Taille de Filtres	Taille des filtres	
BR	Type de Filtres	Type de filtres	
BS	Commentaires (Optionnel)		
	Opérations uniquement (s'il n'y a pas de maintenance pour ce type d'équipement)		
BU	Groupe	S'il y a plusieurs groupes de ces équipements il appartient à lequel?	
BV	No. Groupe	GOC... si connu	
BW	No. Cédule	GOC... si connu	
BX	Fournisseur de service	Assigner la maintenance à quel technicien	
BY	Mois de l'annuel		
BZ	Saisonnier	Oui/Non	
CA	Début de la saison	Mois où l'entretien doit commencer	Uniquement si saisonnier
CB	Fin de la saison	Mois où l'entretien doit se terminer	

APPENDIX 5

Normes pour les PLAQUES SIGNALÉTIQUES

Il y a seulement 2 grandeurs de plaques signalétiques qui peuvent être utilisées pour l'identification SIGE. Il est recommandé d'utiliser la plus grande dimension pour la plupart des applications.

A small black rectangular plaque with the white text "05-370-01".

05-370-01

Écriture blanche sur plaque indicatrice noire

20 mm x 50 mm Lettres de 10 mm de hauteur

A larger black rectangular plaque with the white text "05-370-01".

05-370-01

Écriture blanche sur plaque indicatrice noire

20 mm x 100 mm Lettres de 12 mm de hauteur

Grandeur pour les plaques relatives aux composantes.

(utilisés sur les schémas unifilaire)

Exemples: Sectionneurs, Démarreurs, Panneaux



Écriture blanche sur plaque indicatrice noire

25 mm X 75 mm Lettres 12 mm de hauteur

Plaques surdimensionnées pour panneaux distribution primaire

Exemple: 1-S1-D3H3 (cas spéciaux)

(utilisés sur les schémas unifilaire)

Écriture blanche sur plaque indicatrice noire



50 mm X 150 mm Lettres 25 mm de hauteur

Plaquettes identification position dans les panneaux de distribution primaire.

(utilisés sur les schémas unifilaire)



Écriture blanche sur plaque indicatrice noire

25 mm X 25 mm Lettres 15 mm de hauteur

APPENDIX 6

Procédure pour l'installation

Document à compléter par un frigoriste pour chacun des équipements installés:

- ✓ Une étiquette « ODPTag » par nouvel équipement pour la réalisation du test de fuite. Les étiquettes blanches complétées des nouvelles installations doivent rester dans le cartable du projet. Les autres copies de couleur demeurent dans le carnet. Le carnet est la propriété de BGIS.
- ✓ Un registre d'entretien doit être créé pour chaque nouvel équipement avec les informations pertinentes (tous les champs de l'entête doivent être remplis).

L'étiquette (ODPTag)

- ✓ Un test de fuite doit être réalisé sur chacun des nouveaux équipements avant la mise en marche initiale.
- ✓ Vous devez compléter les cases en jaunes du modèle à suivre à la deuxième page. Ceci représente une étiquette par nouvel équipement.
- ✓ Toutes les copies sont conservées par BGIS. La copie blanche doit être apposée sur le système
- ✓ **Si une fuite est détectée vous devez aviser le chargé de projet immédiatement.**

Le registre

- ✓ Vous devez compléter les champs qui sont en jaunes du modèle à suivre à la troisième page. Ceci représente un registre par nouvel équipement.
- ✓ Indiquer que sur la ligne travaux effectués : *Nouvelle installation.*
- ✓ Tous les documents sont conservés par BGIS.

