PROJECT MANUAL

ISSUE FOR TENDER

April 15, 2026

TRENT UNIVERSITY
ENW OFFICE RENOVATIONS
PHASE 2

1 Gzowski Way, Peterborough, ON K9L 1Z8

REFER TO THE MECHANICAL AND ELECTRICAL SPECIFICATIONS ON DRAWINGS

Part 1 General

1.1 INTENT

.1 This Section includes mandatory construction sequencing constraints and a suggested sequence of construction that will satisfy the mandatory constraints required in the execution of the Work.

.2 The suggested sequence of construction described herein is general in nature and outlines the intent of the design with respect to the implementation and general progress of the Work. The descriptions of construction activities as outlined in this Section are not intended to be comprehensive or all-inclusive. Many other construction activities and Work components, although not specifically noted in this Section, are integral parts of the Work and shall be scheduled and completed by the Contractor in accordance with the Contract Documents.

.3 The broad grouping of parts of the Work under phases, stages or similar divisions in the suggested sequence of construction is intended to illustrate the general sequence for execution of the Work as envisioned by the Contract Administrator. Such grouping shall in no way relieve the Contractor of complete and sole responsibility for the construction means, methods, techniques, sequences and procedures of construction, or the safety precautions and programs incidental thereto.

1.2 SUBMITTALS

.1 Sequence of Construction

.1 The Contractor shall provide a proposed sequence of construction no later than five (5) Working Days prior to the preconstruction meeting.

.2 Hoarding Diagrams

.1 Refer to and Coordinate with Section 01 50 00 Temporary Work

.3 Engineered Temporary platforms

.1 Refer to and Coordinate with Section 01 50 00 Temporary Work

1.3 COORDINATION

.1 Coordinate the requirements of this Section with the other requirements of the Contract Documents.

.2 Coordinate construction activities with existing plant operations as specified, but not limited to, in the following sections:

.1 Owner’s Division 01 specifications
.2 Section 01 50 00 Temporary Work

.3 Services provided by Contractor

.1 The Contractor shall provide all required temporary construction, roads, drainage, grading, sedimentation and erosion control measures for the construction area.

.2 The Contractor shall provide all necessary temporary power, pumping facilities, ventilation equipment, pipes, valves, fittings, equipment and material storage, diversions, temporary bulkheads, or any other equipment and systems, as required during construction.

.3 Coordinate with the Owner to ensure the following:

.1 Compliance of all Health and Safety regulations

.2 Compliance with all applicable Building Code regulations including, but not limited to, maintenance, coordination and regulation of fire exits with the Owner's Facility Operator and Building Inspector.

.3 Compliance with continuous operation of the Site.

.4 No Extras will be allotted or entertained to ensure Compliance of the above.

.4 Code Compliance

.1 Related Section: Section 01 31 00 Project Management and Coordination

.2 For each sequence of construction, Fire Exit and Fire Separation requirements per the latest edition of the Ontario Building Code must be maintained.

.1 All Exit Doors to be provided with necessary hardware to meet the minimum OBC requirements.

.2 Maintain existing exit doors during construction. Provide temporary exit doors as required to comply with Building Code regulations.

.3 A minimum 6m horizontal clear and 4.2m vertical clearance path of travel for emergency exit vehicles is required.

.3 Fire Protection

.1 Provide adequate supplementary fire protection facilities including, but not limited to, ample hand operated 7kg to 15kg multipurpose dry chemical extinguishers in each facility. Provide temporary hose lines in areas where construction is in progress until the permanent fire protection is placed into service. Do not block hydrant hose connections and other fire fighting equipment by construction equipment and make readily accessible at all times.

.2 Monitor and control probable ignition sources as necessary to prevent the threat of fire.

.3 Minimize hot Work including, but not limited to, operations involving open flames, heat, or sparks such as brazing, cutting, grinding, soldering and torching. Prior to starting Work which requires welding, cutting, open flame or heat, develop and

implement Hot Work procedure based on existing and foreseeable conditions that meet of exceeds the local hot work procedures.

.4 Provide Fire watch services during course of work.

.5 Temporary Barriers and Protection

.1 Related Section: 01 50 00 Temporary Work

.6 Monitoring and Emergency Response

.1 The Contractor shall have the necessary resources, materials, personnel and equipment readily available to provide continuous 24hours per calendar day, 7 calendar days per week monitoring and emergency repair of Contractor's work area where, in the opinion of the Owner or the Contract Administrator, the failure of such temporary systems could adversely impact Owner operations and or Pedestrian safety.

.2 Provide and operate temporary systems as required to contain and remove leakage through mechanical or electrical systems and other such isolation devices that are used during construction of the Works.

.3 The Contractor is to provide the necessary means and methods to ensure Owner operations are not disrupted unless approved by Owner 2 weeks in advance.

.7 Electrical and Temporary Power

.1 Contractor to minimize the duration of shutdowns and keep the facility in continuous operation, maintain existing facility electrical systems in operation while new electrical components are installed, or the existing systems are modified or replaced as required for the final electrical system configuration. Where this is not possible, provide temporary power in the form of overhead lines or portable generators at no additional cost to the Owner.

.2 Provide written formal report or request to the Owners two weeks in advance of any electrical shutdown.

.8 Ventilation and Temporary ventilation.

.1 It is the responsibility of the General and Mechanical Contractor to inform the Owner if any source or potential source of indoor air contamination is identified.

.2 Prior to enclosing spaces such as plumbing chases, air shafts and return air plenums, clean all areas thoroughly. The Contractor shall guarantee that the plenum chamber used for recirculating of air will be of tight construction and that all sources of contamination from traps, soil stacks, downspouts, vents, exhaust discharges and other sources will be enclosed so that no contaminated air will be recirculated.

.3 Prior to commencing construction activities, shut off the HVAC system, block off all air grills, diffusers and other openings outside the immediate construction area. Openings to adjacent occupied spaces shall be covered with filter media to prevent dust and other airborne contaminants from passing to adjoining spaces.

.4 Contractor to install temporary exhaust system to ventilate construction site and keep site under slight negative pressure during all hours of construction, even if after normal business hours.

.5 Contractor to install temporary barriers to protect adjacent spaces from dust, particulates, vapours and noise. Where temporary barriers are installed always maintain fire exits and exitways.

.9 Requirements of other Divisions

.1 During site services relocation and replacement works Contractor shall coordinate with and notify Owner and all utility service providers, including, but not limited to Enbridge, Owner's Facility Operators and Owner's Project Manager for any works related to shut downs, disconnect and/or reconnect of incoming utility services.

.2 Underground Service Locates must be obtained prior to any construction requiring digging or excavation of existing grade.

.3 Drain scoping and clearing is required before and after construction activities.

.10 Transition of new and existing services

.1 Coordinate with Building Owner for protection requirements and ensure protection measures are reviewed and approved by Building Owner prior to installation.

Part 2 Products

2.1 GENERAL

.1 Unless specifically stated otherwise in the Contract Documents, provide all labour, materials and equipment necessary to accomplish the work of this Section.

Part 3 EXECUTION

3.1 MANDATORY CONSTRAINTS

.1 Incorporate the construction constraints and sequence of construction in the Progress Schedules required in Division 01.

.2 The Working limits for this Contract and adjoining contracts are shown on the Contract Drawings. The working limits are time dependant and may change during the course of the Contract and as other contracts start and finish. No extras will be permitted or entertained to revise site limits.

.3 The Contractor is required to work within the space constraints shown and in accordance with the time constraints instructed by the Owner.

.4 The Contractor shall work with the Owner and the Other Contractors to coordinate the interface between the Contract and other Contracts.

.1 Allow 15 working days for coordination of any activity with Owner and Contract Administrator.

.2 Additional days may be allotted for coordination if reported in written form to ensure all requirements of the Contract are met.

.5 Ensure strict adherence to the Owner' safety standards, Building Code, Provincial Safety Acts, Ministry of Labour and the Occupational Health and Safety Act at a minimum.

.6 No Work will be allowed above rotating equipment that is in operation.

.7 The Contractor shall comply with the requirements for notification, coordination and the provision of a complete system of temporary works as specified in Section 01 31 00 Project Management and Coordination.

.8 Carefully examine the existing utility service at the Site to determine the difficulty of the Work and the number and type of existing services required to be re-routed or protected from damage during construction of the Work.

.9 Coordinate and Schedule tie-ins to other existing structures and services with Owner.

.1 Provide minimum 10 working day notice of any shutdown or tie-in requirements.

.2 Coordinate and Schedule tie-ins and shutdowns with Owner to ensure proposed date and time are acceptable by Owner. Modify date as required at no extra cost to contract for any tie-in or shutdown requirements.

.10 Event Days, Work Stoppages, Service Shutdowns

.1 Co-operate with Owner and Building Operators building shutdowns as a result of Owner's internal schedule.

.11 Building Operation and Staging

.1 The building will be in operation during the course of work.

.2 Construct work in a manner to minimize disruption to ongoing building activities.

.3 Provide as many stages of construction as required to complete the work in coordination with the Owner and Building Operator.

.4 For the purposes of costing, the Contractor is to provide work staging for each classroom window replacement.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 The description of this Section is intended to supplement and provide additional requirements in conjunction with the Owner's 'Summary of Work.' Where a contradiction occurs between Owner's Front End and/or Construction Agreement and the items described in this Consultant specification sections, the Owner's Conditions shall supersede the requirements of this section.

.2 Where a discrepancy occurs between the Consultant Specifications and/or drawings, the most stringent requirement shall prevail unless instructed in writing otherwise by the Consultant or Owner.

1.2 SUMMARY OF WORK

.1 The Contractor shall furnish all labour, materials, equipment and supervision to construct the project at 1 Gzowski Way, Peterborough ON, in accordance with the drawings and specification including any addenda issued during the time of bidding. This work shall include, but not be limited to the short summary below:

.2 Work under this contract covers the following major items:

.1 Interior renovation in offices.
.2 Demolition of existing partition for new door.
.3 Demolition of existing door.
.4 New partition, doors, and interior window glazing.
.5 Removal of existing floor and suspended ceiling finishes
.6 New wall, floor and ceiling finishes
.7 Final cleaning by Professional Cleaning Company.
.8 Co-operate at all times with Owner's stakeholder groups work schedule and occupancy of facility during the course of work.
.9 Removal/reinstatement and/or replacement of existing mechanical and electrical systems in affected Areas of Work.
.10 All incidental cutting, patching and restoration work to existing finishes as required to facilitate work identified in drawings and specifications.

.3 Provide detailed project schedule. The schedule is to be approved by the Owner and Consultant prior to commencement of work. Update schedule as required or requested by the Owner's Project Manager to ensure accuracy of project deliverables.

.4 Planning, scheduling, co-ordination and supervision of all sub-trades and work during the implementation of the scope of work. Ensure that sub-trades are co-ordinated in a manner to cause the least amount of disruption and shortest project duration.

.5 Prior to starting construction, the Contractor is to obtain a Notice of Project from the Ontario Ministry of Labour. Contractor shall provide a copy of the Contractors Health and Safety Policy, as well as the Health and Safety Plan specifically for the project. These documents shall be provided to the Consultant and the Owner.

.6 Provide a construction sequencing and staging plan to the Consultant and Owner Project Manager indicating site access, safety barriers, material staging area, work area, phasing of work and disposal bin location. This plan must be approved by the Owner and consultant prior to any mobilization on site.

.7 Protection of existing facility, and adjacent facilities, finishes, etc. during project. Any damages caused by the contractor to existing facilities will be the contractors responsibility to rectify. Refer to technical drawings and specifications prepared by the Consultant for additional information.

.8 Selective demolition of existing building elements and services necessary to facilitate the new work and as indicated in the attached Construction Documents

.9 Provide Pre-Construction photos to Project Manager prior to start of Demolition and Construction.

.10 Removal and disposal of existing finishes and remaining items in the building and as indicated in attached Construction Documents.

.11 Patching and making good of existing finished elements to match existing affected by the new work and as indicated in the attached Construction Documents and any areas damaged by trades during the work.

.12 Disposal of any construction materials/debris, in a legal manner, for this project on a daily basis and in accordance with Owner Construction, Renovation & Demolition Waste Management Policy referenced in the attached Construction Documents.

.13 Final and finish cleaninig acceptable for handover to client prior to turn over and as indicated in the attached Construction Documents, including but not limited to the following areas:

.1 Cleaning of debris around landscaped areas.

.2 Re-instatement of damaged soft and hard landscaping as a result of temporary barriers and protection or contractor access requireemnts.

.3 Cleaning of interior entrances of staining and debris tracked inside the building.

.4 Cleaning of interior and exterior renovated space.

.14 Coordinate and administer all necessary inspections for Authorities having Jurisdiction to permit occupancy of facility after Construction and to ensure conformance with the Permit Drawings. Inspections include but not limited to the following:

.1 ESA inspection and certificate,

.15 The complete approvals of these agencies is the responsibility of Contractor.

.16 The Owner will provide Building Permits.

.17 All other permits and costs are to be solely borne by the Contractor.

.18 Obtain written confirmation from Authority having Jurisdiction (Building Inspection's Department) of permit close out certificate.

.19 Cooperate with Client and other agents working for or with the Owner for general work and regular building functions for the duration of the construction period.

.20 Apply and pay for all necessary right of way permits to accommodate the work specified in the contract documents including but not limited to road closures, air encroachment agreements, hydro permits, lifting permits and pay duty officers required to facilitate the work.

.21 Undertake commissioning and testing of mechanical and electrical equipment controls throughout project schedule. Provide training to applicable Owner representatives.

.22 Provide follow up warranty repair services within 5 working days of reported issue.

.23 Provide follow up maintenance service programs as indicated in respective Specification Section

1.3 WORK BY OTHERS

.1 Co-operate with other Contractors in carrying out their respective works and carry out instructions from Engineer and Owner's Representative.

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

.3 Coordinate furniture electrical connections with Owner's furniture supplier

1.4 FUTURE WORK

.1 Coordinate Work with Owner and Consultant to facilitate future work.

1.5 WORK SEQUENCE

.1 Coordinate Progress Schedule and coordinate with Owner's continued use of adjacent facilities during construction.

.2 Maintain fire access/control and exit requirements at all times.

1.6 CONTRACTOR USE OF PREMISES

.1 Coordinate use of premises and Contractor Laydown area where indicated on drawings and under direction of Owner and Consultant.

.2 Clean on daily basis areas outside of Contractor Work Area to maintain public access and emergency egress requirements during course of Work.

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

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

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

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

.7 Only Contractor's vehicles, tools, equipment and materials that are clearly identified with Contractor's signage/decals are permitted to park in construction area. Personal vehicles will not be permitted in construction area.

1.7 OWNER and PUBLIC OCCUPANCY

.1 Owner will occupy facility during entire construction period for execution of normal operations.

.2 Cooperate with Owner in scheduling operations to minimize conflict and to facilitate Owner's continued usage of facility.

