
Project Manual

For:

**Molson Club at the
Air Canada Centre,
Level 300, Level 200 and
Event Level
40 Bay Street, Toronto, ON**

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1 GENERAL

1.1 Form of Contract

- .1 The contract will be CCDC-17 2010 Stipulated Price contract between Owner and Trade Contractor.
- .2 Requirements of Division 1 apply to all Sections of Work.

1.2 Work Covered under Contract Documents

- .1 The Work of this Contract includes renovations to Molson Club on Level 300 at the Air Canada Centre, two concessions at Event level and level 300, Leafs Alumni lounge at level 200.
- .2 Provide all items, articles, materials, services and incidentals, whether or not expressly specified or shown on Drawings, to make the Work complete and fully operational, consistent with the intent of the Contract Documents.
- .3 Work designated N.I.C is not included in this contract:

1.3 Definitions

- .1 Wherever words "acceptable", "approved", "reviewed", "satisfactory", "directed", "selected", "designated", "required", "submit", "instructed", "permitted" or similar words or phrases are used in Contract Documents or referenced standards, it shall be understood, that "by" or "to" "the Consultant" follows, unless context clearly provides otherwise.

1.4 Division of Work

- .1 Notwithstanding the organization of the project manual, division of work among Subcontractors and Suppliers is the Trade Contractor's responsibility.
- .2 The Consultant shall not be responsible to establish subcontract limits.

1.5 Examination

- .1 Examine site and surrounding areas and be fully informed as to the conditions, circumstances and limitations under which the Work has to be executed. Claims for additional costs will not be entertained with respect to conditions, circumstances and limitations which could reasonably have been ascertained by an examination prior to submission of bid.
- .2 Prior to commencement of work, make careful examination of previously executed work, existing conditions, levels, dimensions and clearances. Promptly advise Consultant of unsatisfactory preparatory work and substrate conditions. Commencement of work by this Trade Contractor implies acceptance of conditions.

1.6 Use of Site

- .1 The site of the Work is located at the Air Canada Centre, 40 Bay Street, Toronto, Ontario.
- .2 At all times restrict work, access, storage and other activities in connection with this Project to areas assigned by the Construction Manager for this purpose.
- .3 Check means of access and egress, rights and interests in order to avoid interference. Do not block roadways, entrances and exits.

1.7 Permits

- .1 The Building Permit will be obtained by the Owner. The Contractor will be expected to obtain all other required permits and shall include the cost of these and any necessary inspections in his price.

1.8 Inspections

- .1 The Consultant and Sub-consultants will inspect the work regularly and certify all payments.

1.9 Site Services

- .1 Protect all existing site services during construction.
- .2 Provide, maintain and pay for all temporary facilities and controls required in the execution of the Work.
- .3 Existing electrical power, water and drainage may be used provided they are:
 - .1 used when and as directed by Owner.
 - .2 protected against abuse and damage.
 - .3 restored to original condition, when no longer required.

- .4 Provide adequate ventilation for enclosed areas receiving architectural finishes and in areas where volatile substances are used. Do not allow excessive build-up of moisture inside building.
- .5 Prevent dust and debris from entering occupied areas. Provide temporary dustproof partitions or curtains where required.
- 6 The Trade Contractor will be responsible for arranging and paying for all temporary services required to carry out the Work. The Owner will pay for the consumption of any normal utilities (except telephone) during construction. The Trade Contractor may locate refuse bins on the Owner's property, subject to the Construction Manager's prior approval of location.
- .7 Construction parking will not be allowed at the site. Provide and pay for parking facilities required to perform the work. Schedule all deliveries with the Construction Manager.
- .8 Limited storage will be provided for construction materials on site at locations to be designated by the Construction Manager
- .9 The Construction Manager will designate existing washroom facilities for use by all construction personnel.

1.10 Occupation During Construction

- .1 The Owner does not intend to continuously occupy each of the areas impacted by the new Molson Club facilities within the property during the Work, however all other areas within the Air Canada Centre will be in use. Coordinate with the Owner's security staff for all required staff security screening procedures during the Work. The Air Canada Centre is intensively used for sporting and entertainment exhibitions. These regularly scheduled exhibitions will continue unabated for the duration of construction. The Trade Contractor shall ensure that required pedestrian and vehicular access and egress routes are unobstructed, and that fire detection and suppression systems remain operational at all times that the building is occupied.

1.11 Neighbouring Properties

- .1 The Trade Contractor shall take every measure practical to minimize inconvenience to and disturbance of the neighbouring sites and other areas within the Air Canada Centre. Construction trade vehicles are to be legally parked and not block driveways, etc. All refuse is to be stored covered and removed from the site regularly. Dust and odours shall not be allowed to blow onto neighbouring properties. Noise should be restricted to normal construction hours and minimized. Any damage to neighbouring property will be the responsibility of the Trade Contractor, and will be repaired and made good at no cost to the Owner.

1.12 Hoarding

- .1 Provide hoarding to the requirements of authorities having jurisdiction. Protect pedestrians using the premises at all times.
- .2 Provide interior hoarding, screens, curtains or partitions to localize dust generating activities, and for the protection of workers, finished areas of Work and the public. Remove hoardings at conclusion of the work..

1.13 Payments

- .1 Payments will be made monthly by the Owner on the Consultant's Certificate. The Trade Contractor shall submit his requisition to the Construction Manager no less than 7 business days before he actually requires a cheque. The Trade Contractor shall supply a detailed breakdown of his contract price and each requisition shall identify which items are being billed for, what the total previous billings to date are for that item, and how much is remaining to be billed. The Trade Contractor's proposed breakdown or "schedule of values" shall be submitted to the Construction Manager and Consultant within 10 days after the contract is signed along with his detailed project schedule and an estimate of the amount of each progress draw.
- .2 Refer to Section 00200 Instruction to Bidders for other terms of payment not mentioned here.

1.14 Material and Labour to be Provided by the Owner

- .1 All audio visual equipment and connections to that equipment indicated throughout the Contract Documents are to be removed, and supplied by the Owner's Contractor as named in the Tender Form.. The Trade Contractor will include in his work the supply and installation of these devices. This Trade Contractor is to co-ordinate this work by making the site available at the appropriate time, scheduling all final hook-ups and surrounding finishes.

- .2 Where seating, loose furniture and other products are shown to be supplied only by the Owner for incorporation into work of this Contract, the Trade Contractor shall do the following:
 - .1 Unload and handle at site.
 - .2 Promptly inspect delivered products, and give written report to Consultant on condition of all items received.
 - .3 Remove packaging material from site and clean products.
 - .4 Install, connect and finish products as specified.

1.15 Site Security

- .1 The Trade Contractor shall cooperate with the Owner to keep the site secure at all times against thieves, vandals, and curious visitors.

1.16 Clarifications and Changes

- .1 Clarifications and Changes in the scope of the work will be documented as follows: The Consultant will provide clarification or describe the scope of a change on a "Supplemental Instruction" to the Construction Manager. The Trade Contractor will quote the value of the change, whether an extra, a credit, or no charge. The Owner will approve same. The Consultant will issue a "Change Order", changing the contract amount accordingly. Then, and only then, shall the Trade Contractor proceed with the work *unless he has specifically been specifically instructed to proceed in the Supplemental Instruction*. In such instances the approximate value of the change will be identified in the Instruction.

1.17 Alternatives

- .1 With his tender submission, the Trade Contractor may propose cost saving alternatives to material selections and labour saving options. Itemize alternatives and savings and keep these prices separate from the final lump sum price. The Owner will review alternatives prior to accepting them.

1.18 Shop Drawings

- .1 Prepare shop drawings using the same system of measurement as used for Contract Documents. Shop drawings failing to meet this requirement may be rejected.
- .2 Submit 3 sets of prints or one electronic copy of shop drawings for the following, and as the Consultant may reasonably request.
- .3 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connection, explanatory notes and other information necessary for completion of Work.
- .4 Adjustments made on shop drawings by Consultant are not intended to change Contract Price.
- .5 Revise, make changes in shop drawings and re-submit for review as the Consultant may require.
- .6 Consultant's review is for the sole purpose of ascertaining conformance with the general design concept. This review shall not mean that the Consultant approves the detail design inherent in the shop drawings, responsibility for which shall remain with the Trade Contractor, and this review shall not relieve the Trade Contractor of his responsibility for meeting the requirements of the Contract Documents. The Trade Contractor is responsible for dimensions to be confirmed and correlated at the job site for information that pertains solely to fabrication processes or to techniques of construction and installation and for coordination of the work of all subcontractors and suppliers.

1.19 Product Data

- .1 Submit 3 printed copies or one electronic copy, unless otherwise noted, of product data sheets or brochures for requirements requested in specification Sections and as Consultant may reasonably request where shop drawings will not be prepared due to standardized manufacture of product.

1.20 Samples

- .1 Submit samples required by Contract Documents and as directed by the Consultant.
- .2 Unless indicated otherwise submit samples in triplicate.
- .3 Submit samples with identifying labels bearing material or component description, manufacturer's name and brand name, Trade Contractor's name, project name, location in which material or component is to be used, and date.

- .4 Prepay any shipping charges involved for delivering samples to destination point and returning to point of origin if required.
- .5 No work requiring a sample submission shall be commenced until the submission has received Consultant's final review.

1.21 Cutting and Patching

- .1 Except where shown on drawings, do not cut or drill structural or load-bearing elements.
- .2 Do not endanger Work or property by cutting, drilling or similar activities. No Trade Contractor shall cut or alter the Work of any other Contractor unless the latter approves such cutting or alteration.
- .3 Where cutting and coring of existing concrete slabs is indicated or required, carry out non-destructive investigations before any such cutting or coring proceeds
- .3 Cut and drill with true smooth edges and to minimum suitable tolerances.
- .4 Note requirement for grinding, cutting and patching, and making good of existing concrete slab surfaces.
- .4 Fit new construction tightly to ducts, pipes and conduit to stop air movement completely. The Trade Contractor performing Work that penetrates a fire, air, vapour, moisture, thermal or acoustical separation of the building shall pack voids tightly with rock wool; seal air, vapour, and moisture barriers; caulk joints as may be required to ensure that no air, smoke or fire movement through the penetration is possible.
- .5 Cut work with suitable tools only, to minimize damage and without endangering safety of the Work.
- .6 Patching shall be undetectable in work that is exposed to view.

1.22 Protection

- .1 Prevent damage to existing structures, buildings, foundations, pavement, fences, curbs, grounds, plants, property, utilities, services, finishes during the progress of Work. Repair and make good any damage caused at no extra cost to Owner, to the satisfaction of the Owner, adjacent property owners affected and authorities having jurisdiction. Only subcontractors specifically capable of performing the work will be allowed to make remedial or repair work.
- .2 Keep surfaces to receive finished flooring dry and free from oil, grease and other contaminants. Stockpiling of damp or wet building materials and use of mixing boxes without protecting floors from moisture gain, is prohibited.
- .3 Protect new work from damage with suitable protective coverings.

1.23 Regulatory Requirements

- .1 Comply with codes, bylaws, regulations, ordinances and requirements of authorities having jurisdiction at the Place of the Work.
- .2 In case of conflict between applicable regulatory requirements and specifications, follow the most stringent requirements.

1.24 Safety and Security

- .1 Be governed by applicable safety requirements of Federal and Provincial Governments and of municipal bodies having authority, particularly, but not limiting the generality of the foregoing, the Occupational Health and Safety Act, and regulations of the Ministry of Labour.
- .2 Do not, in the performance of the work, in any manner endanger the safety or unlawfully interfere with the convenience of the public.
- .3 Take steps to prevent entry to the Work by unauthorized persons and guard against theft, fire and damage by any cause.
- .4 Maintain fire protection for work areas. Store paints and volatile substances in a separate and controlled location and inspect frequently. Inspect temporary wiring, drop cords, extension cables for defective insulation of connections frequently. Remove combustible wastes frequently. Prohibit smoking in work areas.
- .5 Do not cut, bore or sleeve through any load bearing member, new or existing, unless specifically indicated on Drawings, and/or unless authorized by Consultant.

1.25 Hazardous Materials

- .1 Comply with provisions of the Occupational Health and Safety Act as amended to include WHMIS (Workplace Hazardous Materials Information System).
- .2 Ensure that Material Safety Data Sheets (MSDS) are available on site prior to delivery to site of any hazardous material.
- .3 Maintain on site for duration of Contract a hazardous materials log containing all required MSDS.

- .4 Log shall be open for inspection by Construction Manager, Owner, Consultant and all personnel on site.
- .5 Ensure that workers are instructed in the purpose and content of MSDS.

1.26 Sleeves, Supports And Fasteners

- .1 Furnish, set and secure insets, hangers, sleeves, fasteners, adhesives, anchors and other supports and fittings required for proper installation and securement of the Work.
- .2 Use exposed metal fastenings and accessories of same texture, colour and finish as base metal on which they occur.
- .3 Select appropriate type of anchoring and fastening devices and in sufficient quantity and in such manner as to provide positive permanent anchorage of unit to be anchored in position. Keep exposed fasteners to a minimum, evenly spaced and neatly laid out.
- .4 Fasteners shall be of permanent type. Do not use wood plugs.
- .5 Fasteners which cause spalling or cracking of material to which anchorage is being made shall not be used.

1.27 Concealment

- .1 Conceal ductwork, piping, conduits and wiring located in finished areas, in ceiling spaces, walls below floors, and where required, behind furred construction, unless specifically noted to be exposed.
- .2 Conserve space and coordinate with other Sections to ensure that work will fit into allocated spaces.

1.28 Dimensions

- .1 Check and verify dimensions wherever referring to work. Dimensions pertaining to work of another Section, shall be verified with Section concerned. Details and measurements of work which is to fit or conform with work installed, shall be taken at site.
- .2 Do not scale Drawings. If there is ambiguity, lack of information or inconsistency, immediately request clarification.
- .3 Walls, partitions, screens shall be considered to extend from floor to underside of structural deck, unless otherwise indicated.

1.29 Locations of Fixtures

- .1 Locations of fixtures, apparatus, equipment, fittings and outlets shown or specified, but not dimensioned, shall be considered approximate. Request Consultant's clarification prior to roughing-in.
- .2 Except where locations are specifically noted, install fixtures, outlets, switches, thermostats, panels and other exposed items in orderly and neatly laid-out manner, lining up with each other and grouped together where possible. Review installation with Consultant prior to start of rough-in work.
- .3 Prepare interference and equipment placing drawings to ensure that all work will be properly accommodated within assigned spaces.

1.30 Construction Schedule

- .1 Within 3 days after award of Contract, submit, in a form approved by Consultant, construction schedule for work of entire Contract.
- .2 Show in schedule, start and completion times of each item of work.

1.31 Workmanship

- .1 All work shall be carried out in accordance with the best trade practices, by workers skilled in the type of work concerned.
- .2 Products, materials, systems and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the applicable manufacturer's printed directions.
- .3 Where specified requirements are in conflict with manufacturer's written directions, follow manufacturer's directions, but inform Consultant in writing prior to proceeding with affected work. Where specified requirements are more stringent than manufacturer's directions, comply with specified requirements.

1.32 Availability and Substitutions

- .1 Products which are specified by their proprietary names or by part or catalogue number form the basis for Contract. No substitutes for these may be used without Consultant's approval in writing.
- .2 Requests for substitution resulting from failure to place orders in time will not be entertained. Be responsible for ordering products in time to ensure their required delivery; bear all costs for failure to comply with these requirements.

- .3 Upon Consultant's request, submit copies of material and equipment purchase orders.

1.33 Product Delivery, Handling and Storage

- .1 Suitably pack, crate and protect products during transportation to site to preserve their quality and fitness for the purpose intended.
- .2 Store products in original, undamaged condition with manufacturer's labels and seals intact until they are being incorporated into completed work.
- .3 Handle and store materials in accordance with manufacturer's and suppliers recommendations and so as to ensure preservation of their quality, appearance and fitness for work.
- .4 Arrange materials so as to facilitate prompt inspection, and remove faulty, damaged or rejected materials immediately from site.

1.34 Project Closeout

- .1 Comply with Owner's "Take-Over Procedures" except where specified otherwise.

END OF SECTION

1 CONTRACT DOCUMENTS

- 1.1 Work will be performed under multiple Contract; the head Contract will be in the form of the CCDC 5A 2010 Construction Management Contract contract between Owner and Construction Manager, with CCDC 17 2010 Stipulated Price Contract between the Owner and Trade Contractor as amended by the Supplementary General Conditions.
- 1.2 The General Conditions of the Contract, Standard Construction Document, CCDC 17, 2010; as amended and supplemented by the Supplementary General Conditions, will govern the Work specified in each Section of the Specifications.
- 1.3 Division 1 - General Requirements, of the Specifications generally specifies Work and coordination of the Work that is the direct responsibility of the Trade Contractor, but shall not be interpreted to define absolutely the limits of responsibility that must be established between the Trade Contractor and his Subcontractors by their separate agreements.
- 1.4 Ensure that Subcontractors understand that the General Conditions of the Contract, Supplementary Conditions, and Division 1 - General Requirements, apply to Sections of the Specifications governing their Work.
- 1.5 Work in the Specifications is divided into descriptive Sections which are not intended to identify absolute contractual limits between Trade Contractors , nor between the Trade Contractor and his Subcontractors.
- 1.6 Wherever in the Contract Documents the words "approval", "approved", "direction", "directed", "selection", "selected", "request", "requested", "report", and similar words are used, such approvals, directions, selections, requests and reports shall be given by the Consultant unless specifically stated otherwise.
- 1.7 Wherever in the Contract Documents the word "provide" is used in any form, it shall mean that the Work concerned shall include both supply and installation of the products required for completion of the Work.
- 1.8 Wherever in the Specifications it is specified that Work is to proceed or to meet approval, direction, selection or request of jurisdictional authorities or others, such approval, direction, selection or request shall be in writing.
- 1.9 Wherever in the Specifications it is specified that Work shall be repaired, made good or replaced, it shall be performed without any additional cost to the Owner.

2 WORK DESCRIPTION

- 2.1 Removal and replacement of existing interior floor wall and ceiling finishes at the existing Leaf Alumni Lounge and Crown Lounge including removal and replacement of existing cabinetry and equipment, relocation of existing doors and frames, replacement of tempered glass guards, relocation of existing ramp, guards and seating, new partitions, storefront and signage.
- 2.2 Construction of new raised platforms for seating including ramps, stairs, finishes, fixed seats, glass and metal balustrades, furniture, equipment and associated mechanical and electrical work.
- 2.3 Alterations to Suites 227 and 228, consolidating those two suites into a single Leaf Alumni suite.
- 2.4 Construction of one new concessions bar at level 300 and make alterations to one existing concession bar at Event Level.

3 WORK PERFORMED UNDER SEPARATE CONTRACTS

- 3.1 Work not to be included in the Contract, as noted "NIC" or "by others" on the Drawings, shall be governed by Article GC 9 - Other Contractors, of the General Conditions of the Stipulated Price Contract.

- 3.2 Where the Owner has work performed under separate contract by others, this Trade Contractor shall co-operate as fully as possible to allow the work to be carried out at the proper time and location.
- 3.3 Where the work under separate contract has to be installed on work under this contract, then the Owner or separate Trade Contractor will provide all necessary drawings, templates, and instructions required to prepare the work of this Contract

END OF SECTION

1 INSTRUCTIONS

- 1.1 Expenditure of provisional sums or allowances shall be at the exclusive discretion of the Consultant. All benefits from unexpended portions of these allowances shall revert to the Owner.
- 1.2 Allowances that have not been fully consumed will be deducted in whole or part in the final Certificate for Payment.
- 1.3 Verification, in the form of invoices or similar documentation to the satisfaction of the Consultant, will be required before certification of funds.
- 1.4 Contract sum includes the Trade Contractor's overhead and profit for all cash allowances whether or not they are exceeded.

2 AMOUNTS

- 2.1 For purchase of fixed seating, including delivery to the job site – the sum of \$15,000.
- 2.2 For purchase of signage, including delivery to the job site – the sum of \$5,000.

3 DELETION

- 3.1 The Owner reserves the right to delete all or any portion of the foregoing cash allowances or to reallocate cash allowance amounts from one category to another without claim for loss of profit by the Trade Contractor.

END OF SECTION

1 PRECONSTRUCTION MEETING

- 1.1 As soon as possible after award of Contract, arrange a meeting between the Owner, his Project Manager, Construction Manager, Consultant, Subcontractors, project superintendents and representatives of others whose coordination is required during construction.
- 1.2 Discuss at the meeting the means by which full cooperation and coordination of the participants during construction can be achieved.
- 1.3 Document the responsibilities and necessary activities of the participants during construction as discussed, and distribute documentation to each participant.

2 PROJECT MEETINGS

- 2.1 Attend site meetings at bi-weekly intervals throughout construction activities. Ensure attendance by representatives of all principal Subcontractors and all others currently engaged in Work on site or imminently scheduled.
- 2.2 Minutes of project meetings will for this project be maintained by the Construction Manager.
- 2.3 Minutes of the meetings should indicate:
 - List of persons attending
 - All matters discussed
 - Decisions taken
 - Instruction required or issued
- 2.4 The Consultant and Owner shall receive one copy of minutes each. Additional copies will be distributed to any other attending Trade Contractors, person, company, or organization and others as necessary.

3 SAFETY

- 3.1 The following acts, codes, and regulations apply in their most recently amended form to the Work of the Contract:
 - .1 "Construction Safety Measures" - Part 8 of National Building Code.
 - .2 "The Trench Excavator's Protection Act and Regulation 559" - Ontario.
 - .3 "The Construction Safety Act and Ontario Regulation 419" - Ontario.
 - .4 "The Building Code" - Ontario Regulation 925 - Ontario.
 - .5 "Environmental Protection Act (General - Waste Management) Regulation 309" - Ontario.
 - .6 "Occupational Health & Safety Act and Regulations for Construction Projects Regulation 213" - Ontario.
 - .7 WHYMIS
- 3.2 Enforce the practice of safety habits by all persons on the site, in accordance with the recommendations of the Construction Safety Association and other authorities having jurisdiction. Post safety regulations in prominent and appropriate locations

END OF SECTION

1 GENERAL

- 1.1 Make submittals specified in this Section to Consultant unless otherwise specified.
- 1.2 Ensure that submissions requiring review and comment, or approval, are made to allow sufficient time for review without delaying progress of scheduled construction.

2 CONSTRUCTION SCHEDULES

- 2.1 Submit proposed construction schedule at beginning of Project, as specified in the General Conditions.
- 2.2 As construction progresses and as revisions are required, submit up-dated construction schedules to the Owner, Construction Manager, Consultant, and to each Subcontractor who is included on Schedule.

3 SHOP DRAWINGS

- 3.1 Submit shop drawings where required in other Sections of the Specifications. Include in shop drawing submissions detailed information, templates and installation instructions required for incorporation and connection of the Work concerned.
- 3.2 The Trade Contractor shall check, sign, and make notations he considers necessary on shop drawings before each submission to the Construction Manager.
- 3.3 Indicate on each submission, changes from the Contract Drawings and Specifications that have been incorporated in the shop drawings. The Trade Contractor shall be responsible for changes made from the Contract Drawings and Specifications, which are not indicated or otherwise communicated in writing with the submission.
- 3.4 Shop drawing review by Consultant or other Sub-consultants is for the sole purpose of ascertaining general conformance with the design concept. This review shall not mean that Consultant and other Sub-consultants warrant or represent that the information contained on the shop drawings is either accurate or complete, responsibility for which shall remain with the Contractor submitting same, and such review shall not relieve the Trade Contractor of his responsibility for errors or omissions in the shop drawings or of his responsibility for meeting design, details and all other requirements of the Contract Documents. The Trade Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to fabrication processes or to techniques of construction and installation, and for coordination of the Work of all Subcontractors.
- 3.5 Show on shop drawings all pertinent information required for materials and installation and for proper integration of this installation with Work of others.
- 3.6 Submit shop drawings folded into 8½" x 11" size with title block appearing on outside. Copies of engineering data sheets, catalogue cuts and standard diagrams may be substituted for shop drawings where applicable. Three prints of each drawing or four copies of catalog cuts are required, or in the alternative one electronic copy.
- 3.7 Shop drawings which require extensive correction will be sent back for revisions and resubmission. One white print will be retained and the other copies returned.
- 3.8 Otherwise, shop drawings will be sent back with review comments only. One white print will be retained and the other copies returned.
- 3.9 Only drawings noted for revision and resubmission need be resubmitted.
- 3.10 Do not add new details or information to shop drawings after they have been reviewed, except when approval is given.

- 3.11 Do not proceed with Work dependent on shop drawing information until approval is given and verification received from Contractor. Approval shall not relieve the Trade Contractor of his responsibility for execution of Work in accordance with Contract Documents.
- 3.12 Fabricate Work exactly as shown on shop drawings. If shop practice dictates revisions, revise drawings and resubmit.
- 3.13 File one copy of each revised and corrected shop drawing at site.

4 EXTENDED WARRANTIES

- 4.1 Submit the extended warranties listed in this Article and as specified in each applicable Section of the Specifications.
- 4.2 Extended warranties shall commence on termination of the standard one year warranty granted in this Contract as specified in Article GC 12.3, Warranty, of the General Conditions, and shall be an extension of these same provisions.
- 4.3 Submit each extended warranty in an approved uniform format.
- 4.4 Submit extended warranties for:
- | | | |
|---------------|---------------------------|---------|
| Section 08110 | Metal Doors and Frames | 2 years |
| Section 08450 | Tempered Glass Guards | 5 years |
| Section 07900 | Sealants and Caulking | 2 years |
| Section 06400 | Architectural Cabinetwork | 2 years |

5 EXTRA STOCK

- 5.1 Supply extra stock at completion of Project where specified in other Sections of the Specifications.

6 SAMPLES

- 6.1 Submit samples for which a submission requirement is specified in other Sections of the Specifications.
- 6.2 Submit samples in triplicate of adequate size to represent the material in its intended use on the Project.
- 6.3 Label samples with the Project name, Trade Contractor name and date.
- 6.4 If sample is disapproved, two samples will be returned, marked 'resubmit'. If sample is approved, two samples will be returned, marked "reviewed".
- 6.5 Approved samples shall serve as a model against which the product shall be judged when it is incorporated into the Work.

END OF SECTION

1 DESCRIPTION

- 1.1 This Section is intended to include and clarify the administrative and financial requirements for testing, inspection and report writing requested in the specifications, and to reduce the need to repeat these requirements in applicable specification Sections.

2 REQUIREMENTS INCLUDED

- 2.1 Inspection and testing, administrative and enforcement requirements.
- 2.2 Tests and mix designs.
- 2.3 Mill tests.
- 2.4 Equipment/system adjustment and balance.