Modèle étiquette: Installation nouvel équipement

BGIS		OPÉRATEUR: BGIS	CONTACT: 877-445-0611
NOM DE LA COMPAGNE (FOURNISSEUR DE SERVICE):		NUMÉRO DU BON DE COMMANDE BJCC:	
NOM DU TECHNICIEN (PERSONNE CERTIFIÉE):		NUMÉRO DE CERTIFICAT "ODP" DU TECHNICIEN:	DATE D'EXPIRATION: AAAA/MM/JJ
PROPRIÉTAIRE DE L'EQUIPMENT (NOM DU CLIENT):	ADRESSE DU CLIENT (ADRESSE OÙ EST SITUÉ L'ÉQUIPEMENT):		
MANUFACTURIER (YORK, TRANE, ETC.):	NUMÉRO DE MODÈLE (SUR L'UNITÉ):		
NUMÉRO DE SÉRIE (SUR L'UNITÉ):	DESCRIPTION DU SYSTÈME (PACKAGED, SPLIT, BUILT-UP, ETC.):		
ID D'ÉDIFICE (CODE CLLI)	LOCALISATION PRÉCISE DE L'ÉQUIPEMENT (TOIT, SOUS-SOL, ETC.):		
CAPACITÉ (TONNAGE DE L'UNITÉ): TON ou KW <input type="checkbox"/> <input type="checkbox"/>	TYPE DE RÉFRIGÉRANT (R22, R123, ETC.):	QTÉ DE RÉFRIGÉRANT: LBS ou KG <input type="checkbox"/> <input type="checkbox"/>	
QUANTITÉ LIBÉRÉE: LBS ou KG <input type="checkbox"/> <input type="checkbox"/>	QUANTITÉ AJOUTÉE: LBS ou KG <input type="checkbox"/> <input type="checkbox"/>	QUANTITÉ REPRISE: LBS ou KG <input type="checkbox"/> <input type="checkbox"/>	
COCHEZ ICI S'IL S'AGIT D'UN DÉMANTÈLEMENT OU DÉMONTAGE <input type="checkbox"/>	DESTINATION FINALE S'IL S'AGIT D'UN DÉMANTÈLEMENT OU DÉMONTAGE:		
CARACTÈRES D'IMPRESSION SEULEMENT		RÉSULTAT DU TEST	
CET AVIS NE DOIT PAS ÊTRE RETIRÉ POUR UNE PÉRIODE DE CINQ ANS APRÈS LA DATE D'ÉMISSION		DATE D'ÉMISSION: AAAA/MM/JJ	
		<input type="checkbox"/> FUITE DÉTECTÉE. NE PAS REMPLIR AVANT RÉPARATION <input type="checkbox"/> FUITE RÉPARÉE <input type="checkbox"/> FUITE NON RÉPARÉE <input checked="" type="checkbox"/> SANS FUITE <input type="checkbox"/> NE CONTIENT PLUS AUCUN HALOCARBURE	
NUMÉRO D'ÉMISSION:		DEUX TESTS PRÉCÉDENTS LORSQU'APPLICABLE	
451103		COCHEZ ICI S'IL S'AGIT D'UNE NOUVELLE INSTALLATION <input type="checkbox"/>	
NUMÉRO D'ÉMISSION: NA		DATE DU TEST PRÉCÉDENT: AAAA/MM/JJ	
NUMÉRO D'ÉMISSION: NA		DATE DU TEST PRÉCÉDENT: AAA NA/MM/JJ	
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Modèle registre d'entretien : Nouvelle installation

SECTION 1 - Information sur le système									
No d'équipement BSGI:				Manufacturier:					
No d'équipement du client:				No de modèle:					
Nom du propriétaire:				No de série:					
Adresse du bâtiment:				Localisation de l'équipement:					
Ville:				Description de l'équipement:					
Province:				Type d'halocarbures:				Tonnage de l'équipement:	
Nom de l'opérateur:				Capacité de charge:				<input type="checkbox"/> Kg <input type="checkbox"/> Lbs	
SECTION 2 - Compléter cette section pour toute maintenance préventive, entretien ou réparation effectuée					SECTION 3 - Résultats des essais d'étanchéité			Détails sur les fuites	
Date de l'entretien aaaa / mm / jj	No bon de commande	Nom du technicien	Nom de la compagnie	No du certificat "ODP"	Essai d'étanchéité	Fuite détectée	No d'étiquette de l'essai d'étanchéité	Compléter la SECTION 4 ci-dessous si une fuite est détectée	
/ /					O/N	O/N		Méthode de détection	
Travaux effectués :								Électronique / Jauges / Visuel	
/ /					O/N	O/N		Méthode de détection	
Travaux effectués :								Électronique / Jauges / Visuel	
/ /					O/N	O/N		Méthode de détection	
Travaux effectués :								Électronique / Jauges / Visuel	
/ /					O/N	O/N		Méthode de détection	
Travaux effectués :								Électronique / Jauges / Visuel	
/ /					O/N	O/N		Méthode de détection	
Travaux effectués :								Électronique / Jauges / Visuel	
/ /					O/N	O/N		Méthode de détection	
Travaux effectués :								Électronique / Jauges / Visuel	
/ /					O/N	O/N		Méthode de détection	
Travaux effectués :								Électronique / Jauges / Visuel	
SECTION 4 - Détails des travaux de réparation suite à une fuite ***Suite à une fuite commencer une nouvelle feuille de registre d'entretien***									
Date des réparations aaaa / mm / jj	No d'étiquette de l'essai d'étanchéité effectué après les réparations	Date de l'essai d'étanchéité effectué après les réparations	No du bon de travail	Localisation de la fuite	Fuite isolée	Rapporter à Santé-sécurité de BGIS dans les 24 heures		Quantité récupérée KG / LB	Quantité chargée KG / LB
/ /		/ /			O/N	safety@bgis.com			
Réparations effectuées suite à une fuite									