1.8 JURISDICTIONAL AUTHORITIES

.1 Allow 1 month after award of contract meeting after pre-construction meeting for receipt of building permit documents from Jurisdictional Authorities.

1.9 Contractor Responsibilities:

.1 Designate submittals and delivery date for each product in progress schedule.

.2 Review shop drawings, product data, samples, and other submittals. Submit to Consultant notification of any observed discrepancies or problems anticipated due to non-conformance with Contract Documents.

.3 Receive and unload products at site.

.4 Inspect deliveries jointly with Owner; record shortages, and damaged or defective items.

.5 Handle products at site, including uncrating and storage.

.6 Protect products from damage, and from exposure to elements.

.7 Assemble, install, connect, adjust, and finish products.

.8 Provide installation inspections required by public authorities.

.9 Repair or replace items damaged by Contractor or subcontractor on site (under his control).

1.10 DOCUMENTS REQUIRED

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

.1 Contract Drawings

.2 Specifications

.3 Addenda

.4 Permit drawings

.5 Reviewed Shop Drawings

.6 List of Outstanding Shop Drawings

.7 Change Orders

.8 Other Modifications to Contract

.9 Field Test Reports

.10 Copy of Approved Work Schedule

.11 Health and Safety Plan and Other Safety Related Documents required by Authorities Having Jurisdiction.

1.11 CONSULTANTS ELECTRONIC FILES

.1 Electronic Drawing Files: upon written request by the Contractor, Electronic drawing files in AutoCAD, version 2010 format will be made available to the Contractor by the Consultant for the preparation of Shop Drawings specific to this Project subject to the following conditions:

.2 Electronic drawing files will be provided by e-mail or DVD depending on size and quantities of requested electronic drawing files.

.3 Electronic drawing files will be provided in the native format the drawing was completed in. A change to a version or format that is not the native format of the file will not be undertaken by the Consultant.

.4 The Consultant will alter electronic drawing file information not essential to the Contract from materials provided to the Contractor including, but not limited to, the following

.1 Remove Title Blocks and Logos

.2 Remove Professional Seals

.3 Bind External File and Blocks.

.5 Contractor shall request specific electronic drawing files at the beginning of the Work:

.1 Consultant makes no warranty or guarantee that dimensions provided or established from the electronic drawing file represent actual site conditions.

.2 Contractor shall remain responsible for established and confirming field dimensions and project conditions, and providing this information to affected Subcontractors.

.3 In the event that there is a discrepancy between the electronic drawing files provided to the Contractor and the Bid Documents and Addenda, the Bid Documents and Addenda shall govern.

.4 In the event that dimensions are not indicated, they shall not be scaled electronically from the electronic drawing files. Missing dimensions shall be brought to the attention of the Consultant who will determine the dimensions or direct the method for determination of the missing dimensions.

.6 The Contractor recognizes the use of the electronic drawing files is at their own risk. The Contractor will be required to accept terms of use including, but not limited to, the following:

.1 Contractor, Subcontractor, Sub-Subcontractor, supplier, manufacturer or other third part agent agrees to indemnify and hold harmless the Consultant from any damage, liability or costs arising from the use of the electronic drawing files conveyed in the CADD file format provided.

.2 Consultant retains the copyright for electronic drawing files made available to the Contractor.

.3 Use of the supplied electronic drawing files for any subsequent Project is strictly forbidden with the express written consent of the Consultant.

.4 Consultant will not be held liable for any unauthorized use or modification of the electronic drawing files provided.

.5 Consultant expressly disclaims any warranty or assurance that the electronic drawing files will remain accurate beyond the date the files were created.

.6 The Consultant assumes no responsibility and disclaims any liability to any person or entity for any loss or damages including any special, indirect or consequential damage caused by error or omissions in the electronic drawing files and CADD format provided, whether resulting from negligence, accident or any other cause.

.7 Consultant reserves the right to withdraw the offer for electronic drawing files where an excessive number of drawings are requested.

.8 Consultant reserves the right to reject shop drawing prepared from electronic drawing files submitted to them by the Contractor that have not been substantially altered from the electronic drawing files provided and as follows:

.1 Shop drawings shall reflect constructability requirements.

.2 Shop drawing shall be detailed in accordance with requirements listed in the technical specification sections.

.3 Shop drawings shall be submitted along with Contractor’s cover page including the following information; signature, date of review, date of submittal, shop drawing number and Contractor’s logo.

1.12 QUALITY CONTROL

.1 Regulatory Requirements

.1 Materials and workmanship shall be in accordance with requirements and recommendations of applicable rules, regulations, standards and codes as specified hereunder. All products shall bear a certification label of CSA, CGA, TSSA, ULC, or ESA, as applicable.

.1 ESA Electrical Safety Code (Canadian Electrical Code and Electrical Safety Authority Supplements)

.2 Canadian Standards Association (CSA)

.3 Underwriter's Laboratories of Canada (ULC)

.4 Ministry of Health (MOH)

.5 Ontario Building Code (OBC)

.6 Ontario Fire Code (OFC)

.7 Boards, Services, Companies or other Authorities having jurisdiction

.8 Technical Standards and Safety Authority (TSSA)

.2 Project Manager

.1 The Contractor shall assign an experienced and competent project manager who shall be responsible for this project from beginning to completion. This person shall act as the Owner's and Engineer’s contact to the Contractor, and shall not be changed without significant reason and prior notification and agreement of the Owner.

.3 Site Supervisor

.1 The Contractor shall assign an experienced and competent Gold Seal certified full-time Site Supervisor who shall be responsible for this project from beginning to completion. This person shall not be changed without significant reason and prior notification and agreement of the Owner.

.4 Inspection of the Work

.1 The Owner or Consultant shall be entitled to inspect the work at any time. Prior to completion of the Work, the Contractor shall request that the Consultant inspect the Work.

.5 Labour

.1 The work shall be performed by persons experienced and skilled in the work. The Contractor shall provide effective supervision of the work, and shall employ local labour where practicable. The hours of work, wages paid, terms of employment, and working conditions shall conform to labour agreements and all applicable legislation and guidelines issued from time to time by the Ontario Ministry of Labour and governing authorities.

.2 The Contractor may assign or subcontract any part of the Contract. However, all subcontractors and their contribution shall be clearly identified as part of the bid submission. After award of the Contract, the

Contractor shall neither assign nor sub-contract any part of the Contract without the prior written consent of the Engineer. Every subcontract entered into by the Contractor shall adopt all of the terms and conditions of the Contract.

.3 The Contractor shall be responsible to the Owner for the acts and omissions of its subcontractors and suppliers, and of persons directly or indirectly employed by them. Nothing contained in the Contract shall create any contractual relationship between any sub-contractor or supplier and the Owner.

.6 Hours of Work

.1 Include in Scope of Work all hours of work, including overtime and holidays, as required to facilitate timelines and constraints identified in Section 01 05 00 Construction Sequencing and 01 32 18 Construction Schedule

.7 Materials Supplied

.1 The Contractor shall supply only new materials and components for the Work. Used, re-manufactured, or rebuilt components shall not be used except as expressly permitted herein.

.2 Products shall be provided with complete documentation. Undocumented products must be tagged and accepted by the Consultant prior to installation. Do not install undocumented products without such acceptance.

.3 All products and materials shall be new, clean, and free of defects, damage and corrosion.

.4 Ship and store products and materials in a manner that will protect them from damage, weather, and entry of debris. Do not install damaged items, but take immediate steps to obtain replacement or repair.

.8 Changes in the Work

.1 Change orders shall be issued and fees adjusted only where the Owner makes a significant change in the project scope as outlined herein. Extras shall not be granted due to the Contractor's unfamiliarity with the site, or due to the Contractor's lack of thorough investigation prior to bid submission. Any additions to the Work under this contract shall conform to all construction standards and conditions laid out herein, whether or not such conditions are expressly stated in the Owner’s acceptance of the addition(s).

.2 The Contractor shall not proceed with Work in addition to the Contract Documents until the formal change process has been completed.

.9 Delays

.1 Should the performance of the work be delayed due to an act or omission of the Contractor or any of his sub-contractors, the Owner will have the right to hold back, set off or recover from the Contractor, and the Contractor shall be liable to the Owner for, any and all damages that the Owner incurs as a consequence of such delay. In particular, the

Contractor shall be liable for any utility costs (water, electricity and natural gas), temporary facilities, cancellation or relocation of programmed events paid by the Owner due to the project not being completed on schedule.

1.13 HEALTH AND SAFETY REQUIREMENTS

.1 File Notice of Project with Provincial authorities prior to beginning of Work.

.2 Perform site specific safety hazard assessment related to project.

.3 Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.

.4 Consultant may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.

.5 Responsibility

.1 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.

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

.6 Comply with Ontario Health and Safety Act, R.S.O.

.7 Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of Province.

.8 Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations for Work.

1.14 Review of Existing Conditions

.1 Contractor to provide Utility Locate drawings and radar scanning of existing slab drawing prior to commencement of Work. Consultant to provide base drawing CAD file and contractor to markup locations in CAD

.2 Review existing conditions prior to shop drawing submittal, fabrication and installation of Work.

.3 Mark out locations of all partitions and major trade items for Consultant coordination and review prior to construction. Review by all parties to determine and resolve interferences will occur at this time.

.4 Review and coordinate sub-contractors Work.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 APPROVED ALTERNATES AND APPROVED EQUALS

.1 Named Products alternates or equals, indicated by the phrases "or approved alternate by XYZ Manufacturing" or "or approved equal by XYZ Manufacturing", shall be interpreted to mean that named Product alternate or equal, if selected for use in lieu of indicated or specified Product, meets or exceeds performance, appearance, general arrangement, dimensions, availability, code and standards compliance, and colour of specified Product.

.2 Be responsible for costs and modifications associated with the inclusion of named Product alternate or equal at no additional cost to the Owner.

.3 The process for proposing and approving alternates or equals, including alternate design solutions, shall be the same process as for proposing and approving substitutions (refer to paragraph 1.2 below).

.4 Confirm delivery of specified items prior to proposing alternates or equals.

1.2 RELATED REQUIREMENTS

.1 01 25 17 - Substitution Request Form Log

1.3 SUBSTITUTIONS

.1 Submission of substitutions:

.1 Proposals for substitutions of Products and materials must be submitted in accordance with procedures specified in this section during time of tender.

.2 Consultant may review submissions, if directed by Owner, but in any case with the understanding that the Contract Time will not be altered due to the time required by the Consultant to review the submission and by the Contractor to implement the substitution in the Work.

.3 Alternates will only be considered if the specified item is proven in writing to not be available. All other requests for alternates will not be considered. The difference in value will be credited to the Contract Value. Consultant time to review substitution requests will be charged to the Contractor on a per diem basis.

.2 Submission requirements:

.1 Description of proposed substitution, including detailed comparative specification of proposed substitution with the specified Product.

.2 Manufacturer’s Product data sheets for proposed Products.

.3 Respective costs of items originally specified and the proposed substitution.

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.4 Confirmation of proposed substitution delivery, in writing by Product manufacturer.

.5 Compliance with the building codes and requirements of authorities having jurisdiction.

.6 Affect concerning compatibility and interface with adjacent building materials and components.

.7 Compliance with the intent of the Contract Documents.

.8 Effect on Contract Time.

.9 Reasons for the request.

.3 Substitutions submitted on shop drawings without following requirements of this section prior to submission of the affected shop drawings will cause the shop drawings to be rejected.

.4 Proposed substitutions shall include costs associated with modifications necessary to other adjacent and connecting portions of the Work.

.5 **Consultant's decision concerning acceptance or rejection of proposed substitutions is final.** Should it appear to the Consultant that the value of services required to evaluate the substitution exceeds the potential reduction, the Consultant will advise the Owner that the substitution does not merit consideration before proceeding with a full evaluation. If the substitution will produce a reduction commensurate with or exceeding the value of the Consultant's services to evaluate the substitution, the Consultant will request the Owner's direction to proceed with evaluation.

Part 2 Products - Not used

Part 3 Execution – Not Used

END OF SECTION

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Consultants' Action:

Consultant's Name: _____

Consultant's Signature: _____ Date: _____

☐ Accepted ☐ Rejected ☐ More information required. Comments: _____

_____

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_____

Consultant's Name: _____

Consultant's Signature: _____ Date: _____

☐ Accepted ☐ Rejected ☐ More information required. Comments: _____

_____

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_____

Consultant's Name: _____

Consultant's Signature: _____ Date: _____

☐ Accepted ☐ Rejected ☐ More information required. Comments: _____

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Consultant's Name: _____

Consultant's Signature: _____ Date: _____

☐ Accepted ☐ Rejected ☐ More information required. Comments: _____

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Consultant's Name: _____

Consultant's Signature: _____ Date: _____

☐ Accepted ☐ Rejected ☐ More information required. Comments: _____

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_____

Consultant's Name: _____

Consultant's Signature: _____ Date: _____

☐ Accepted ☐ Rejected ☐ More information required. Comments: _____

_____

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END OF DOCUMENT 01 25 17.

Part 1 General

1.1 GENERAL

.1 *Contractor* is to provide photographic documentation in digital format and in accordance with procedures and submission requirements specified in this section.

1.2 DIGITAL PHOTOGRAPHS

.1 Equipment: Provide photographs using minimum 4 megapixel digital camera.

.2 Submit the required photographs to the *Consultant* and to the *Owner.*

.3 Output: Supply date stamped maximum resolution colour photos to Consultant in JPEG format, via email.

.4 Number of photos required:

.1 Prior to construction: Provide necessary number of photographs, as required to document existing conditions.

.2 Weekly: Provide 8 photographs to document the stage of the Work from points selected by the *Consultant* showing as much as possible of the Work installed.

.3 Completion: When the Work is completed, arrange to take final photographs of the Work from a minimum of 8 points of view.

Part 2 Products - NOT USED

Part 3 Execution - NOT USED

END OF SECTION

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1.1 ADMINISTRATIVE

.1 Submit to the *Consultant* all submittals listed for review. Submit with reasonable promptness and in an orderly sequence so as not to cause any delay in the Work. Failure to submit in ample time will not be considered sufficient reason for an extension of the Contract Time, and no claim for extension by reason of such default will be allowed.

.2 Submit only those submittals specifically required by the *Contract Documents,* or those specifically requested by the *Contract Administrator*. Any submittals submitted that are not specifically required by the *Contract Documents*, or requested by the *Contract Administrator*, will be returned to the *Contracto*r at the *Contractor's* expense without being reviewed.

.3 Work affected by a submittal shall not proceed until the review of that submittal is complete.

.4 *Contractor's* review of submittals:

.1 The *Contractor* is to review submittals prior to submission to the *Contract Administrator*. This review represents that the necessary requirements have been determined and verified, or will be, and that each submittal has been checked and coordinated with the requirements of the *Work* and all of the *Contract Documents*.

.2 Submittals shall bear stamp of *Contractor* and signature of a responsible official in *Contractor's* organization indicating in writing that such submittals have been checked and coordinated by *Contractor*. *Contractor's* review shall be performed by qualified personnel who have detailed understanding of those elements being reviewed and of the conditions at the Working Area.