3 RELATED REQUIREMENTS

Section 01300: Submission of samples to confirm product quality.

Section 01600: Material and workmanship quality, Reference Standards.

4 INSPECTION

- 4.1 The Owner, Construction Manager and the Consultant shall have unobstructed access to the Work. If parts of the Work are in preparation at locations other than the Place of Work, access shall be given to such work whenever it is in progress.
- 4.2 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Consultant instructions, or under the law of the Place of the Work.
- 4.3 If the Trade Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is done, the contractor shall uncover such Work, have the inspections or tests satisfactorily completed and make good such Work without expense to the Owner.
- 4.4 The Consultant may order any parts of the Work to be examined if such work is suspected to be not in accordance with the Contract Documents. If, upon examination such work is found not in accordance with the Contract Documents, the Trade Contractor shall correct such work and pay the cost of examination and corrections.

5 INDEPENDENT INSPECTION AGENCIES

- 5.1 Independent Inspection/Testing Agencies will be appointed by the Owner for the purpose of inspecting and/or testing portions of Work as required in the various Sections of the Specifications. The Owner will pay for services provided by the appointed Agencies.
- 5.2 Employment of inspection/testing agencies does not relax the Trade Contractor's responsibility to perform Work in accordance with the Contract Documents.
- 5.3 If defects are revealed during inspection and/or testing, the appointed Agency may request additional inspection and/or testing to ascertain full degree of defect. The Trade Contractor shall correct defects and irregularities as advised by Consultant at no cost to the Owner. Pay costs for re-testing and re-inspection.

6 ACCESS TO WORK

6.1 The Trade Contractor and each of his Subcontractors, suppliers and manufacturers whose material and work is subject to inspection and testing, shall supply equipment, material, labour and facilities as required and necessary for the Agency to perform its work and provide full co-operation.

6.2 Allow inspection/testing agencies access to the Work, offsite manufacturing and fabrication plants.

7 PROCEDURES

7.1 Notify the appropriate Agency, Construction Manager and Consultant in advance of the requirement for tests, in order that attendance arrangements can be made.

7.2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in an orderly sequence so as not to cause delay in the Work.

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

8 REJECTED WORK

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

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

8.3 If in the opinion of the Consultant, it is not expedient to correct defective Work or other Work not performed in accordance with the Contract Documents, the Owner may deduct from the Contract Price the difference in value between the Work performed and that called for by the Contract Documents, the amount of which shall be determined by the Consultant.

9 REPORTS

9.1 The Agency will provide copies of inspection and test reports promptly to the Trade Contractor, Construction Manager, Consultant and Owner.

9.2 The Trade Contractor shall provide copies to Subcontractor of work being inspected/tested as required.

END OF SECTION

1 GENERAL

- 1.1 Include in the Work for all construction and temporary facilities and construction aids as indicated in this Section.
- 1.2 Ensure that structural, mechanical, and electrical characteristics of temporary facilities are suitable and adequate for use intended. Be responsible that no harm is caused to persons and property by failure of temporary facilities because of placing, location, stability, protection, structural sufficiency, removal, or any other cause.

2 TEMPORARY SERVICES

- 2.1 The Construction Manager will provide shared temporary services as outlined below and as further qualified in the Supplementary Conditions. Other Temporary Services will be provided by the Trade Subcontractor at his expense.
 - .1 **Temporary Electric Power:** Provided at centrally located panels. The Trade Contractor shall be responsible for providing any extension cords or electrical wiring from these panels as necessary for the execution of the Work of this Contract.
 - .2 **Temporary Lighting:** Provided throughout the project area by the Trade Contractor. Any additional lighting will be provided by the Trade Subcontractor as required.
 - .3 **Temporary Heating, Ventilation and Enclosures:** Heating equipment, ventilation and temporary enclosures will be maintained by the Construction Manager to maintain a minimum temperature of -10°C where the specifications or good practice indicate. Heating and ventilating will be provided by the Construction Manager.
 - .4 **Temporary Water Supply:** Provided at one location only. The Trade Contractor shall be responsible for providing any additional piping, hoses and fixtures necessary for execution of the Work.
 - .5 **Temporary Sanitary Facilities:** Provided and maintained by the Construction Manager. At the discretion of the Owner, the location of these facilities may be altered at any time.
 - .6 **Telephone:** To be provided by the Trade Contractor if required for construction purposes. All costs shall be borne by the Contractor.
 - .7 **Temporary Fire Protection:** Provided by Construction Manager as required by local authorities.
 - .8 **Temporary Sheds and Offices:** Except as noted below, temporary structures for the use of the Trade Contractor will not be permitted.
 - .9 **Garbage Removal:** To be provided by the Construction Manager in areas to be designated by the Owner.

3 GUARDS

- 3.1 Perimeter hoarding and access gates shall be provided by the Construction Manager as required by the local authority's regulations and bylaws, in order to provide full protection to the general public, to workmen and employees on the site and on the adjoining properties.
- 3.2 Erect, maintain and remove at the time of completion additional temporary barricades and guards to enclose the portions of the site requiring enclosure for this Contract only. Co-ordinate such temporary guards with the Owner.

4 CONSTRUCTION AIDS

- 4.1 **Scaffolding:**
 - .1 Submit for review shop drawings bearing the seal and signature of a Professional Engineer, licensed to practice in the Province of Ontario.

- .2 Erect scaffolding clear of walls, and ensure that they do not interfere with continuing Work.
- .3 Be responsible for examination for sufficiency before using scaffolding.

4.2 Offices and Storage Areas:

- .1 The Owner will make available on the site as required, an office of suitable size for the Construction Manager's use equipped with lights, plan desk and plan files if necessary. Office will be adequate for job meetings.
- .2 The Owner may allocate areas within the building as required for the protection and storage of equipment and materials. All materials stored on site should be protected by tarpaulins or other approved covering.

5 PROTECTION AND SECURITY

- 5.1 Provide temporary construction as required by the job conditions to protect the Work of this Contract from damage.
- 5.2 During the construction period, the Construction Manager will securely lock the premises after working hours.

6 SIGNS AT SITE

- 6.1 Other than project identification signs described below, place only notices regarding safety, caution, or instructions on or near site.

7 PROJECT SIGN

- 7.1 The Trade Contractor may erect an identification sign on the site if of discreet size and in a form and location to be approved by the Owner. This sign may contain, at the discretion of the Owner, the names of Construction Manager and Trade Contractors carrying on work at the Project.

END OF SECTION

1 DESCRIPTION

- 1.1 This Section is intended to include a description of materials or products quality and a reasonable definition of workmanship.

2 REQUIREMENTS INCLUDED

- 2.1 Reference standards.
- 2.2 Product quality, availability, storage, handling, protection, transportation.
- 2.3 Manufacturer's instructions.
- 2.4 Workmanship, co-ordination, concealment, cutting, locations.
- 2.5 Existing facilities.

3 RELATED REQUIREMENTS

- 3.1 Section 01400: Quality control and inspection of Work.

4 REFERENCE STANDARDS

- 4.1 Within the text of the specifications, reference may be made to the following standards:

ACI	- American Concrete Institute
AISC	- American Institute of Steel Construction
ANSI	- American National Standards Institute
ASTM	- American Society of Testing and Materials
CEC	- Canadian Electrical Code (published by CSA)
CEMA	- Canadian Electrical Manufacturer's Association
CGSB	- Canadian General Standards Board
CISC	- Canadian Institute of Steel Construction
CLA	- Canadian Lumberman's Association
CPCA	- Canadian Painting Contractor's Association
CPCI	- Canadian Pre-stressed Concrete Institute
CRCA	- Canadian Roofing Construction Association
CSA	- Canadian Standards Association
FM	- Factory Mutual Engineering Corporation
IEEE	- Institute of Electrical and Electronic Engineers
IPCEA	- Insulated Power Cable Engineers Associations
NAAMM	- National Association of Architectural Metal Manufacturers
NBC	- National Building Code
NEMA	- National Electrical Manufacturers' Association
TTMAC	- Terrazzo, Tile and Marble Association of Canada
ULC	- Underwriters' Laboratories of Canada

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

- 4.2 If there is question as to whether any product or system is in conformance with applicable standards, the Consultant reserves the right to have such products or systems tested to prove or disprove conformance.
- 4.3 The cost for such testing will be borne by the Owner in the event of conformance with Contract Documents or by the Trade Contractor in the event of non-conformance.

- 4.4 Conform to latest date of issue of reference standards in effect on date of submission of bids (except where a specific date or issue is specifically noted as taking priority).

5 PRODUCTS AND MATERIALS

5.1 Quality:

- .1 Products, materials, equipment and articles incorporated in the Work shall be new, not damaged or defective, and of the best quality for the purpose intended. If requested, furnish evidence as to type, source and quality of Products provided.
- .2 Defective Products, whenever identified prior to the completion of Work will be rejected, regardless of previous inspections. Inspection does not relieve the Trade Contractor of this responsibility but is a precaution against oversight or error. Remove and replace defective Products at Trade Contractor's expense and be responsible for delays and expenses caused by rejection.
- .3 Should any dispute arise as to the quality or fitness of Products, the decision rests strictly with the Consultant based upon the requirements of the Contracts Documents.
- .4 Unless otherwise indicated in the specifications, maintain uniformity of manufacture for any particular or like item throughout the building.
- .5 Permanent labels, trademarks and nameplates on Products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

5.2 Availability:

- .1 Immediately upon signing Contract, review Product Delivery requirements and anticipate foreseeable supply delays for any items. If delays in supply of Products are foreseeable, notify the Construction Manager 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 the event of failure to notify the Consultant at commencement of Work and should it subsequently appear that Work may be delayed for such reason, the Consultant reserves the right to substitute more readily available products of similar character, at no increase in Contract Price.

5.3 Storage, Handling and Protection:

- .1 Handle and store Products in a 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 seals and labels intact. Do not remove from packaging or bundling until required in the Work.
- .3 Store products subject to damage from weather in weatherproof enclosures.
- .4 Store cementitious products clear of earth or concrete floors, and away from walls.
- .5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.
- .6 Store sheet materials and lumber on flat, solid supports and keep clear of ground. Slope to shed moisture.

- .7 Store and mix paints in a 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 the satisfaction of the Consultant.

5.4 **Transportation:**

- .1 Pay costs of transportation of Products and tradesmen required in the performance of Work.
- .2 Transportation cost of Products supplied by the Owner will be paid for by the Owner. Unload, handle and store such Products.

6 MANUFACTURER'S INSTRUCTIONS

- 6.1 Unless otherwise indicated in the 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.
- 6.2 Notify the Consultant, in writing, of conflicts between the Specifications and manufacturer's instructions, so that the Consultant may establish the course of action.
- 6.3 Improper installation or erection of Products, due to failure in complying with these requirements, authorizes the Consultant to require removal and re-installation at no increase in Contract Price.

7 WORKMANSHIP

7.1 **General:**

- .1 Workmanship shall be the best quality, executed by workers experienced and skilled in the respective duties for which they are employed. Immediately notify the Consultant if Work is such as to make it impractical to produce required results.
- .2 Do not employ any unfit person or anyone unskilled in their required duties. The Consultant reserves the right to require the dismissal from the site of workers deemed incompetent, careless, insubordinate or otherwise objectionable.
- .3 Decisions as to the quality or fitness of workmanship in cases of dispute rest solely with the Consultant, whose decision is final.

7.2 **Co-ordination:**

- .1 Ensure co-operation of workers in laying out Work. Maintain efficient and continuous supervision.
- .2 Be responsible for co-ordination and placement of openings, sleeves and accessories.

7.3 **Concealment:**

- .1 In finished areas, conceal pipes, ducts and wiring in floors, walls and ceilings, except where indicated otherwise.
- .2 Before installation, inform the Consultant if there is a contradictory situation. Install as directed.

7.4 **Cutting and Remedial Work:**

- .1 Perform cutting and remedial work required to make the parts of the Work come together. Co-ordinate the Work to ensure this requirement is maintained.
- .2 Should work performed outside this contract necessitate cutting and/or remedial work to be performed by this Trade Contractor, the cost of such work will be valued by the Consultant as provided in GC 12, Valuation and Certification of Changes in the Work.
- .3 Perform cutting and remedial work by specialists familiar with the materials affected. Perform in a manner to neither damage nor endanger any portion of Work.

7.5

Location of Fixtures:

- .1 Consider the location of fixtures, outlets, and mechanical and electrical items indicated as approximate.
- .2 Inform the Consultant of a conflicting installation. Install as directed.

END OF SECTION

1 DESCRIPTION

- 1.1 This Section is intended to include criteria for and requirements of the final portion of the contract, administrative, site and document requirements to closeout the Work.
- 1.2 Procedures and requirements contained herein are intended to supplement and clarify those identified in the "OAA/OGCA Take-Over Procedures" OAA/OGCA Document 100, December 2007.

2 REQUIREMENTS INCLUDED

- 2.1 Final cleaning.
- 2.2 Systems demonstrations.
- 2.3 Document submissions including record drawings, project manual and warranties.
- 2.4 Project commissioning.
- 2.5 Inspection and Completion procedures.

3 RELATED REQUIREMENTS

- 3.1 Section 01300: Extended Warranties.
- 3.2 General Conditions of the Contract: Fiscal provisions, legal submittals, and other administrative requirements.

4 FINAL CLEANING

- 4.1 When the Work is Substantially Performed, remove surplus products, tools, construction machinery and equipment not required for the performance of the remaining Work.
- 4.2 Remove waste products and debris other than that caused by the Owner, other Trade Contractors or their employees, and leave the Work clean and suitable for occupancy by the Owner.
- 4.3 When the Work is Totally Performed, remove surplus products, tools, construction machinery and equipment. Remove waste products and debris other than that caused by the Owner or other Trade Contractors.
- 4.4 Leave the Work broom clean before the inspection process commences.
- 4.5 Clean and polish glass, mirrors, hardware, wall tile, stainless steel, chrome, anodized aluminum, porcelain enamel, baked enamel, plastic laminate, mechanical and electrical fixtures. Replace broken, scratched or disfigured glass.
- 4.6 Remove stains, spots, marks and dirt from decorative work, electrical and mechanical fixtures, furniture fitments, walls, and floors.
- 4.7 Vacuum, clean and dust building interiors, behind grilles, louvers and screens.
- 4.8 Wax, seal, shampoo or prepare floor finishes, as recommended by the manufacturers.
- 4.9 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.
- 4.10 Broom clean and wash exterior walks, steps and surfaces and paved areas.
- 4.11 Remove dirt and other disfigurations from exterior surfaces.

- 4.12 Remove temporary labels, protective coatings, markings and tags; thoroughly clean surfaces of adhesives.
- 4.13 Clean equipment and fixtures to a sanitary condition, clean or replace filters of mechanical equipment.
- 4.14 Clean roofs, gutters, downspouts, and drainage systems.

5 SYSTEMS DEMONSTRATIONS

- 5.1 Prior to final inspection, demonstrate operation of each system to Owner, Construction Manager and Consultant.
- 5.2 Instruct Owner's personnel in operation, adjustment, and maintenance of equipment and systems, using provided operation and maintenance data as the basis for instruction. Replace filters at any air handling equipment that has been used prior to Substantial Performance

6 SHOP DRAWINGS

- 6.1 Upon application for the final Certificate of Payment, provide one complete set of shop drawings to consist of one print of each drawing contained in envelopes, one Section per envelope numbered and labeled accordingly

7 RECORD DRAWINGS

- 7.1 Maintain, as work progresses, project record drawings, in a neat and legible manner, accurately recording all significant deviations from the Contract Documents in the work as constructed, caused by site conditions and including Consultant-originated changes, Trade Contractor/Subcontractor-originated changes, Site Instructions, Supplementary Instructions, Addenda, instructions by correspondence and Jurisdictional Authority approvals. Carefully record location of concealed elements and similar information which may be required for maintenance, alteration work, and building additions. Eradicate all obsolete information.
- 7.2 Clearly mark each of project Record Drawings, "Project Record Copy". Maintain in good condition, available at all times for inspections by Architect's site representatives, and do not use for construction purposes.
- 7.3 Keep project Record Drawings current and do not record irrelevant information. Do not permanently conceal any work until the required information has been recorded.
- 7.4 Upon application for the Certificate of Substantial Performance submit for the Consultant's approval all Record Drawings.
- 7.5 Upon application for the final Certificate of Payment provide one complete set of all Record Drawings bound together in a manner acceptable to the Consultant for the Owner's use.

8 PROJECT DATA MANUAL

- 8.1 Upon application for the final Certificate of Payment provide two (2) Project Data Manuals, bound in a form acceptable to the Consultant, labeled "Project Data Manual" and bearing the project name and date.
- 8.2 Each manual shall contain:
 - .1 List of Subcontractors including addresses, telephone numbers, and contact individuals
 - .2 Hardware Schedule
 - .3 Maintenance/Operating instructions for all mechanical, electrical and other equipment
 - .4 Brochures on equipment and fixtures
 - .5 Summary of paint, finish identification numbers

9 EXTENDED WARRANTIES

- 9.1 Upon application for the final Certificate of Payment, provide the extended warranties specified, to commence immediately after expiration of the standard one-year guarantee included in the Contract under Article GC 3.14 warranty.
- 9.2 Each warranty shall show:
- ° Proper name of Owner
 - ° Proper name and address of the project
 - ° Date warranty commences
 - ° A clear definition of what is being guaranteed and what remedial action will be taken under the warranty
 - ° Signature and seal of the Company issuing the warranty
- 9.3 Warranties shall commence on the date the Owner takes over the project for use, or the date of Substantial Performance of the entire project with the following exceptions:
- .1 Equipment and items which have been made available to the Owner, excluding use for and during construction, prior to the above date shall have the warranty commence at the date the Owner takes possession of the equipment and item concerned for their intended ultimate use.
 - .2 Equipment and items which have not been accepted as being free of deficiencies on the take-over date of paragraphs 3 above shall have warranty commence after these deficiencies have been satisfactorily remedied and at the date such equipment and items are accepted.

10 PROJECT COMMISSIONING

- 10.1 Expedite and complete deficiencies and defects identified by the Consultant.
- 10.2 Review Project Data Manual contents for completeness, and submit to Consultant.
- 10.3 Review cash and contingency allowances in relation to Contract Price, change orders, hold-backs and other Contract Price adjustments.
- 10.4 Submit required documentation such as Statutory Declarations, Worker's Compensation Certificates, warranties, certificates of approval or acceptance from regulating bodies.
- 10.5 Attend 'end-of-work' testing and break-in or start-up demonstrations.
- 10.6 Review inspection and testing reports to verify conformance to the intent of the documents and that changes, repairs or replacements have been completed.
- 10.7 Meet with Subconsultants such as structural, mechanical, electrical to co-ordinate completion, testing approvals.
- 10.8 Review condition of equipment (heating system, plumbing), which have been used in the course of the work to ensure turning over at completion in "as new condition" with warranties, dated and certified from time of Substantial Performance of the Work.
- 10.9 Arrange and co-ordinate instruction of Owner's staff in care, maintenance and operation of building systems and finishes by suppliers of Subcontractors.
- 10.10 When partial occupancy of uncompleted project is required by the Owner, co-ordinate Owner's uses, requirements, access, with Trade Contractor's requirements to complete project.

10.11 Co-ordinate Owner's moving-in of tenants, staff, furnishings, equipment with building accessibility, traffic, and Trade Contractor's and Subcontractor's cleaning-up and completion activities all to suit Owner's work schedule and not disrupt Owner's productivity.

10.12 Provide on-going review, inspection and attendance to building call back, maintenance and repair problems during Warranty periods.

11 COMPLETION

11.1 Upon completion of the Work and before the Final Certificate of Payment is issued and the final payment is made, the following shall be observed, exacted, and submitted:

- .1 Completion of all deficiencies
- .2 Execution of all final cleaning as specified
- .3 Receipt by the Consultant in an acceptable form of:
 - A complete release of liens arising out of this Contract other than the Trade Contractor.
 - Certificate of good standing from the Worker's Compensation Board for the Trade Contractor and his Subcontractors.
 - Shop Drawings, Record Drawings, Project data Manual, Extended Warranties.
 - Certificate of Inspection from Mechanical and Electrical Engineers.
 - The final list of deficiencies signed "completed" by the Consultant.
 - Statement of final adjustment of all allowances.
 - Statement of completion from the Trade Contractor.
 - Certificates of Inspection from the local utilities, companies and any other inspection certificates required by Authorities having jurisdiction.
 - Balancing reports

12 OWNER'S RIGHT OF ENTRY

12.1 Owner has the right to enter upon and take possession of the work in whole or in part for the purpose of placing fittings and equipment or for other use before the completion of Contract, if in the opinion of the Consultant, such entry and taking possession does not prevent or interfere with the Trade Contractor's ability to complete the project within the time specified. Such entry and taking possession shall not relieve the Trade Contractor of his responsibility to complete the Contract.

END OF SECTION

1 GENERAL

1.1 Scope

Work of this Section includes demolition in part of portions of the existing Alumni lounge, Crown lounge bars, Best Seats, as well as within the new Alumni lounge suites and at the two new concession bars as well as removal from site of all rubbish and demolished building materials and items not scheduled to be reused.

1.2 Related Work Specified Elsewhere

Project Control	Section 01200
Resilient Flooring	Section 09660

1.3 Existing Conditions

- .1 Examine site and premises and be satisfied as to the condition of premises and means of access to same and nature and quality of work required.

1.4 Demolition Drawings and Permits

- .1 Where required by authorities having jurisdiction, submit for approval drawings, diagrams, or details showing sequence of disassembly work.
- .2 Obtain all necessary permits and pay all fees and charges, and comply with building and sanitary laws, rules, ordinances and regulations relating to demolition and disposal of debris and preservation of Public Health and Safety.

1.5 Protection - General

- .1 Prevent movement, settlement, or damage or adjacent parts of existing structure to remain. Provide bracing and shoring as required. Take all precautions to ensure that no structural damage is caused to the building fabric by demolition work.
- .2 Protect adjacent properties and spaces from damage which may result from falling debris. Do not interfere with use of or safe passage to and from the building. Provide temporary hoarding around area of work to prevent entry of persons not associated with the Contractor.
- .3 Prevent debris from blocking surface drainage systems.
- .4 Provide temporary barriers, closures, hoarding and other protection in order to provide full protection to the general public, to workmen and employees on the demolition site and adjacent properties.
- .5 Ensure protection of existing building including corridors, stairwells, elevators, doors and interior elements, by means sufficient to prevent damage by equipment and demolition activities.
- .6 Protect from damage any material, components, or surfaces which are to be reused or restored.
- .7 Where openings are made or exposed in walls or floors of the existing building, immediately install dustproof closures.
- .8 Repair wall assemblies where damaged or removed, make secure with temporary patch.

1.6 Protection – Glass

- .1 All glass is to be fully protected from breakage.

- .2 Should damage occur, immediately make conditions safe, inform the Consultant and await written instructions.
- .3 Be fully responsible for restoration costs involved in replacing glass broken during the demolition work.

1.7 **Quality Assurance**

- .1 The work of this Section shall be done under the continuous supervision and direction of a competent foreman experienced in demolition work of this sort.
- .2 Provide for all work to be done by skilled and experienced tradesmen specializing in the type of work required.

1.8 **Non-Destructive Investigations**

- .1 Where new work indicates the need to cut or core existing concrete slabs, carry out non-destructive investigations to determine the location and quantity of steel reinforcement, and the placement of any other pipe, conduit or services buried within the concrete.
- .2 Use Ground Penetrating Radar or X-ray imaging as conditions dictate to carry out investigations.
- .3 Following investigations, seek approval from the Owner prior to carrying out cutting or coring.

1.9 **General**

- .1 Schedule demolition to ensure minimum disruption to use of building and to avoid interruption to normal business activities.
- .2 Develop a strategy to ensure that no local overstressing nor general unstable condition develops.
- .3 Do not endanger the building by cutting, or by removing an unnecessary extent of material at one time or in an inappropriate sequence.
- .4 Where remedial work is necessary due to the actions or failure to act of this Section, and in the opinion of the Consultant such work could have been foreseen at the time of tendering or has been caused by lack of proper care, remedial work shall be performed at no additional cost to the Owner.

2 PRODUCTS

Not Applicable.

3 EXECUTION

3.1 **Preparation**

- .1 Inspect site and verify with Consultant extent of structures and items to be preserved and extend of building elements, components, materials and equipment to be removed.
- .2 Report any discrepancies between Drawings and existing conditions to the Consultant and await written instructions.
- .3 Locate and protect piping, ductwork, electrical and telephone services lines entering the affected spaces in accordance with the rules and regulations of authorities having jurisdiction.
- .4 Do not disrupt active utilities which are designated to remain undisturbed.

- .5 Carry out non-destructive investigation of reinforced concrete slabs where cutting or coring is indicated.
- .6 Prior to commencing full scale demolition work, complete exploratory removal of building finishes in several areas to investigate 'typical' as-built conditions. Remove wall finishes at fire rated partitions and bulkheads so as to not reduce the effectiveness of those assemblies. Where damage is done to fire separations to remain, await direction from Consultant before carrying out further work.
- .7 Disconnect and cap mechanical services. Seal off and isolate HVAC systems to avoid infiltration of dust and debris. Disconnect power and communications services. Post warning signs on lines and equipment which must remain energized to serve other spaces during demolition.

3.2 Salvage

- .1 All materials, equipment and fixtures removed during the course of this Work which are not to be relocated, salvaged or turned over to the Owner shall become the property of the Trade Contractor and shall be disposed of properly away from the site.

3.3 Demolition - General

- .1 Remove building elements, finishes, equipment and services as required by the Work and as identified on the Drawings and Specifications.
- .2 Remove debris, dirt and equipment from the building continuously, and immediately following demolition, dispose off site in an approved manner.
- .3 Immediately clean up debris which is deposited outside the work area and which results from the work of this Section.
- .4 Demolish to minimize dusting.
- .5 Coordinate non-destructive investigations and obtain approvals before cutting and coring of slabs for new services by any Section.
- .6 At the end of each day's work, leave in safe condition so that no part is in danger of falling or toppling.
- .7 Do not place or store demolished material in the building, in streets, or rights-of-ways or other passageways.
- .8 Where new work is to abutt or to be atop or in close conjunction with portions of existing structures to be retained, carefully cut and remove materials and elements to minimize remedial work necessary.
- .9 Make a daily inspection to ensure that work and access areas are maintained clean and undamaged.

3.4 Restoration

- .1 Upon completion of work, remove debris, trim surfaces and leave work site clean.
- .2 Reinstate areas and existing works outside the areas of demolition to conditions that existed prior to commencement of work.
- .3 Should existing services be accidentally uncovered and disrupted, make complete restoration immediately and ensure adequate protection to avoid further disruption until alternative means of providing permanent continuation of the services are made.