Procédure pour le démantèlement ou démontage

Document à compléter par un frigoriste pour chacun des équipements:

- ✓ Une étiquette « ODPTag » par équipement qui sera retiré puisqu'il s'agit de l'avis de démantèlement/démontage. Elles sont disponibles dans la pochette qui vous sera fournie.
- ✓ Compléter le registre de chaque équipement.

L'étiquette (ODPTag)

- ✓ L'équipement doit être vidé de son réfrigérant et la quantité enlevée doit être indiquée sur l'étiquette avant le démantèlement ou démontage.
- ✓ Si la quantité enlevée diffère de celle contenue dans l'équipement cela doit être considéré comme une fuite.
- ✓ Si une fuite est détectée vous devez aviser le chargé de projet immédiatement.
- ✓ Vous devez compléter toutes les cases qui sont en jaunes pour chacune étiquette, pour chaque équipement enlevé. Voir le modèle à suivre en deuxième page.
- ✓ Chacune des copies blanches doit être apposée sur l'équipement qui est retiré. Les autres copies doivent rester dans le carnet et BGIS les conservera.

Registre

- ✓ Vous devez compléter les champs qui sont en jaunes sur le modèle à suivre en troisième page. Ceci représente un registre par équipement qui est retiré. La section 4 doit être complétée s'il y a une fuite d'halocarbure.
- ✓ Indiquer que sur la ligne travaux effectués : *démantèlement envoi pour recyclage*.
- ✓ Tous les documents sont conservés par BGIS.