.3 Check and sign each submittal and make notations considered necessary before submitting to *Contract Administrator* for review. Where submittal is substantially and obviously in conflict with requirements of *Contract Documents*, reject submittal without submitting to *Contract Administrator* and request resubmission.

.4 *Contractor* shall assume sole responsibility for any conflicts occurring in the *Work* that result from lack of comparison and coordination of submittals required for the *Work.*

.5 Notify *Contract Administrator* in writing of changes made on submittals from *Contract Documents*. *Contract Administrator's* review of submittals shall not relieve *Contractor* of responsibility for changes made from *Contract Documents* not covered by written notification to *Contract Administrator*.

.6 Submittals that clearly have not been reviewed by the *Contractor*, or are not stamped, signed, dated, and identified as to the specific project, will be returned without being reviewed.

.5 *Consultant's* review of submittals:

.1 Review of submittals by *Contract Administrator* is for the sole purpose of ascertaining conformance with the general design concepts and the general intent of the *Contract Documents*. This review shall not mean that *Contract Administrator* approves the detail design inherent in the submittals, responsibility for which shall remain with the *Contractor*. Such review shall not relieve the *Contractor* of responsibility for errors or omissions in the submittals, or responsibility for meeting requirements of *Contract Documents*.

.2 *Contractor* shall be responsible for dimensions to be confirmed and correlated at the *Working Area* for information that pertains solely to techniques of demolition, and for coordination of the *Work*.

.3 *Contract Administrator's* review and markings on submittals do not authorize changes in the *Work* or the *Contract Time,* and will be accommodated at no additional cost to the Owner. If, in the opinion of the *Contractor*, the *Contract Administrator's* markings on submittals constitute a change in the *Work* or will effect a change in the Contract Time, then the *Contractor* shall so notify the *Contract Administrator* in writing and request an interpretation following the procedures for requests for interpretation. If the *Contract Administrator* finds that the *Contract Administrator's* markings on submittals do constitute a change in the Work or will effect a change in the *Contract Time*, then a *Change Order* will be prepared therefore. The time taken to process such a request for interpretation shall not, in and of itself, constitute a change in the *Work* nor increase the *Contract Time*.

.4 Submittals received but not required by the *Contract Documents* or requested by the *Contract Administrator* will not be reviewed by the *Contract Administrator* and will be marked 'NOT REVIEWED' by the *Contract Administrator* and returned to the *Contractor*.

.6 Prepare submittals using imperial units.

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

.8 The *Contractor's* responsibility for errors and omissions in the submissions is not relieved by the *Contract Administrator's* review of submittals.

.9 The *Contractor's* responsibility for deviations in the submission from the requirements of the *Contract Documents* is not relieved by the *Contract Administrator's* review of submittals.

.10 Keep one hard copy reviewed copy of each submittal on-site.

□

.11 Engineered submittals:

.1 Submittals for items required to be engineered shall be prepared under the direct control and supervision of a qualified professional engineer registered in the *Working Area*, and having minimum of $250,000 professional liability insurance, who shall also apply his/her professional seal and signature to submittals prepared under their direct control and supervision.

.2 Include with engineered submittal, professional engineer's certificate of insurance.

.3 Design includes life safety, sizing of supports, anchors, framing, connections, spans, and as additionally required to meet or exceed requirements of applicable codes, standards, regulations, and authorities having jurisdiction.

1.2 CERTIFICATES AND SCHEDULES

.1 Prior to commencement of the *Work*, the *Contractor* is required to provide to the *Owner* a copy of the *Contractor's* current Certificate of Clearance from the Workplace Safety and Insurance Board.

.2 No later than ten (10) *Working Days* prior to, and as a condition of, the first application for progress payment, the *Contractor* is required to submit the following to the *Contract Administrator*:

.1 A copy of the *Contractor's* Certificate of Clearance from the Workplace Safety and Insurance Board provided to the *Owner* in accordance with paragraph 1.4.1

.2 A schedule of values for the parts of the *Work*.

.3 A construction progress schedule in accordance with paragraph 1.4 of this section (below).

.4 All construction to be complete and all contractors off site by August 15, 2025

1.3 SCHEDULE OF SUBMITTALS

.1 Before commencement of the Work, submit to the *Contract Administrator* a detailed schedule of submittals required by the *Contract Documents* correlated to the construction progress schedule specified under paragraph 1.6 of this section.

.2 Indicate dates for submitting, review time, resubmission time, float time, and last date for meeting construction schedule.

.3 *Contract Administrator* will review submittal schedule and advise *Contractor* if volume and timing of submittals will permit timely review and response. Contract Administrator may require modifications to submittals schedule in order to allow

adequate time for review of submittals. Adjust submittals schedule and construction schedule as required to comply with *Contract Administrator's* needs.

.4 Make provisions in schedule for at least 10 *Working Days* for *Contract Administrator's* review of submittals. When submittals have to be reviewed by one or more of *Contract Administrator's* sub consultants, add 5 more *Working Days* for a total 15 *Working Day* review period.

.5 If the *Contract Administrator* requires resubmission of submittals, allow for an additional *10 Working Days* review for each resubmission.

.6 If, at any time, the *Contractor* submits a large enough number of submittals such that the *Contract Administrator* cannot process these submittals within 10 *Working Days,* the *Contract Administrator*, in consultation with the *Contractor* within 3 *Working Days* of receipt of such submittal, will provide the *Contractor* with an estimate of the time necessary for processing same. The *Contractor* shall accommodate such necessary time at no increase in the *Contract Time* and at no additional cost to the *Owner*.

.7 The *Contractor* shall periodically resubmit the submittal schedule to correspond to changes in the demolition schedule. Such resubmissions shall maintain the minimum 10 *Working Day* period for the *Contract Administrator's* review.

1.4 CONSTRUCTION PROGRESS SCHEDULE

.1 Submit a construction progress schedule in MS Schedule.

.2 Prepare schedule in the form of a horizontal bar chart.

.3 Provide a separate bar for each trade or operation.

.4 Provide a horizontal time scale identifying the first work day of each week.

.5 The format for the listings shall be the chronological order of the start of each item of work.

.6 The identification of the listings shall be by a brief systems description.

.7 Submission:

.1 Submit initial schedules within ten (10) *Working Days* after award of *Contract*, but before commencing the *Work*.

.2 Submit two electronic formats to the *Contract Administrator*, one in MS Schedule the other PDF formats

.3 The *Contract Administrator* will review the submitted schedules and return a reviewed copy to the *Contractor* within ten (10) *Working Days* after receipt.

□

.4 The *Contractor* shall resubmit a finalized copy of the required schedules within five (5) Working Days after return of reviewed copy.

.5 The *Contractor* shall submit a revised progress schedule with each application for progress payment in two formats. One in MS Schedule the other as a PDF.

.8 Distribute copies of the revised schedule to:

.1 The site office.

.2 Subcontractors.

.3 All concerned parties.

.9 Instruct Subcontractors, suppliers, and manufacturers, to report to the *Contractor* in writing within ten (10) days, any problems anticipated by the timetable shown in the schedule. The *Contractor* shall convey this information to the *Contract Administrator* if necessary.

10. Milestones:

The following milestones must be incorporated into the schedule

.1 Project Award

.2 Site Mobilization

.3 Submittals (individually, with full timeline)

.4 Construction broken down by trade, product, subcategory.

.5 *Substantial Performance of the Work*.

.6 Total Performance of the Work.

Part 2 Products - NOT USED

Part 3 Execution - NOT USED

END OF SECTION

□

Part 1 General

1.1 SECTION INCLUDES

.1 Inspection and testing, administrative and enforcement requirements.

.2 Tests and mix designs.

.3 Mock-ups.

.4 Mill tests.

.5 Equipment and system adjust and balance.

1.2 PRECEDENCE

.1 For Federal Government projects, Division 1 Sections take precedence over technical specification sections in other Divisions of this Project Manual.

1.3 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 78 00 - Closeout Submittals.

1.4 REFERENCES

.1 Canadian Construction Documents Committee (CCDC)

.1 CCDC 2-[94], Stipulated Price Contract.

1.5 INSPECTION

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

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

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

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

□

1.6 INDEPENDENT INSPECTION AGENCIES

.1 Independent Inspection/Testing Agencies will be engaged by Consultant for purpose of inspecting and/or testing portions of Work.

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

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

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

1.7 ACCESS TO WORK

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

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

1.8 PROCEDURES

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

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

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

1.9 REJECTED WORK

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

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

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

□

1.10 REPORTS

.1 Submit 4 copies of inspection and test reports to Consultant.

.2 Provide copies to Subcontractor of work being inspected or tested and/or manufacturer or fabricator of material being inspected or tested.

1.11 TESTS AND MIX DESIGNS

.1 Furnish test results and mix designs as may be requested.

.2 The cost of tests and mix designs beyond those called for in Contract Documents or beyond those required by law of Place of Work shall be appraised by Consultant and may be authorized as recoverable.

1.12 MOCK-UPS

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

.2 Construct in all locations acceptable to Consultant as specified in specific Section.

.3 Prepare mock-ups for Consultant's review with reasonable promptness and in an orderly sequence, so as not to cause any delay in Work.

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

.5 If requested, Consultant will assist in preparing a schedule fixing dates for preparation.

.6 Remove mock-up at conclusion of Work or when acceptable to Consultant.

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

.8 Specification section identifies whether mock-up may remain as part of Work or if it is to be removed and when.

1.13 MILL TESTS

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

1.14 EQUIPMENT AND SYSTEMS

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

□

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

□

Part 1 General

1.1 GENERAL INSTRUCTIONS

.1 Read and be governed by conditions of the *Contract* and sections of Division 1.

1.2 INSTALLATION AND REMOVAL

.1 Provide temporary supports, utilities, facilities and controls in order to execute the Work expeditiously.

.3 Arrange, obtain and pay cost for permits required for temporary facilities and controls.

.4 Remove from the Working Area all such work after use.

1.3 COORDINATION

.1 Coordinate all Temporary Work facilities and tie-ins, if required, with Owner in order to execute the Work expeditiously.

1.4 SANITARY FACILITIES

.1 Provide sufficient sanitary facilities for workers in accordance with local health authorities.

.2 Maintain in clean condition and properly screened from public view.

.3 The Owner may designate an existing building Sanitary facility for use during construction.

.1 The Contractor is NOT to rely on this possibility when providing a cost during the Tender period.

.2 Where the Owner's Sanitary Facility is used, the Contractor is responsible for all daily cleanup and disposal during the course of construction.

.3 Maintain Owner's sanitary facility in hygienic, clean condition satisfactory to the Building User.

1.5 WATER SUPPLY

.1 Provide a continuous supply of potable water for use in the Work.

.2 Potable water available at the *Work* should be tested for quantity (pressure) and quality prior to any use. If inadequate for the work, arrange for connection with the appropriate utility company and pay costs for installation, maintenance, and removal.

□

1.6 TEMPORARY SUPPORTS, TEMPORARY ENGINEERED STRUCTURES, ELEVATED MOBILE WORK PLATFORMS AND SCAFFOLDING

.1 Supply and install and pay for temporary support, shoring, structures, utilities as required to complete the *Work*, including any and all permit fees.

.2 Design, erection, operation, removal and maintenance of Temporary Supports to be solely borne by the Contractor. Engage and pay for registered professional engineer[s] to perform such functions and to provide inspection reports for the duration of Work activities.

.3 All scaffolding installation must be installed in conformance with the Ontario Building Code and O.Reg 213/91 (Construction Projects)

1.7 TEMPORARY HEATING AND VENTILATION

.1 Supply and install and pay for temporary heating, cooling and ventilating required for the Work during the *Work*, including attendance, maintenance and fuel.

.2 Supply and install temporary heat and ventilation as required to:

.1 Facilitate continuous uninterrupted progress of the Work.

.2 Provide adequate ventilation to meet health regulations for safe working environment, particularly with respect to periods of hazardous material removal.

.3 Construction heaters used inside buildings must be vented to the outside or be flameless type. Solid fuel salamanders are not permitted.

.4 Maintain temperatures of minimum 10· C in areas where the Work is in progress, unless indicated otherwise in the specification sections.

.5 Ventilate heated areas and keep building free of exhaust or combustion gases.

.6 No Extras will be allotted for heating and ventilation during any season or inclement weather during construction period.

1.8 TEMPORARY POWER AND LIGHT

.1 Arrange for temporary power required during construction for the proper execution of the Work and the safe and proper operating of power tools.

.2 Abide by the rules of the Canadian Electrical Code.

.3 Maintain in good working order throughout the course of the Work.

1.9 TEMPORARY TELEPHONE AND COMUNICATIONS

.1 The *Contractor* shall pay all service and local use charges for Contractor's telephone, email and long distance charges including installation and removal on completion of the Work.

□

1.10 HOISTING

.1 Supply and install, operate and maintain any hoists/cranes required for moving of workers, materials and equipment.

.2 Hoists/cranes are to be operated by a qualified operator only. Proof of operator's qualification shall be provided upon request.

.3 All costs associated with hoisting to be solely borne by the Contractor.

1.11 SITE STORAGE AND OVER LOADING

.1 Confine the *Work* and the operations of workers to limits indicated by the *Contract Documents.* Do not unreasonably encumber the premises with products or construction machinery and equipment.

.2 Do not load or permit to be loaded any part of the *Work* with a weight or force that will endanger the Work.

.3 Coordinate with Owner for storage and loading locations.

1.12 EQUIPMENT, TOOL, AND MATERIAL STORAGE

.1 Supply and install and maintain, in clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.

.2 Locate materials not required to be stored in weatherproof sheds at the *Working Area* in a manner to cause the least interference with the Work.

.3 No tools or equipment are to be left unattended outside the construction zone during course of Work.

1.13 CONSTRUCTION SIGN

.1 No other signs, other than for safety, caution, or instruction, will be permitted.

.1 Provide full color tabloid size directional signage with laminate cover indicating access to exits and pedestrian walking routes based on Owner's templates. Provide as many times as necessary during the course of work where directional signage is damaged, missing.

.1 Location of directional signage to be approved by Building Owner prior to installation.

.2 Install additional signage related to Health and Safety as instructed by the Owner at no extra cost to the Contract.

1.14 OWNER SIGN

.1 Supply and install 2no. Owner's Signage and nominal 100 mm x 100 mm wood posts and framing, to fix the sign to the framing.

□

.1 Owner Sign to be maximum size of 1200 mm x 2400 mm.

.2 Owner Sign contents must be approved by Owner prior to fabrication and installation.

1.15 HOARDING

.1 Supply and install hoarding and barricades as and where required by authorities having jurisdiction or required to protect the public, workers, and public and private property from injury or damage.

.2 Include for the provision of overhead protection and temporary exits and exit signs as may be required during the course of the *Work.*

.3 Include for the provision of 2 temporary gates and/or doors to provide restricted access to the *Working Area* as required.