- .4 Following removal of finishes from concrete slabs, carry out a joint inspection of surfaces with the Consultant. Using diamond or carbide slab floor grinder, remove all irregularities, coatings, adhesive residue from the existing floor. Patching and filling of cracks to be carried out by the section installing the finished flooring.

END OF SECTION

1 GENERAL

1.1 Work Included

- .1 Work under this section consists of the supply and installation of fully fabricated marble components as required for completion of stone countertop work as indicated by the contract documents.

1.2 Related Work

Rough Carpentry	Section 06100
Architectural Cabinetry	Section 06210
Joint Sealants	Section 07900
Metal Fabrications	Section 05500

1.3 References

- .1 ASTM C 97-02, Test Methods for Absorption and Bulk Specific Gravity of Dimensional Stone.
- .2 ASTM C 503-99e1, Specification for Marble Dimension Stone.
- .3 ASTM C 880-98, Test Method for Flexural Strength of Dimension Stone.
- .4 ASTM C 119 4, Terminology Relating to Dimension Stone
- .5 ASTM C170-90, Test Method for Compressive Strength of Dimension Stone.

1.4 Source of Supply

- .1 All granite and marble shall be obtained from single source having adequate capacity to meet the specified requirements. Contact Ciot (Aaron Huynh 416-739-8000). Cutting and finishing shall be done by a firm equipped to process the material promptly and in accordance with the specifications.

1.5 Submittals

- .1 Provide 300x300mm samples of granite and marble to demonstrate texture, finish and range of colour to be supplied. Approved sample shall establish the standard by which stonework will be judged. Note new marble is to match existing in colour, texture and finish.
- .2 Prepare and submit detailed shop drawings to Consultant for review prior to fabrication.
- .3 Indicate each type of bedding, jointing, bonding and anchoring details, as well as the dimensions and identifying numbers for each piece of stone.

1.6 Quality Assurance

- .1 Conform to requirements of Marble Institute of America standards except where noted otherwise.
- .2 Any piece of granite or marble showing flaws or imperfections upon receipt shall be referred to the Consultant for determination as to whether it should be rejected or redressed for use.

1.7 Delivery, Storage and Handling

- .1 Adequately protect units against damage during manufacture, delivery and storage.

- .2 All materials shall be thoroughly inspected upon receipt and all discrepancies, deficiencies and/or damages shall be immediately reported, in writing, to the supplier.
- .3 All damages incurred during shipment shall be noted on the carrier's Bill of Lading and immediately reported, in writing, to the supplier.

2 PRODUCTS

2.1 Marble and Granite

- .1 Marble and granite shall be of standard architectural grade slab stock, free of cracks, seams or starts which may impair its structural integrity or function. Colour, texture and finish shall be within the normal range as evident in approved samples.
- .2 Granite (STN -01) to be 20mm Quicksilver, polished. Refer to drawings for extent and nosings.
- .3 Marble (STN -02) to be 20mm White Onyx to match existing bar tops in colour finish and transparency. Refer to drawings for extent.

2.2 Dimensional Tolerance

- .1 For panels noted to be 20 mm in thickness, +/- 3mm. For panels noted to be greater than 40mm in thickness, +/- 6mm.
- .2 Holes and slots for anchors, +/- 3mm.
- .3 Variations from true plane on flat surfaces shall not exceed 2mm

2.3 Beds and Backs

- .3 Beds and joint surfaces shall be sawn through the full thickness of marble piece.
- .2 Assume 4mm joint size unless otherwise noted.
- .3 Backs of all pieces shall be sawn and roughly dressed to approximate true planes.

2.4 Materials

- .1 Setting adhesive for granite slabs to be pre-mixed product formulated for installation of similar materials equal to Latapoxy 300 Adhesive.
- .2 Setting mortar for onyx countertops to be non-staining pre-mixed product formulated for installation of stone slabs equal to Latapoxy 300 Adhesive.

2.5 Fabrication

- .1 Cutting, drilling and polishing of marble will be done by the marble fabricator as dimensional information is made available. Fitting to site conditions will be performed as required by the fabricator.
- .2 Where design requires pieces to be bonded together (nosings and backsplashes) secure adjacent components and bond using two-part acrylic adhesive.

- .3 Assume 4mm joint size unless otherwise noted.

2.6 Shipping and Storage

- .1 Pack and load finished marble using all reasonable precautions against damage during transit.
- .2 Upon receipt at the building site, stack all marble on timber platforms at least 75mm raised above grade. Protect with suitable plastic film. Ensure water does not infiltrate holes and slots.

3 EXECUTION

3.1 Examination

- .1 Review installation of substrate by others to ensure that placement of cut-outs and holes are within acceptable tolerances. Make site dimensions and templates to ensure accurate fabrication of components.
- .2 Ensure substrate surfaces are clean, stable and free of contaminants.
- .3 Notify Consultant in writing of unacceptable conditions. Beginning of installation implies acceptance of conditions.

3.2 Installation – Counters

- .1 Install granite and marble materials to standards described above. Fit units tightly at corners, around fitments and built-in objects to maintain uniform appearance.
- .2 Position fabricated components to ensure correct sizing. Clean back side of marble with denatured alcohol.
- .3 Apply continuous beads of mounting adhesive around full perimeter of substrate and supports, and regularly spaced beads not to exceed 200mm spacing. Set marble surface level square and flat to within 3mm in 3m.
- .4 Align adjacent pieces in one plane. Securely join adjacent pieces using two part acrylic adhesive, filling joints level.
- .5 Allow proper setting time. Where countertops abut walls, fittings, fixtures and cabinetry, force silicone into joints to ensure smooth, water tight condition.

3.5 Cleaning and Protection

- .1 Following installation, carefully clean all exposed stone surfaces. Remove all dirt, excess grout, and stains. Do not use acid washes or other solutions that might cause discolouration.
- .2 Provide adequate protection to all completed marble surfaces until project is ready to be turned over to the Owner.

END OF SECTION

1 GENERAL

1.1 Scope

Provide all labour and material required to fabricate and install all miscellaneous metal fabrications including perimeter fascia at raised floor, ramps and stairs, guards and railings, and other metal components shown on the drawings or required for completion of the work.

1.2 Related Work Specified Elsewhere

Rough and Finish Carpentry	Section 06100
Architectural Cabinetwork	Section 06400
Tempered Glass Screens and Guards	Section 08450
Specialties	Section 10200
Access Flooring	Section 10270

1.3 Shop Drawings

Submit shop drawings in accordance with Section 01300 for all custom metal fabrications.

2 PRODUCTS

2.1 Materials

- .1 Steel sections and plates to CAN3-G40.21-M81, Grade 260W, 300W or 350W.
- .2 Steel pipe and HSS to ASTM A53-82, standard weight, seamless black.
- .3 Welding materials to CSA W59-82.
- .4 Bolts and anchorbolts: to ASTM A307-82a, or ASTM A325M-82.
- .5 Galvanising: hot dipped galvanising with zinc coating 600 g/M2 to CSA G164.
- .6 Shop coat primer to CGSB 1-GP-40M.
- .7 Zinc primer: zinc rich, ready mix.
- .8 Unistrut to be P1000 galvanised 12 ga steel 40mmx40mm, with purpose built nuts and washers to suit anchoring systems for fixed seating and drink rails (¼ inch threaded).

2.2 Fabrication

- .1 Build work square, true, straight and accurate to required size, with joints closely fitted and properly secured.
- .2 Fabricate items from steel unless otherwise noted. Weld connections where possible otherwise bolt connections.
- .3 Use self-tapping shake-proof screws on items requiring assembly by screws as indicated.
- .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.

2.3 Shop Painting

- .1 Apply one shop coat of primer to metal items, with exception of galvanised 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°C.
- .3 Clean surfaces to be field welded; do not paint.

2.4 Fascia Curbs

- .1 Square HSS tubing 102x102x8mm in lengths required. Anchor plates to be 300x200x10mm bent steel plates, pre-drilled for anchor bolts as noted.
- .2 Continuous fascia curb to be 8mm bent steel plate as noted on the drawings, welded to HSS posts.
- .3 At glass guard type two, drill holes at 300mm o.c. through fascia curb for securement of aluminum shoe supplied under Section 08450.

2.4 Railings and Supports for Tempered Glass Guard

- .1 Square steel tubing 38x38mm, and 38mm steel pipe configured as shown on the drawings. Weld assembly as indicated.
- .2 Weld threaded steel studs as needed to support glass panel stand-offs and stainless steel rail support brackets supplied under Section 08450
- .4 At glass guard type one, weld steel tabs 65x20x8mm predrilled for standoffs supplied under Section 08450.
- .5 Weld solid steel caps at exposed rail ends, grind smooth.
- .6 Prime paint prior to installation.

2.5 Pipe Rail

- .1 Steel pipe 38mm in diameter as indicated on the drawings.
- .2 Where pipe rails are shown to be existing rails relocated, cut existing rails flush with floor/stair treads and weld to new treads as indicated.
- .3 Weld solid steel caps at exposed rail ends, grind smooth.
- .4 At wall mounted railings, provide welded steel wall brackets. Ensure solid blocking has been placed at wall.
- .5 Prime paint prior to installation.

2.6 Drink Rails

- .1 At new fixed drink rails shown to be affixed to concrete, provide 200mm x 150mm x 6mm steel base plate. At other drink rail posts, weld to fascia curbs as noted.
- .2 Drink rail posts are to 50mm x 50mm in lengths as noted on the drawings.
- .2 At the top of each drink rail post, weld 100mm x 150mm x 6mm steel plate, drilled to suit drink rail supplied by Section 06400.

2.7 Ramps and Stairs

- .1 Bent 8mm steel plate walking surfaces, treads and risers with concealed 12mm stiffeners welded at 600mm spacing.
- .2 Continuous 100x100x6mm steel angle supports welded to inside faces of fascia curbs as noted on the drawings.

2.8 Metal Trellis Supports

- .1 Fabricate new trellis support structure using square HSS tubing 102x102x8mm in lengths required.
- .2 Weld support structure to building structure as indicated on the drawings.

2.9 Back Bar and DJ Booth

- .1 Fabricate new back bar electronics support frame structure using square HSS tubing 102x102x8mm in lengths indicated.
- .2 Provide new guard at 3 sides of the new booth as indicated.

3 EXECUTION

3.1 Examination

- .1 Prior to work of this Section, carefully inspect the installed work of other Subcontractors and verify that such work is complete to the point where fabrication and installation of the work of this Section may properly commence.
- .2 Take all required measurements in the field to ensure proper and adequate fit of miscellaneous metal items.
- .3 Verify that miscellaneous metal may be fabricated and installed in strict accordance with the original design and the reviewed shop drawings.

3.2 Erection

- .1 Erect metalwork square, plumb, straight, and true, accurately fitted, with tight joints and intersections.
- .2 Provide suitable means of anchorage acceptable to Consultant such as dowels, anchor clips, bar anchors, expansion bolts and shields, and toggles.
- .3 Make field connections with bolts to CSA S16-1969 and CSA S1653-1981, or weld.
- .4 Weld steel posts to top surface of fascia curbs as indicated on drawings. Grind smooth.
- .5 Weld bent plate ramps and steps to sides of fascia curbs as indicated on the drawings.
- .6 Where fabrication and delivery of fascia dictates, weld adjacent lengths of 8mm fascia curb on site to make each length a continuous assembly. Grind smooth and prime.
- .5 Touch-up field welds, bolts and burnt or scratched surfaces after completion of erection with primer. Touch-up galvanised surfaces with zinc primer where burned by field welding.

END OF SECTION

1 GENERAL

1.1 Scope

Provide all labour and materials required to fabricate and install all cabinetwork and all interior finish carpentry as shown on the Drawings. Work of this section includes alterations to existing bar and storage cabinetry and countertops within the Leaf Alumni Lounge, and supply of two different fascia panels at raised platform.

1.2 Related Work Specified Elsewhere

Metal Fabrications	Section 05500
Rough and Finish Carpentry	Section 06100
Joint Sealants	Section 07900
Resilient Flooring	Section 09660
Painting	Section 09900

1.3 Reference Standards

Do millwork cabinetwork to "Architectural Woodwork Standards" of the Architectural Woodwork Manufacturers' Association of Canada, 2009. Conform to latest provisions of Architectural Woodwork Institute 'Quality Standards' for custom grade work.

1.4 Definitions

- .1 "Exposed Work" includes all surfaces visible when doors and drawers are closed.
- .2 "Semi-exposed Work" includes those members behind opaque doors, such as shelves, divisions, interior faces and ends, case backs, drawer sides, backs and bottoms, and the back face of doors.
- .3 "Concealed Work" includes sleepers, web frames, dust panels, and other surfaces not usually visible after installation.

1.5 Shop Drawings

- .1 Furnish shop drawings of finished cabinetwork and all other items requested by Architect in accordance with Section 01300.
- .2 Show fabrication details, materials, jointing, description of anchorage and hardware. Dimensions shall be based on actual measurements taken at the site.

1.6 Samples

- .1 Submit samples of all items of finish hardware, metal work, trim, plastic laminates, and similar items to be provided by this Section.
- .2 Prepare and submit 300mm (12" x 12") samples of the colours and types of finishes on veneer species of the actual cabinet and fixture material. Successively mask each step of the total finish system.

1.7 Delivery, Storage

In addition to requirements of Section 01600 note the following:

- Do not deliver finished carpentry materials during rain or damp weather or until "Wet Trades" have

- completed their work. Carefully protect from damage of any kind.
- Keep material dry during delivery and after arrival on the job. Store materials indoors, in a dry place, and protect from injury.
- For protection during shipment cover plastic laminates facing surfaces with heavy Kraft paper, or put tops on cartons.

1.8 Co-operation

In addition to requirements of Section 01600, co-operate with all other trades and do all cutting, fitting and make good work necessary.

1.9 Guarantee

Submit guarantee in accordance with GC24 covering manufacturer and installation of textured MDF, wood veneer and plastic laminate work, for a period of two (2) years.

2 PRODUCTS

2.1 Lumber

- .1 Softwood Lumber: unless specified otherwise, S4S moisture content 15% or less in accordance with CSA 0141-05 2009
- .2 Hardwood Lumber: for use as solid stock in work with transparent finish, provide lumber matching the adjacent work. Moisture content 12% or less in accordance with National Hardwood Lumber Association – 2011.

2.2 Plywood

- .1 Veneer Core: to CSA 0151-09 for softwood veneer and to CSA 0115-M1982 for hardwood veneer.
- .2 Particleboard Core: to CAN 3-0188.1 M-1982 2001 veneer or laminate face as indicated.
- .3 At veneer surfaces with transparent finish, achieve uniformity of colour, figure and grain character within each panel and from panel to panel.
- .4 Provide back veneers to properly balance face veneers.
- .5 Sand both sides, fine belt sand the exposed face side.

2.3 Composition Board

- .1 Masonite: provide tempered hardboard in the thickness shown or in appropriate thickness if not shown for the conditions of use.
- .2 MDF: fabricated with no urea-formaldehyde added, equal to Vesta FR fire-rated MDF as manufactured by Flakeboard or equal. Core Color: Pink. Surface Burning Characteristics– CAN/ULC-S102 test procedure: Flame Spread: 15, Smoke Developed: 115. Acceptable product is

2.4 Laminated Plastics

- .1 Facing Sheet: melamine surfaced type high pressure plastic laminate sheeting conforming to CSA A172-CAN3, standard grade not less than 0.050” thick at horizontal surfaces, 0.028” thick at vertical surfaces.

- .2 Backing Sheet: by some manufacturer as facing sheet, not less than 0.020" thick sanded one side.
- .3 Six colours and finishes have been selected by the Consultant from the manufacturer's lines:
 - PL-01 Formica 9283-NG Walnut Riftwood, finish: Natural Green
 - PL-02 Formica DecoMetal M5306 Plex Argent
 - PL-03 Formica 8841-WR White Ash, finish: Woodbrush
 - PL-04 Pionite SE101Black, finish: Suede
 - PL-05 Octolam 890 BRU Aluminum lineal
 - PL-06 Arborite W-424 VL, finish: Mocha Rosewood
- .4 Decorative metal laminates shall be applied to substrate of 45# density particleboard or MDF only.
- .5 Decorative solid metal sheet material shall be applied to substrate of hardwood faced plywood only.

2.5 Solid Surfacing

- .1 Non-porous homogenous material composed of acrylic polymer, aluminum trihydrate filler and pigment, and conforming to ASTM E84 and CAN ULC-S102 with Class A surface burning characteristics, having Flame Spread Index under 25 and Smoke Developed Index under 450.
- .2 Two colours and finishes have been selected from one manufacturer's lines:
 - ACR-01 Acrylite White WM32 (GP) 10mm thickness
 - ACR-02 Caesarstone 3141 Eggshell , 20mm thickness
 - STN- 02 Caesarstone 6003, 20mm thickness

2.6 Upholstery

- .1 Two styles of upholstery fabric has been selected by the Consultant as follows:
 - FB-01 Omega AC-61177 by ArcCom, Chestnut #18. Available through ArcCom Fabrics, Donna Cooper 416-923-4711
 - FB-02 Parga 3401-802 by Design Tex. Poppy Seed. Available through Design Tex, Carrie Knedsen 1-800-221-1540
- .2 Foam to be in thickness and density as indicated on the drawings.

2.7 Glass

Tempered Glass: to be fully tempered clear float glass, to CAN 2-12.1 M1979 8mm (3/8") or 18mm (3/4") thick as noted, sized to suit, all edges polished. Provide cut outs and holes as required, prior to heat strengthening.

2.8 Stainless Steel

- .1 Stainless steel material type 304 - #4 brushed finish at all exposed surfaces. Material is to be no less than 18ga 1.2mm in thickness, profiles to sizes and shapes indicated on the drawings.

2.9 Hardware

- .1 Drawer glides: for heavy drawers KV 1305 or approved equal.
- .2 Self closing fully concealed hinges for 110" opening Blum Model 90 or approved equal. Provide 3 qty. per door over 1m (36") in height, 4qty. per door over 1500mm (60") in height.

- .3 Coat hooks to be Cabano 3402.99 Concord Robe Hook by Trendline in polished chrome.
- .4 Heavy duty shelf standards to be Hafele 283.61.926, 16x6mm flush metal in suitable lengths with 4 qty. 283.07.011 shelf clips per shelf, or similar.
- .5 Light duty shelf supports to be Hafele 282.04.711, nickel plated spoon paddle for 5mm drilled hole.
- .6 Grommets for cables to be Richelieu 6009 black ABS 60mm diameter
- .7 Draw bolt joint fasteners to be KV 516C.
- .8 Bumpers to be felt or rubber self adhesive dot at all doors.
- .9 Rough hardware such as nails, screws, bolts, staples or other fixing device required but not expressly designated to be high quality, in concealed locations whenever possible.

2.10 Textured MDF

- .1 Form fascia cladding using Art Diffusion Series 135 decorative Premiere Fire Rated HDF panels 19mm thickness 1200x2400 sheets, FL1 pattern, ribbed texture installed running vertically. Material is available through Rodgers Wall Materials 416-253-1600 (Shannon Cork).
- .2 These panels will have a slight bow after fabrication. Use construction adhesive and screw fasten panels to steel fascia structure as shown. Pre-drill and countersink holes. Fill with Bondo or auto body filler.
- .3 Fill vertical joints between adjacent panels with flexible latex caulking to allow for linear expansion.

2.11 Miscellaneous Materials

- .1 Adhesive for Wood: waterproof synthetic resinous glue of the type approved and required for general carpentry work.
- .2 Adhesive for Laminate: phenol, resorcinol or melamine base thermal setting in type and grade best suited for the intended use.
- .3 Construction Adhesive for MDF and HDF: High quality mastic such as Liquid Nails, or PL Premum Polyurethane.
- .3 Silicone for glass and at countertops/backsplashes: to be one part high modulus silicone, clear or colour to match, similar to Specturum 2 by Tremco or approved equal.

2.12 Workmanship

- .1 Millwork shall be accurately milled to details, clean and cut moulding, profiles, lines. Scrape, sand smooth. Slightly arise all edges. Mortise, tenon, splice, house, joint, block, screw, and glue pieces together as approved in manner to avoid swelling, shrinkage, insure work remaining in place without warping, splitting or opening of joints.
- .2 Take necessary measurements at the building of spaces and conditions to which work must conform or through which access is required. Take such measurements prior to fabrication of work of this Trade and in ample time to avoid delays in the work.

- .3 Finished woodwork in one piece wherever possible. Run members in largest length obtainable. Where jointed, splice or miter to accurate fit and alignment, match for grain and colour.
- .4 Set and fill nailheads. Countersink and fill screw or bolt heads.
- .5 Thicknesses of all wood members shall be in accordance with the maximum possible dressed size from standard lumber.
- .6 Sand and remove machine marks or other scrapes from exposed or partially exposed surfaces. Replace work damaged by hammer or other tools where such damage cannot be satisfactorily rectified by sanding.
- .7 Protect finished surfaces, arises, mouldings, trims from damage. Sand and remove machine marks or other scrapes from exposed or partially exposed surfaces.

2.13

Fabrication

.1 General

- .1 Fabricate and assemble units complete in the shop in so far as their dimensions will permit for transportation and handling.
- .2 For units with sectional construction accurately fit and align separate parts, and provide ample screw, glue and bolt blocks, draw bolts, tongues and grooves, splines, dowels and other means of fastening to render work rigid and substantial.

.2 Scribe Members

- .1 Provide sufficient additional materials to permit scribing to walls floors and related work. Make allowance for shrinkage after installation.

.3 Laminated Plastic Work

- .1 Fabricate cabinet gables, drawer and door fronts on plywood core (3/4 minimum thickness unless shown otherwise in the Drawings) and backed with backing sheet.
- .2 Finished surfaces shall be level, smooth and without core ghosting.
- .3 Cut holes for sinks and fittings as required; seal edges with black silicone compound. Corners shall be radiused to prevent cracking. Edges around cut-outs shall be chamfered.
- .4 Arrange adjacent parts of continuous laminate work to match in colour and pattern.
- .5 Joints shall be accurately fitted to provide tight, flush hairline appearance. Provide concealed, adjustable draw bolts.

.4 Solid Surfacing

- .1 Fabricate countertops in accordance with shop drawings. Provide cut outs for sinks, faucets, soap dispensers and other items shown to be installed in solid surfacing.
- .2 Form joints between components using manufacturer's standard one or two-part adhesive kit to create inconspicuous joints.

- .3 Reinforce joints with 50mm strips beneath seams. Dress joints smooth.
- .4 Rout radii and contours to templates. Anchor securely to base cabinets with no more than 3mm of sag or variation from a straight line.

.5 Cabinets and Fixtures

- .1 Use solid stock for frames, jambs, heads, stops and edges.
- .2 Use plywood for body construction of cabinets where members are more than 250 mm (10") wide.
- .3 Where plywood or veneer face particleboard is used, trim all exposed edges with hardwood well glued without face nailing.
- .4 Groove gables for adjustable shelf standards.
- .5 Provide solid edging (min. 12 mm ½") on all exposed edges of plywood shelves, gables.
- .6 Rout drill and otherwise prepare surfaces as needed, and firmly install all finish hardware and accessories in accordance with the Drawings and manufacturer's recommendations.

.6 Mirrors

- .1 Coordinate size of mirror frame with mirror being provided by other section.
- .2 Fabricate plastic laminated surround/frames as detailed.
- .3 Anchor mirror securely within frame.

.7 Stainless Base and Cap Trim

- .1 Form using 19mm ply to sizes and profiles noted on the drawings. Screw fasten to wall and fascia structure.
- .2 Cut and brake form stainless, adhesive apply sheets. Make butt joints tight.

.8 Fascia Panels

- .1 Use flat MDF (19mm minimum thickness) where so indicated on the Drawings.
- .2 Where textured HDF surfacing is indicated, install textured MDF using permanent adhesive as recommended by supplier.
- .3 Countersink and fill to conceal fasteners.

.9 Existing Cabinets

- .1 Remove existing bar and storage cabinets in Alumni lounge. Protect for reuse.
- .2 Alter storage cabinet as required to fit new wall recess opening. Fix closed one cabinet door, and remove unneeded hardware. Reinstall cabinets to new locations as indicated on the drawings.
- .3 Alter one end of bar as noted. Reuse panels and toe kick. Make good.

- .3 Scribe and trim existing solid laminate countertop to suit new walls. Form new nosings to match existing where required.

2.14 Painting and Finishing

- .1 Provide uniform finishes, even and free from cloudy and mottled appearances; without dirt, runs, brush marks, sags, or laps.
- .2 Thoroughly hand scrape and sand the surface before any finish is applied. Sand each coat of finish smooth prior to applying the next coat, always sanding in the direction of the grain.
- .3 Knife putty open joints, cracks, and nail holes full smooth, and flush with surrounding surfaces. Use putty tinted to match the colour of the finished wood.
- .4 At exposed cherry surfaces, provide stain, clear or transparent finishes as follows:
- filler or open wood grain
 - Washcoat
 - Stain to match approved sample
 - Two coats high solid sealer
 - Sand with 220 grit
 - Topcoat with high solid lacquer 50% sheen
 - Sand with 200 grit
 - Topcoat with high solid lacquer 50% sheen
- .5 Apply stain only after the surfaces have been filled free from grain marks.
- .6 At all concealed surfaces apply one coat of undercoat similar to Sinclair 14.

3 EXECUTION

3.1 Examination

- .1 Examine surfaces and conditions upon which work of this section depends and do not proceed with installation unless surfaces and conditions are acceptable.

3.2 Specified Units

05 P Lam framing at Feature Wall
08 Bar Table
10 TV and Shelves
11 Staff Lounge Mirror
12 Flat Mirror
21 Coat Closet
23 Countertop
27 Wall-Mounted Counter
28 Wall Mounted Shelves
29 Processing Table
30 Coat Hooks Panel
32 Counter and Shelves
36 Veneer surround at Door
45 Low Wall with P Lam finish
49 Bench

3.3 Installation

- .1 Install as per Custom Grade AWI standards 1700.
- .2 Scribe units to floor, wall, and other surfaces as appropriate with not more than 1/32 (1 mm) clear between the cabinet and adjacent surface.
- .3 Set each unit square, level, plumb and aligned no more than 1/4' from its designated location.
- .4 Securely fix all built-in units in place with countersunk screws, nails and/or anchor bolts, located in concealed or inconspicuous places. Securely fix counter tops to framing with countersunk screws from underside.
- .5 Make provisions for all electrical items and plumbing and other trades including access panels as needed for connections.
- .6 Protect installed plastic laminate, stainless steel and exposed wood surfaces with heavy Kraft paper secured in position with masking tape. Do not remove until final inspection. Upon acceptance of work, remove identification markings and clean plastic laminate surfaces.
- .7 Thoroughly clean each item and adjust all hardware. Touch up scratches and abrasions to be completely invisible to the naked eye at a distance of one meter.