Modèle : Étiquette pour le démantèlement/ démontage

BGIS		OPÉRATEUR: BGIS	CONTACT: 877-445-0611
NOM DE LA COMPAGNE (FOURNISSEUR DE SERVICE):		NUMÉRO DU BON DE COMMANDE BJCC:	
NOM DU TECHNICIEN (PERSONNE CERTIFIÉE):		NUMÉRO DE CERTIFICAT "ODP" DU TECHNICIEN:	DATE D'EXPIRATION: AAAA/MM/JJ
PROPRIÉTAIRE DE L'ÉQUIPEMENT (NOM DU CLIENT):	ADRESSE DU CLIENT (ADRESSE OÙ EST SITUÉ L'ÉQUIPEMENT):		
MANUFACTURIER (YORK, TRANE, ETC.):	NUMÉRO DE MODÈLE (SUR L'UNITÉ):		
NUMÉRO DE SÉRIE (SUR L'UNITÉ):	DESCRIPTION DU SYSTÈME (PACKAGED, SPLIT, BUILT-UP, ETC.):		
ID D'ÉDIFICE (CODE CLLI)	LOCALISATION PRÉCISE DE L'ÉQUIPEMENT (TOIT, SOUS-SOL, ETC.):		
CAPACITÉ (TONNAGE DE L'UNITÉ): TON ou KW <input type="checkbox"/> <input type="checkbox"/>	TYPE DE RÉFRIGÉRANT (R22, R123, ETC.):	QTÉ DE RÉFRIGÉRANT: LBS ou KG <input type="checkbox"/> <input type="checkbox"/>	
QUANTITÉ LIBÉRÉE: LBS ou KG <input type="checkbox"/> <input type="checkbox"/>	QUANTITÉ AJOUTÉE: LBS ou KG <input type="checkbox"/> <input type="checkbox"/>	QUANTITÉ REPRISE: LBS ou KG <input type="checkbox"/> <input type="checkbox"/>	
COCHEZ ICI S'IL S'AGIT D'UN DÉMANTÈLEMENT OU DÉMONTAGE <input type="checkbox"/>	DESTINATION FINALE S'IL S'AGIT D'UN DÉMANTÈLEMENT OU DÉMONTAGE:		
CARACTÈRES D'IMPRESSION SEULEMENT		RÉSULTAT DU TEST	
CET AVIS NE DOIT PAS ÊTRE RETIRÉ POUR UNE PÉRIODE DE CINQ ANS APRÈS LA DATE D'ÉMISSION		DATE D'ÉMISSION: AAAA/MM/JJ	
		<input type="checkbox"/> FUIITE DÉTECTÉE. NE PAS REMPLIR AVANT RÉPARATION <input type="checkbox"/> FUIITE RÉPARÉE <input type="checkbox"/> FUIITE NON RÉPARÉE <input type="checkbox"/> SANS FUIITE <input checked="" type="checkbox"/> NE CONTIENT PLUS AUCUN HALOCARBURE	
NUMÉRO D'ÉMISSION:		DEUX TESTS PRÉCÉDENTS LORSQU'APPLICABLE	
451102		COCHEZ ICI S'IL S'AGIT D'UNE NOUVELLE INSTALLATION <input type="checkbox"/>	
		NUMÉRO D'ÉMISSION:	DATE DU TEST PRÉCÉDENT: AAAA/MM/JJ
Forme BJCC # ENV-201-01F Dernière révision 1 août 2017		NUMÉRO D'ÉMISSION:	DATE DU TEST PRÉCÉDENT: AAAA/MM/JJ

Modèle registre d'entretien : Nouvelle installation

SECTION 1 - Information sur le système								
No d'équipement BSGI:				Manufacturier:				
No d'équipement du client:				No de modèle:				
Nom du propriétaire:				No de série:				
Adresse du bâtiment:				Localisation de l'équipement:				
Ville:				Description de l'équipement:				
Province:				Type d'halocarbures:				
Nom de l'opérateur:				Tonnage de l'équipement:				
				Capacité de charge: <input type="checkbox"/> Kg <input type="checkbox"/> Lbs				
SECTION 2 - Compléter cette section pour toute maintenance préventive, entretien ou réparation effectuée				SECTION 3 - Résultats des essais d'étanchéité				Détails sur les fuites
Date de l'entretien aaaa / mm / jj	No bon de commande	Nom du technicien	Nom de la compagnie	No du certificat "ODP"	Essai d'étanchéité	Fuite détectée	No d'étiquette de l'essai d'étanchéité	Compléter la SECTION 4 ci-dessous si une fuite est détectée
/ /					O/N	O/N		Méthode de détection
Travaux effectués :								Électronique / Jauges / Visuel
/ /					O/N	O/N		Méthode de détection
Travaux effectués :								Électronique / Jauges / Visuel
/ /					O/N	O/N		Méthode de détection
Travaux effectués :								Électronique / Jauges / Visuel
/ /					O/N	O/N		Méthode de détection
Travaux effectués :								Électronique / Jauges / Visuel
/ /					O/N	O/N		Méthode de détection
Travaux effectués :								Électronique / Jauges / Visuel
/ /					O/N	O/N		Méthode de détection
Travaux effectués :								Électronique / Jauges / Visuel
SECTION 4 - Détails des travaux de réparation suite à une fuite ***Suite à une fuite commencer une nouvelle feuille de registre d'entretien***								
Date des réparations aaaa / mm / jj	No d'étiquette de l'essai d'étanchéité effectué après les réparations	Date de l'essai d'étanchéité effectué après les réparations	No du bon de travail	Localisation de la fuite	Fuite isolée	Rapporter à Santé-sécurité de BGIS dans les 24 heures	Quantité récupérée KG / LB	Quantité chargée KG / LB
/ /		/ /			O/N	safety@bgis.com		
Réparations effectuées suite à une fuite								