.4 Hoarding to be min. 8’-0” high with counterweights and supports for long runs.

.5 Install hi-contrast anti-trip feet supports “bigfoot” sloped supports or similar

.1 Spray paint, loose construction material, or loose sand bags are not approved ‘anti-trip’ support mechanisms

.6 Install full height shade screen

.7 Advertisements or similar such signage are not permitted on hoarding.

.8 Hoarding must be providing at all openings after window demolition is complete and to ensure no exterior weather conditions enter the interior of the facility.

1.16 DUST TIGHT SCREENS

.1 Supply and install dust tight screens or partitions to localize dust generating activities, and for protection of workers and the public.

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

1.17 OWNER’S EXISTING FURNISHINGS, FIXTURES AND EQUIPMENT (“FFE”)

.1 Work will occur in an occupied facility.

.2 Protect Owner’s existing FFE during the course of work.

.3 Assist in relocation of existing FFE in areas of work at no extra cost to the Contract,

.4 Co-operate and coordinate schedule of installation with Building Owner’s use of facility and FFE relocation.

□

1.18 SNOW REMOVAL

.1 Allow no accumulation of ice and snow within the *Working Area*. There shall be no use of salt for de-icing in areas of building work.

.2 Remove snow from access routes to the Work to maintain uninterrupted progress of the Work.

1.19 LANDSCAPE MAINTENCE

.1 Grass growth must be maintained at all times in area of work.

.2 Weeds must be removed on an ongoing basis in area of work.

1.20 TRAFFIC CONTROL AND ROAD MAINTENANCE

.1 Do not block roads or impede traffic. Keep construction traffic to designated roads only. Provide flag person to direct traffic as required.

.2 Clean roads regularly, public or private. Wash down and scrape flush roads at least daily when earth moving operations take place. Maintain public property in accordance with requirements of authorities having jurisdiction.

.3 Flag person must be present during escorting of any contractor vehicles on site.

.4 Emergency vehicular access must be maintained at all times. Refer to Work Restrictions and Drawings for minimum clear dimensions.

1.21 SECURITY

.1 The *Contractor* shall be solely responsible for securing the *Working Area* and the *Work*, and for securing areas used for the storage of products or construction machinery and equipment. The *Owner* shall have no responsibility in this regard.

.2 Supply and install and maintain security lighting.

.3 Supply and install and maintain temporary locks. Premises to be locked after working hours.

.4 Provide double lock or similar device acceptable to Owner to ensure Owner Operations and Security may enter premise at all hours. Coordinate with Operations and Security and facilitate entry/exit of Owner's own forces during course of Work.

.1 Contractor must be present during periods in which Owner Representatives or Security enters site.

1.22 FIRE PROTECTION AND FIREWATCH

.1 Provide and maintain temporary fire protection equipment during performance of Work required by governing codes, regulations and bylaws.

□

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

.3 Provide fire watch services during course of work for all hours as required to complete Work.

1.23 DEWATERING

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

1.24 DESIGN AND SAFETY REQUIREMENTS FOR TEMPORARY FACILITIES

.1 Be responsible for design, erection, operation, maintenance and removal of temporary structural and other temporary facilities. Engage and pay for registered professional engineering personnel skilled in the appropriate disciplines to perform these functions to produce safe and satisfactory results.

.2 Engage and pay for professional engineer(s) registered in *Working Area* to design and supervise construction and maintenance of scaffolding, hoardings, covered ways, protective canopies and project sign(s). Designs provided by *Contract Administrator* or *Owner* for such work cover general appearance only.

.3 Submit drawings of hoarding, scaffolding and mobile elevated work platform construction and extent for Owner and Consultant review.

.1 Drawing to be 11x17 diagrams showing all areas of hoarding.

.2 Drawings to be coordinated with Construction Sequence Schedule by identifying time lines of hoarding areas and install/knock-down schedule.

.3 Resubmit Submittals as required to the satisfaction of the Owner and Contractor Administrator. Delays and or extras will not be entertained as a result of an incomplete and unsatisfactory response.

.4 Noise Protection

.1 Provide noise protection, vibration dampers and/or false walls as required during Construction to minimize construction noise and activity from Plant Operations.

.2 Complaints or concerns arising from lack of Noise Protection are to be rectified immediately at no extra cost to the Contract.

.5 Daily record keeping:

.1 Hoarding must be monitored daily.

.2 Provide log record book identifying morning, afternoon and end review of hoarding and scaffolding construction confirming trip hazards, unsafe sections have been reviewed and rectified. Daily log must identify personnel reviewing hoarding and include sign-off that all Health and Safety measures have been undertaken.

.3 Submit weekly compiled logs the beginning of every week to Owner for review and records.

□

.6 Adjustments to hoarding

.1 Where required by Authorities with Jurisdiction or Owner Requirements, adjust hoarding to suit and at any time to ensure public safety or facility operations are not disrupted.

Part 2 Products - NOT USED

Part 3 Execution - NOT USED

END OF SECTION

□

Part 1 General

1.1 SCOPE OF WORK

.1 This Section shall apply for openings required in existing construction.

.2 Include for all cutting and patching for all mechanical services for holes and openings with dimensions up to 200mm (8 in.) in size and related patching.

Part 2 Products

2.1 MATERIALS

.1 All products and materials required for Work under this and related sections shall be of a quality and type consistent and compatible with existing building materials affected by the cutting and patching activities.

.2 All services and materials used for the cutting and patching shall be carried out by professional workers experienced in the cutting and patching work to be done.

Part 3 Execution

3.1 INSTALLATION

.1 Locate all openings in non-structural elements requiring cutting and patching in cooperation with Division 23 and 26 requiring the openings.

.2 Cut all openings no larger than is required for the services.

.3 Locate all openings in structure elements requiring cutting and patching and scan the structure prior to cutting or core drilling of existing structure. Make adjustments to location of openings as required to minimize cutting of rebar and completely avoid electrical conduit.

.1 Cut holes through slabs only.

.2 Do not cut holes through beams.

.3 Holes to be cut are 200mm (8 in.) diameter or smaller only.

.4 Maintain at least 100mm (4 in.) clear from all beam faces. Space at least 3-hole diameters on Centre.

.5 For holes that are required closer than 25% of slab span from the supporting beam face, use cover meter above the slab to clear slab top bars.

.6 For holes that are required within 50% of slab span, use cover meter underside of slab to clear slab bottom bars.

□

.4 Perform coring, drilling, and any other loud Work carrying the potential to impact building operations at a time acceptable to the Owner.

.5 Patch all openings after services have been installed to match the surrounding finishes.

END OF SECTION

□

Part 1 General

1.1 SECTION INCLUDES

.1 Text, schedules and procedures for systematic Waste Management Program for construction, and rehabilitation projects, including:

.1 Diversion of Materials.
.2 Waste Reduction Workplan (WRW)
.3 Materials Source Separation Program (MSSP).
.4 Governmental Responsibility for the Environment Resources

1.2 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

1.3 DEFINITIONS

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

.2 Recyclable: Ability of product or material to be recovered at end of its life cycle and re-manufactured into new product for reuse by others.

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

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

.5 Reuse: Repeated use of product in same form but not necessarily for same purpose. Reuse includes:

.1 Salvaging reusable materials from re-modelling projects, before demolition stage, for resale, reuse on current project or for storage for use on future projects.
.2 Returning reusable items including pallets or unused products to vendors.

.6 Separate Condition: Refers to waste sorted into individual types.

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

□

.8 Waste Management Coordinator (WMC) : Contractor representative responsible for supervising waste management activities as well as coordinating related, required submittal and reporting requirements.

.9 Waste Reduction Workplan (WRW): Written report which addresses opportunities for reduction, reuse, or recycling of materials. WRW is based on information acquired from WA.

1.4 DOCUMENTS

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

.1 Waste Reduction Workplan.

.2 Material Source Separation Plan.

1.5 SUBMITTALS

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

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

.1 Submit 2 copies of completed Waste Reduction Workplan (WRW): Schedule B.

.2 Submit 2 copies of Materials Source Separation Program (MSSP) description.

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

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

.2 Provide receipts, scale tickets, waybills, and show quantities and types of materials reused, recycled, co-mingled and separated off-site or disposed of.

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

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

1.6 QUALITY ASSURANCE - SITE VISIT

.1 Pre-tender site visit:

.1 Walk-through of project site prior to completion of tender submittal is mandatory.

.2 Date, time and location to be arranged by City.

□

1.7 WASTE REDUCTION WORKPLAN (WRW)

.1 Prepare WRW prior to project start-up.

.2 WRW should include but not limited to:

- .1 Destination of materials listed.
- .2 Deconstruction/disassembly techniques and sequencing.
- .3 Schedule for deconstruction/disassembly.
- .4 Location.
- .5 Security.
- .6 Protection.
- .7 Clear labelling of storage areas.
- .8 Details on materials handling and removal procedures.
- .9 Quantities for materials to be salvaged for reuse or recycled and materials sent to landfill.

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

.4 Describe management of waste.

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

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

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

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

1.8 MATERIALS SOURCE SEPARATION PROGRAM (MSSP)

.1 Prepare MSSP and have ready for use prior to project start-up.

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

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

.4 Provide containers to deposit reusable and recyclable materials.

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

□

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

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

.1 Transport to approved and authorized recycling facility.

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

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

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

1.9 STORAGE, HANDLING AND PROTECTION

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

.2 Unless specified otherwise, materials for removal do not become Contractor's property.

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

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

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

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

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

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

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

.1 On-site source separation is recommended.

.2 Remove co-mingled materials to off-site processing facility for separation.

.3 Provide waybills for separated materials.

1.10 DISPOSAL OF WASTES

.1 Do not bury rubbish or waste materials.

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

.3 Keep records of construction waste including:

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

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

1.11 USE OF SITE AND FACILITIES

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

.2 Maintain security measures established by existing facility.

1.12 SCHEDULING

.1 Coordinate Work with other activities at site to ensure timely and orderly progress of Work.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 APPLICATION

.1 Do Work in compliance with WRW.

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

3.2 CLEANING

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

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.2 Clean-up work area as work progresses.

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

3.3 DIVERSION OF MATERIALS

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

.1 Mark containers or stockpile areas.

.2 Provide instruction on disposal practices.

.2 Construction Waste

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

3.4 WASTE AUDIT (WA)

.1 Schedule - Waste Audit (WA)

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

3.5 WASTE REDUCTION WORKPLAN (WRW)

.1 Schedule

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(1) Material Category	(2) Person(s) Respon-sible	(3) Total Quantity of Waste (unit)	(4) Reused Amount (units) Projected	Actual	(5) Recycled Amount (unit) Projected	Actual	(6) Material (s) Destina-tion
Wood and Plastics Material Descrip.							
Warped Pallet Forms							
Plastic Packaging							
Card-board Packaging							
Other							
Other							

3.6 GOVERNMENTAL DEPARTMENTS CHIEF RESPONSIBILITY FOR THE ENVIRONMENT

.1 Schedule - Government Chief Responsibility for the Environment

Province	Address	General Inquires	Fax
Ontario	Ministry of Environment and Energy, 135 St. Clair Avenue West, Toronto, ON M4V 1P5	(416) 323-4321 (800) 565-4923	(416) 323-4682
	Environment Canada Toronto, ON	(416) 734-4494	

END OF SECTION

□

Part 1 General

1.1 FINAL CLEANING

.1 Environmental controls:

.1 Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.

.2 Store volatile wastes in covered metal containers, and remove from Working Area daily.

.3 Prevent accumulation of wastes which create hazardous conditions.

.4 Provide adequate ventilation during use of volatile or noxious substances.

.2 Materials:

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

.3 Final cleaning:

.1 Immediately prior to *Contract Administrator's* review to determine if *Substantial Performance of the Work* has been achieved, remove surplus products and construction machinery and equipment not required for the performance of the remaining *Work*.

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

.3 When the *Contract* is completed, remove surplus products, tools, construction machinery and equipment.

.4 Broom clean and wash exterior walks, steps and surfaces.

.5 Remove dirt and other disfigurations from exterior surfaces.

.6 Sweep and wash clean paved areas at the *Working Area*.

1.2 SUBSTANTIAL PERFORMANCE AND TAKEOVER PROCEDURES

.1 The *Contractor* shall conduct an inspection of the *Work* to identify deficiencies and defects, which shall be repaired as required. When the *Contractor* considers that the Work is substantially performed, the Contractor shall prepare and submit to the *Contract Administrator* a comprehensive list of items to be completed or corrected and apply for a review by the *Contract Administrator* to establish *Substantial Performance*. Failure to include an item on the list does not alter the responsibility of the *Contractor* to complete the *Contract*.

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.2 No later than ten (10) *Working Days* after the receipt of the *Contractor's* application, the *Contract Administrator* and the *Contractor* will review the Work to identify any defect or deficiencies. If necessary, the *Contract Administrator* will tabulate a list of deficiencies to be issued to the *Contractor* for correction of same.

.3 When the *Contract Administrator* considers that the deficiencies and defects have been completed and that it appears that the requirements of the *Contract Documents* (as may have been amended during the Work) have been substantially performed, the *Contract Administrator* shall issue a certificate of *Substantial Performance* to the *Contractor*, stating the date of *Substantial Performance*.

.4 Immediately following the issuance of the certificate of *Substantial Performance*, the Contractor, in conjunction with the *Contract Administrator*, will establish a reasonable date for finishing the Work.

.5 The *Warranty Period* shall commence from the date of *Substantial Performance*.

Part 2 Close Out Submittals

2.1 SUBMITTALS

.1 Prepare instructions and data using personnel experienced in maintenance and operation of described products.

.2 Copy will be returned with Consultant's comments.

.3 Revise content of documents as required prior to final submittal.

.4 Two weeks prior to *Substantial Performance of the Work*, submit to the *Consultant* three final copies of operating and maintenance manuals.

.5 Ensure spare parts, maintenance materials and special tools provided are new, undamaged or defective, and of same quality and manufacture as products provided in Work.

.6 If requested, furnish evidence as to type, source and quality of products provided.

.7 Defective products will be rejected, regardless of previous inspections. Replace products at own expense.

2.2 FORMAT

.1 Organize data in the form of an instructional manual.

.2 Binders: vinyl, hard covered, 3 'D' ring, loose leaf [219 x 279] mm with spine and face pockets.

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.3 When multiple binders are used, correlate data into related consistent groupings. Identify contents of each binder on spine.

.4 Cover: Identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.

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

.6 Text: Manufacturer's printed data, or typewritten data.

.7 Drawings: provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

.8 Provide [1:1] scaled CAD files in dwg format by USB.

2.3 RECORDING ACTUAL SITE CONDITIONS

.1 Construction Set: Record information on set of black line opaque drawings and in copy of Project Manual, provided by *Owner*.

.1 Provide felt tip marking pens, maintaining separate colours for each major system, for recording information.

.2 Record information concurrently with construction progress. Do not conceal Work until required information is recorded.