END OF SECTION

1 GENERAL

1.1 Work Included

- .1 Work under this section consists of the furnishing of all labour, materials, equipment, and services necessary for, and incidental to, the complete and proper repair of existing mineral fibre fireproofing and related work as shown on the drawings or specified herein, and in accordance with all applicable requirements of the contract documents.

1.2 Related Work

- | | |
|--------------------|---------------|
| Demolition | Section 02050 |
| Metal Fabrications | Section 05500 |

1.3 References

- .1 CAN/ULC-S101-04-EN - Standard Methods of Fire Endurance Tests of Building Construction and Materials.
- .2 CAN/ULC-S102-03-EN - Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.
- .3 ULC - Underwriters Laboratories of Canada.

1.4 Criteria

- .1 Installed materials to conform to ULC Assemblies for a fire resistance rating of 2 (Two) hr.
- .2 Bond Strength of Fireproofing: ASTM E72-02, tested to provide minimum bond strength twenty times weight of fireproofing materials.
- .3 Application: Verify fire test reports of fireproofing application to substrate materials similar to project conditions.
- .4 Provide reports which indicate conformance to CAN/ULC-S101-04-EN and CAN/ULC-S102-03-EN.

1.5 Submittals

- .1 Provide submittals specified and as required to assess conformance with the Contract Documents, in accordance with the General Conditions and Division 01 of the Specifications.
- .2 Submit manufacturer's certificate that products meet or exceed specified requirements.
- .3 Submit manufacturer's installation instructions.

1.6 Project/site Conditions

- .1 Provide ventilation in areas to receive fireproofing during and 24 hours after application to dry material. Maintain non-toxic, unpolluted working area.
- .2 Provide temporary enclosure to prevent spray from contaminating air.

1.1 Warranty

- .1 Provide a two year warranty under provisions of Section 01800.

- .2 Warranty: Applied fireproofing will remain free from cracks, checking, dusting, flaking, spalling, separation and blistering. Reinstall or repair failures of such defects.

2 PRODUCTS

2.1 Approved Products and Manufacturers

- .1 Double A/D Distributors.
- .2 Cafco Industries.
- .3 W.R. Grace.

2.2 Materials

- .1 Mineral Fibre Sprayed Fireproofing: Double A/D Type FP or equivalent from other acceptable manufacturer, qualified for use in ULC Design specified.
- .2 Primer Adhesive: Of type recommended by fireproofing manufacturer, qualified for use in ULC Design specified.
- .3 Adhesive and Sealer: latex emulsion type as recommended by Double A/D Distributors Ltd. or other equivalent, qualified for use in ULC Design specified.
- .4 Water: Clean, potable.

3 EXECUTION

3.1 Examination

- .1 Verify that substrate surfaces are ready to receive work.
- .2 Inspect existing fireproofing to ensure that it continues to provide required levels of protection.
- .3 Confirm compatibility of surfaces to receive fireproofing materials.
- .4 Verify clips, hangers, supports, sleeves, and other items required to penetrate fireproofing are in place before application.
- .5 Verify ducts, piping, equipment, or other items which would interfere with application of fireproofing are not positioned until fireproofing work is completed.
- .6 Beginning of installation means acceptance of substrate.

3.2 Preparation

- .1 Remove incompatible materials which affect bond.
- .2 Fill voids and cracks in substrate, remove projections and level where sprayed fireproofing is exposed to view as finish material.
- .3 Protect adjacent surfaces and equipment from damage by overspray fall-out, and dusting.

3.3 Application

- .1 Mix and apply fireproofing in accordance with manufacturer's instructions.
- .2 Apply primer adhesive and fireproofing in sufficient thickness to achieve rating with monolithic blanket of uniform density and texture.
- .3 Water-tamp fireproofing after application to provide dense smooth surface.

3.4 **Field Quality Control**

- .1 Perform inspections to verify compliance with requirements.
- .2 Correct unacceptable work and provide further inspection to verify compliance with requirements.

3.5 **Cleaning**

- .1 Remove excess material, overspray, droppings, and debris.
- .2 Remove fireproofing from materials and surfaces not specifically required to be fireproofed.

3.6 **Protection**

- .1 Protect finished installation and adjacent work to meet requirements of Section 01500.

END OF SECTION

1 GENERAL

1.1 Work Included

- .1 Work under this section consists of the furnishing of all labour, materials, equipment, and services necessary for, and incidental to, the complete and proper supply and installation of firestopping and smoke seal materials and related work as shown on the drawings or specified herein, and in accordance with all applicable requirements of the contract documents.
- .2 Fire stopping materials and/or systems to be provided at penetrations through existing and new floor and wall assemblies indicated to have fire rating, and at perimeter of new fire rated assemblies that abut existing construction.
- .3 Firestop existing openings for services that are to be abandoned and openings for new services.

1.2 Related Work

- .1 Section 07900 - Joint Sealants:
- .2 Divisions 15 and 16 - Mechanical/Electrical: Firestopping and smoke seals between sleeve and pipe, conduits, duct or insulation.

1.3 References

- .1 ULC-S115-95 (R2001) Standard Method of Fire Tests of Firestop Systems.
- .2 ASTM E184-02 Methods for Fire Tests of Through-Penetration Fire Stops.
- .3 ULC. Guide No. 40 U19.
- .4 ULC. Guide No. 40 U19.13

1.4 Design Criteria

- .1 Provide seals to form draft tight barriers to retard the passage of flame and smoke, and, where required, fire fighter's hose stream.
- .2 The installed seal shall provide and maintain the fire resistance rating of the adjacent floor, wall or other fire separation assembly to the requirements of and acceptable to the authorities having jurisdiction and the Architect.
- .3 Firestopping and smoke seals within mechanical (i.e. inside sleeves, ducts, dampers) and electrical assemblies (i.e. inside electrical bus ducts) shall be provided as part of the Work of Divisions 15 and 16 respectively. Firestopping and smoke seals around the outside of such mechanical, and electrical assemblies where they penetrate fire-rated separations shall be part of the Work of this Section.
- .4 The particular products and systems specified in this Section do not intend to cover all conditions which may occur in the Work, nor do they intend to restrict other tested and ULC listed assemblies which will meet the performance requirements of this Section.

1.5 Submittals

- .1 Provide submittals specified and as required to assess conformance with the Contract Documents, in accordance with the General Conditions and Division 01 of the Specifications.

- .2 Submit manufacturer's product data for materials and prefabricated devices, providing descriptions sufficient for identification at the Project site. Include manufacturer's printed instructions for installation.
- .3 Submit manufacturer's certification that installed fire stopping and smoke seal materials comply with specified requirements.
- .4 Submit samples of each type of fire stopping and smoke seal material.
- .5 Submit copies of ULC Listing Cards for review.

1.6 **Quality Assurance**

- .1 Provide the work of this Section using competent installers, experienced in the application of the materials and systems being used, approved and trained by the material or system manufacturer.
- .2 Fire stopping and smoke seal materials shall conform to both the temperature and flame ratings of ULC-S115-95 (R2001) and, where applicable, to ASTM E814-02, and other requirements of authorities having jurisdiction.

1.7 **Delivery, Storage and Handling**

- .1 Deliver and store materials in their original unopened containers. Protect from damage and environmental conditions as noted under manufacturer's recommendations.

2 PRODUCTS

2.1 **Approved Products and Manufacturers**

- .1 A/D Fire Protection Systems.
- .2 Tremco Ltd.
- .3 Other systems complying with specified requirements, approved by Architect prior to Bid Closing will be acceptable.

2.2 **Materials**

- .1 All materials shall be ULC listed in accordance with ULC-S115-95 (R2001), and ULC labelled. Materials and systems shall be free of loose asbestos and comply with the standards specified herein.
- .2 Site system assembly must be in accordance with ULC listed system design limitations, unless a technical evaluation is approved by the architect and authorities having jurisdiction.
- .3 All ULC systems used must provide a flame, and hose stream rating in accordance with those outlined in the most recent OBC and/or provide an effective barrier against the passage of flame, smoke and gases.
- .4 Service penetration and joint assemblies (systems): Certified by ULC and listed under ULC Guide No. 40 U19.
- .5 Service penetration and joint fire stop components: Certified by ULC and listed in ULC Guide No. 40 U19.13 under the Label Service of ULC.

- .6 All firestopping seals except for wall joints in visible areas must be of an easily identifiable colour, such as red or yellow, to be clearly distinguished from other building materials.
- .7 Fire resistance rating of installed firestopping assembly shall be not less than the fire resistance rating of surrounding floor and wall assembly.
- .8 Further to the provisions outlined herein, these products are acceptable:
 - .1 Firestopping and smoke seal systems: in accordance with CAN4-C-S115-M85, 'Firebarrier' and 'A/D Silicone Fire Barrier Sealant', distributed by Double A/D Fire Protection Systems Inc.; Tremco "Fyre-Sil"; Type MW, Type "305 SL" and "Compound 1000" mortar filler by Instant Firestop Inc. "Fyre-Shield" and "Fyre-Sil" by Tremco.
 - .2 Primers: to manufacturer's recommendation for specific material, substrate, and end use.
 - .3 Tape: Pressure sensitive masking tape as recommended by manufacturer of the Fire Stop System.
 - .4 Sealants for vertical joints: non-sagging.
 - .5 Water (if applicable): potable, clean and free from injurious amounts of deleterious substances.
 - .6 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.
 - .7 Impaling clips: heavy gauge galvanized steel 25 mm wide x 0.65 mm thick, Z formed, dimensions to suit location and width of void to be filled.

3 EXECUTION

3.1 Examination

- .1 Examine sizes and conditions of voids to be filled to establish correct thicknesses and installation of materials. Ensure that substrates and surfaces are dry and frost free.

3.2 Preparation

- .1 Prepare surfaces in contact with firestopping materials and smoke seals to manufacturer's instructions.
- .2 Mask where necessary to avoid spillage and over coating onto adjoining surfaces; remove stains on adjacent surfaces.

3.3 Application

- .1 ULC Systems govern all installations of firestopping seals.
- .2 Mix and apply firestopping and smoke seals in strict accordance with manufacturer's instructions and tested designs to provide required temperature and flame rated seal, to prevent the passage of smoke, and where specifically designated, the passage of fluids.

- .3 Provide temporary forming and packing as required. Apply materials with sufficient pressure to properly fill and consolidate the mass to seal openings.
- .4 Tool or trowel exposed surfaces. Allow materials to cure by not covering up materials until full curing has taken place.
- .5 Notify Architect when completed installations are ready for inspection and prior to concealing or enclosing firestopping and smoke seals.

3.4 **Horizontal Joint Firestop Systems**

- .1 For penetrations through fire-resistance rated floor slabs, ceilings and roofs unless otherwise stipulated.
- .2 Install firestopping by compressing material minimum of 25% to ensure complete sealing and to follow irregularities of concrete slabs at perimeter of building where junction occurs at back of precast facing, and back of spandrel panels.
- .3 Butt succeeding sections of firestopping material tightly up against preceding. Leave no voids.
- .4 Use 2 impaling clips per 1200 mm length of firestopping material to support and secure firestopping between exterior wall cladding and concrete floor slab.

3.5 **Wall Joint Firestopping Systems**

- .1 At fire-rated non bearing masonry walls which extend nominally to within 20 mm of underside of deck above, insert firestopping material in 25% compression in accordance with ULC test requirements and manufacturer's instructions. Provide adequate depth of material to fill gap flush with face of wall, except as otherwise specified.
- .2 Insert at intersection of fire-resistance rated masonry and gypsum board partitions.
- .3 Insert at both sides of control and sway joints in fire-resistance rated masonry and gypsum board partitions and walls.
- .4 Where wall/slab junction is exposed in finished Work, keep fibre back 10 mm from face of block and apply fire-resistant silicone sealant to gap, tooling to a concave joint.

3.6 **Service Penetrations in Vertical or Horizontal Separations**

- .1 Seal gaps and holes in fire-rated walls and slabs and composite construction through which conduit, wire, cables, ductwork, piping and all other protrusions pass as a result of Work using fire-resistant penetration sealant. Include openings which have been formed, sleeved and cored.
- .2 Apply at unpenetrated openings and sleeves installed for future use through fire-resistance rated assemblies.
- .3 Fire, temperature rise and hose stream resistant elastomeric sealant or silicone foam - certified assembly of listed manufacturers.
- .4 Install 6 to 10 mm bead of firestop caulking at interface of retaining angles around fire dampers, where angles meet fire-rated assembly, and between retaining angles and fire damper, both sides of penetration. At floor locations, sealant bead at top of assembly is adequate.

- .5 Where necessary, remove insulation from insulated pipe and duct where such services penetrate a fire separation unless certified assembly permits such insulation to remain within the assembly.
- .6 Where openings subject to movement, materials shall have elastic characteristics.
- .7 Identify each firestop penetration with permanent label listing assembly and rating in hours, rate of installation, installing company's name and telephone number.

3.7 **Accessories**

- .1 At hollow fire-rated walls, apply intumescent pads to back surfaces and cable entry points of electrical boxes, panels and other service penetration points, ensuring close coordination with electrical, mechanical and drywall (and plastering) trades. Where greater dimension of panel exceeds 500 mm, drywall trades construct fire-rated enclosure around recessed panels.

3.8 **Cleaning**

- .1 Remove excess materials and debris and clean adjacent surfaces immediately after application to satisfaction of Construction Manager. Remove and or correct staining and discolouring of adjacent surfaces as directed.
- .2 Remove temporary dams after initial set of firestopping and smoke seal materials where such materials are left exposed in finished areas and flame spread rating of such materials exceed a value of 25.

3.9 **Schedules**

- .1 Service Penetrations:
 - .1 Mechanical Pipe Penetrations
 - .2 Mechanical Damper Joints: Top only in floor dampers
 - .3 Electrical Service Penetrations: Bus duct, conduit, etc.
 - .4 Electrical Outlet Boxes: Receptacles, switches etc., in fire-rated G.W.B. only.

END OF SECTION

1 GENERAL

1.1 Work Included

- .1 Review other Sections of the Specifications for extent of sealant work specified in those Sections. Provide all other joint sealant materials, equipment and labour necessary to complete the work of this Section as indicated on the drawings, specified herein, or as required by job conditions and normally considered as work covered by this Section.
- .2 The term "sealant" to be synonymous with the term "caulking" where used on the drawings and/or specifications.

1.2 Related Work

Tempered Glass Guards	Section 08450
Steel Doors and Frames	Section 08110
Gypsum Wallboard System	Section 09260
Specialties	Section 10200
Washroom Accessories	Section 10800

1.3 References

- .1 ASTM C834, Specification for Latex Sealants.
- .2 ASTM C920, Specification for Elastomeric Joins Sealants.

1.4 Submittals

- .1 Manufacturer's Data: Submit manufacturer's literature describing each material to be used in the work of this Section. Literature shall contain a statement that the material complies with the specified standard.
- .2 Samples: Submit for approval and colour selection sample of each type of compound, recommended primers and joint filler or fillers proposed to be used.
- .3 Safety Data Sheets: Submit WHMIS safety data sheets for inclusion with project record documents. Keep one copy of WHMIS safety data sheets on site for reference by workers.

1.5 Quality Assurance

- .1 Prior to commencing work the sealant manufacturer, Contractor, subcontractor, Consultant, and Owner's representative shall establish the proper sealants to be used throughout the work.
- .2 Sealants shall be installed by qualified caulking contractor with minimum five years experience and proven record of being able to produce good quality work.
- .3 Installation of sealants to be performed only by workmen skilled and trained in the techniques of caulking, and who are completely familiar with the published recommendations of the manufacturer of the sealant material being used.
- .4 Manufacturer's recommendations for mixing or preparation of materials shall be strictly adhered to. Pot life or installation times shall not be exceeded.

- .5 Integral materials which compose a joint detail shall be compatible. Component parts, where possible, shall have the same manufacturer.
- .6 A representative of sealant material manufacturer shall visit the site during application to ensure that all work is carried out according to the manufacturer's printed instructions.
- .7 The Owner may appoint (and pay) an independent Inspection and Testing agency, to carry out random inspection and testing on work and materials.
- .8 Apply sealants to joints in surfaces to be painted before painting.

1.6 **Delivery, Storage and Handling**

- .1 Deliver sealants to site in sealed containers bearing manufacturer's name, brand name of sealant and reference standard to which sealant complies.
- .2 Store materials in a dry area having an ambient temperature within limitations recommended by material manufacturer.

1.7 **Project/site Conditions**

- .1 Apply sealants only to completely dry surfaces, and at air and material temperatures above minimum established by manufacturer's specifications.
- .2 The temperature of sealants and the materials to which it is applied not to be below 5 deg C.
- .3 Should it become necessary to apply sealants when the temperature is below 5 deg C, consult the sealant manufacturer and follow his recommendations.

1.8 **Warranty**

- .1 Warrant the work of this Section against defects in materials and workmanship in accordance with General Conditions, for a period of two (2) years and agree to promptly make good any defects which occur or become apparent during the warranty period without cost to the Owner, such defects to include, but not restricted to, leakage, cracking, deterioration, shrinkage, loss of cohesion, staining or failure to provide intended seal.

2 PRODUCTS

2.1 **Sealants**

- .1 Sealant Type "A": Multi-component, chemical curing, polyurethane, conforming to ASTM C920-M90 'DyMeric' by Tremco (Canada) Ltd., or Sternson RC-1' by Sternson Construction Products, or approved equal.
- .2 Sealant Type "B": One component, moisture curing, modified polyurethane joint sealant, conforming to ASTM C920-M87, 'DyMonic' by Tremco (Canada) Ltd., or Sternson RC-2' by Sternson Construction Products, or approved equal.
- .3 Sealant Type "D": One component polyurethane based type conforming to ASTM C920, Type M, Grade P, Class 25, 'THC-900' by Tremco (Canada) Ltd., or Sternson RC-2 SL' by Sternson Construction Products, or approved equal.

- .4 Sealant Type "E": One component silicone base, solvent curing conforming to ASTM C920, 'Proglaze' by Tremco (Canada) Ltd., 'Dow Corning 786' by Dow Canada Inc. or 'Sanitary 1700' by Canadian General Electric Company. or approved equal.
- .5 Colours: Selected by Consultant, not necessarily from manufacturer's standard colours.

2.2 Accessories

- .1 Joint Cleaner: Non-corrosive solvent recommended by sealant manufacturer for applicable substrate material.
- .2 Primer: Non-staining type recommended by sealant manufacturer.
- .3 Joint Back-Up: Round closed cell foam, extruded polyethylene, Shore A hardness of 20, tensile strength 140 to 200 KPa, oversized 30-50% compatible with sealant and primer, non-adhering to sealant, 'Sof Rod' by Tremco (Canada) Ltd., or approved equal.
- .4 Bond Breaker: Pressure sensitive polyethylene tape, not bondable to sealant.
- .5 Preformed Compression Seal: Compartmental open cell neoprene extrusion type conforming to ASTM C509-00, complete with liquid lubricant adhesive recommended by manufacturer.

3 EXECUTION

3.1 Examination

- .1 Examine joints to be sealed and report in writing to the Consultant any defects in work of other Sections which would impair installation, performance and warranty of sealants.
- .2 Where surfaces, to be sealed, are prime painted in shop before caulking, check to make sure prime paint is compatible with primer and sealant. If incompatible inform Consultant, consult the manufacturer, and change primer and sealant to approved compatible types.
- .3 Do not commence installation of sealants until conditions are acceptable. Commencement of work implies acceptance of surface and conditions.

3.2 Preparation

- .1 Clean and prepare surfaces to be sealed to provide clean sound surfaces for sealant adhesion in accordance with sealant manufacturer's recommendations.
- .2 Remove dust, oil, grease, water, frost, loose mortar and other foreign matter. Remove loose particles by blowing joint out with compressed air.
- .3 Chemically clean non-porous surfaces such as metal and glass, taking care to wipe solvents dry with a clean cloth. Use solvents recommended by sealant manufacturer.
- .4 Clean porous surfaces such as masonry, concrete and stone by mechanical abrading.
- .5 Prevent staining of adjacent surfaces by masking with tape prior to priming and sealing.
- .6 Prime joints in accordance with sealant manufacturer's recommendations. Apply primer before installing premoulded backup.

- .7 Install premoulded backup in joints 6 mm and more in width. Roll rope type backup into joint, do not stretch or braid. Install bond breaker in joints less than 6 mm in width.
- .8 Support joint filler on horizontal traffic surfaces against vertical movement which might result from traffic loads or foot traffic.
- .9 Examine joint sizes and correct to achieve depth to width proportions schedule herein, with minimum width and depth of 6 mm, maximum width 25 mm.

3.3

Application

- .1 Apply sealants in accordance with manufacturer's directions, under pressure using suitable equipment, to leave a weathertight, airtight installation. Gun nozzle shall be of proper size to fit, and seal joint.
- .2 Force sealant into joints in full bead, making certain that full contact is made with sides of joint. Tool joints to produce a slightly concave surface.
- .3 Sealant must appear as a concave recessed joint, free of ridges, wrinkles and embedded foreign matter. Sealant shall not spread or bulge beyond surfaces on each side of joint.
- .4 Apply sealants in accordance with following table:

Joint Width	Sealant Depth
6mm	6mm
10mm	7mm
15mm	10mm
20mm	12mm
25mm	15mm

- .5 Where recommended by sealant manufacturer, vent exterior joints in accord with such recommendations.

3.4

Field Quality Control

- .1 Cooperate with the Consultant and/or any inspection and testing agency the Owner may appoint.
- .2 Provide cut tests of 150 mm in length in order to ensure correct thickness, hardness, mixing and surface finish. Provide these cut test samples at times and from locations as directed by the Consultant, and make good the areas from which the samples are taken.
- .3 All tests of the sealant installation shall be inspected by the sealant manufacturer's representative.

3.5

Cleaning

- .1 Clean adjacent surfaces immediately and leave Work neat and clean. Remove excess sealant and droppings, using recommended cleaners as Work progresses. Remove masking tape after tooling of joints. Make good any damage caused.

3.6

Protection

- .1 Protect all sealant against puncture or damage until sealant has attained its final set.
- .2 Provide temporary covers over joints where joints have been cleaned out, but not yet sealed.

3.7 Schedules

- .1 Use only sealants which are proven to be compatible with materials they are in contact with. Notify Consultant prior to start of work should any sealant specified be considered unsuitable for the purpose intended.
- .2 Provide, as part of the work of this Section, all joint sealants required by the project conditions excluding joint sealants specified as part of the work of other Sections and generally as scheduled below:
 - .1 Apply Type "B" sealant to all Interior locations where sealants are required, (except where other type is specifically scheduled), including the following locations:
 - .1 Between dissimilar materials in exposed locations except where specifically indicated otherwise.
 - .2 Perimeter of interior steel door and screen frames.
 - .3 Control joints between new and existing gypsum wallboard partitions, and concrete walls.
 - .4 Expansion joints, except where covered with expansion joint cover
 - .7 Perimeter of firehose cabinets, access panels, and control panels.
 - .2 Apply Type "D" sealant to floor control joints.
 - .3 Apply Type "E" sealant at all locations within washrooms and all locations where glass is one of the adjoining materials.

END OF SECTION

1 GENERAL

1.1 Work Included

- .1 Work under this section consists of the furnishing of all labour, materials, equipment, and services necessary for, and incidental to, the complete and proper fabrication and supply of all hollow metal frames including preparation for specified hardware and related work as shown on the drawings or specified herein.

1.2 Related Work

Rough and Finish Carpentry	Section 06100
Sealants	Section 07900
Gypsum Wallboard Systems	Section 09260
Painting	Section 09900

1.3 Work Supplied but Not Installed

- .1 Supply frames and anchors to other Sections where it is necessary to build frames into work of other Sections.
- .2 Supply instructions required for accurate positioning and proper installation of components supplied to other Sections.

1.4 References

- .1 Canadian Steel Door and Frame Manufacturers Association - Specifications for Commercial Steel Doors and Frames.
- .2 CAN/CSA-G40.21-M92, Structural Quality Steels.
- .3 CSA W59-03, Welded Steel Construction (Metal Arc Welding).
- .4 CAN/CGSB-1.181-99, Ready-Mixed Organic Zinc-Rich Coating.
- .5 Replaced by ASTM A653/A653M-04a & A924/A924M-04, Specification for General Requirements for Steel Sheet, Zinc-Coated (Galvanized) or Zinc Alloy -Coated (Galvanized) by the Hot-Dip Process.
- .6 ASTM A 526M-90, Specification for Steel Sheet, Zinc-Coated (Galvanized) Zinc Alloy -Coated (Galvanized) by the Hot-Dip Process.

1.5 Submittals

- .1 Provide submittals specified and as required to assess conformance with the Contract Documents, in accordance with the General Conditions and Division 01 of the Specifications.
- .2 Prepare and submit detailed shop drawings to Consultant for review prior to fabrication.
- .3 Indicate type of frame, material, steel core thickness, frame configuration, anchor types, and spacings, location of cutouts for hardware, reinforcement, and finish.

1.6 Quality Assurance

- .1 Conform to requirements of Canadian Steel Door and Frame Manufacturers Association (CSDFMA) standards except where noted otherwise.
- .2 Welding shall conform to CSA W59-03.

1.7 **Delivery, Storage and Handling**

- .1 Adequately protect units against rust and damage during manufacture, delivery and storage.
- .2 All materials shall be thoroughly inspected upon receipt and all discrepancies, deficiencies and/or damages shall be immediately reported, in writing, to the supplier.
- .3 All damages incurred during shipment shall be noted on the carriers' Bill of Lading and immediately reported, in writing, to the supplier. Make good immediately any damage done. Clean scratches and touch-up with rust-inhibitive primer.

1.9 **Warranty**

- .1 The work of this section shall be warranted for a period of two (2) years.

2 PRODUCTS

2.1 **Approved Manufacturers**

- .1 M.J. Daley manufacturing Co. Ltd.
- .2 S.W. Fleming Limited.
- .3 Or other prior approved alternate who is a member of the CSDFMA.