.3 Prior to substantial completion request, obtain AUTOCAD contract drawing from Contract Administrator/Consultant and update all construction update/changes.

.2 Shop drawings: legibly mark each item to record actual construction.

2.4 WARRANTIES

.1 Separate each warranty with index tab sheets keyed to Table of Contents listing.

.2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

.3 Obtain warranties executed in duplicate by subcontractors, suppliers, and manufacturers, within ten (10) days after completion of the applicable item of work.

Part 3 Products - NOT USED

Part 4 Execution - NOT USED

END OF SECTION

□

Part 1 General

1.1 REFERENCES

.1 Canadian Standards Association (CSA International)

.1 CSA S350-M1980 (R1998), Code of Practice for Safety in Demolition of Structures.

1.2 SITE CONDITIONS

.1 Review "Report on Asbestos Building Materials Survey" and Section 00 03 00 Information available and take precautions to protect environment.

.2 Should material resembling spray or trowel-applied asbestos or other designated substance listed as hazardous be encountered, stop work, take preventative measures, and notify Consultant immediately.

.1 Do not proceed until written instructions have been received from Consultant.

.3 Notify Consultant and Owner before disrupting access or services.

.4 The Contractor is to remove all existing furnishings and wall accessories/decorations as required to facilitate construction activities. Items shown for demolition or removal on drawings may not reflect all necessary items to remove. It is the responsibility of the Contractor to familiarize themselves with the existing conditions on site prior to bidding to ensure all items are accounted for to facilitate construction activities.

.5 The Contractor is to remove and reinstate to match all existing conditions as required to facilitate the work as shown on mechanical, electrical and structural drawings.

Part 2 Products

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 PREPARATION

.1 Inspect general work area with Consultant and verify extent and location of items designated for removal, disposal, alternative disposal, recycling, salvage and items to remain.

.2 Locate and protect services. Preserve active services traversing classroom(s) in operating condition.

.3 Provide temporary, sound insulated, dust protection walls at classroom doors, within the work area and demising walls between Construction Activities and Building Occupants during construction. Turn off mechanical systems and cover all vents in construction zone.

.4 Disconnect, cap, plug or divert, as required, existing public utilities within the property where they interfere with the execution of the work, in conformity with the requirements of the authorities having jurisdiction. Mark the location of these and previously capped or plugged services on the site and indicate location (horizontal and vertical) on the record drawings. Support, shore up and maintain pipes and conduits encountered.

.1 Immediately notify Consultant in case of damage to any service designated to remain in place.

3.2 PROTECTION

.1 Keep noise, dust, and inconvenience to occupants to minimum.

.2 Protect building systems, services and equipment.

.3 Provide temporary dust screens, covers, railings, supports and other protection as required.

.4 Provide temporary shoring system where structural work is affected.

.5 Do Work in accordance with Health and Safety Requirements.

3.3 SALVAGE

.1 Refer to demolition drawings and specifications for items to be salvaged for reuse.

.2 Work to be clearly identified and confirmed by Consultant prior to commencement.

.3 Remove items to be reused, store as directed by Owner, and re-install under appropriate section of specification.

3.4 REMOVE AND REINSTATE/RELOCATE

.1 Carefully remove indicated items and associated components and reinstall in working condition upon completion of construction activities.

.2 Remove and reinstate – items required to be removed to facilitate the Work.

.3 Remove and relocate – items required to be relocated as a result of new Construction.

.4 Items damaged during construction are to be replaced at no extra cost to the Contract.

3.5 SITE REMOVALS

.1 Remove items as indicated. Equipment to be disposed of by Owner unless clearly noted otherwise.

3.6 DEMOLITION

.1 Remove parts of existing building to permit new construction. Sort materials into appropriate piles for recycling.

.2 Millwork and trim required to be partially demolished should be dismantled by skilled mill worker with knowledge of proposed components being added under this contract.

.3 Trim edges of partially demolished millwork and building elements to tolerances to suit future use.

.4 Work incidental to mechanical or electrical Work including but not limited roof penetrations, wall penetrations, concrete coring, drilling or trenching is to be included as part of the contract price. Work may not be shown on drawings but is to be included to ensure code compliance and health and safety of all users are maintained.

3.7 DISPOSAL

.1 Dispose of removed materials, to appropriate recycling facilities except where specified otherwise, in accordance with authority having jurisdiction.

3.8 ITEMIZED PHOTOS

.1 Refer to Section 02 41 99A Demolition Photo Reference

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 07 92 10 - Joint Sealing: Caulking of joints between frames and other building components.

.3 Section 08 71 10 - Door Hardware - General: Supply of finish hardware.

.4 Section 09 91 23 - Painting.

1.2 REFERENCES

.1 Canadian Standards Association (CSA International)

.1 G40.20/G40.21-[98], General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.

.2 Canadian Steel Door Manufacturers' Association, (CSDMA).

.1 CSDMA, Specifications for Commercial Steel Doors and Frames, [1990].

.2 CSDMA, Recommended Selection and Usage Guide for Commercial Steel Doors, [1990].

.3 CSDMA Dimensional Standards for Commercial Steel Doors and Frames.

.3 National Association of Architectural Metal Manufacturers - Hollow Metal Manufacturers Association (NAAMM-HMMA)

.1 NAAMM-HMMA 840 Installation Guide for Commercial Steel Doors and Frames

1.3 TESTING AND PERFORMANCE

.1 Product quality shall meet standards set by the Canadian Steel Door Manufacturers Association.

1.4 SHOP DRAWINGS

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

.2 Indicate each type of door, material, steel core thicknesses, mortises, reinforcements, location of exposed fasteners, openings, arrangement of hardware and finishes.

.3 Indicate each type frame material, core thickness, reinforcements, glazing stops, location of anchors and exposed fastenings and reinforcing finishes.

.4 Include schedule identifying each unit, with door marks and numbers relating to numbering on drawings and door schedule.

□

.5 Submit test and engineering data, and installation instructions.

1.5 WARRANTY

.1 All steel door and frame products shall be warranted from defects in workmanship for a period of one (1) year from date of shipment.

Part 2 Products

2.1 DOOR MATERIALS

.1 Steel: Doors shall be fabricated from tension leveled steel to ASTM A924-97 (M-97), galvanized to ASTM A653-97 (M-97), Commercial Steel (CS), Type B, coating designation A40 (ZF120), known commercially as paintable Galvanneal.

.2 Adhesives: Heat resistant, single component, polyurethane reactive (water) hot melt, thermoset adhesive UL/ULC/WH approved or equivalent.

.3 Interlocking Edge Seams: Resin reinforced polychloroprene (RRPC), fire resistant, high viscosity, sealant/adhesive or UL approved or equivalent.

.4 Primer: Rust inhibitive touch-up only. Touch-up prime CAN/CGSB-1.181.

.5 Glazing: refer to Section 08 80 00

2.2 DOOR CONSTRUCTION

.1 General: All steel doors shall be as manufactured by Fleming

.1 Doors shall be swinging, 1.75" (44.4mm) thick (1.875"/47.6 for H12-Series), of the types and sizes indicated on the Architect's schedules or drawings.

.2 Door faces of all steel doors shall be fabricated without visible seams, free of scale, pitting, coil brakes, buckles and waves.

.3 Formed edges shall be true and straight with a minimum radius for the thickness of steel used.

.4 Lock and hinge edges shall be beveled 1/8" in 2" unless builders' hardware or door swing dictates otherwise.

.5 Top and bottom of doors shall be provided with inverted, recessed, 16 gage steel end channels, welded to each face sheet at 6" (150mm) on center maximum. Add closure top and bottom of same material and gage to eliminate recess and provide smooth finish.

.2 Interior doors shall be Fleming *D* Series.

.1 Face sheets of interior doors shall be fabricated from *16* gage steel.

.2 Stiffened, insulated and sound deadened with *honeycomb* core laminated under pressure to each face sheet.

□

.3 Longitudinal edges of interior doors shall be mechanically interlocked, adhesive assisted with edge seams t*ack welded, filled and sanded flush with no visible seam.*

.4 Glazing: refer to Section 08 80 00

.3 Exterior doors shall be Fleming H Series.

.1 Face sheets of interior doors shall be fabricated from *16* gage steel.

.2 Stiffened, insulated and sound deadened with *honeycomb* core laminated under pressure to each face sheet.

.3 Longitudinal edges of doors shall be mechanically interlocked, adhesive assisted with edge seams t*ack welded, filled and sanded flush with no visible seam.*

.4 Batt insulated interior.

.4 Hardware Preparations:

.5 Doors shall be factory blanked, reinforced, drilled and tapped for fully templated mortised hardware only, in accordance with the final approved schedule and templates provided by the hardware supplier.

.6 Templated holes .5" (12.7mm) diameter and larger shall be factory prepared, except mounting and through bolt holes, which shall be by the contractor responsible for installation on site, at the time of application. Templated holes less than .5" (12.7mm) diameter shall be factory prepared only when required for the function of the device (for knobs, levers, cylinders, thumb or turn pieces) or when these holes over-lap function holes.

.7 Drilling and tapping for surface mounted hardware or mortised hardware that is not fully templated shall be by the contractor responsible for installation on site, at the time of application.

.8 Hinge and pivot reinforcements shall be 10 gage steel minimum high frequency type reinforcing.

.9 Lock, strike and flush bolt reinforcements shall be 16 gage steel minimum.

.10 Reinforcements for concealed closers and holders shall be 12 gage steel minimum.

.11 For surface mounted hardware, reinforcements shall be 16 gage steel minimum.

.4 Finishing:

.1 Remove weld slag and splatter from exposed surfaces.

.2 All tool marks, abrasions and surface blemishes shall be filled and sanded to present smooth uniform surfaces.

.3 On exposed surfaces where zinc coating has been removed during fabrication, doors shall receive a factory applied touch-up primer.

.4 Primer shall be fully cured prior to shipment.

2.3 FRAME MATERIALS

□

.1 Steel: Frame product shall be fabricated from tension leveled steel to ASTM A924 -97 (M-97), galvanized to ASTM A653-97 (M-97), Commercial Steel (CS), Type B, coating designation A40 (ZF120), known commercially as paintable Galvanneal.

.2 Primer: Rust inhibitive touch-up only

.3 Miscellaneous:

.1 Door Silencers: GJ-64 or equal, Single Stud rubber/neoprene type

.2 Thermal Breaks: Rigid polyvinylchloride (PVC) extrusion

.3 Fiberglass: Loose batt type, density: 1.5 pcf (24kg/m^3)(minimum), conforming to ASTM C665

2.4 FRAME CONSTRUCTION

.1 General:

.1 All steel frame product shall be as manufactured by Fleming of the types, sizes and profiles indicated on the Architects' schedules or details.

.2 Jambs and heads, shall be straight and uniform throughout their lengths.

.3 Factory assembled frame product shall be square, free of defects, warps or buckles.

.4 Corner joints shall be accurately mitered and tightly fitted with integral door stops mitered or butted when assembled.

.5 Frame product shall be fabricated with integral door stops having a minimum height of .625" (16mm).

.6 Where required due to site access, as indicated on the Architects' schedules or details, when advised by the contractor responsible for co-ordination or installation, or when shipping limitations so dictate, frame product shall be fabricated in sections for splicing in the field.

.7 Field spliced jambs, heads and sills shall be provided with 16 gage steel splice plates securely welded into one section, extending 4" (100mm) minimum each side of splice joint.

.8 Field splice joints shall be welded, filled and ground to present a smooth uniform surface by the contractor responsible for installation after assembly.

.9 On factory assembled frame product, each door opening shall be provided with two (2) temporary steel jamb spreaders welded to the base of the jambs or mullions to maintain proper alignment during shipping and handling. Spreaders shall be removed by the contractor responsible for installation prior to anchoring of frame to floor.

.2 Hardware Preparations:

.1 Frame product shall be blanked, reinforced, drilled and tapped for fully templated mortised hardware only, in accordance with the final approved schedule and templates provided by the hardware supplier.

.2 Drilling and tapping for surface mounted hardware or mortised hardware that is not fully templated shall be by the contractor responsible for installation on site, at the time of application.

.3 Frames shall be prepared for 4.5" (114.3mm) standard weight hinges (minimum).

.4 Hinge and pivot reinforcements shall be 10 gage steel minimum reinforcing, high frequency type shall be provided (except on R-Series frames).

.5 Reinforcements for surface mounted hardware, concealed closers and holders and flush bolts shall be 12 gage steel minimum.

.6 Mortised cutouts shall be protected with 22 gage steel minimum guard boxes.

.3 Anchorage:

.1 Frame product shall be provided with anchorage appropriate to floor, wall and frame construction.

.2 Each wall anchor shall be located immediately above or below each hinge reinforcement on the hinge jamb and directly opposite on the strike jamb, except as indicated below.

.3 After sufficient tightening of the anchor bolt, the head shall be welded so as to provide a non-removable application. Welded bolt and dimple shall be filled and ground to present a smooth uniform surface by the contractor responsible for installation, prior to finish painting.

.4 Channel extensions shall be provided from the top of the frame assembly to the underside of the structure above. Extensions shall be fabricated from 12 gage steel formed channels, mounting angles and adjusting brackets, with mounting angles welded to the inside of frame head. Formed channels, adjusting brackets and fasteners shall be shipped loose. Channels shall be mechanically connected to mounting angles and adjusting brackets with supplied fasteners, on site, by contractor responsible for installation.

.4 Finishing:

.1 Remove weld slag and spatter from exposed surfaces.

.2 All tool marks, abrasions and surface blemishes shall be filled and sanded to present smooth and uniform surfaces.

.3 On exposed surfaces where zinc has been removed during fabrication, frame product shall receive a factory applied touch-up primer.

.4 Primer shall be fully cured prior to shipment

2.5 PAINT

.1 Field paint steel doors and frames in accordance with Sections 09 91 23 - Painting. Provide final finish shall be free of scratches or other blemishes.

□

2.6 ACCESSORIES

.1 Door silencers: single stud rubber/neoprene type.

.2 Metallic paste filler: to manufacturer's standard.

.3 Sealants: silicone to CAN/CGSB-19.13 suitable for applications as recommended by manufacturers recommendations and requirements colour to be from manufacturer's full colour range to be submitted to Consultant for selection.

.4 Batt insulation: For exterior door and screen frames and/or to provide acoustical attenuation.

Part 3 Execution

3.1 INSTALLATION

.1 Set frame product plumb, square, aligned, without twist at correct elevation in accordance with NAAMM-HMMA 840.

.2 Frame Product Installation Tolerances:

.1 Plumbness tolerance, measured through a line from the intersecting corner of vertical members and the head to the floor, shall be ± .063".

.2 Squareness tolerance, measured through a line 90° from one jamb at the upper corner of the product, to the opposite jamb, shall be ± .063".

.3 Alignment tolerance, measured on jambs, through a horizontal line parallel to the plane of the wall, shall be ± .063".

.4 Twist tolerance, measured at face corners of jambs, on parallel lines perpendicular to the plane of the wall, shall be ± .063".