2.2 **Materials**

- .1 Steel: Commercial grade steel to ASTM A568/A568M-03, Class 1, hot-dip galvanized to ASTM Replaced by A653/A653M-04a coating designation to ASTM Replaced by A653 and A924, ZF75 (A25) known commercially as 'Colour bond', 'Satincoat' or 'Galvanneal' except where specified otherwise.
- .2 Reinforcement: Steel to CSA-G40.21-98, Type 44W, coating designation to ASTM A653 and A924.
- .3 Hardware/Reinforcing/Accessories (steel thickness):
 - .1 Strike lock reinforcements 1.6 mm
 - .2 Hinge reinforcements 3.4 mm
 - .3 Reinforcement for surface mounted hardware 2.7 mm
 - .4 Mortar guard boxes 0.9 mm
 - .5 Floor anchors 1.6 mm
 - .6 Wall anchors (strap type) 1.6 mm

.4 Door Bumpers: Single stud to CAN CGSB 69.30, type 6-180 black neoprene.

.5 Touch-up Paint: Zinc-Rich primer to CAN/CGSB-1.181-99.

2.3 **Fabrication - Frames**

.1 Provide welded frames of 2.0 mm thick stainless sheet steel to profiles indicated.

.2 Assemble components with accurately cut joints. Mitre outside corner joints of frames. Weld joints on inside of profile; grind welds, flush and sand to smooth uniform surface.

.3 Fit and assemble work in the shop wherever possible, eliminating field joints.

.4 Countersink frames at anchor locations to accommodate 10 mm screw fasteners. Screws to be tamperproof stainless steel with countersunk flat heads.

.5 Drill strike jamb of each single door frame for 3 bumpers.

.6 Tack weld two removable minimum 1.2 mm thick steel spreader channels to inside faces of door frames at base.

.7 Provide adjustable 3.5 mm base clips for anchorage to floor at bottom of each door jamb.

.8 Provide frames with guard boxes welded to frame, reinforcements at hinges, strikes and other hardware items recessed into frames.

.9 Hardware reinforcements shall in addition to frame thickness.

2.4 **Finishes**

.1 Wipe coat galvanized for paint finish on site.

3 EXECUTION

3.1 **Installation - Frames**

.1 Set frames in place plumb, square and level and at correct elevations, in accordance with Canadian Steel Door and Frame Manufacturers' Association standards and NFPA 80.

.2 Coordinate with drywall installer for proper anchor placement. Secure floor anchors.

3.2 **Field Quality Control**

.1 Tolerances: Maximum Diagonal Distortion: 3 mm measured with straight edge, corner to corner.

END OF SECTION

1 GENERAL

1.1 Scope

Supply all flush laminate faced doors where shown on the schedules and drawings.

1.2 Related Work Specified Elsewhere:

Rough and Finish Carpentry	Section 06100
Metal Door Frames	Section 08110
Hardware	Section 08710
Painting	Section 09900
Mirror	Section 08800

1.3 Delivery, Storage

- .1 Deliver doors with protective coverings and store so as to prevent warpage, cracking, distortion and deformation.
- .2 Seal all four edges of unfinished doors prior to delivery.
- .3 Indicate on all doors manufacturer's name, brand name, size thickness and identifying symbol or number.
- .4 Stack flat on 2 x 4 lumber laid 300 mm (12") from ends and across the centre.
- .5 Store doors in an area as directed by the Contractor where there will be no great variations in heat, humidity and dryness.

1.4 Quality Assurance

- .1 Comply with "Architectural Woodwork Quality Standards" of the Architectural Woodwork Institute for the quality and grades specified.
- .2 Meet CAN/CSA 0132.2 Series 90 Wood Flush Doors, CAN4 S104M-M80.
- .3 Fabricate rated, labelled wood doors to NFPA standards except where otherwise specified.

1.5 Shop Drawings

- .1 Submit shop drawings in accordance with Section 01300.
- .2 Indicate each type of door, material, thickness, glazed or louvred openings and finishes. Show door construction, core, and faces.
- .3 Identify fire rated wood doors to be labelled and listed in accordance with CAN4 S104M and CAN4 S105M for ratings specified.

1.6 Warranty

Provide a warranty to cover twisting or warping of 5 mm (1/4") in any direction, checking, splitting, delamination, deterioration or breakdown of materials, sealants, or workmanship in accordance with GC12.3 and Section 01300 for a period of two (2) years.

2. PRODUCTS

2.1 **Materials**

- .1 **Interior solid core laminated doors:** shall be constructed of a framed core of wood strips with hardboard ply subfaces to suit shop applied laminate finishes at both sides.
- .2 **Laminate** is to be Arborite S-434-CA Charcoal laminate.

2.2 **Grade**

- .1 Except as specified elsewhere in this section, fabricate the work of this section to “custom grade” standards of the referenced organisations.

3 EXECUTION

3.1 **Fabrication**

- .1 Fabricate doors in accordance with CSA 0132.2 M1977.
- .2 Vertical edge strips are to be birch or maple for staining.
- .3 Where doors are noted to have laminated faces, shop apply continuous sheet of laminate at both faces and bevel laminate at 20 degrees..
- .4 Where indicated, prepare doors for louvres and other hardware by others.
- .5 Bevel vertical edges of single acting doors 3 mm (1/8") in 50 mm (2") maximum on Lock side and 1.5 mm (1/16") in 50 mm (2") on hinge side.
- .6 Allow for 12 mm (1/2") maximum undercut.

3.2 **Installation**

- .1 Deliver doors to site and hand over to others for installation.

END OF SECTION

1 GENERAL

1.1 Work Included

1. Work under this section consists of the furnishing of all labour, materials, equipment, and services necessary for, and incidental to, the complete and proper installation of tempered glass railing guard systems, as well as tempered glass standoff panels at stairs, ramps and platform perimeters and related work as shown on the drawings or specified herein, all in accordance with all applicable requirements of the contract documents.

1.2 Related Work

Miscellaneous Metal Fabrications	Section 05500
Rough Carpentry	Section 06100
Sealants	Section 07900
Gypsum Wallboard	Section 09250

1.3 Design and Submittals

1. Provide submittals specified and as required to assess conformance with the Contract Documents, in accordance with the General Conditions and Division 01 of the Specifications.
2. Shop Drawings: Submit shop drawings for review in accordance with General Conditions.
3. Design: Submit evidence that guards will resist load requirements of the Ontario Building Code. Provide calculations signed and sealed by a professional engineer registered in the province of Ontario that these requirements will be met by the system.
4. Samples: Submit to Consultant for approval, before fabrication of the work, samples of materials, components, and exposed finishes to be used in the work and proposed jointing methods in aluminum framing.
5. Maintenance Data and Operating Instructions: On completion of work of this Section, supply maintenance instructions for insertion into Operating and Maintenance Manual.

1.4 Quality Assurance

1. Trade contractor executing work of this Section shall have had a minimum of five (5) years continuous Canadian experience in successful manufacture and installation of work of type and quality shown and specified. Submit proof of experience upon Consultant's request.
2. The installation shall be in conformity with laws, by-laws and regulations which govern the design and installation of tempered glass entrances and applicable CSA, CGSB and ASTM standards.
3. The work shall be supervised by competent foremen in the shop and during erection. Workmen shall be skilled in their respective trades.

1.5 Delivery, Storage and Handling

1. Before shipment, coat exposed portions of stainless with removable adhesive protective vinyl. Protection of manufacturer's choice will be allowed, providing Consultant's approval is obtained, but manufacturer will be held responsible for scratching, staining and damage to work in case of failure of protection.

1.6 Warranty

1. Warrant work of this Section against defects in materials and workmanship in accordance with the General Conditions for a period of five (5) years and agree to promptly make good defects which become evident during warranty period without cost to the Owner. Defects shall include but not be limited to any defect that obstructs visibility through the glass, deformation of members, breakage of glass caused by frame distortion and discolouration of finishes and sealants.

2 PRODUCTS

2.1 Approved Products and Manufacturers

1. This specification is based on tempered glass screen, using standard Dorma-Glas DRS 152mm rails clad in polished stainless, Equivalent products within the CRL Glass Entrance System by C R Laurence is also acceptable. Other systems complying with specified requirements, may be approved by Consultant prior to Bid Closing.

2.2 Materials

1. Aluminum:
 - .1 Extrusions: AA6063-T5 alloy, anodizing quality, conforming to ASTM B221-02.
 - .2 Plate and Sheet: AA1100-H14 alloy, anodizing quality unless otherwise indicated minimum 3 mm thick, conforming to ASTM B209-04, with special hardness for flat aluminum spandrel panels.
 - .3 Exposed surfaces of aluminum shall be free of die marks, scratches, blisters, "leave-off" marks, or other blemishes, whether left unfinished or finished.
2. Stainless Steel
 - .1 Sheet: No less than 18ga type 304 stainless, polished to mirror #8 finish , conforming to ASTM A798.
 - .2 Exposed surfaces of stainless shall be free of die marks, scratches, "leave-off" marks, or other blemishes.
3. Glass:
 - .1 Tempered Glass: fully tempered float glass, 10 mm thick or 16mm thick as noted on the details, Type FT, clear, conforming to CAN/CGSB-12.1-M90, Type 2, Class 'B', ASTM C1036, ASTM C 1048.
 - .2 Tempered laminated Glass: fully tempered float glass 10mm + 10mm thick, clear, conforming to ANSI Z-97.1 2009 Class A, with clear fully bonded PVB or SGP interlayer as required to resist loads in accordance with OBC.
 - .2 Holes, notches and cut-outs shall be drilled or cut into the glass prior to tempering. Tempering shall be performed using horizontal tong-free method.
 - .4 Final glass thicknesses, interlayers and methods of heat strengthening shall be determined by the Trade Contractor's engineering consultant.

4. Rails and Covers:
 - .1 Bottom rails at screens to be 152 mm tall square, as noted on the drawings made from 6063 T5 aluminum, of two piece clamp on design, with fasteners on alternating sides at no greater than 150mm spacing. Provide saddles at top and bottom rails to allow for alignment.
 - .2 Glazing gasket: Hakosil fibre.
 - .3 Rail covers to be polished stainless, snap on style with radiused end caps.
5. Standoffs and Accessories
 - .1 Solid stainless 316 standoff base to be 1.5 inch (37mm) diameter, 2 inches (50mm) in height with no less than 0.75 inches of usable thread both ends, finish #4 brushed - equal to Standoff Base Type T SS050 by Mogg Constructive Inc. 905-696-9828
 - .2 Standoff Cap to be matching diameter with no less than 1 inch (25mm) thread length, finish #4 brushed – equal to SS051 by Mogg.
 - .3 Gaskets to be matching diameter black neoprene, 1.5mm thick – equal to SS041 by Mogg.
 - .4 Sleeves to be provided at all threaded connections, inside and outside diameter to suit, 1.5mm clear nylon or PVC – equal to SS046 by Mogg.
 - .4 Rail support brackets to be equal to SS109-G by Mogg, complete with gaskets and sleeves to suit installation at tempered glass panels.
6. Caulking Materials:
 - .1 Perimeter Sealant: Multi-component, chemical curing type sealant conforming to ASTM C920, 'Dymeric 240' by Tremco (Canada) Ltd., or approved equal. Colour as selected later by Consultant from manufacturer's standard range.
 - .2 Joint Primers: As recommended by sealant manufacturer.
 - .3 Solvents, Cleaning Agents and Other Accessory Materials: As recommended by sealant manufacturer in writing.
 - .4 Bond Breakers: Where required, shall be polyethylene tape (or equal) as recommended by manufacturer of sealant in writing.

2.3 Fabrication

1. Fit and assemble work as far as possible in factory.
2. Aluminum sections shall be drilled, tapped, welded, slotted as may be required, for the proper installation and fixing of all components and accessories, and supplied complete with all necessary anchors, clips, bolts, screws.
3. Unless otherwise indicated on drawings, or permitted by Consultant, all fastenings and connections shall be concealed.
4. Members shall possess sharply defined profiles, straight, square and true with surfaces in proper planes and exposed finished surfaces and edges smooth and free from defects.

5. Framing, bracing, reinforcing and anchors shall have structural properties adequate to safely sustain and withstand strains and stresses to which they will be subjected.
6. Make provisions for proper expansion and contraction.
7. Joints at intersections shall be accurately formed and tightly fitted.
8. Bolts shall be tight and threads nicked to prevent loosening of nuts.
9. Accurately prepare and reinforce with backing plates to ensure adequate strength, cutouts, recesses and mortising required for hardware.
10. Co-operate with all other trades whose work is related to the work of this Section and provide all fastenings, anchors or drilled holes required to be built-in with their work, complete with the necessary setting drawings and information.
11. Isolate where necessary to prevent electrolysis between metal-to-metal contact and metal-to-dissimilar materials.
12. Do not expose welds. Burn, discolour, distortion, impairment, deterioration or delamination of finish surfaces will be rejected.

3 EXECUTION

3.1 Examination

1. Take field measurements from actual structure and verify prior to commencement of fabrication. Verify dimensions, tolerances, and method of attachment with other work.
2. Verify wall openings, floor and ceiling surfaces are ready to receive work of this Section. Commence installation only when variations or discrepancies which will prevent satisfactory installation of this Section's work are corrected.
3. Beginning of installation means acceptance of existing conditions.

3.2 Installation - General

1. Provide all fastenings or anchors to be built-in under other Sections.
2. Conceal fastenings from view.
3. Securely install frames plumb, true, square and straight in openings and free from distortion.
4. Seal joints between adjacent material and frames and between frames, sills and other material. Caulk inside and outside.

3.3 Installation – Guards

1. Build guards as shown on drawings. Do not alter dimensions or profiles of exposed surfaces.
2. Erect guards plumb, true and square.
3. Erect guards in openings complete with all necessary reinforcing and incidental components.

4. Accurately fit frames to provide tight installation and provide clearances required due to expansion, contraction and deflection of building structure and frames. Anchor units securely to building structure.
5. Provide painted temporary 20mm lexan panels as guards during fabrication of tempered and laminated glass panels.
6. Completed installation shall be of adequate strength to support normal loading without glass shaking or vibrating.
7. Where indicated or required provide stainless covers, closures, trim, mouldings with concealed fastenings. Firmly anchor components, so that they do not shake or rattle. Use adhesive bonding and plywood backing where required.

3.4 Installation – Standoff Panels

- .1 Build guards as shown on drawings. Do not alter dimensions or profiles of exposed surfaces.
- .2 Erect standoff panels plumb, true and square.
- .3 Secure standoff bases to threaded studs at metal railing posts as indicated. Confirm spacing size and locate holes accurately. Provide painted temporary 10mm ply panels as guards during fabrication of tempered glass panels.
- .4 Accurately fit tempered glass panels to provide tight installation and provide clearances required due to expansion, contraction and deflection of building structure and frames. Use gaskets and sleeves to prevent metal/glass contact.
- .5 Secure tempered glass panels to standoffs with gaskets and caps.
- .6 Completed installation shall be of adequate strength to support normal loading without glass deformation.

3.5 Installation - Guards

- .1 Attach shoe moulding to bent steel fascia cap by using 12mm flathead cap screws at maximum 300mm spacing. At ends of guards, first fastener hole must be no greater than 75mm from edge. Use manufacturer's approved washers and nuts at underside of steel cap.
- .2 Place setting blocks 150mm in length on each glass panel, spaced at no more than 300mm o.c.
- .3 Set tempered laminated glass panel with setting blocks into shoe.
- .4 Insert spacing and sealing pads between glass panels.
- .5 Plumb and level glass using non-metallic shims.
- .6 Set glass with quick-setting anchor cement. Fill all voids around glass.
- .7 Seal top of shoe with rubber top gasket at both sides of panel.
- .8 Install and secure stainless trim covers at both faces as indicated.

3.5 Installation - Sealants

1. Apply sealants in conformance with manufacturer's written directions.

2. Apply sealant under pressure with hand or power actuated gun or other appropriate means. Gun shall have nozzle of proper size and provide sufficient pressure to completely fill joints as designed. All joint surfaces shall be tooled to provide the contour as indicated on drawings. For application of sealant when air temperature is below 40°F (4°C) consult sealant manufacturer for recommendations.
3. Thoroughly clean all joints, removing all foreign matter such as dust, oil, grease, water, surface dirt, frost and old caulking materials. Sealant must be applied to the base surface. Previously applied paint or primer must be entirely removed.
4. Non-porous surfaces shall be cleaned either mechanically or chemically. Protective coating on metallic surfaces shall be removed by a solvent that leaves no residue. Solvent shall be used with clean cloths or with lint free paper towels. Do not allow solvent to air dry without wiping. Wipe dry with clean, dry cloth or lint free paper towels.
5. All joints to receive sealant shall be as indicated on shop drawings. Do not seal joints until they are in compliance with drawings; or meet with the approval of the Consultant.
6. Joints to receive sealant shall be a minimum of 6 mm wide by 6 mm deep, unless otherwise approved by Consultant.
7. Install back-up material or joint filler, of type and size specified, at proper depth in joint to provide sealant dimensions as detailed. Back-up material shall be of suitable size and shape; compressed 25-50% to fit joints as required. Sealant shall not be applied without back-up material and/or bond breaker strip. When using back-up tube or rod stock avoid lengthwise stretching. Hose or rod stock shall not be twisted or braided.
8. Prime surfaces where required with primer as recommended by sealant manufacturer.
9. All hidden joints, or joints to be concealed by metal covers, shall be cleaned, sealed and tooled, inspected and approved prior to replacing metal covers.
10. Apply, tool and finish sealant as required. When tooling sealants, use tooling solution recommended by sealant manufacturer. Remove masking tape immediately after joints have been tooled.
11. Clean adjacent surfaces free of sealant as work progresses. Use solvent or cleaning agent as recommended by sealant manufacturer. All finished work shall be left in a neat clean condition.

3.5 Field Quality Control

1. Variation from Plane: 0.03 inches per foot maximum.
2. Misalignment of Two Adjoining Members Abutting in Plane: 0.015 inches.

3.6 Cleaning

1. Immediately prior to final cleaning of glass and before handing over building to Owner, make good all damage and disfigurement. Remove all protective metal coatings, stains and foreign matter, and leave in uniform colour and in first-class condition, to Consultant's satisfaction.
2. Use soap and water, or water and approved solvents not injurious to aluminum, glass, glazing and sealant compounds. Do not use abrasives.

END OF SECTION

1 GENERAL

1.1 Work Included

- .1 Work under this section consists of the furnishing of all labour, materials, equipment, and services necessary for, and incidental to, the complete and proper supply of finishing hardware and related work as shown on the drawings or specified herein, and in accordance with all applicable requirements of the contract documents.
- .2 Installation of Hardware and hanging of doors is included as part of Section 06100 Rough and Finish Carpentry.

1.2 Related Work

Rough and Finish Carpentry	Section 06100
Steel Door Frames	Section 08110
Flush Wood Doors	Section 08210
Hardware Schedule	Section 08720
Painting	Section 09900

1.3 References

- .1 National Fire Protection Institute (NFPA):
 - .1 NFPA 80 - Fire Doors and Windows.
 - .2 NFPA 101 - Code for Safety to Life from Fire in Buildings and Structures.
 - .3 NFPA 252 - Fire Tests of Door Assemblies.
- .2 Underwriters Laboratories of Canada (ULC):
- .3 Warnock Hersey Institute of Canada (WHI)
- .4 AHC - Association of Hardware Consultants.
- .5 BHMA - Builders Hardware Manufacturing Association.

1.4 Design Criteria

- .1 Lay out keying system for project in consultation with Owner. System includes keying differently, and master keying locks to meet Owner's requirements. Prepare and submit keying chart and related explanatory data for approval. Do not commence lock work until written confirmation of keying arrangements is received.

1.5 Submittals

- .1 Provide submittals specified and as required to assess conformance with the Contract Documents, in accordance with the General Conditions and Division 01 of the Specifications.
- .2 Provide product data on supplied hardware indicating compliance with reference standards and requirements.
- .3 Submit shop drawings and complete hardware lists including:

- .1 Door locations, sizes, hardware manufacturer's catalogue numbers, finish symbols and quantities required.
- .2 Locations and mounting heights of each type of hardware.
- .4 Supply templates and required information to door and frame manufacturer.
- .5 Submit templates to required trade to arrange for accurate setting and fitting of hardware.
- .6 Submit the following for each product for inclusion in Manual at project closeout.
 - .1 Maintenance data
 - .2 Operating instructions and safety precautions
 - .3 Parts list
 - .4 Name and address of Supplier
 - .5 Lubrication schedule
 - .6 Keys, tools and special devices
 - .7 Inspection procedures for preventative maintenance

1.6 **Samples**

- .1 Submit samples of complete line of hardware and finishes, if and when requested, to accompany any proposal for substitution. Full label each sample as to manufacture, type, size and location for use proposed.
- .2 Do not order hardware from manufacturers until samples have been approved. Hardware and finishes supplied shall be identical with approved samples.

1.7 **Quality Assurance**

- .1 Provide services of a qualified Architectural Hardware Consultant (AHC) or equivalent experience to prepare detailed schedule and supervise ordering, itemizing and check in of all finish hardware products.
- .2 Architectural Hardware Supplier to inspect complete installation and certify that hardware and installation has been provided and installed in accordance with manufacturer's printed instructions and specified herein.
- .3 Supplier shall have been regularly involved in the supply of builders hardware on a contract basis for a minimum of 2 yrs and if requested by Consultant be able to supply a list of three completed projects of similar scope.

1.8 **Regulatory Requirements**

- .1 Conform to applicable code for requirements applicable to fire rated doors and frames.
- .2 Products Requiring Electrical Connection: Listed and classified by Underwriters' Laboratories, Inc., and acceptable to the authority having jurisdiction as suitable for the purpose specified and indicated.

1.9 **Delivery, Storage and Handling**

- .1 Coordinate deliveries to comply with construction schedule and arrange ahead for strategic off the ground, under cover storage locations. Do not load any areas beyond the design limits.

- .2 Package hardware separately for each opening; clearly mark opening number. Identification shall correspond with Hardware List symbols. label all packages legibly, indicating manufacturer's number, types, sizes and Hardware List reference number. Wrap hardware and include in package, screws, bolts and fastenings necessary for proper installation. If hardware package is not complete, pay additional charges incurred by installer.
- .3 Supply hardware in new unblemished condition in original manufacturer's cartons individually packaged and itemized for each opening according to approved hardware schedule.
- .4 Hardware supplier will supervise lay-up of all hardware items and maintain detailed records verifying receipt of hardware on site. a copy of these records will be made available to Consultant upon written request.
- .5 Exercise extreme care in handling units to prevent damage and scratched surfaces.
- .6 Provide written certification of conformance with ULC requirements for each type of hardware on rated doors prior to delivery.
- .7 Cover and protect the work of other Sections in the area of work from damage. Make good all damage to the satisfaction of the Consultant.
- .8 Protect hardware from damage during construction by removing and reinstalling or where necessary, using temporary hardware, to maintain hardware in new condition and maintain manufacturer's warranty.
- .9 Brief maintenance staff on correct care of hardware.

1.10 **Warranty**

- .1 Warrant door closers to remain free from defects in materials and workmanship for a period of five (5) years, and locks and locksets for two (2) years. Agree to promptly make good defects which become apparent within warranty periods without cost to Owner.

2 PRODUCTS

2.1 **Materials**

- .1 Supply all door hardware in accordance with prepared Hardware Schedule.
- .2 Finish and Base Material Designations: Number indicate BHMA Code or nearest traditional U.S. commercial finish.
- .3 Where base material and quality of finish are not otherwise indicated, provide at least commercially recognized quality specified in applicable Federal Specifications.
- .4 Keying: supply 2 keys for each lock. Supply 2 master keys for each keyed group. Keying system will be coordinated with Owner's Master Keying system. Use construction keying system that voids use of construction keys once permanent keys are used.
- .5 Butts, hinges and pivots: CAN/CGSB.18-M/ANSI/BHMA-A156.1, by Stanley Hardware Ltd.
- .6 Locksets and latchsets: Schlage Lock Company, Sargent Co. and Adamsrite Manufacturing Co. with templated, wrought box strikes, size 70 x 30 mm with machine screws. Finish to match other finishing hardware trim. Substitutions not permitted.

- .7 Cylinders: During construction supply locks with keyed alike, temporary cylinders compatible with Medeco or Schlage cylinders. At turnover to the Owner, replace temporary cylinders with Medeco cylinders, keyed to suit the Owner's master key schedule. Hand over keys to the Owner
- .8 Door closers: CAN/CGSB-69.20-M/ANSI/BHMA A156.4, by LCN Closers of Canada Limited with brackets for correct functioning of closer where required. Substitutions not permitted.
- .9 Panic sets: CAN/CGSB-69.19-M/ANSI/BHMA A156.3, by Von Duprin Ltd. Substitutions not permitted.
- .10 Threshold: K.N. Crowder Ltd.
- .11 Door stops: CAN/CGSB-69.32-M/ANSI/BHMA A156.16, by Canadian Builders Hardware.

2.2 Finishes

- .1 Type and finish of hardware equal in all respects to Finish Hardware Schedule and samples of hardware and finishes to be approved by Consultant. Metal finishes clean and unstained, of uniform colour and free from defects.

3 EXECUTION

3.1 General

- .1 Supply to the jobsite all items of finishing hardware as herein scheduled. All items to be supplied with complete and adequate fixing and anchoring devices necessary for satisfactory installation into or upon the various surfaces to which it is to be affixed.
- .2 Cooperate with all trades using hardware supplied under this Section.
- .3 Check hardware schedule, drawings and specifications. Furnish promptly to applicable trades any patterns, templates, template information and manufacturer's literature required for proper preparation for and application of hardware, in ample time to facilitate progress of Work.
- .4 Render a complete service to the metal fabrication contractor wherein full cooperation is assured them of the supply of hardware information, and templates as requested.
- .5 Supply for installation by others where specified, all hardware for all doors, wood hollow metal, interior, exterior, etc as scheduled or indicated on the drawings.
- .6 Provide manufacturers' instructions for installation of all finish hardware.

- .7 The following are the mounting heights of various hardware items:

Item	mm AFF
.1 Locksets, latchsets	1000
.2 Panic device crossbar	1000
.3 Door pulls	1100
.4 Push plates	1100
.5 Guard bars	1100
.7 Top hinge	250 from head of door
.8 Bottom hinge	265

3.2 Field Quality Control

- .1 Provide services of competent mechanic without additional cost to Owner. Mechanic shall inspect installation of all hardware furnished under this Section and supervise all adjustments (by trades responsible for fixing) necessary to leave hardware in perfect working order.

3.3 Schedule

- .1 All Finishing Hardware to be supplied in accordance with the prepared Schedule excepting where provided as part of a pre-manufactured article or unit, or where used temporarily during construction.

END OF SECTION

1 GENERAL

1.1 Scope

Provide and install all mirror required for the project including washroom units, as well as vinyl film at existing windows.

1.2 Related Work Specified Elsewhere

Rough and Finish Carpentry	Section 06100
Sealants	Section 07900
Tempered Glass Guards	Section 08450

1.3 Submittals

- .1 Provide submittals specified and as required to assess conformance with the Contract Documents, in accordance with the General Conditions and Division 01 of the Specifications.
- .1 Submit manufacturer's product data for materials and prefabricated security film, providing descriptions sufficient for identification at the Project site. Include manufacturer's printed instructions for installation.

2 PRODUCTS

2.1 Decorative Window Film

- .1 Acid Etch from the Frost Series by Llumar Illusions , pressure sensitive film (or equal), 6 mil thickness, field applied to one face of glass. Available from Ener Gard Energy Products (1-800-461-8468).

2.2 Mirror Materials

- .1 Silvered Flat Glass Mirror: to CAN/CGSB-12.5 – M86, ASTM –C1503-08. Mirror to be unframed, 5.5mm thickness with polished edges, supported with adhesive. Refer to drawings for shapes and thicknesses.
- .2 Safety Mirror: to CAN/CGSB-12.11-M90, ASTM -C1048 tempered silvered clear glass, 5.5 mm thickness or as indicated. Refer to drawings for shapes and sizes.
- .3 Mirror Backing: to meet ANSI Z97.1 9184, moisture and impact resistant mirror backing tape of copolymer film equal to MirraBak 100 as manufactured by Venture Tape.

2.3 Adhesive Compounds and Materials

Follow mirror manufacturer's recommendation regarding choice of material.

- .1 Mirror Mastic: pre-mixed one component synthetic rubber compound, to CGSB 19-GP-5M+Amdt-Nov-79, gun grade, equal to Gunther Ultra/Bond or Extra/Build or equal.
- .7 Primer-sealers, edge sealers and cleaners: to manufacturer's standard.

3 EXECUTION

3.1 Surface Conditions

- .1 Examine the areas and conditions under which work of this section is to be performed. Do not proceed until unsatisfactory conditions are corrected.
- .2 Remove protective coatings which might fail in adhesion or interfere with bond of sealants.
- .3 Clean contact surfaces with solvent and wipe dry (two cloth method) immediately prior to application of primer and adhesive compounds, films or tapes.

3.2 Mirror Fabrication

- .1 Accurately measure openings and calculate lite sizes allowing for proper minimum edge engagement and expansion.
- .2 Where tempered mirror is indicated, cut, polish and heat strengthen to meet standards.
- .3 Where tempered mirror is not indicated, apply moisture and impact resistant mirror backing tape to entire back surface of each mirror.
- .4 Mirrors are to be polished at all edges.
- .5 Seal all expose edges with liquid mirror sealer to prevent moisture penetration.

3.3 Decorative Film Installation

- .1 Install films where indicated on drawings to one face of glass, in accordance with manufacturer's instructions. Completed installation shall meet IWFA visual acceptance standard.
- .2 Install without bubbles, ripples, dirt tears cuts or gaps between film and frames.
- .3 Clean newly installed film and window frames after installation.

3.4 Mirror Installation

- .1 Install mirrors where indicated on drawings using full adhesive bead or 100mm dot and temporary clips.
- .2 After adhesive has achieved 75% strength, remove temporary clips.

3.5 Cleaning

- .1 Immediately remove sealant and compound droppings from finished surfaces. Remove labels after work is completed.

END OF SECTION

1 GENERAL

1.1 Scope

Provide labour, materials and equipment necessary to design, fabricate and install structural metal stud system for brick veneer wall system as well as exterior insulation and finish wall system at perimeter walls and other locations where indicated on the Drawings and as needed for a complete and proper installation.

1.2 Related Work Specified Elsewhere

Gypsum Wallboard Section 09260

1.3 Design Criteria

- .1 Design structural metal stud system using factored loads and resistances based on Limit States Design Principles. Do not design using allowable design stresses contained in structural design standards for masonry.
- .2 Loads and load factors shall be in accordance with the National Building Code of Canada.
- .3 Resistance and resistance factors shall be determined in accordance with the National Building Code and CAN3-5136.
- .4 Conform to the requirements of specified fire rated assemblies.
- .5 Design bridging to prevent member rotation and member translation perpendicular to the minor axis. Provide for secondary stress effects due to torsion between lines of bridging.
- .6 Provide sufficient steel bridging to align members during erection and to provide necessary structural integrity during construction as well as in the completed structure.
- .7 Maximum deflections under the specified loads for metal stud system shall not exceed $L/600$.
- .8 Design components or assemblies to accommodate normal erection tolerances of the existing structure.
- .9 Allow for movement of the structure. Accommodate floor and roof deflections such that the studs are not loaded axially.
- .10 Connections between metal stud framing members shall be by bolts, welding or sheet metal screws.
- .11 Allow for appropriate end eccentricities in the design of axial load bearing members.
- .12 The spacing of members shall not exceed 600 mm o.c.

2 PRODUCTS

2.1 Materials

- .1 Metal Studs - minimum 18 or 20 ga. steel conforming to CAN3-S136 and hot-dipped galvanised to ASTM A525, Grade G-90.
- .2 Zinc rich paint - to CGSB 1-GP-181M for touching up welds and damaged metallic coatings.

- .3 Sheet metal screws - minimum coating thickness of .008 mm of zinc or cadmium.
- .4 Accessories - provide all accessories needed including tracks, clip anchors, fastening devices, rods, clips, and other, to complete the installation.

3 EXECUTION

3.1 Examination

- .1 Examine all areas and conditions under which work of this Section will be performed. Do not proceed until unsatisfactory conditions are corrected.
- .2 Commencement of work will denote acceptance of conditions.

3.2 Fabrication

- .1 Fabrication and erection shall conform with the approved shop drawings. All modifications must be approved in writing.
- .2 Provide cutouts centred in the webs of members to accommodate services. The effect of cutouts on strength and stiffness of members shall be considered.
- .3 Fabricate studs to the following tolerances:
 - ° Depth -1 mm +2 mm
 - ° Flange -1 mm +2 mm
 - ° Lip -0 mm +4 mm
 - ° Thickness -0 mm
 - ° Length -3 mm +3 mm
- .4 Mark steel thickness exclusive of coating on each member by embossing or stamping with indelible ink.

3.3 Screwed Connections

- .1 Steel screws shall equal or exceed the minimum diameter indicated on shop drawings.
- .2 Penetration beyond joined materials shall be no less than 3 threads.
- .3 Screws to be covered by sheathing materials shall have low profile heads.

3.4 Installation

- .1 Accurately lay out wall lines from dimensions on the drawings.
- .2 Install the metal studs and accessories in accordance with the shop drawings, anchoring all components firmly into position.
- .3 Metal stud framing shall be erected true and plumb within the tolerances below. Temporary bracing shall be employed wherever necessary to withstand all loads to which the structure may be subject during erection and subsequent construction.

- .4 Align wall framing assemblies so that out-of-plumbness does not exceed 1/500th of the stud length. Out-of-straightness shall not exceed 1/1000th of the stud length.
- .5 Studs shall seat into top and bottom tracks. The gap between the end of studs and the web of track shall not exceed 4 mm.
- .6 Make all field measurements to ensure proper fit of members.
- .7 Cut members only by saw or shear. Torch cutting is not permitted.
- .8 Spacing of studs shall not deviate more than 3 mm from design. Cumulative errors in spacing shall not exceed the requirements of the finishing materials.
- .9 Co-ordinate suitable backing and other support for items to be mounted on the finished covering.

3.5 Inspection

- .1 Materials or workmanship not conforming to the requirements of the contract documents may be rejected at any time during the progress of work.

END OF SECTION

1 GENERAL

1.1 Work Included

- .1 Work under this section consists of the furnishing of all labour, materials, equipment, and services necessary for, and incidental to, the complete and proper installation of gypsum wallboard systems and related work as shown on the drawings or specified herein, in accordance with all applicable requirements of the contract documents.

1.2 Related Work

Rough Carpentry - Blocking, Nailers.	Section 06100
Steel Door Frames	Section 08110
Painting and Finishing	Section 09900

1.3 References

- .1 ASTM C834 Specification for Latex Sealants.
- .2 CAN/CGSB-51.34-M86, Vapour Barrier, Polyethylene Sheet for use in Building Construction.
- .3 CAN/CSA A82.27-M91, Gypsum Board Products.
- .4 CSA A82.30-M1980 (R 1992), Interior Furring, Lathing and Gypsum Plastering. (WITHDRAWN)
- .5 CSA A82.31-M1980, Gypsum Board Application. (WITHDRAWN)
- .6 ASTM C 1047-99 (2004), Accessories for gypsum Wallboard and Gypsum Veneer Base.
- .7 ASTM C1177/C1177M-04, Specification for Glass Mat Gypsum Substrate for use as Sheathing.
- .8 ASTM C1178/C1178M-04, Specification for Glass Mat Water-Resistant Gypsum Backing Panel.

1.4 Design Criteria

- .1 Use ULC or Warnock Hersey approved designs for assemblies requiring fire resistance ratings. Conform to applicable code for fire rated assemblies.
- .2 Design ceiling and soffit support and anchoring systems to with stand live and dead loads, including mechanical and electrical fixtures supported by the system.
- .3 Limit ceiling/soffit deflection to not be greater than 1/360 of the span between points of support.
- .4 Provide for expansion, contraction, deflection and creep of components without causing buckling, failure of joint seals, undue stress on fasteners or other effects detrimental to appearance or performance.

1.5 Submittals

- .1 Provide submittals specified and as required to assess conformance with the Contract Documents, in accordance with the General Conditions and Division 01 of the Specifications.

.2 Shop Drawings:

- .1 Submit shop drawings showing the design, construction and relevant details of furring, enclosures and partitions which require a fire rating.

1.6 Quality Assurance

- .1 Contractor executing work of this Section shall have a minimum of five (5) years continuous Canadian experience in successful installation of work of type and quality shown and specified. Submit proof of experience upon Consultant's request.
- .2 Work shall be carried out by competent mechanics supervised at all times by a permanent, resident foreman.
- .3 Unless specified otherwise install work to CSA A82.31 and/or CGC Drywall Construction Handbook, latest edition, the more stringent to apply.

1.7 Delivery, Storage and Handling

- .1 Coordinate deliveries to comply with construction schedule and arrange ahead for off the ground, under cover storage location. Do not load any area beyond the design limits.
- .2 Materials shall be carefully checked, unloaded, stored and handled to prevent damage. Protect materials with suitable non-staining waterproof coverings.
- .3 Store material in original, undamaged containers or wrappings with manufacturer's seals and labels intact.
- .4 Protect bagged products from excessive moisture or wetting. Store metal component sections in crates to prevent damage to material. Do not use bent or deformed material.

1.8 Project/site Conditions

- .1 Carry out the work of this Section only when temperature is maintained and controlled in the range of 13°C to 21°C for at least 24 hours before installing gypsum wallboard and is maintained or can be maintained until joint cement and adhesives are cured.

2 PRODUCTS

2.1 Approved Products and Manufacturers

- .1 Subject to compliance with requirements, provide gypsum wallboard and accessories of one of the following manufacturers:
- .1 Canadian Gypsum Co.
- .2 Westroc Industries Ltd.
- .3 G-P Gypsum Corporation
- .4 Domtar Gypsum

2.2 Gypsum Board Materials

- .1 Gypsum Board (Standard): CAN/CSA 82.27-M91, ivory paper faced, tapered edges, maximum practical length, 6 mm, 9 mm 13 mm and 16 mm thick. Provide 16 mm thick unless indicated or scheduled otherwise.
- .2 "Type X" Gypsum Board: CAN/CSA 82.27, "Type X", ivory paper faced, glass fibre reinforced core, tapered edges, maximum practical length, 16 mm thick.
- .3 Moisture Resistant Gypsum Board: CAN/CSA 82.27-M91, moisture resistant paper facing and core, tapered edges, maximum practical length, 13 mm and 16 mm thick. Provide 16 mm thick unless indicated or scheduled otherwise. Provide "Type X" core where required as part of a rated assembly.
- .4 Liner Panels: CAN/CSA 82.27-M91, "Type X" core, ULC labelled, moisture resistant paper faced, gypsum liner panels, 25 mm thick, maximum practical length, bevelled edges. Shaftwall framing and panels shall form an approved rated assembly.
- .5 Gypsum Tile Backer Board: ASTM C1178/C1178M-04, moisture resistant silicone treated gypsum core, glass mat embedded (front and back), acrylic coating faced, 6 mm, 13 mm and 16 mm thick, "Dens-shield Tile Backer Board" by G-P Gypsum Corporation. Provide 16 mm thick unless indicated or scheduled otherwise, Provide "Type X" core where required as part of a rated assembly.
- .6 Abuse Resistant Gypsum Board: 16 mm thick, fire rated and non-fire rated: Fibrerock VHI (Very High Impact) Abuse-Resistant Gypsum Fibre Panels by CGC.

2.3 Materials - Metal Framing

- .1 Steel Studs: to ASTM C645-04, non-loadbearing, channel stud framing, sizes 41, 64 and 92 mm as indicated or scheduled, roll formed from minimum 25 gauge hot dipped galvanized sheet steel, for screw attachment of wallboard, with crimped web and returned flange. Knockout service holes at 460 mm centres.
- .2 Floor and Ceiling Partition Track: to ASTM C645-04, channel sections, sized to suit studs, roll formed from minimum 25 gauge hot dipped sheet steel, pre-punched with square holes along centre line and with minimum 30 mm legs, top track having longer legs where required to compensate for deflection of structure above.
- .3 Furring Channels: Galvanized sheet steel, minimum 25 gauge, "hat" channels with 35 mm wide supporting face, 22 mm high with 19 mm wing flanges.
- .4 Runner Channels: Galvanized sheet steel, 16 gauge, 38 mm high with 19 mm flanges, for primary furring member in suspended ceilings/soffits and as horizontal stiffeners or bracing in metal stud systems.
- .5 Metal Backing: 0.9 mm thick galvanized steel for reinforcement.
- .6 Concrete Fasteners: Self-drilling, self-tapping non-corrosive concrete screws. Wafer-head, bugle head, pan-head and hex-head as required.

- .7 Drywall screws: self-drilling, self-tapping, case hardened. Use cadmium or nickel plated screws to fasten cementitious board, gypsum sheathing, backer board for ceramic tile and exterior soffit board. Sized to suit application.
- .8 Hanger Wire Anchors: galvanized, wedge anchor, Heavy Duty Ceiling Anchor Hilti, part no. HHOCAY4', Red-Head No. T-32' by Phillips Drill Company, or equivalent.
- .9 Hanger Wire: 8 gauge, galvanized, mild steel rod.
- .10 Tie Wire: 18 gauge galvanized, soft annealed, steel wire.
- .11 Primer: zinc oxide touch-up for galvanized surfaces.
- .12 Adhesive: CAN/CGSB 71.25-M88.

2.4 Accessories

- .1 Corner Beads: 25 gauge galvanized sheet steel with perforated and beaded corner flanges.
- .2 Metal Edge Trim: CGC 201-A Series, to suit board thickness.
- .3 Joint Compound: to CSA A82.31-M1980, asbestos free, as manufactured by gypsum board manufacturer. Durabond 90 joint compound.
- .4 Tape: 54 mm wide, perforated, creased, CGC Gyproc Joint Tape or equivalent and self-adhering fiberglass mesh 62 mm wide.
- .5 Casing Bead: Channel type, 26 gauge galvanized steel, CGC 200A Series or BMP D4411.
- .6 Sponge Sealer: closed cell vinyl sponge sealer, 3.175 mm x 25.4 mm PERMA-STIK No. 136x, as manufactured by Jacobs and Thompson Limited, or approved alternate.

3 EXECUTION

3.1 Examination

- .1 Verify that site conditions are ready to receive work.
- .2 Beginning of installation means acceptance of site conditions.
- .3 Co-operate with mechanical, electrical and other sections to provide proper openings and framing for ducts, grilles, pipes, conduits, fittings, and fixtures.

3.2 Erection - Metal Framing

- .1 General:
 - .1 Framing and furring indicated on Drawings is schematic and shall not be considered exact or complete. Location and spacing of members, bracing, supports and securement shall be in accord with referenced standards as required to provide complete and finished work.

- .2 Make provision for supporting recessed and surface mounted fixtures and equipment. Provide additional framing, supports and stiffeners as required.
- .3 Neatly frame around recessed fixtures and openings.
- .4 Examine mechanical and electrical Drawings and co-ordinate with Divisions 15 and 16 to determine openings required.
- .2 Ceiling and Bulkhead Suspension Systems:
 - .1 Space hangers at maximum 1220 mm o.c. along carrying channel members and not more than 150 mm from ends. Erect hangers plumb (not splayed) and securely anchor to structure. Hangers to support grillage independent of walls, columns, pipes, ducts, conduit and similar components.
 - .2 Secure hangers to steel joists, do not attach hangers through steel deck. Provide cross channels between joists where joist spacing does not suit hanger spacing.
 - .3 Install runner channels at right angles to structural framing members. Space channels at 1200 mm maximum o.c. Provide 25 mm minimum and 150 mm maximum clearance between channels and abutting walls and partitions. Attach to hangers by bending hanger under runner and securely wire in place with a saddle tie.
 - .4 Lap members, where splices are necessary, minimum 200 mm and wire each end with double strand of tie wire, avoid clustering or lining up splices.
 - .5 Install ceiling furring channels, transverse to runner channels, so as not to contact perimeter walls. Install furring channels at maximum 400 mm o.c. for interior areas with cementitious board and maximum 600 mm o.c. for all other areas, unless indicated or scheduled otherwise. Secure to each runner channel with clip or saddle tie with 2 loops of tie wire.
 - .6 Where ductwork, piping and other elements within ceiling spaces interfere with direct suspension of ceiling from structure, install additional framing securely fastened to main structure to accommodate proper hanging of ceiling.
 - .7 Frame bulkheads and coves to profiles shown, rigid, square, true to line. Provide rough framing and bracing members, securely fastened to supporting building elements. Space furring members to receive gypsum wallboard at maximum 600 mm o.c.
 - .8 Construct light troughs and ceiling coves as indicated to profiles as shown, and prepare to receive lighting fixtures supplied and installed by Division 16 where required.
 - .9 Openings:
 - .1 Frame openings with suitable channels; check clearances with respective Sections. Provide support for edges of board at all cut-outs and openings in ceilings.
 - .2 Hangers and supports for fixtures shall be provided by this Section unless otherwise specified or noted on drawings.

- .10 Erect suspension and furring system for ceilings, bulkheads and soffits to the following tolerances:
 - .1 Level to +/- 3 mm over a 3000 mm length
 - .2 Maximum deflection of L/360.
- .11 Coordinate with the work of other Sections installing acoustic and other interface ceilings to ensure that correct provision is made for interface conditions. Review shop drawings.

3.3 Gypsum Wallboard

- .1 Install gypsum board in accordance with CSA A82.31-M1980.
- .2 Install gypsum wallboard to minimum heights indicated or scheduled and generally as follows:
 - .1 150 mm above finished ceilings;
 - .2 to under side of structure where no finished ceiling is scheduled;
- .3 Single Layer Board on Studs/Furring: Board shall be to thickness shown on the drawings, erect board vertical or horizontal to minimum joints. Locate end joints over supporting members. Stagger joints on opposite sides of partition. Locate vertical joints at least 300 mm away from jamb lines of openings.
- .4 Apply gypsum wallboard with screws as follows:
 - .1 Standard board, walls: space screws 300 mm o.c.
 - .2 Fire Rated Board, walls: 200 mm o.c. on edges, 300 mm o.c. on field unless required otherwise by applicable ULC Design No.
 - .3 Behind Ceramic Tile: 150 mm o.c. on edges and field.
 - .4 Perimeter screws shall be not less than 10 mm or more than 13 mm from edges and ends and shall be opposite screws on adjacent board. Hold secure against studs/furrings and secure from centre of board towards perimeter. Screws shall be power driven, countersunk slightly without puncturing the paper.

3.4 Fire Retardant Assemblies

- .1 Construct all fire rated partitions in accordance with ULC and Warnock Hersey International Design Numbers. indicated in Wall Type Schedule for the rating noted.
- .2 Fire resistance rating of gypsum board assemblies and framing shall be as called for on drawings or schedules as required to conform with applicable codes and requirements of authorities having jurisdiction.
- .3 Appropriate U.L.C. designs as listed in current U.L.C. list of equipment and materials, Volume II, Building Construction, shall be placed when applicable. Extend partitions full height through ceiling space unless otherwise noted on drawings.

- .4 Vertical bulkheads in ceiling spaces over fire rated glazed partitions, doors and the like shall have same fire rating as the door or partition over which they occur. All such bulkheads shall be of drywall construction unless otherwise noted.
- .5 Use fire rated gypsum board as specified.
- .6 Use U.L.C. listed adhesive for multi-layer construction.
- .7 Where lighting fixtures, diffusers, and the like are recessed into fire rated ceilings or bulkheads, provide enclosure to maintain required fire rating. Form removable panel to give access to fixture outlet box.
- .8 Where fire hose cabinets or other fixtures or equipment are recessed in fire rated walls or partitions, provide drywall enclosure or backing to maintain required fire rating, unless otherwise detailed.

3.5 Control Joints

- .1 Install control joints using metal control joint strip as specified where:
 - .5 Partition, furring or column fireproofing abuts a structural element or dissimilar wall or ceiling;
 - .6 Ceiling/soffit abuts a structural element, dissimilar wall or partition or other vertical penetrations;
 - .7 Construction changes within the plane of the partition or ceiling or soffit;
 - .8 Partition or furring run exceeds 9 m.;
 - .9 Ceiling or soffit dimensions exceed 15 m in either direction;
 - .10 The area within separate ceiling or soffit sections exceed 250 sqm.;
 - .11 Wings of "L", "U" and "T"-shaped ceiling/soffit areas are joined;
 - .12 Expansion or control joints occur in the base existing walls;
 - .15 As indicated on the drawings, install in accordance with manufacturer's instructions. Where application is on furring members, double furring members at control joints, placing one furring member on each side of control joint.

3.6 Finishing

- .1 Carry out finishing work of this Section only when temperature is maintained and controlled in the range of 13 °C to 21°C for at least 24 hours before installing gypsum wallboard and is maintained or can be maintained until joint cement and adhesives are cured.
- .2 Finish gypsum wallboard in strict accordance with ASTM C840-95 and as follows;
 - .1 Exterior corners shall be protected by a corner bead, secured 229 mm o.c.
 - .2 Interior corners shall have a creased reinforcing tape.

- .3 Casing beads are required where drywall butts against a surface having no trim concealing its juncture, and where shown on the drawings. Secure with screws at 229 mm o.c.
- .4 "J" moulds shall be used at all locations where drywall edges are exposed.
- .5 All joints shall be taped and plastered over to a smooth even surface in accordance with the manufacturers' specifications. All screw heads shall be covered to an even finish. Sand smooth all joint filling and screw holes.
- .6 Fill and tape joints and internal corners and fill screw depressions in board face and smooth out along corner beads and metal strip with joint compound.
- .7 Mix joint compound (powder) in accordance with manufacturer's printed instructions.
- .8 Prefill "V" grooves of rounded edges with special non-shrink filler using a 125 to 150 mm joint finishing knife. Finish flush with tapered surface ready for tape reinforcing application. Allow prefill material to dry thoroughly before application of embedding compound and tape.
- .9 Apply embedding compound in thin uniform layer; embed reinforcing tape accurately centred on joint, securely pressed in, leaving sufficient compound under tape to provide proper bond. Immediately apply skin coat over tape application. Allow to dry thoroughly before application of finish coat.
- .10 Apply filler coat finishing the tapered depression flush with board surfaces. Allow to dry thoroughly before application of finish coat.
- .11 Apply finish coat extending slightly beyond the filler coat and feathered out onto the board surface. Do not apply finish coat to gypsum board scheduled to be sprayed with acoustic or textured surfacing finish.
- .12 Sand between coats and following the finishing coat, where necessary, and leave surface smooth and ready for painting.
- .13 Finish screw depressions with filler material and finish coat as specified above.
- .14 Joint and depression finish shall in no case protrude beyond the plane of the board surface.
- .15 Furnish corner beads and metal trim flush with board surface using filler and finishing coats feathered out approximately 50 and 100 mm respectively onto the board surface.
- .16 Provide metal casing beads at exposed edges, at junctions of gypsum/cement wallboard with dissimilar material, at control joints and at junction with columns. Casing beads are required at perimeter of gypsum/cement wallboard ceilings and soffits. Fasten with screws at 300 mm O.C. along entire length.
- .17 Gypsum wallboard column enclosure must be finished smooth, seamless, plumb, true and flush, having square, neat corners. Finished face of each side must be 90° to adjacent side unless indicated otherwise on drawings.

- .18 Carry out minor levelling of ceilings and walls at interfaces with door and window frames.
- .19 Carry out minor levelling up to a maximum extra depth of 12.7 mm of finishing material feathered off over a maximum distance of 900 mm.
- .20 Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes, all in accordance with gypsum board manufacturers' printed instructions. Feather edges well out onto the board.

3.7

Cleaning

- .1 This section shall be responsible for the clean up of all debris and surplus materials arising from the execution of his work, and shall include the scraping of all plaster and the like from concrete floors, etc.
- .2 Such clean up shall be carried out on a daily basis.

END OF SECTION

1 GENERAL

1.1 Scope

Provide ceramic tile at walls and floor where shown on the drawings and as needed for a complete and proper installation.

1.2 Related Work Specified Elsewhere

Resilient Flooring	Section 09660
Specialties	Section 10200

1.3 Reference Standards

- .1 Do tile work in accordance with Tile Installation Manual 2012 by the Terrazzo, Tile and Marble Association of Canada (TTMAC) as well as the 'Handbook for Ceramic Tile Installation' of the Tile Council of America.
 - .1 ANSI A118.3, Chemical Resistant, Water Cleanable Tile-Setting and Grout Epoxy and Water Cleanable Tile Setting Epoxy Adhesive.
 - .2 ANSI A118.4 and A118-11, Portland Cement Mortar.
 - .3 ANSI A118.6, Standard Ceramic Tile Grouts to Tile Installation.
 - .4 ANSI A118.7, Polymer Modified Cement Grout for Tile Installation.
 - .5 ANSI A118.10, Load Bearing, Bonded, Waterproof membranes for Thin-Set Ceramic Tile and Dimensional Stone Installation.
 - .6 ANSI 137.1 Test Method for Determining the Coefficient of Friction of Ceramic Tile and Other Like Surfaces by the BOT 3000 Method.
 - .7 CAN/CGSB-75.1-M, Tile Ceramic.
 - .8 CAN/CSA A5/A8/A362, Portland Cement / Masonry Cement / Blended Hydraulic Cement.
 - .9 CAN/CGSB-19.22-M, Mildew Resistant Sealing Compounds for Tubs and Tiles.
 - .10 CAN/CGSB-19.24-1, Multi-Component, Chemical Curing, Sealing Compound.
 - .11 CGSB 71-GP-22M, Organic Adhesive for Installation of Ceramic Wall Tile.
 - .12 CSA B651, Barrier Free Design.