.3 Brace frame product rigidly in position while building-in. Remove temporary steel shipping jamb spreaders. Install wood spreaders at mid-point of frame rabbet height to maintain frame widths.

.4 Secure anchorages and connections to adjacent construction.

.5 Adjust operable parts for correct clearances and function.

.6 Steel surfaces shall be kept free of grout, tar or other bonding materials or sealers.

.7 Exposed field welds shall be finished to present a smooth uniform surface and shall be touched-up with a rust inhibitive primer.

.8 Exposed surfaces that have been scratched or otherwise marred during shipment, installation or handling shall be touched-up with a rust inhibitive primer.

.9 Finish paint in accordance with Section 09 91 23 – Painting.

□

.10 Install door silencers.

3.2 FINISH REPAIRS

.1 Touch up with primer finishes damaged during installation.

.2 Fill exposed frame anchors and surfaces with imperfections with metallic paste filler and sand to a uniform smooth finish.

END OF SECTION

□

Part 1 General

1.1 RELATED SECTIONS

.1 Section 08 11 14 Metal Doors And Frames.

1.2 SUBMITTALS

.1 The *Contractor* is to submit manufacturer's product data referenced to hardware schedule in accordance with Section 01 33 00 Submittals.

1.3 CLOSEOUT SUBMITTALS

.1 Submit operation and maintenance data for incorporation into the Operation and Maintenance Manuals in accordance with Section 01770 Project Closeout. Include keying charts, data, and direction.

.2 Brief Owner with regards to the proper care, cleaning and general maintenance of the *Products* of this section.

Part 2 Execution

2.1 INSTALLATION

.1 Install hardware in accordance with the Canadian Steel Door and Frame Manufacturers Association, and the manufacturer's recommendations.

.2 Prepare doors for levers/cylinders. Door hardware supplied and installed by owner:

.1 D001 and D002

.1 Door closer 4040XP

.2 Prepare doors with 2-3/4" setback to receive a cylindrical lever set Sargent 10G05

.3 Carry-out final check of all door hardware prior to completion of the *Work*. Verify all hardware is in perfect operating condition.

.1 Keying for systems are to be carried out by Owner's locksmith. All cylinders to be supplied and installed by Owner's locksmith

.

SUPPLY AND INSTALL OF DOOR HARDWARE BY OWNER'S DOOR HARDWARE CONTRACTOR. CONTRACTOR TO SUPPLY DOOR WITH HINGES ONLY

END OF SECTION

□

Part 1 General

1.1 SUMMARY

.1 Laminated acoustic glass.

.2 Privacy film roll

1.2 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures

.2 Section 01 74 19 - Construction/Demolition Waste Management And Disposal

.3 Section 01 45 00 - Quality Control

.4 Section 01 78 00 - Closeout Submittals

.5 Section 08 11 14 – Metal Doors And Fames.

1.3 REFERENCES

.1 American National Standards Institute (ANSI)

.1 ANSI/ASTM E330-[02], Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.

.2 American Society for Testing and Materials International, (ASTM)

.1 ASTM D790-[02], Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.

.2 ASTM D1003-[00], Test Method for Haze and Luminous Transmittance of Plastics.

.3 ASTM D1929-[96(R2001)e1], Test Method for Determining Ignition Temperature of Plastics.

.4 ASTM D2240-[02b], Test Method for Rubber Property - Durometer Hardness.

.5 ASTM E84-[01], Test Method for Surface Burning Characteristics of Building Materials.

.6 ASTM F1233-[98], Test Method for Security Glazing Materials and Systems.

.3 Canadian General Standards Board (CGSB).

.1 CAN/CGSB-12.1-[M90], Tempered or Laminated Safety Glass.

.2 CAN/CGSB-12.2-[M91], Flat, Clear Sheet Glass.

.3 CAN/CGSB-12.3-[M91], Flat, Clear Float Glass.

.4 CAN/CGSB-12.4-[M91], Heat Absorbing Glass.

.5 CAN/CGSB-12.5-[M86], Mirrors, Silvered.

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.6 CAN/CGSB-12.6-[M91], Transparent (One-Way) Mirrors.
.7 CAN/CGSB-12.8-[97], Insulating Glass Units.
.8 CAN/CGSB-12.9-[M91], Spandrel Glass.
.9 CAN/CGSB-12.10-[M76], Glass, Light and Heat Reflecting.
.10 CAN/CGSB-12.11-[M90], Wired Safety Glass.
.11 CAN/CGSB-12.12-[M90], Plastic Safety Glazing.

.4 Canadian Standards Association (CSA International).

.1 CSA A440.2-[98], Energy Performance Evaluation of Windows and Sliding Glass Doors.
.2 CSA Certification Program for Windows and Doors [2000].

.5 Environmental Choice Program (ECP).

.1 CCD-045-[95], Sealants and Caulking.

.6 Flat Glass Manufacturers Association (FGMA).

.1 FGMA Glazing Manual - [1997].

.7 Laminators Safety Glass Association (LSGA).

.1 LSGA Laminated Glass Design Guide [2000].

1.4 SUBMITTALS

.1 Product Data:

.1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.
.2 Submit two copies of WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 33 00 - Submittal Procedures. Indicate VOC's:
.1 For glazing materials during application and curing.

.2 Shop Drawings:

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

.3 Manufacturer's Instructions:

.1 Submit manufacturer's installation instructions.

.4 Closeout Submittals:

.1 Provide maintenance data including cleaning instructions for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

1.5 QUALITY ASSURANCE

.1 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.

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.2 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.6 SITE CONDITIONS

.1 Environmental Requirements:

.1 Install glazing when ambient temperature is 10 degrees C minimum. Maintain ventilated environment for 24 hours after application.

.2 Maintain minimum ambient temperature before, during and 24hours after installation of glazing compounds.

1.7 WASTE MANAGEMENT AND DISPOSAL

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

.2 Divert metal cut-offs from landfill by disposal into on-site Metal recycling bin.

.3 Divert uninstalled materials for reuse at nearest used building materials facility or similar type facility.

.4 Divert unused caulking and sealant materials from landfill through disposal at special wastes depot.

.5 Unused or damaged glazing materials are not recyclable and must not be diverted to municipal recycling programs.

.6 Remove form site and dispose of packaging materials at appropriate recycling facilities.

.7 Dispose of corrugated cardboard, polystyrene, plastic packaging material in appropriate on-site bin for recycling in accordance with site waste management program.

1.8 WARRANTY

.1 Submit manufacturer’s standard two (2) year warranty.

1.9 ALTERNATES

.1 Alternate submissions to include:

.1 Submit evidence that alternate materials meet or exceed performance characteristics as set out in this specification.

.2 Submit references clearly indicating that the Manufacturer has successfully completed projects on an annual basis of similar scope and nature for a minimum of five years.

.3 Submit manufacturers' complete set of standard details and evidence that Warranty requirements meet or exceed performance guidelines as set out in the specifications.

.4 Submit a list of 5 projects executed over the past twelve months and any related case studies.

.2 Substitution Acceptance: Acceptance will be in written form, either as an addendum or modification, and documented by a formal Change Order signed by Owner and Contractor.

Part 2 Products

2.1 MATERIALS

.1 GLS-1 or Acoustic Glass

.1 Basis of Design/Standard of Quality: Pilkington Optifloat Clear Toughened (Tempered) Glass

.2 Size: As indicated on window elevation drawings and door schedule.

.3 Thickness: 6mm

.4 Single glazed

.5 Clear

.2 Privacy Film Roll

.1 Basis of design: ULINE Privacy Film Roll - 60" x 25', Frosted White

.2 Provide accessories (film solution, application tool kit) for installation as required by manufacturer

2.2 ACCESSORIES

.1 Setting blocks: Neoprene 80-90 Shore A durometer hardness to ASTM D2240, to suit glazing method, glass light weight and area.

.2 Spacer shims: Neoprene 50-60 Shore A durometer hardness to ASTM D2240, 75 mm long x one half height of glazing stop x thickness to suit application. Self adhesive on one face.

.3 Glazing tape:

.1 Closed cell polyvinyl chloride foam, coiled on release paper over adhesive on two sides, maximum water absorption by volume 2%, designed for compression of 25%, to effect an air and vapour seal;13 mm size or sized to suit.

.4 Glazing splines: EPDM, extruded shape to suit glazing channel retaining slot, colour to be selected by consultant after award from full range of manufacturer's colors.

.5 Sealants: as recommended by manufacturer.

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.1 Sealant in contact with sealed unit edges to be compatible with unit edge sealants.

.2 Sealants to be compatible with glazing gaskets and glazing tapes.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

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

3.2 EXAMINATION

.1 Verify that openings for glazing are correctly sized and within tolerance.

.2 Verify that surfaces of glazing channels or recesses are clean, free of obstructions, and ready to receive glazing.

3.3 PREPARATION

.1 Clean contact surfaces with solvent and wipe dry.

.2 Seal porous glazing channels or recesses with substrate compatible primer or sealer.

.3 Prime surfaces scheduled to receive sealant.

3.4 INSTALLATION: INTERIOR - DRY METHOD (TAPE AND TAPE)

.1 Perform work in accordance with FGMA Glazing Manual, IGMAC and Laminators Safety Glass Association - Standards Manual for glazing installation methods.

.2 Cut glazing tape to length and set against permanent stops, projecting 1.6 mm above sight line.

.3 Place setting blocks at [1/4] [1/3] points, with edge block maximum 150 mm from corners.

.4 Rest glazing on setting blocks and push against tape for full contact at perimeter of light or unit.

.5 Place glazing tape on free perimeter of glazing in same manner described.

.6 Install removable stop without displacement of tape. Exert pressure on tape for full continuous contact.

.7 Knife trim protruding tape.

.8 Trim protruding tape edge.

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3.5 CLEANING

.1 Perform cleaning after installation to remove construction and accumulated environmental dirt.

.2 Remove traces of primer, caulking.

.3 Remove glazing materials from finish surfaces.

.4 Remove labels after work is complete.

.5 Clean glass using approved non-abrasive cleaner in accordance with manufacture's instructions.

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

3.6 INSTALLATION – PRIVACY FILM ROLL

.1 Install privacy film in accordance with manufacturer's instructions. Ensure smooth application cut to match glazing size.

3.7 PROTECTION OF FINISHED WORK

.1 After installation, mark light with an "X" by using removable plastic tape or paste. Do not mark heat absorbing or reflective glass units.

3.8 SCHEDULE

.1 Refer to drawings and interior elevations for locations and quantities.

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Part 1 General

1.1 RELATED SECTIONS

.1 Section 06 10 11 – Rough Carpentry

.2 Section 09 13 00 – Acoustical Suspensions

.3 Section 09 51 13 – Acoustic Panel Ceilings

1.2 REFERENCES

.1 American Society for Testing and Materials International, (ASTM).

.1 ASTM C645-[00], Specification for Nonstructural Steel Framing Members.

.2 ASTM C754-[00], Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.

1.3 DESIGN CRITERIA FOR CEILINGS AND BULKHEADS

.1 Select Furring Channel and Carrying Channel system and span lengths to support specified loads with maximum deflection of L/360.

.2 Ceiling hanger system including hangers, rods and connectors to structure to safely support weight of framing system, gypsum panels and indicated design loads.

.3 Secure drywall furring channel system directly to structural framing systems.

Part 2 Products

2.1 Materials

.1 Non-load bearing channel stud framing: to ASTM C645, 100 mm stud size or to depth as indicated on drawings, roll formed from 0.91 mm thickness hot dipped galvanized steel sheet, for screw attachment of gypsum board. Knock-out service holes at 460 mm centres.

.2 Floor and ceiling tracks: to ASTM C645, in widths to suit stud sizes, 32mm flange height.

.1 After fabrication apply one shop coat of CAN/CGSB-1.40 primer to steel surfaces. Descale and clean surfaces before painting.

.3 Metal channel stiffener: 1.4 mm thick cold rolled steel, coated with rust inhibitive coating.

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.4 Acoustical sealant: single-component, non-skinning, non-hardening synthetic butyl rubber sealant for use in reducing sound transmission in drywall partitions and for sealing wall penetrations. To CAN/CGSB 19.21 M87 specifications.

.5 Insulating strip: rubberized, moisture resistant 3 mm thick foam strip, 12 mm wide, with self sticking adhesive on one face, lengths as required.

.6 Hanger wire to be to the requirements of CAN/CSA S136-M89.

.7 Carrying channels to be to the requirements of CAN/CSA S136-M89.

.8 Drywall Furring Channels for screw attachment of gypsum board to be roll formed from 0.035” (0.89mm) thickness cold formed galvanized steel to the requirements of CAN/CSA S136-M89.

.9 Resilient channel roll formed from 0.018” (0.46mm) thick cold formed galvanized steel.

.10 Tie wire to be No. 16 IWG 0.065” (1.65mm) zinc coated annealed steel wire.

.11 Fasteners to secure metal framing together to be No. 8 x 9/16” Wafer Head Speed Tec Framing Screw.

Part 3 Execution

3.1 GENERAL INSTALLATION

.1 Provide necessary studs, framing and furring systems to provide proper support for gypsum board in accordance with good industry practice.

.2 Provide cooperation to other trades to accommodate window and door frames, mechanical and electrical items and any other work required to be incorporated into or coordinated with the partitions and ceiling systems.

3.2 ERECTION OF WALLS

.1 Align partition tracks at floor and ceiling and secure at 600mm on centre maximum.

.2 Install damp proof course under stud shoe tracks of partitions on slabs on grade.

.3 Place studs vertically at 400mm (16” O.C.) on centre and not more than 50 mm from abutting walls, and at each side of openings and corners. Position studs in tracks at floor and ceiling. Cross brace steel studs as required to provide rigid installation to manufacturer's instructions.

.4 Erect metal studding to tolerance of 1:1000.

.5 Attach studs to bottom and ceiling track using screws.

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.6 Co-ordinate simultaneous erection of studs with installation of service lines. When erecting studs ensure web openings are aligned.

.7 Co-ordinate erection of studs with installation of door/window frames and special supports or anchorage for work specified in other Sections.

.8 Provide two studs extending from floor to ceiling at each side of openings wider than stud centres specified. Secure studs together,50 mm apart using column clips or other approved means of fastening placed alongside frame anchor clips.

.9 Install heavy gauge single jamb studs at openings.

.10 Erect track at head of door/window openings and sills of sidelight/window openings to accommodate intermediate studs. Secure track to studs at each end, in accordance with manufacturer's instructions. Install intermediate studs above and below openings in same manner and spacing as wall studs.

.11 Frame openings and around built-in equipment, cabinets, access panels, on four sides. Extend framing into reveals. Check clearances with equipment suppliers.

.12 Provide 40mm stud or furring channel secured between studs for attachment of fixtures behind lavatory basins, toilet and bathroom accessories, and other fixtures including grab bars and towel rails, attached to steel stud partitions.

.13 Install steel studs or furring channel between studs for attaching electrical and other boxes.