1.4 Submittals

- .1 Submit phasing diagram to illustrate sequencing of work.
- .2 Submit samples of each tile adhered to 900 x 900 cement board complete with selected grout colours.
- .4 Submit copies of manufacturer's product data indicating performance criteria, characteristics, limitation, warranties and installation requirements.
- .5 Submit certification for each type of floor tile to confirm that the coefficient of friction is 0.42 or greater when tested to ANSI 137.1 2012 using the BOT-3000 device.

1.5 **Environment Conditions**

Maintain air temperature and structural base temperature at installation area above 12°C for 12 hours before, during, and 48 hours after installation.

1.6 **Maintenance Material**

Provide minimum 4 m² (40 sq.ft) of each tile required for the project for maintenance. Store where directed.

2 PRODUCTS

2.1 **Materials**

- .1 Ceramic Wall Tile (CT-1)
 - .1 DigitalArt Series SO.DA. NHT 04.24 OS from Olympia Tile – Jennifer Mota 416-785-9555
 - .2 Colour: Night Anthracite
 - .3 Dimension: 4" x 24" (100mm x 600mm) 8mm thickness
 - .4 Grout Joint Width: 4mm (3/16")
 - .5 Mortar: Premixed thin set portland cement based adhesive for walls
 - .6 Unsanded Grout Colour: 10 Black by Mapei
- .2 Ceramic Wall Tile (CT-2)
 - .1 Marmi Maximum by GranitiFiandre from Savoia Canada – Maira 416-640-7654
 - .2 Colour: Nero Supremo
 - .3 Dimension: 30" x 60" (750mm x 1500mm) 6mm thickness
 - .4 Grout Joint Width: 4mm (3/16")
 - .5 Mortar: Premixed thin set portland cement based adhesive for walls
 - .6 Unsanded Grout Colour: 10 Black by Mapei
- .3 Ceramic Floor Tile (CT-3)
 - .1 Speakeasy by Crossville from Ceregres Tile – Roberto Duke Dibiasi 416-286-3553
 - .2 Colour: Bankroll
 - .3 Dimension: 12" x 36" (300mm x 900mm), 8" x 36" (200mm x 900mm), 6" x 36" (150mm x 900mm) 12mm thickness, refer to drawings for pattern.
 - .4 Grout Joint Width: 6mm (1/4")
 - .5 Mortar: Premixed thin set portland cement based adhesive for floors
 - .6 Epoxy Grout Colour: 687 Desert by Flextile
- .4 Ceramic Floor Tile (CT-4)
 - .1 Composto CINECG24R by In Essence from Ceregres Tile – Roberto Duke Dibiasi 416-286-3553
 - .2 Colour: Grigo
 - .3 Dimension: 24" x 24" (600mm x 600mm) 12mm thickness
 - .4 Grout Joint Width: 6mm (1/4")
 - .5 Mortar: Premixed thin set portland cement based adhesive for floors
 - .6 Epoxy Grout Colour: 687 Desert by Flextile
- .5 Ceramic Wall and Floor Tile (CT-5)
 - .1 Valmalenco VM360R by Centure Tile
 - .2 Colour: Valmalenco
 - .3 Dimension: 12" x 24" (300mm x 600mm) 12mm thickness
 - .4 Grout Joint Width: 4mm (3/16")
 - .5 Mortar: Premixed thin set portland cement based adhesive for walls and floors
 - .6 Unsanded Grout Colour: 939 Mist by Tec

- .6 Ceramic Accent Wall Tile (CT-6)
 - .1 Mud Runway Coal from Ciot Tile
 - .2 Colour: Gray
 - .3 Dimension: 12" x 24" (300mm x 600mm) 12mm thickness
 - .4 Grout Joint Width: 4mm (3/16")
 - .5 Mortar: Premixed thin set portland cement based adhesive for walls
 - .6 Grout Colour: 939 Mist by Tec
- .7 Glass Accent Tile (CT-7)
 - .1 Calacutta Rectangular Glass and Marble Mix
 - .2 Colour: DAF2101
 - .3 Dimension: Mosaic
 - .4 Grout Joint Width: 4mm
 - .5 Mortar: Premixed thin set portland cement based adhesive for walls
 - .6 Grout Colour: Bright White by Flexile
- .8 Ceramic Floor Tile (CT-8)
 - .1 Bamboo available from Stone Tile
 - .2 Colour: Storm
 - .3 Dimension: 12" x 24" (300mm x 600mm) 10mm thickness
 - .4 Grout Joint Width: 6mm (1/4")
 - .5 Mortar: Premixed thin set portland cement based adhesive for floors
 - .6 Epoxy Grout Colour: 687 Desert by Flexile
- .9 Thin set mortar to be commercially prepared mixture of unmodified portland cement (to ANSI 118.4 and 118.11) formulated for use as quick setting thin set bond coat.
 - .1 Laticrete 253R Gold Rapid.
 - .2 Flexile 62 Full Coverage fast-set mortar
- .10 Self leveling underlayment (to ASTM C-109 and CSA-A23.2-68) to be applied over compatible primer.
 - .1 4040 Primer by Flexile.
 - .2 5900 Flex-Flo Plus self-leveling underlayment by Flexile.
- .11 Fast-setting, epoxy modified grout at floors. Unsanded, mortar based grout at walls. Colours to be as noted above.
 - .1 600 by Flexile
 - .2 Ultracolour by Mapei
- .12 Accessories:
 - .1 Transition edge between ceramic floor tile and concrete slab or resilient flooring or carpet to be Reno-U profile by Schluter in stainless steel.
 - .2 Perimeter edge protection at adjacent flush floor surfaces and wall surfaces to be Schiene by Schluter in brushed nickel.

3 EXECUTION

3.1 Examination

- .1 Examine the areas and conditions under which the work of this section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.

3.2 Workmanship

- .1 Apply ceramic tile to clean and sound surfaces.
- .2 Extend floor materials into recesses and under equipment and fixtures to form a complete covering without interruptions.
- .3 Joints between floors and permanent equipment shall be sealed and waterproofed.
- .4 Verify all dimensions at the building before pieces are cut and finished.
- .5 Terminate neatly at obstructions, edges and corners without disruption of pattern or joint alignment.
- .6 Lay out ceramic tiles so perimeter tiles are minimum 1/2 size.
- .7 Make joints between tiles uniform, plum, straight, true even and flush with adjacent tiles. Joints are to be approximately 3 mm (1/8") wide at floor, 4 mm (1/8") wide at walls.
- .8 Sound tiles after setting and replace hollow sounding units to obtain full bond.
- .9 Lay tile in patterns indicated on the drawings or specified herein.

3.3 Underlayment Installation

- .1 Concrete floor surface must be structurally sound, scarified, clean and cured, with surfaces free from waxes, curing compounds, surface coatings, dust, dirt, or oily film.
- .2 Install primer for concrete, pour mop or spray onto surfaces, work into surface using a bristled broom. Allow to dry to clear film – about 3 hours.
- .3 Pour underlayment and spread with straightedge/leveler to fill holes, cracks, and to level irregularities in the existing slabs.
- .4 Provide soft control joints over similar joints in structure or as indicated on drawings, and to isolate rectangular areas of more than 40 m².

3.4 Floor Tile Installation

- .1 Install tile with thin set bond coat according to manufacturer's instructions. Use stack bond unless pattern is otherwise indicated on drawings.
- .2 Use proper notched trowel to ensure adequate bond.
- .3 Set all trim pieces in longest possible lengths.
- .4 Press tile into position and beat firmly.
- .5 Allow minimum 24 hours after installation of tiles before grouting.
- .6 Force grout into joints, filling completely flush. Remove excess, using clean cloths.

3.5 Cleaning

- .1 Upon completion of placing and grouting, clean the work of this section in accordance with manufacturer's recommendations.
- .2 Protect all adjacent surfaces from effects of acid cleaning.
- .3 Flush surfaces with clean water before and after cleaning.
- .4 Provide tile and stone clean and free from cracked, broken, chipped, unbonded, and otherwise defective units.
- .5 Provide kraft paper or masonite protection of tile floor surfaces taped at all perimeter edges to prevent damage and wear prior to acceptance of the work by the Owner.

END OF SECTION

1 GENERAL

1.1 Scope

Provide labour, material and equipment to supply and install lay-in acoustic panel ceilings complete with exposed tee-bars and suspension systems.

1.2 Related Work Specified Elsewhere

Gypsum Board Construction	Section 09260
Architectural Cabinetwork	Section 06410

1.3 Reference Standards

.1 Installation: to ASTM C636-76 (1981) except where specified otherwise.

1.4 Design Criteria

.1 Maximum deflection: 1/360th of span to ASTM C635-78 deflection test.

1.5 Samples

.1 Submit one piece approx. 600 x 600mm (24 x 24") of each ceiling panel for approval in accordance with Section 01300.

1.6 Environmental Conditions

- .1 Permit wet work to dry before commencement of installation.
- .2 Maintain uniform minimum temperature of 15°C and humidity of 20-40% before and during installation.
- .3 Store materials in work area for 48 hours prior to installation.

2 PRODUCTS

2.1 Materials

- .1 Non-fire rated suspension system made up as two directional 15/16" exposed tee bar grid CMB OG130-1, equal to Donn DX Fast-Lok.
- .2 Hanger wire to be galvanized soft annealed steel wire, 3.6 mm (1/8") diameter for access tile ceilings to ULC / ULI tested design requirements for other ceilings.
- .3 Hanger inserts to be purpose made.
- .4 Carrying channels shall be to manufacturer's standard. Check manufacturer's literature to determine need for carrying channels for system provided.
- .5 Accessories splices, clips, wire ties, retainers and wall moulding flush/reveal, to complement suspension system components, as recommended by system manufacturer.
- .6 Acoustic units (ACT1) to be Fine Fissured Second Look II, 609 x 609 mm x 15 mm (24 x 24 x 5/8"), square edge, as manufactured by Armstrong World Industries 416-540-5284. Colour to be white.

- .7 Polyethylene to CAN2-51.33-M80, Type 2, 0.15 mm thick.

3 EXECUTION

3.1 Inspection

- .1 Do not erect ceiling suspension system and acoustical panels until work above ceilings has been inspected by Consultant.

3.2 Suspension System Installation

- .1 Install hangers. Select hanger support required by job conditions.
- .2 Lay out center line of ceiling both ways, to provide balanced borders at opening perimeter.
- .3 Ensure suspension system is co-ordinated with location of related components.
- .4 Install wall mould to provide correct ceiling height. Finished ceiling system to be level within 1:1000.
- .5 Completed suspension system to support super-imposed loads, such as lighting fixtures, diffusers, grilles and speakers.
- .6 Support light fixtures/diffusers with additional ceiling suspension hangers within 150 mm (6") of each corner and at maximum 600 mm (24") around perimeter of fixture.
- .7 Interlock cross member to main runner to provide rigid assembly.
- .8 Install suspension system to manufacturer's instructions.
- .9 Frame at openings for light fixtures, air diffusers, speakers and at changes in ceiling heights.

3.3 Panel Installation

- .1 Install acoustical panels and tiles in ceiling suspension system.

3.4 Cleaning

- .1 Touch up scratches, abrasions, voids and other defects in painted surfaces.

END OF SECTION

1. GENERAL

1.1 Scope

Work of this section includes all labour, material and equipment required to complete installation of slip resistant sheet vinyl flooring, cove base and accessories.

1.2 Related Work Specified Elsewhere

Rough and Finish Carpentry	Section 06100
Carpet	Section 09681

1.3 Samples

Submit three 300mmx300mm samples of each flooring product, and three 300mmm lengths of covebase in accordance with Section 01300.

1.4 Maintenance Materials

Deliver 3m2 of resilient flooring from the same production run for maintenance use. Identify and store where directed.

1.5 Environmental Requirements

Maintain air temperature and structural base temperature at flooring installation area above 18 degrees C for a period of 48 hours before, during and for 24 hours following installation.

1.6 Delivery, Handling and Storage

- .1 In addition to the requirements of Section 01600, maintain temperatures of rooms where material is stored at 18 degrees C for at least 72 hours prior to installation. Ensure concrete surfaces are dry.
- .2 Bring flooring and other materials into laying area and allow to condition for at least 48 hours.
- .3 Do not lay flooring in conditions of high humidity or where exposed to cold drafts. Provide adequate ventilation.

1.7 Protection

- .1 Protect adjacent floor surfaces from contamination by adhesives. Remove any such contaminants immediately using solvents and agents recommended by the adhesive manufacturer and compatible with the materials and finishes contaminated. Make good all surfaces which cannot be satisfactorily cleaned or replace as directed at no cost to the Owner.

2. PRODUCTS

2.1 Materials

- .1 Sub-floor filler and leveler to be grey portland cement based underlayment for use in filling holes, cracks or leveling, and compatible with the flooring manufacturer's products.
- .2 Sealer at concrete slab, plywood and steel plate is to be as per manufacturer's recommendations, applied with a roller or mop.

- .3 Primers and adhesives to be two part polyurethane adhesive for specified flooring material and applicable substrate.
- .4 Slip resilient sheet vinyl flooring to be Suprema by Altro, 2mm in thickness, 2m wide rolls. One colour (Fossil SUI 2067) will be used. This product is available through Altro Floor and Wall Systems 905-564-1330.
- ..5 Base to be colour integrated vinyl, 3.2mm thick, minimum 1200mm in length and 100mm tall, including premoulded end stops, outside corners, one colour from the manufacturer's standard range by Johnsonite 20 -Charcoal. Note base is coved at sheet vinyl and concrete floor surfaces.
- .6 Nosings at stairs to be flexible solid colour vinyl, hinged square nose to suit sheet flooring PVIRCN-20-B by Johnsonite 75mm wide with 50 mm white photoluminescent inset, one colour from manufacturer's standard range Charcoal. Johnsonite products available through Olympia 416-789-4122 and Durox 416-630-4883.
- .7 Provide metal edge strips at junction between sheet vinyl and adjacent floor finishes. Edge strip to be aluminum extruded, smooth mill finish with lip to extend under floor finish, shoulder height to align with the top of sheet vinyl material.
- .8 Vinyl welding rod to be compatible with sheet flooring.

3 EXECUTION

3.1 Inspection

Ensure floors are dry and exhibit negative alkalinity, carbonization , or dusting. Verify conditions are acceptable for product installation.

3.2 Sub-floor Treatment

- .1 Remove all ridges and bumps. Fill low spots, cracks, joints, holes or other defects with floor filler and leveler. Trowel and float to leave smooth flat surface. Prohibit traffic until filler is cured.
- .2 Completely sweep and vacuum floors to remove all dust and debris.
- .3 Prepare and seal porous surfaces in accordance with manufacturer's recommendations. Allow sealer to dry for 12 hours.

3.3 Sheet Vinyl Application

- .1 Install flooring in accordance with the manufacturer's published guide.
- .2 Install reducer strips where sheet vinyl flooring will not match adjoining materials and surfaces flush.
- .3 Apply adhesive uniformly using notched trowel in accordance with the flooring manufacturer's instructions. Do not spread more adhesive than can be covered by flooring before initial set takes place.
- .4 Lay sheets with joints parallel to building lines.
- .5 Heat weld all adjacent sheets using weldrod.
- .6 Install nosings at stairs and edges fo platforms, treads and ramps.

- .7 Install metal edge strips at unprotected or exposed edges where flooring terminates.

3.4 Base Application

- .1 Mix adhesive thoroughly using electric mixer. Do not mix more adhesive than can be used in a 40 minute period including time necessary to install the base.
- .2 Lay out base to keep the number of joints at a minimum.
- .3 Butter the back side of each piece of base with adhesive and set base tightly against the wall and floor surfaces.
- .4 Scribe and fit to door frames and other obstructions. Use premoulded end pieces at flush door frames.
- .5 Cope internal corners. Use premoulded corner units for right angle external corners.
- .6 Install cove type base following installation of sheet flooring, and toe-less flat base prior to installation of carpet.

3.5 Cleaning

- .1 Remove any excess adhesives and debris. Protect newly installed flooring from foot traffic for 48 hours.
- .2 Coat entire surface of tiles with floor finish as recommended by the manufacturer.
- .3 Cover and protect sheet flooring from damage using a non-staining temporary protection system such as heavy kraft paper.
- .4 Remove protection system and clean vinyl flooring and cove base surface to manufacturer's instructions.

END OF SECTION

1 GENERAL

1.1 Work Included

Supply and installation of carpet and textile composite flooring including nosings as indicated on Drawings, Schedules and/or specified herein, as well as all adhesives and accessories required for the installation

1.2 Related Work

Wood Doors	Section 08200
Door Frames	Section 08100
Finish Hardware	Section 08710
Ceramic Tile	Section 09315
Resilient Floor and Base	Section 09660

1.3 Quality Assurance

- .1 All carpet shall be manufactured by selected manufacturer, based upon the approved specification herein.
- .2 The installer shall be fully equipped and have previous experience on comparable projects, necessary to meet all the quality and schedule requirements of this specification.
- .3 The labour employed for the work shall be skilled, fully equipped specialists with a minimum of five years experience on comparable projects.
- .4 All labour shall be employed directly by the installer or manufacturer. No labour shall be sublet.

1.4 Submittals

.1 Colour Samples

- a) Submit three (3) colour trial samples full size tiles for carpet and textile composite flooring pattern in the approved product for review by the Consultant.
- b) Do not proceed with production until approval of colour trial samples is given in writing by the Consultant.

.2 Maintenance Manuals

- a) Submit to the Consultant two (2) complete sets of maintenance manuals two weeks prior to the completion of the installation.

.3 Accessories

- a) Submit samples of all nosings and accessory hardware to be used as part of the installation to the Consultant for review.

1.5 Delivery, Storage and Handling

Deliver products to the site in the manufacturer's original, unopened containers. Maintain off-site facilities to store materials which cannot be accommodated at the site during the installation period. Off-site storage shall be weather-tight, heated space.

1.6 Guarantee/Warranty

- .1 The Contractor's overall corporate performance guarantee shall include all phases of manufacture and installation.

- .2 Provide a written corporate guarantee covering the replacement of all carpet and textile composite flooring or part thereof as required should defects in material, construction or installation occur during the warranty period.
- .3 Defective products shall be replaced by the Contractor at no cost to the Owner including installation labour charges.
- .4 The carpet and and textile composite flooring installation shall be guaranteed against the following items for a period of not less than five years from completion of the project:
 - Curling, rolling or shifting.
 - The electrostatic properties shall maintain a level of control below 2 kilovolts at 20% relative humidity at 70° F (21°C).
 - Dimensional Stability. Wherein the relative humidity of the environment does not exceed 30% and temperature 80F (27°C), the Contractor warrants that the perimeter measurements of the carpet will meet or surpass all testing procedures as provided in the Aschener method which is the system of testing with which all manufacturers must comply.
 - Any defect which can cause dimensional instability, ie. curling, doming, shrinkage, etc., which adversely affect the properties of the carpet.
 - Any delamination of face or back plies.
 - The inability of the carpet to withstand dislodgement under normal use conditions. This does not include heavy-wheeled traffic such as bookmobiles, self-propelled computer systems, and other systems of extremely heavy weight displacement.
 - If more than 10% of pile surface per square yard above the primary back is worn away, those areas will be replaced.

2 **PRODUCTS**

2.1 **Carpet and Textile composite flooring**

- .1 All carpet and textile composite flooring shall be produced from one continuous dye lot in the specified base colour.
- .2 Final installation shall produce a level monolithic appearance for the entire floor area, without variation.

2.2 **Materials**

- .1 Textile composite flooring (CPT-1) to be Timber Demi-Plank 1825 by Kinetex. This is a multicoloured loop plank (12" x 48") 300mm x 1200mm. Yarn is 55% recycled polyester with polyester felt cushion backing suitable for direct glue-down installation. Colour is to be 1923 Aspen.
- .2 Carpet (CPT-2) to be Blended from the Concrete Mix Collection by Interface Carpet. This is a multicoloured tufted loop carpet tile 500mm x 500mm. Yarn is 100% recycled nylon with GlasBac backing suitable for direct glue-down installation. Colour is to be 100222 Keystone.
- .3 Adhesives: Shall be release type materials, suitable for the lamination of the specified products, as recommended, in writing, by the carpet or textile composite flooring manufacturer. Acceptable products shall be Advanced Adhesives #275, Roberts #3300, Kinetex Adhesive or other.

- .4 Nosings: Shall be PVIRCN-20-A, flexible solid colour vinyl by Johnsonite, 75mm wide with 50mm white photoluminescent insert. One colour 20- Charcoal. Available through Olympia 416-789-4122 and Durox 416-630-4883.
- .5 Accessories: All pertinent materials necessary to complete the installation, as recommended by the manufacturer, shall be included in the tender price.
- .6 Subfloor Filler: Sacrete latex patching compound manufactured by LePage Limited or equal.

3 EXECUTION

3.1 Pre-Installation

- .1 Arrange for a designated representative on site seven days prior to the commencement of installation to inspect the conditions and confirm installation procedures to be followed.
- .2 During the pre-installation inspection, perform porosity and moisture tests on all concrete floor slabs and access floor panels as follows:
 - a) Pour cup of water on floor and repeat in scattered areas.
 - b) If water breaks up into beads, or remains on surface, it indicates floor is relatively non-absorbent and adhesive will dry at its normal rate.
 - c) If water is absorbed rapidly, floor is very porous and adhesive will dry too quickly.
 - d) Carpet may not be installed if floor is too porous until an approved sealant is applied to the substrata.
- .3 Test slab at one location every 100m² of floor area.
- .4 Notify the Consultant in writing to acceptability of site conditions prior to the commencement of installation on each floor slab and identify any problems which will affect the quality of the installation other than normal minor cracks in the substrata.
- .5 Commencement of installation shall indicate acceptance of site conditions by the manufacturer and installer.
- .6 The Contractor is to provide a detailed installation schedule for review by the Consultant prior to commencement of installation.
- .7 The Consultant has the right to halt the installation if problems arise due to any situation which may cause the carpet Manufacturer to cancel their guarantees based on a deficiency in installation procedures. The Contractor must immediately rectify any problems holding the Owner harmless for any additional costs in overtime necessary to resume the schedule as previously developed.

3.2 Surface Preparation

- .1 Surfaces to receive carpet shall be clean and free from dirt, grease or other contaminants detrimental to installation.
- .2 Remove all substances which may adversely affect pre-installation.
- .3 Grind ridges and high spots smooth and flush and fill and level cracks and depression with subfloor filler.

- .4 At wood subfloor, prime exposed top surface with XL Brands Tir-seal or other product as recommended by Interface.

3.3 Trial Installation

- .1 Prior to commencing installation, the Contractor shall construct a trial installation using actual materials and methods. The trial installation shall be inspected by the Consultant for layout, appearance and application methods and must be approved prior to proceeding with the work.
- .2 Make all necessary adjustments to the trial to obtain an acceptable installation.
- .3 The trial installation shall be incorporated as part of the work upon approval.

3.4 Installation

- .1 Prior to installation, all carpet shall be allowed to reach room temperature or between 10 - 21°C for at least 24 hours. If the carpet has been exposed to temperatures below 4°C for more than two hours within three days of installation, remove material from skids, open rolls and exposed to room temperature for forty-eight hours. The slab to receive the carpet and the area directly under the slab must also have been at between 10 - 21°C for at least forty-eight hours prior to beginning installation. If the temperature of the air rises above 26°C, stop installation of carpet.
- .2 Dry lay 10 carpet tiles or textile composite flooring planks for installation pattern indicated. Pile direction for carpet tile shall be quarter turn. Pile direction on textile composite flooring planks shall be uniform. Major seams shall run in the direction of major traffic paths. Check pattern alignment and pile manufacturing direction (marked by arrows on the product).
- .3 Spread adhesive with a 12mm nap paint roller along an established baseline to anchor the starting row. Spread the adhesive for the full perimeter. Lay tiles and planks in horizontal and vertical pattern, no more than two tiles in each direction. Check square every 6 tiles. Run 75-100 lb roller over surface in both directions..
- .4 Where tiles or planks need to be cut, a full spread of adhesive shall be applied to each cut tile and to all adjacent tiles.
- .5 Do not allow foot traffic for 24 hours.
- .6 Instruct other Sections as to clearances at the bottom of doors.
- .7 At locations where carpet or textile composite flooring meets hard surface flooring not in the same plane, provide feathered (minimum 600 mm from high point) latex Sacrete infill.

3.5 Cleaning and Acceptance

- .1 After installation is complete, clean and vacuum carpet and textile composite flooring of all dirt, dust and foreign materials. Remove any spots with suitable spot remover, remove all cuttings, packaging and all other associated materials, vacuum carpet thoroughly using approved commercial type equipment and leave clean.
- .2 Upon completion of each major area, submit a letter of acceptance to the Consultant on the Contractor's letterhead. The Consultant shall verify completion and acceptance of the installation after receipt of this letter.

3.6 Maintenance and Protection

- .1 The Contractor shall provide two (2) maintenance manuals specifically developed for use with each of the specified products and installation. These maintenance instructions shall include:
- a) Cleaning procedures for regular, periodic and immediate removal of all basic types of soil and stains.
 - b) Recommended cleaning solvents, technique and equipment compatible with dye stuffs used in their carpet.
 - c) A complete outline for all repairs of carpet and textile composite flooring after installation.
 - d) A list of chemicals which the fibre extruder lists as harmful to the fibres used.

END OF SECTION

1 GENERAL

1.1 Scope

Work of this section includes supply and application of paint finishes and clear sealers to areas and surfaces shown on Drawings.

1.2 Related Work Specified Elsewhere

Shop Priming structural steel	Section 05120
Shop finishing of Metal fabrications	Section 05500
Shop Priming of Hollow Metal Door Frames	Section 08700
Sealants and Caulking	Section 07900
Wallcoverings	Section 09955

1.3 Work Not Included

- .1 Unless otherwise indicated, painting is not required on surfaces in concealed areas and inaccessible areas such as furred spaces, foundation spaces, utility tunnels, pipe spaces, and duct shafts.
- .2 Metal surfaces of anodized aluminum, brass, stainless steel, chromium plate, copper, bronze, and similar finished materials will not require painting under this Section unless so specified.
- .3 Do not paint moving parts of operating units, mechanical or electrical parts such as valve operators, linkages, sensing devices, and motor shafts, unless otherwise indicated.
- .4 Do not paint over required labels or equipment identification, performance rating, name, or nomenclature plates.
- .5 Do not paint concrete or brick surfaces which have been sandblasted.

1.4 Definitions

"Paint" as used herein, means coating systems materials including primers, emulsions, epoxy, enamels, sealers, fillers, and other applied materials whether used as prime, intermediate, or finish coats.

1.5 Quality Assurance

- .1 Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- .2 Provide finish coats, which are compatible with the prime coats, actually used. Review other Sections of these Specifications as required, verifying the prime coats to be used and assuring compatibility of the total coating system for the various substrata. Upon request, furnish information on the characteristics of the specific finish materials to assure that compatible prime coats are used. Provide barrier coats over non-compatible primers, or remove the primer and reprime as required. Notify the Consultant in writing of anticipated problems in using the specified coating systems over prime coatings supplied under other Sections.

1.6 Job Conditions

- .1 Do not apply solvent thinned paints when the temperature of the surfaces to be painted and the surrounding air temperatures are below 45° F (10°C), unless otherwise permitted by the manufacturers' printed instructions and as approved by the Consultant.
- .2 Do not apply paint when the relative humidity exceeds 85%; or to damp or wet surfaces, unless otherwise permitted by the manufacturers' printed instructions or as approved by the Consultant.
- .3 Applications may be continued during inclement weather only within the temperature limits specified by the paint manufacturer as being suitable for use during application and drying periods.
- .4 Do not apply paint finish in areas where dust is being generated.
- .5 Surfaces must be dry, clean, free from dust grease or other contaminants, which will effect the work of this Section.

1.7 **Delivery, Storage**

- .1 In addition to requirements of Section 01600 deliver packaged materials in original, unopened, labeled and sealed containers.
- .2 Keep stored materials covered at all times and take necessary precautions against fire.

1.8 **Protection**

- .1 Use sufficient drop cloths and protective coverings to protect floors, furnishings and work of others not being painted.

2 PRODUCTS

2.1 **Manufacturers**

- .1 The following paint manufacturers are acceptable:
 - ° Pratt and Lambert Inc.
 - ° Benjamin-Moore and Co. Ltd.
 - ° Sherwin-Williams Co.
- .2 Use same brand of paint throughout.
- .3 The following sealer manufacturers are acceptable:
 - ° Thoro Systems Products
 - ° Process Solvent Co. (Pro So Co)
 - ° Sherwin-Williams Co.

2.2 **Materials**

- .1 Paints, enamels, fillers, primers, varnishes and stains to be ready mixed products of one of the manufacturers listed above. Substitutes will not be allowed.
- .2 Undercoats, thinners, cleaners shall be of type and brand recommended by the paint manufacturer.
- .3 Materials to be new and first line of manufacturer.
- .4 Paint materials for each coating formula to be products of a single manufacturer.

2.3 **Colour Schedules**

- .1 The Consultant will prepare a colour schedule with samples for guidance in painting.
- .2 The Consultant may select, allocate, and vary colors on different surfaces throughout the work.

2.4 **Application Equipment**

- .1 For application of the approved paint, use only such equipment as is recommended for the particular paint by the manufacturer and as approved by the Consultant.
- .2 Prior to use of application equipment, verify that the proposed equipment is actually compatible with the material to be applied, and that integrity of the finish will not be jeopardized by use of the proposed equipment.

2.5 **Other Materials**

- .1 Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Consultant.

3 EXECUTION

3.1 **Surface Conditions**

- .1 Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 **Materials Preparation**

- .1 Mix and prepare paint materials in strict accordance with the manufacturers' recommendations as approved by the Consultant.
- .2 When materials are not in use, store in tightly covered containers.
- .3 Maintain containers used in storage, mixing, and application of paint in a clean condition, free from foreign materials and residue.
- .4 Stir materials before application, producing a mixture of uniform density.
- .5 Do not stir into the material any film which may form on the surface, but remove the film and, if necessary, strain the material before using.

3.3 **General Surface Preparation**

- .1 Perform preparation and cleaning procedures in strict accordance with the paint manufacturers' recommendations as approved by the Consultant.
- .2 Remove removable items which are in place and are not scheduled to receive paint finish; or provide surface-applied protection prior to surface preparation and painting operations.
- .3 Following completion of painting in each space or area, reinstall the removed items by using workmen who are skilled in the necessary trades.

- .4 Clean each surface to be painted prior to applying paint of surface treatment.
- .5 Remove oil and grease with clean cloths and cleaning solvent of low toxicity and flash point in excess of 200 °F, prior to start of mechanical cleaning.
- .6 Schedule the cleaning and painting so that dust and other contaminants from the cleaning process will not fall onto wet newly painted surfaces.

3.4 **Preparation of Metal Surfaces**

- .1 Thoroughly clean surfaces until free from dirt, oil and grease.
- .2 On wiped galvanized surfaces, use solvent for the initial cleaning, and then treat the surface thoroughly with phosphoric acid etch. Remove etching solution completely before proceeding.
- .3 Allow to dry thoroughly before application of paint.

3.5 **Paint Application - General**

- .1 Touch-up shop-applied prime coats, which have been damaged, and touch-up bare areas prior to start of finish coats application.
- .2 Slightly vary the colour of succeeding coats.
- .3 Do not apply additional coats until the completed coat has been inspected and approved.
- .4 Only the inspected and approved coats of paint will be considered in determining the number of coats applied.
- .5 Sand and dust between coats to remove defects visible to the unaided eye from a distance of 1.5 meters (5 ft.).
- .6 On removable panels and hinged panels, paint the edges and back sides to match the exposed sides.
- .7 Allow sufficient drying time between coats, modifying the period as recommended by the material manufacturer to suit adverse weather conditions.
- .8 Consider oil-base and oleo-resinous solvent-type paint as dry for recoating when the paint feels firm, does not deform or feel sticky under moderate pressure of the thumb, and when the application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.

3.6 **Brush Applications**

- .1 Brush out and work the brush coats onto the surface in an even film.
- .2 Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, and other surface imperfections will not be acceptable.

3.7 **Spray Application**

- .1 Except as specifically otherwise approved by the Consultant, confine spray application to metal framework, finish coats at ceilings, and interior surfaces where hand brush work would be inferior.
- .2 Where spray application is used, apply each coat to provide the hiding equivalent of brush coats.

- .3 Do not double back with spray equipment to build up film thickness of two coats in one pass.

3.8 **Miscellaneous Surfaces**

- .1 Finish exposed mechanical items such as access doors, pipes, ducts grilles, and items of similar nature to match the adjacent wall surfaces. Wash metal with solvent, prime and apply two coats of alkyd semi-gloss enamel.
- .2 Finish exposed electrical items such as conduits, boxes, and items of similar nature to match the adjacent wall surfaces. Wash metal with solvent, prime and apply two coats of alkyd semi-gloss enamel.
- .3 Finish exposed prime coated hardware items to match the adjacent wall surfaces. Wash metal with solvent, prime and apply two coats of alkyd semi-gloss enamel.

3.9 **Finish Formulae**

Formula 1 - For concrete floor surfaces indicated as painted:

- ° one coat prime epoxy enamel thinned 1:8 with compatible solvent thinner
- ° one coat epoxy enamel

Formula 2 - For all structural and misc. steel, primed ferrous metal surfaces:

- ° one coat spot priming CGSB 1-GP-40M
- ° one coat enamel undercoat CGSB 1-GP-38M
- ° one coat semi-gloss enamel CGSB 1-GP-60M

Formula 3 - For zinc wiped metal:

- ° one coat vinyl wash primer CGSB 1-GP-121M
- ° one coat enamel undercoat CGSB 1-GP-38M
- ° two coats semi-gloss enamel CGSB 1-GP-57M

Formula 4 - For dipped galvanized metal:

- ° one coat alkyd primer
- ° one coat alkyd primer one coat enamel undercoat CGSB 1-GP-38M
- ° two coats gloss enamel CGSB 1-GP-60M

Formula 5 - For gypsum wallboard:

- ° one coat latex primer
- ° two coats latex eggshell enamel CGSB 1-GP-60M

END OF SECTION

1 GENERAL

1.1 Work Included

Supply and installation of wallcoverings indicated on Drawings, Schedules and/or specified herein, as well as all adhesives and accessories required for the installation

1.2 Related Work

Gypsum Wallboard	Section 09260
Steel Doors and Frames	Section 08110
Painting	Section 09900

1.3 Quality Assurance

- .1 All wallcoverings shall be manufactured by selected manufacturer, based upon the approved specification herein.
- .2 The installer shall be fully equipped and have previous experience on comparable projects, necessary to meet all the quality and schedule requirements of this specification.
- .3 The labour employed for the work shall be skilled, fully equipped specialists with a minimum of five years experience on comparable projects.
- .4 All labour shall be employed directly by the installer or manufacturer. No labour shall be sublet.

1.4 Submittals

.1 Samples

- a) Submit three (3) colour trial samples 300mmx300mm for each wallcovering in the approved product for review by the Consultant.
- b) Do not proceed with production until approval of colour trial samples is given in writing by the Consultant.

.2 Accessories

- a) Submit samples of all accessory hardware to be used as part of the installation to the Consultant for review.

1.5 Delivery, Storage and Handling

Deliver products to the site in the manufacturer's original, unopened containers. Maintain off-site facilities to store materials which cannot be accommodated at the site during the installation period. Off-site storage shall be weather-tight, heated space.

2 PRODUCTS

2.1 Materials

- .1 Wallcovering (SWC-1) to be Stacy Garcia Promenade by York Contract available from Metro Wallcoverings 416-245-2900. Colour is to be SG1875.
- .2 Wallcovering (SWC-2) to be custom digital vinyl graphic supplied by the Owner for installation by this Trade Contractor.

- .3 Accessories: At external corners and at exposed edges of wallcoverings, where indicated on the drawings, provide extruded clear anodized aluminum trim 20x20mm from alloy 6063- T5, one piece 2400 in length, with fine satin finish and Class II coating.
- .4 Provide adhesives and other materials not specifically described above, but required for a complete and proper installation.

3 EXECUTION

3.1 Surface Conditions

- .1 Prior to the commencement of installation, inspect the conditions and confirm installation procedures to be followed.
- .2 During the pre-installation inspection, perform moisture tests on all substrates and verify that moisture content does not exceed 7% for wood, 12% for masonry, and 5% for GWB.

3.2 Preparations

- .1 Clean surfaces to receive wallcoverings.
- .2 Over GWB, apply a uniform release coat of material as recommended by the manufacturer, and remove all loose material..
- .3 Commencement of installation shall indicate acceptance of site conditions by the manufacturer and installer.

3.3 Wallcovering Sequence

- .1 Use materials in sequential numerical lots as designated by the manufacturer.
- .2 Place panels sequentially in the exact order they are cut from the roll, including for filling all spaces above doors and below windows.
- .3 The trial installation shall be incorporated as part of the work upon approval.

3.4 Installation

- .1 Handle the wallcovering in accordance with the manufacturer's recommendations.
- .2 Trim selvage where required to achieve colour and pattern map at seams.
- .3 Follow the manufacturer's printed instructions for mixing adhesive.
- .4 When overlapping the edges and double-cutting through both thicknesses, take care not to cut the face of the substrate.
- .5 Wrap 150mm beyond inside and outside corners, not cutting at corners, except when colour or patterns of adjacent panel differs. Do not permit horizontal seams.
- .6 Install wallcovering prior to installation of plumbing fixtures, casings, base.
- .7 Use stiff-bristled brush or flexible broad knife to eliminate air pockets and to secure panel to substrate.

- .8 Using damp sponge, remove excess adhesive from each seam as it is made, wiping clean and dry with cloth towel.

3.5 **Installation of Trim**

- .1 Install the approved moulding at external corners and at exposed edges. Install true-to-line at exposed edges of the wallcoverings. To the maximum practical length, butting horizontal joints to form hairline joints. Miter corners.

3.6 **Cleaning and Acceptance**

- .1 As work progresses, clean surplus adhesive from wallcovering surfaces.
- .2 Visually inspect to verify that installed wallcovering is secure, smooth and clean, without wrinkles, and with no gaps or overlaps. Carefully inspect all seams.

END OF SECTION

1 GENERAL

1.1 Work Included

- .1 Work under this section consists of the furnishing of all labour, materials, equipment, and services necessary for, and incidental to, the complete and proper supply and installation of metal access panels, and related work as shown on the drawings or specified herein, and in accordance with all applicable requirements of the contract documents.

1.2 Related Work

Gypsum Wallboard	Section 09250
Rough and Finish Carpentry	Section 06100
Joint Sealants	Section 07900

1.3 Submittals

- .1 Provide submittals specified and as required to assess conformance with the Contract Documents, in accordance with the General Conditions and Division 01 of the Specifications.
- .2 Shop drawings:
 - .1 Submit shop drawings for review.
 - .2 Show complete layout of all items, full details of construction including structural supports, type and thickness of materials, duct connections, blank-off areas, all dimensions and all other items and accessories for a complete installation.
- .3 Samples:
 - .1 Submit duplicate samples of each finish and colour required for Consultant review.

1.4 Delivery, Storage and Handling

- .1 Brace units to prevent distortion during shipment and protect finished surfaces by heavy wrappings.
- .2 Store in protective wrapping, until required for installation.

2 PRODUCTS

2.1 Access Panels

- .1 At unrated partitions and ceilings – equal to Access Door Type DW -5040 by Acudor Products, complete with 20ga galvanized, formed door panel, flanged on four sides with integral taping bead. Doors are to be 610x610mm unless otherwise noted, with screwdriver operated cam latches. Hand over for installation by Sections 06100 and 09250.

2.2 Curtains

- .1 Remove and re-install existing black-out curtain system to ceiling locations where indicated on the drawings and where necessary to allow access for work in adjacent areas.

2.3 **Coat and Purse Hooks**

- .1 At underside of drink rails, provide 31 quantity stainless steel purse hooks equal to Hafele 842 34.050. Turn over to Section 06100 for installation.

3 EXECUTION

3.1 **Examination**

- .1 Examine surfaces to which specialties are to be attached and do not commence installation unless such surfaces are satisfactory.
- .2 Commencement of installation will denote acceptance of surfaces.

3.2 **Installation**

- .1 Installation of specialties where so indicated shall be by manufacturer's own erection crews in accordance with approved shop drawings.
- .2 Install specialties, plumb, true and in line.
- .3 Installed units shall be free of rattle, vibration and distortion. Provide stiffeners and support sub-structure as required.
- .4 Where specialties are indicate to be installed by other sections, hand over with installation templates and instructions.

END OF SECTION

1 GENERAL

1.1 Work Included

- .1 Work under this section consists of the furnishing of all labour, materials, equipment, and services necessary for, and incidental to, the complete and proper supply and installation of access floor panels, stringer and understructure and related work as shown on the drawings or specified herein, and in accordance with all applicable requirements of the contract documents.

1.2 Related Work

Rough and Finish Carpentry	Section 06100
Metal Fabrications	Section 05500
Resilient Flooring and Base	Section 09660
Carpet Tile	Section 09681
Tempered Glass Guards	Section 08450

1.4 Submittals

- .1 Provide submittals specified and as required to assess conformance with the Contract Documents, in accordance with the General Conditions and Division 01 of the Specifications.
- .2 Shop drawings:
 - .1 Submit shop drawings for review.
 - .2 Show complete layout of all items, full details of construction including structural supports, type and thickness of materials, duct connections, blank-off areas, all dimensions and all other items and accessories for a complete installation.
 - .3 Manufacturer's installation instructions and guidelines.
 - .4 Manufacturer's Owner Manual outlining recommended care and maintenance procedures.

1.5 Delivery, Storage and Handling

- .1 Area to receive and store access floor materials as well as all areas of installation shall be enclosed and maintained at ambient temperatures between 10° to 25° C and relative humidity levels between 20% to 80% and shall remain within these environmental limits throughout occupancy.
- .2 Store in protective wrapping, until required for installation.

1.6 Performance Requirements

- .1 **Design Load:** Panel supported on actual understructure (the system) shall be capable of supporting a safe working load or design load of 2000 lbs or 900kg.
- .2 **Safety Factor:** Panel supported on actual understructure (the system) shall be capable of withstanding a minimum of (2) two times the design load anywhere on the panel without failure. Failure is defined as the point at which the system will no longer accept the load.
- .3 **Impact Load:** Panel and supporting understructure (the system) shall be capable of supporting an impact load of 68 kg. dropped from a height of 900mm onto a 6 cm² area (using a round or square indenter) at any location on the panel.

- .4 **Panel Cutout:** Panel with a 200mm diameter interior cutout supported on actual understructure shall be capable of maintaining its design load strength anywhere on the panel without the use of additional supports.
- .5 **Flammability:** System shall meet *Class A* Flame spread requirements for flame spread and smoke development. Tests shall be performed in accordance with ASTM-E84-1998, Standard Test Method for Surface Burning Characteristics for Building Materials.
- .6 **Combustibility:** All components of the access floor system shall qualify as non-combustible by demonstrating compliance with requirements of ASTM E 136, Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 deg C.
- .7 **Recycled Content:** Panel and understructure system shall be required to have a minimum recycled content of 30%.
- .8 **Axial Load:** Pedestal support assembly shall provide a 2200 kg. axial load without permanent deformation.
- .9 **Overturning Moment:** Pedestal support assembly shall provide an average overturning moment of 1000 in-lbs. when glued to a clean, sound, uncoated concrete surface. ICBO number for the specific system or structural calculations shall be required attesting to the lateral stability of the system under seismic conditions.
- .10 **Stringer Concentrated Load:** Stringer shall be capable of withstanding a concentrated load of 200 kg. placed in its midspan on a 6 cm² area using a round or square indenter without exceeding a permanent set of .2mm after the load is removed.

1.7 **Design Requirements:**

- .1 Access floor system, where indicated on the design documents, shall consist of modular cementitious filled welded steel panels supported on all four edges by structural steel members which are designed to bolt onto adjustable height pedestal assemblies forming a modular grid pattern.
- .2 Quantities, finished floor heights (FFH) and location of accessories shall be as specified on the contract drawings.

2 PRODUCTS

2.1 **Manufacturers**

- .1 Access floor system shall be as manufactured by Tate ASP Access Floors Inc. (Nick Travaglini 905-847-0138 x29) and shall consist of ConCore® 2000 access floor panel supported by a bolted 16 ga stringer understructure system.
- .2 Equivalent product available from Camino Modular Systems Inc. (Mike Hinton 416-675-2400 x225) shall be Tech Crete 2000.
- .3 Alternative products shall meet all requirements as indicated herein and receive prior written approval by the Consultant.

2.2 **Support Components**

- .1 **Pedestals:**

.1 Pedestal assemblies shall be corrosive resistant, all steel welded construction, and shall provide an adjustment range of +/- 25mm for finished floor heights 150mm or greater. Zinc electroplating shall be prohibited on all pedestal components, including head plate, threaded rod, adjustment nut, pedestal tube, base plate, and all fasteners.

.2 Pedestal assemblies shall provide a means of levelling and locking the assembly at a selected height, which requires deliberate action to change height setting and prevents vibration displacement.

.3 Hot dip galvanized steel pedestal head shall be welded to a threaded rod which includes a specially designed adjusting nut. The nut shall provide location lugs to engage the pedestal base assembly, such that deliberate action is required to change the height setting.

.4 Threaded rod shall provide a specially designed anti-rotation device, such that when the head assembly is engaged in the base assembly, the head cannot freely rotate.

.5 Hot dip galvanized pedestal base assembly shall consist of a formed steel plate with no less than 100cm square of bearing area, welded to a 20mm square steel tube and shall be designed to engage the head assembly.

.2 **Stringers:**

.1 Stringers shall support each edge of panel.

.2 Steel stringer shall have conductive galvannealed coating. Zinc electroplating shall be prohibited on stringers and stringer fasteners.

.3 Stringers shall be individually and rigidly fastened to the pedestal with one machine screw for each 300mm of stringer length. Bolts shall provide positive electrical contact between the stringers and pedestals. Connections depending on gravity or spring action are unacceptable.

.4 Stringer grid shall be 1200mm stringers in a basketweave configuration ensuring maximum lateral stability in all directions.

2.3 **Panel Components**

.1 **Floor Panels:**

.1 Panels shall consist of a top steel sheet welded to a formed steel bottom pan filled internally with a lightweight cementitious material.

.2 Floor panels shall be protected from corrosion by electro-deposited epoxy paint.

2.4 **Accessories**

.1 Provide 10 spare floor panels and 2 square meters of understructure systems for maintenance stock. Deliver to project in manufacturer's standard packaging clearly marked with the contents.

3 EXECUTION

3.1 **Preparation**

.1 Examine structural subfloor for unevenness, irregularities and dampness that would affect the quality and execution of the work. Do not proceed with installation until structural floor surfaces are level, clean, and dry as completed by others.

.2 Concrete sealers, if used, shall be identified and proven to be compatible with pedestal adhesive. Verify that adhesive achieves bond to slab before commencing work.

.3 Verify dimensions on contract drawings, including level of interfaces including abutting floor, ledges and doorsills.

3.2 Installation

.1 Pedestal locations shall be established from approved shop drawings so that work of other Sections can be installed without interfering with pedestal installation.

.2 Installation of access floor shall be coordinated with other trades to maintain the integrity of the installed system. All traffic on access floor shall be controlled by access floor installer. No traffic but that of access floor installers shall be permitted on any floor area for 24 hours to allow the pedestal adhesive to set.

.3 Floor system and accessories shall be installed under the supervision of the manufacturer's authorized representative and according to manufacturer's recommendations.

.4 No dust or debris producing operations by other trades shall be allowed in areas where access floor is being installed to ensure proper bonding of pedestals to subfloor.

.5 Access floor installer shall keep the subfloor broom clean as installation progresses.

.6 Partially complete floors shall be braced to prevent shifting and to maintain the integrity of the installed system where required.

.7 Additional pedestals as needed shall support panels where floor is disrupted by columns, walls, stairs, ramps and cutouts.

.8 Understructure shall be aligned such that all uncut panels are interchangeable and fit snugly but do not bind when placed in alternate positions.

.9 Finished floor shall be level, not varying in height more than 3mm in 3m.

.10 Inspect system jointly with Consultant prior to turnover for application of floor covering and replace any floor panels that are cracked, broken and structurally damaged and do not comply with specified requirements.

3.2 Examination

.1 Examine surfaces to which specialties are to be attached and do not commence installation unless such surfaces are satisfactory.

.2 If slab surfaces show evidence of residual adhesives from previous floor finishes, cooperate with others to ensure removal within the footprint for each pedestal base.

.3 Commencement of installation will denote acceptance of surfaces.

END OF SECTION

1 GENERAL

1.1 Work Included

- .1 Work under this section consists of the furnishing of all labour, materials, equipment, and services necessary for, and incidental to, the complete and proper supply and installation of washroom accessories and related work as shown on the drawings or specified herein.

1.2 Related Work

Gypsum Wallboard	Section 09260
Rough and Finish Carpentry	Section 06100
Ceramic Tile and Stone	Section 09315

1.4 Submittals

- .1 Provide submittals specified and as required to assess conformance with the Contract Documents, in accordance with the General Conditions and Division 01 of the Specifications.
- .2 Shop drawings:
 - .1 Submit shop drawings for review.
 - .2 Show complete layout of all items, full details of construction including structural supports, type and thickness of materials, all dimensions and all other items and accessories for a complete installation.
- .3 Samples:
 - .1 Submit duplicate samples of each finish and colour required for Consultant review.

1.5 Delivery, Storage and Handling

- .1 Package units to prevent distortion during shipment and protect finished surfaces by heavy wrappings.
- .2 Store in protective wrapping, until required for installation.

2 PRODUCTS

2.1 Soap Dispensers

- .1 Bradley 6315-KT0000 battery powered, Vanity Mounted foam Dispenser, in quantities as shown on the drawings.

2.2 Grab Bars

- .1 Bobrick-B 6806 1 1/2 inch diameter (38mm) stainless steel with 'peened' grip, concealed flanges, set screw mounting. Refer to drawings for lengths and locations - 36, 30 and 24 inch (900, 750 and 600mm). Confirm blocking is properly located.

2.3 Toilet Paper Dispenser

- .1 Bobrick Dual Roll Unit Model #5402, in stainless finish.

2.4 **Paper Towel Dispenser**

- .1 American Specialties Inc recessed multi-fold Dispenser Model 6452, in stainless finish.

2.5 **Infant Change Station**

- .1 Bobrick KB 101 wall mounted vertical, grey colour.

2.6 **Paper Towel/Garbage**

- .1 American Specialties Inc recessed 6467, in stainless steel.

2.7 **Toilet and Urinal Partitions**

- .1 Hadrian Elite headrail braced , no site line, powder coated steel with stainless base. Colour to be Pewter Tanard (Sherwin Williams SW0023). Doors are to 1829mm tall and panels 1930mm tall, with full height channels at all connections. Complete with rising gravity hinges, recessed latch, combination bumper/coat hook, full length stop and hinge side filler.

2.8 **Signs**

- .1 Male Accessible – V-Line S-15597 Black, Female Accessible – V-Line 15598 Black
- .2 Unisex – V-Line S-15599 Black.

2.9 **Toilet Backrest**

- .1 Frost model 1028 in stainless steel, with white plastic laminate panel.

3 EXECUTION

3.1 **Examination**

- .1 Examine surfaces to which specialties are to be attached and do not commence installation unless such surfaces are satisfactory.
- .2 Commencement of installation will denote acceptance of surfaces.

3.22 **Quantity and Location**

- .1 Toilet Paper Dispenser – one at each compartment, mounted at 33 in (765mm).
- .2 Grab Bars – at accessible toilet stalls and fitting rooms, to meet OBC requirements. Refer to drawings.
- .3 Paper towel dispensers – two in in men’s washroom, one in family washroom unless otherwise noted on drawings.
- .4 Soap Dispensers – one per lavatory faucet.
- .5 Infant Change Table – one per washroom as indicated.
- .6 Garbage – one per washroom, refer to drawings for location.
- .7 Backrest – one per accessible toilet stall.

3.3 **Installation**

- .1 Except where noted otherwise, installation of specialties where so indicated shall be by manufacturer's own erection crews in accordance with approved shop drawings.
- .2 Exact locations to be confirmed with Project Manager before installation proceeds.
- .3 Ensure that steel backing plates or wood blocking are set in drywall partitions.
- .4 Install specialties, plumb, true and in line. Conceal joints and fasteners. Use tamper proof screws and bolts.
- .5 Fill dispensers before turning over and final acceptance.
- .6 Installed units shall be free of rattle, vibration and distortion. Provide stiffeners and support sub-structure as required.
- .7 Where specialties are indicated to be installed by other sections, hand over with installation templates and instructions.

END OF SECTION