.14 Extend partitions to ceiling height except where noted otherwise on drawings.

.15 Maintain clearance under beams and structural slabs to avoid transmission of structural loads to studs. Use double track slip joint.

.16 Install continuous insulating strips to isolate studs from uninsulated surfaces.

.17 Install two continuous beads of acoustical sealant under studs and tracks around perimeter of sound control partitions.

3.3 ERECTION OF CEILINGS AND BULKHEADS

.1 Arrange hangers for suspended ceilings to provide support independent of walls, columns, pipes, ducts and install plumb.

.2 Securely attach hangers to structure to ensure the development of the full hanger strength.

.3 Space hangers 48” (1200mm) max. on centre and not more than 6” (150mm) from boundary walls, interruptions of continuity, and changes in direction.

.4 Run Carrying Channels in opposite direction to structural framing members.

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.5 Space Carrying Channels at 48” (1200mm) centres maximum.

.6 When staggered splices are necessary, lap members at least 8” (200 mm) and wire each end with minimum of two (2) loops of tie wire.

.7 Install Furring Channels perpendicular to carrying channels 12” (300mm) on centre maximum and not more than 6” (150mm) from perimeter. Secure Furring Channels to carrying channel with two strands of tie wire.

.8 Finished work to be rigid, secure, square, level, plumb and erected to maintain dimensions and contours.

3.4 CLEANING

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

END OF SECTION

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Part 1 General

1.1 RELATED SECTIONS

.1 Section 06 10 11 Rough Carpentry

.2 Section 09 22 16 Non Structural Metal Framing

.3 Section 09 91 00 Painting

Part 2 Products

2.1 MATERIALS

.1 GWB or Drywall: abuse resistant boards to CAN/CSA-A82.27, and as follows:

.1 Type and size: 5/8” x 48” x 96” ends square cut, edges square. To ASTM C1396/C1396M Type X.

.2 Type and size: 1/2” x 48” x 96” ends square cut, edges square. To ASTM C1396/C1396M regular.

.2 Where GWB or Drywall is subject to high humidity or swimming pool locations, type to be:

.1 Cement Board or “Green” Board units, min. ½” x 48” x 96”.

.3 In shower areas, Cement board must be used ½” x 48” x 96”.

.4 Metal furring runners, hangers, tie wires, inserts, and anchors: to CSA-A82.30, galvanised.

.5 Nails, screws, and staples: to CAN/CSA-A82.31.

.6 Screws: 1-1/2”, self-drilling, self-tapping, case hardened wallboard screws with square, socketed, countersunk heads, or as recommended by board manufacturer.

.7 Stud adhesive: to CAN/CSA-A82.31.

.8 Laminating compound: as recommended by board manufacturer, asbestos free.

.9 Casing beads, corner beads: 0.0197” thickness commercial grade sheet steel with Z275 zinc finish to ASTM A653M, perforated flanges, one-piece length per location.

.10 Reinforcing tape: 2” wide, perforated joint tape, as recommended by board manufacturer.

.11 Joint filler: to CAN/CSA-A82.31, asbestos free, as recommended by board manufacturer.

.12 Polyethylene: to CAN/CGSB-51.34, Type 2.

.13 Waterproofing membrane for shower compartments: Type 2 in accordance with Section 07130 Sheet Waterproofing.

.14 Sealant: Type 4 in accordance with Section 07 90 00 Joint Protection.

.15 Closed Celled Foam Sound Deadening: Closed cell spray foam by Hilti, 3M or LePage

Part 3 Execution

3.1 WORKMANSHIP

.1 Do work in accordance with CAN/CSA-A83.31 supplemented as specified herein.

.2 Support light fixtures by *Providing* ceiling suspension hangers within 6” of each corner and, at maximum, 24” around perimeter of fixture.

.3 Install work level to a tolerance of 1:1200

.4 The perimeter of openings for access panels, light fixtures, diffusers, grilles, and the like, shall be framed with furring channels.

.5 Ceiling furring channels must be spaced a maximum of 16” on centre.

.6 Furr above suspended ceilings for gypsum board fire and sound stops and to form plenum areas as indicated.

.7 Furr openings and around built-in equipment, cabinets, access panels, and the like, on four sides. Extend furring into reveals. Check clearances with equipment suppliers.

.8 Furr duct shafts, beams, columns, pipes, and exposed services where indicated.

3.2 APPLICATION

.1 Do not apply gypsum board until buck, anchors, blocking, mechanical and electrical work have been reviewed and approved.

.2 Apply ½” diameter bead of acoustic sealant continuously around periphery of each face of partitioning to seal gypsum board/structure junction where partitions abut fixed building components. Seal full perimeter of cut-outs around electrical boxes, ducts, and the like, in partitions where perimeter sealed with acoustical sealant.

3.3 JOINT TREATMENT

.1 Filling shall be done manually or by mechanical taping and filling machine. Mix joint filler and taping cement according to manufacturer’s instructions.

.2 At bevelled joints, apply thin coat of joint filler on each side of joint and embed reinforcing tape. Cover edge of embedded tape with tri-coat of joint filler. After bedding coat is dry, apply a second coat. Apply a third coat of topping cement feathered at least 6" each side of joint and blended into adjoining surface.

.3 At corners, apply filler over metal corner bead flush with nose of bead, and extend 3" onto surface of the bead each side of corner. Apply thin second coat after first is dry.

3.4 INSTALLATION

.1 Erect accessories straight, plumb, level, rigid, and at proper plane, according to manufacturer's instructions. Use full length pieces where practical. Make joints tight, accurately aligned, and rigidly secure. Mitre and fit corners accurately, free from rough edges. Secure 8" on centre using screws driven with a power screw driver and left with countersunk head slightly below board surface.

.2 Install casing beads around perimeter of suspended ceilings.

.3 Install casing beads where gypsum board butts surfaces giving no trim concealing junction and where indicated.

.4 Install shadow mould at gypsum board/ceiling juncture ad indicated. Minimise joints: use corner pieces and splicers.

.5 *Provide* continuous polyethylene dust barrier behind and across joints.

.6 *Provide* expansion joints at building expansion and construction joints. Provide continuous polyethylene dust barrier. *Provide* expansion joints straight and true.

.7 Splice corners and intersections together and secure to each member with three (3) screws.

.8 Fill screw head depressions with joint and taping compounds to bring flush with adjacent surface of gypsum board so as to be invisible after surface finish is completed.

.9 Sand lightly to remove burred edges and other imperfections. Avoid sanding adjacent surface of board.

.10 Completed installation to be smooth, level, plumb, free from waves and other defects, and ready for paint or acoustic panel finish, as indicated or scheduled.

.11 Apply one (1) coat of white primer sealer over surfaces to be textured. When dry, apply textured finish in accordance with manufacturer's instructions.

.12 Access Panels:

.1 Coordinate with mechanical and electrical contractor for exact locations of access panels to be installed.

.2 Refer to drawings for quantities.

END OF SECTION

Part 1 General

1.1 SUMMARY

.1 Section Includes:

.1 Mineral Fibre Acoustical ceiling panels

.2 Exposed grid Suspension System

1.2 SCOPE

.1 Interior finish repair as required to facilitate construction activities.

1.3 RELATED SECTIONS

.1 Mechanical and Electrical

1.4 ALTERNATES

.1 Prior Approval: Unless otherwise provided for in the Contract documents, proposed product substitutions may be submitted no later than TEN (10) working days prior to the date established for receipt of bids. Acceptability of a proposed substitution is contingent upon the Architect's review of the proposal for acceptability and approved products will be set forth by the Addenda. If included in a Bid are substitute products that have not been approved by Addenda, the specified products shall be provided without additional compensation.

.2 Submittals that do not provide adequate data for the product evaluation will not be considered. The proposed substitution must meet all requirements of this section, including but not necessarily limited to, the following: Single source materials suppliers (if specified in Section 1.5); Underwriters' Laboratories Classified Acoustical performance; Panel design, size, composition, color, and finish; Suspension system component profiles and sizes; Compliance with the referenced standards.

.3 Fibreglass based Ceiling systems or other “soft core substrate” ceiling systems are not an acceptable alternate.

1.5 REFERENCES

.1 American Society for Testing and Materials (ASTM):

.2 ASTM A 1008 Standard Specification for Steel, Sheet, Cold Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability

.3 ASTM A 641 Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire

.4 ASTM A 653 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process

.5 ASTM C 423 Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method

.6 ASTM C 635 Standard Specification for Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings

.7 ASTM C 636 Recommended Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels

.8 ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber

.9 ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials

.10 ASTM E 580 Installation of Metal Suspension Systems in Areas Requiring Moderate Seismic Restraint

.11 ASTM E 1111 Standard Test Method for Measuring the Interzone Attenuation of Ceilings Systems

.12 ASTM E 1414 Standard Test Method for Airborne Sound Attenuation between Rooms Sharing a Common Ceiling Plenum

.13 ASTM E 1264 Classification for Acoustical Ceiling Products

.14 International Building Code

.15 ASHRAE Standard 62.1-2004, Ventilation for Acceptable Indoor Air Quality

.16 NFPA 70 National Electrical Code

.17 ASCE 7 American Society of Civil Engineers, Minimum Design Loads for Buildings and Other Structures

.18 International Code Council-Evaluation Services - AC 156 Acceptance Criteria for Seismic Qualification Testing of Non-structural Components

.19 International Code Council-Evaluation Services Report - Seismic Engineer Report

.20 ESR 1308 - Armstrong Suspension Systems

.21 ICC-ES Evaluation Report ESR-1112.

.22 California Department of Public Health CDPH/EHLB Emission Standard Method Version 1.1 2010

.23 L.E.E.D. - Leadership in Energy and Environmental Design is a set of rating systems for the design, construction, operation, and maintenance of green buildings

1.6 SYSTEM DESCRIPTION

.1 Continuous/Wall-to-Wall

1.7 SUBMITTALS

.1 Product Data: Submit manufacturer's technical data for each type of acoustical ceiling unit and suspension system required.

.2 Samples: Minimum samples of specified acoustical panel and suspension system, including main runner and 4 foot cross tees.

.3 Shop Drawings: Layout and details of acoustical ceilings show locations of items that are to be coordinated with, or supported by the ceilings.

.4 Certifications: Manufacturer's certifications that products comply with specified requirements, including laboratory reports showing compliance with specified tests and standards. For acoustical performance, products must be tested to the E400 method.

.5 If the material supplied by the acoustical subcontractor does not have an Underwriter's Laboratory classification of acoustical performance on every carton, subcontractor shall be required to send material from every production run appearing on the job to an independent or NVLAP approved laboratory for testing, at the architect's or owner's discretion. All products not conforming to manufacturer's current published values must be removed, disposed of and replaced with complying product at the expense of the Contractor performing the work.

1.8 SUSTAINABLE MATERIALS

.1 Transparency: Manufacturers will be given preference when they provide documentation to support sustainable requirements for the following: Material ingredient transparency, Removal of Red List Ingredients per LBCV3, Life Cycle impact information, Low-Emitting Materials, and Clean Air performance.

.2 Health Product Declaration. The end use product has a published, complete Health Product Declaration with disclosure at a minimum of 1000ppm of known hazards in compliance with the Health Product Declaration open Standard.

.3 Declare Label. The end use product has a published Declare label by the International Living Future Institute with disclosure of 100 ppm with a designation of Red List Free or Compliant (less than 1% proprietary ingredients).

.4 Low Emitting products with VOC emissions data. Preference will also be given to manufacturers that can provide emissions data showing their products meet CDHP Standard Method v1.1 (Section 01350).

.5 Life cycle analysis. Products that have communicated lifecycle data through Environmental Product Declarations (EPDs) will be preferred.

.6 End of Life Programs/Recycling: Where applicable, manufacturers that provide the option for recycling of their products into new products at end-of-life through take-back programs will be preferred.

.7 Products meeting LEED V4 requirements including:

.1 Storage & Collection of Recyclables

.2 Construction and Demolition Waste Management Planning

.3 Building Life-Cycle Impact Reduction

.4 Building Product Disclosure and Optimization Environmental Product Declarations

.5 Building Product Disclosure and Optimization Sourcing of Raw Materials

.6 Building Product Disclosure and Optimization Material Ingredients

.7 Construction and Demolition Waste Management

1.9 QUALITY ASSURANCE

.1 Single-Source Responsibility: Provide acoustical panel units and grid components by a single manufacturer.

.2 Fire Performance Characteristics: Identify acoustical ceiling components with appropriate markings of applicable testing and inspecting organization.

.1 Surface Burning Characteristics: As follows, tested per ASTM E 84 and complying with ASTM E 1264 Classification.

.3 Acoustical panels, as with other architectural features located at the ceiling, may obstruct or skew the planned fire sprinkler water distribution pattern through possibly delay or accelerate the activation of the sprinkler or fire detection systems by channeling heat from a fire either toward or away from the device. Designers and installers are advised to consult a fire protection engineer, NFPA 13, or their local codes for guidance where automatic fire detection and suppression systems are present.

.4 Coordination of Work: Coordinate acoustical ceiling work with installers of related work including, but not limited to building insulation, gypsum board, light fixtures, mechanical systems, electrical systems, and sprinklers.

1.10 DELIVERY, STORAGE & HANDLING

.1 Deliver acoustical ceiling units to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination, and other causes.

.2 Provide labels indicating brand name, style, size and thickness.

.3 Before installing acoustical ceiling units, permit them to reach room temperature and a stabilized moisture content.

.4 Handle acoustical ceiling units carefully to avoid chipping edges or damaged units in any way.

1.11 PROJECT/SITE CONDITIONS

.1 Environmental Requirements:

.2 Do not install ceiling panels until building is closed in and HVAC system is operational.

.3 Locate materials onsite at least 24 hours before beginning installation to allow materials to reach temperature and moisture content equilibrium.

.4 Maintain the following conditions in areas where acoustical materials are to be installed 24 hours before, during and after installation:

.1 Relative Humidity: 65 - 75%.

.2 Uniform Temperature: 55 - 70 degrees F (13 - 21 degrees C).

1.12 COORDINATION

.1 Coordinate Work of this section with mechanical and electrical fixtures that will be installed in the ceiling system.

.2 The Ceiling system is an imperial sized suspension grid and panel.

1.13 WARRANTY

.1 Acoustical Panel: Submit a written warranty executed by the manufacturer, agreeing to repair or replace panels that fail within the warranty period. Failures include, but are not limited to the following:

.1 Acoustical Panels: Sagging and warping

.2 Grid System: Rusting and manufacturer's defects

.2 Acoustical panels and suspension systems one source manufacturer is Thirty (30) years from date of substantial completion.

.3 The Warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under the requirements of the Contract Documents.

1.14 MAINTENANCE

.1 Extra Materials: Deliver extra materials to Owner. Furnish extra materials described below that match products installed. Packaged with protective covering for storage and identified with appropriate labels.

.1 Acoustical Ceiling Units: Furnish quality of full-size units equal to 5.0 percent of amount installed.

.2 Exposed Suspension System Components: Furnish quantity of each exposed suspension component equal to 2.0 percent of amount installed.

Part 2 Products

2.1 MATERIALS

.1 Acoustical Ceiling Panels:

- .1 Basis of Design/Standard of Quality: Armstrong School Zone
- .2 Surface Texture: Fine Fissured
- .3 Composition: Mineral Fibre
- .4 Color: White
- .5 Size: 24 in x 48 in
- .6 Thickness: 15/16in
- .7 Edge Profile: Square Lay-In
- .8 Noise Reduction Coefficient(NRC): ASTM C 423 (E400); 0.70
- .9 Ceiling Attenuation Class (CAC): ASTM C 1414; 42
- .10 Flame Spread: ASTM E 1264; Class A
- .11 Light Reflectance (LR) White Panel: ASTM E 1477; 0.82
- .12 Dimensional Stability: HumiGuard Plus

.2 Suspension system:

- .1 Basis of Design/Standard of Quality: Armstrong Ultima Aluminum Suspension System
- .2 Size: 15/16”

Part 3 Execution

3.1 EXAMINATION

.1 Do not proceed with installation until all wet work such as concrete, plastering and painting has been completed and thoroughly dried out, unless expressly permitted by manufacturer's printed recommendations.

3.2 PREPARATION

.1 Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling. Avoid use of less than half width units at borders, and comply with reflected ceiling plans.

.2 Coordinate panel layout with mechanical and electrical fixtures.

.3 Coordination: Furnish layouts for preset inserts, clips, and other ceiling anchors whose installation is specified in other sections.

.1 Furnish concrete inserts and similar devices to other trades for installation well in advance of time needed for coordination of other work.

3.3 INSTALLATION

.1 Install all ceiling suspension and panels in strict accordance with manufacturer's written instructions.

.2 Coordinate work of this section with other division including but not limited to:

.1 Sprinkler head installation

.2 Electrical and Mechanical equipment, registeres, grilles, diffusers, lighting

3.4 ADJUSTING AND CLEANING

.1 Replace damaged and broken panels.

.2 Clean exposed surfaces of acoustical ceilings, including trim, edge moldings, and suspension members. Comply with manufacturer's instructions for cleaning and touch up of minor finish damage. Remove any ceiling products that cannot be successfully cleaned and or repaired. Replace with attic stock or new product to eliminate evidence of damage.

.3 Before disposing of ceilings, contact the Manufacturer's Recycling Center to review with a consultant the condition and location of building where the ceilings will be removed. The consultant will verify the condition of the material and that it meets the Manufacturer's requirements for recycling. The Manufacturer's consultant with provide assistance to facilitate the recycle of the ceiling.

3.5 PROTECTION

.1 Protect installed work from damage due to subsequent construction activity, including temperature and humidity limitations and dust control, so that the work will be without damage and deterioration at the time of acceptance by the Owner.

3.6 SURPLUS MATERIAL

.1 Provide one (1) sealed carton of acoustical panels for each pattern and type required for the project.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 06 10 00 – Rough Carpentry.

.2 Section 06 40 00 – Architectural Woodwork.

.3 Section 09 66 00 – Terrazzo Flooring.

1.2 REFERENCES

.1 Polyflor Flooring Technical Manuals

.2 ASTM International:

.1 ASTM E 662 Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials.

.2 ASTM F 710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.

.3 ASTM F 1066 Standard Specification for Vinyl Composition Tile.

.4 ASTM F 1482 Standard Guide to Wood Underlayment Products Available for Use Under Resilient Flooring.

.5 ASTM F 1861 Standard Specification for Resilient Wall Base.

.6 ASTM F 1869 Standard Test Method for Measuring Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.

.7 ASTM F 1913 Standard Specification for Sheet Vinyl Floor Covering without Backing.

.8 ASTM F 2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.

.3 National Fire Protection Association (NFPA):

.1 NFPA 258 Standard Test Method for Measuring the Smoke Generated by Solid Materials.

.4 Canadian Standards:

.1 CAN/ULC-S102.2 Surface Burning Characteristics of Flooring, Floor Covering and Miscellaneous Materials and Assemblies.

1.3 SUBMITTALS

.1 Product Data:

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

.2 Submit shop drawings, seaming plan, coving details, and manufacturer's technical data, installation and maintenance instructions for flooring and accessories.

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.3 Submit 12” x 12” sample only if submitting substitutions to each material listed under Section 2.1 Materials

.4 Submit Safety Data Sheets (SDS) available for adhesives, moisture mitigation systems, primers, patching/leveling compounds, floor finishes (polishes) and cleaning agents and Material Information Sheets for flooring products.

.2 Quality Assurance Submittal:

.1 Single-Source Responsibility: provide types of flooring and accessories supplied by one manufacturer, including moisture mitigation systems, primers, leveling and patching compounds, and adhesives.

.2 Manufacturer’s printed installation instructions, including product storage requirements.

.3 Supplier shall be an established firm experienced with the specified flooring.

.4 Select an installer who is experienced and competent in the installation of resilient sheet flooring / vinyl composition tile flooring and the use of manufacturer’s subfloor preparation products. Engage installers certified as manufacturer’s Commercial Flooring Certified Installers.

.3 Closeout Submittals:

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

.2 Submit the manufacturer’s instructions for cleaning and maintenance of installed flooring, including a list of recommended cleaning and maintenance products, for inclusion in the Operation and Maintenance Manuals.

.3 Submit the manufacturer’s limited and extended systems limited warranty documents.

1.4 DELIVERY, STORAGE AND HANDLING

.1 Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.

.2 Deliver materials in good condition to the jobsite in the manufacturer's original unopened containers that bear the name and brand of the manufacturer, project identification, and shipping and handling instructions.

.3 Store materials in a clean, dry, enclosed space off the ground, protected from harmful weather conditions and at temperature and humidity conditions recommended by the manufacturer. Protect adhesives from freezing. Store flooring, adhesives, and accessories in the spaces where they will be installed for at least 48 hours before beginning installation.

.4 Protect materials against damage in accordance with the manufacturer’s instructions.

□

1.5 PROJECT CONDITIONS

.1 Maintain a minimum temperature in the spaces to receive the flooring and accessories of 65º F (18º C) and a maximum temperature of 100º F (38º C) for at least 48 hours before, during, and for not less than 48 hours after installation. Thereafter, maintain a minimum temperature of 55º F (13º C) in areas where work is completed. Protect all materials from the direct flow of heat from hot-air registers, radiators, or other heating fixtures and appliances. Refer to product installation recommendations for a complete guide on project conditions.

.2 Close off areas to traffic during resilient flooring installation, and for a period of time after installation as recommended in writing by the manufacturer.

.3 Install resilient flooring materials and accessories after other finishing operations, including painting, have been completed.

.4 Where demountable partitions and other items are indicated for installation on top of sheet resilient flooring material, install flooring material before these items are to be installed.

1.6 MAINTENANCE

.1 Extra Materials: Deliver extra materials to Owner. Furnish extra materials from same production run as products installed. Packaged with protective covering for storage and identified with appropriate labels.

Part 2 Products

2.1 MATERIALS

.1 'LVT' Luxury Vinyl Tile:

.1 Description: A layered construction consisting of a tough, clear, rigid vinyl wear layer protecting a high-fidelity print layer on a solid vinyl backing. Protected by a diamond-infused UV-cured polyurethane finish, the wear surface is embossed with different textures to enhance each of the printed visuals. Colors are insoluble in water and resistant to cleaning agents and light.

.2 Reference specification - ASTM F 1700, "Standard Specification for Solid Vinyl Tile", Class III, Type B – Embossed Surface. Meets requirements for size, squareness, thickness, thickness of wear layer, residual indentation, resistance to chemicals, resistance to light and resistance to heat.

.3 Wear layer thickness: 0.55 mm

.4 Gauge: 2.5 mm

.5 Acceptable Manufacturer: Polyflor Flooring, Expona Commercial PUR.

.6 Substitutions:

.1 Type 1, Grade 1

.2 Slip resistance:

□

.1 Dry static coefficient of friction: To ASTM D2047: SCOF ≥0.5.

.3 Recyclable

.4 FloorScore certified.

.5 Sustainability: GWP limit 7.44 $kgCO_2$ eq. from A1-A3 LCA stages for 1m2, and overall GWP limit lower than the specified product.

.7 Pattern and Colour: as per drawing schedules.

.8 Plank Size: as per drawing schedules

.2 'RB' Resilient Base:

.1 To ASTM F1861 Type TP (thermoplastic rubber), Group 1 (solid/homogenous), Style B (cove), 1/8" thick x 4" high, manufactured in standard lengths minimum 8' long, complete with preformed inside and outside corners and end stops

.2 Installation: Recommended by respective manufacturer for use with specified flooring, stair treads, and base.

.3 Acceptable Materials: Johnsonite Resilient Vinyl, Armstrong or Consultant approved equivalent.

.4 Colours and quantities as identified on drawings

.3 Metal Edge Strips: Aluminum extruded, smooth, with lip to extend under floor finish, shoulder flush with top of adjacent floor finish.

.4 Adhesive: Recommended by respective manufacturer for use with specified flooring, stair treads, and base.

.5 Subfloor Filler: Recommended by respective flooring manufacturer for use with their product.

.6 Anti-slip tape: 6" x 24" abrasive pre-cut strips with sandpaper-like grit surface with adhesive back; u-line model no. s-9778 color black.

Part 3 Execution

3.1 EXAMINATION

.1 Do not begin installation until substrates have been properly prepared.

.2 If substrate preparation is the responsibility of another installer, notify Consultant of unsatisfactory preparation before proceeding.

3.2 INSPECTION

.1 Inspect the floor slab for proper tolerance.

.2 The floor slab shall be smooth trowelled and level to a tolerance of 1/8" in a 10' radius. High areas shall be ground down and low areas filled-in with approved leveling compounds.

□

.3 Floor slab shall have been cured for a minimum of sixty (60) days.

.4 The slab shall be cleaned of all debris, free from any grease, oil, paint, dust, or any contamination and have a moisture content of 5% or lower.

.5 Examine subfloors prior to installation to determine that surfaces are smooth and free from cracks, holes, ridges, and other defects that might prevent adhesive bond or impair durability or appearance of the flooring material.

.6 Report to the Consultant all damages, defects, unsatisfactory or unfavourable conditions before proceeding with flooring installation. Correct defective or unfavourable conditions expeditiously. Such corrective Work will not be considered or approved as a change in the Work.

.7 Confirm to the Consultant that the adjacent abutting floor finish matches thickness of proposed tiles and pattern.

3.3 INSTALLATION: TILE FLOORING

.1 Install flooring in accordance with manufacturer’s recommendations.

.2 Apply adhesive uniformly using recommended trowel in accordance with flooring manufacturer's instructions. Do not spread more adhesive than can be covered by flooring before initial set takes place.

.3 Lay flooring with joints parallel to building lines to produce symmetrical tile pattern. Border tiles minimum half tile width.

.4 Install flooring to patterns as shown on drawings.

.1 Coordinate on-site meeting with Consultant 5 days in advance of commencing flooring work to review scope and pattern design.

.5 Cut tile and fit neatly around fixed objects. Fit tightly to room perimeters, into recesses, and around projections. Scribe, cut, and fit to permanent fixtures, columns, walls, partitions, pipes, outlets, and built-in furniture and cabinets.

.6 Terminate flooring at centerline of door in openings where adjacent floor finish or colour is dissimilar.

.7 Install flooring wall to wall before the installation of floor-set cabinets, casework, furniture, equipment, movable partitions, etc. Extend flooring into toe spaces, door recesses, closets, and similar openings as shown on the drawings. Carry tile under casework.

.8 Install metal edge strips at unprotected or exposed edges where flooring terminates. Install transition strips where tile is adjacent to other flooring materials.

3.4 INSTALLATION: LVT FLOORING

.1 Install flooring in accordance with manufacturer’s recommendations.

□

.2 Apply adhesive uniformly using recommended trowel in accordance with flooring manufacturer's instructions. Do not spread more adhesive than can be covered by flooring before initial set takes place.

.3 Lay flooring with joints parallel to building lines to produce symmetrical tile pattern. Border tiles minimum half tile width.

.4 Install flooring to patterns as shown on drawings.

.1 Coordinate on-site meeting with Consultant 5 days in advance of commencing flooring work to review scope and pattern design.

.5 As installation progresses and after installation, roll flooring in accordance with flooring manufacturer’s instructions to ensure full adhesion.

.6 Cut sheet and fit neatly around fixed objects. Fit tightly to room perimeters, into recesses, and around projections. Scribe, cut, and fit to permanent fixtures, columns, walls, partitions, pipes, outlets, and built-in furniture and cabinets.

.7 Adhere flooring to the subfloor without cracks, voids, raising and puckering at the seams. Roll with a 100-pound (45.36 kilogram) roller in the field areas. Hand-roll flooring at the perimeter and the seams to assure adhesion. Refer to specific rolling instructions of the flooring manufacturer.

.8 Lay flooring to provide a minimum number of seams. Avoid cross seams, filler pieces, and strips. Match edges for color shading and pattern at the seams in compliance with the manufacturer's recommendations.

.9 Terminate flooring at centerline of door in openings where adjacent floor finish or colour is dissimilar.

.10 Install flooring wall to wall before the installation of floor-set cabinets, casework, furniture, equipment, movable partitions, etc. Extend flooring into toe spaces, door recesses, closets, and similar openings as shown on the drawings. Carry tile under casework.

.11 Install metal edge strips at unprotected or exposed edges where flooring terminates. Install transition strips where tile is adjacent to other flooring materials.

3.5 INSTALLATION: WALL BASE

.1 Lay out resilient base with minimum number of joints.

.2 Clean substrate and prime with one coat of adhesive.

.3 Set resilient base against wall and floor surfaces tightly by using 3-kg hand roller.

.4 Install straight and level to variation of 1:1000.

.5 Scribe, cut, and fit wall base to door frames and other obstructions.

□

3.6 CLEANING

.1 Upon completion of the Work, remove all debris, equipment and excess material resulting from the Work of this Section. Wait 48 hours before applying the cleaning and maintenance products.

.2 Clean, seal or wax the floor surface according to the flooring manufacturer's printed instructions.

3.7 PROTECTION

.1 Protect new floors from damage from time of final set of adhesive until final inspection.

.2 Protect resilient tile flooring from heavy rolling loads during construction with plywood, hardboard, or other protection method recommended by resilient tile flooring manufacturer.

.3 Prohibit traffic on flooring for forty-eight (48) hours after installation.

.4 Touch-up, repair or replace damaged products before Substantial Completion.

3.8 MAINTENANCE

.1 Comply with manufacturer's instructions for proper cleaning and maintenance of the products.

3.9 SCHEDULE

.1 Refer to Room Finish Schedule.

END OF SECTION

□

Part 1 General

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 07 90 00 - Joint Protection.

.3 Section 08 11 00 - Metal Doors and Frames

.4 Section 09 29 00 - Gypsum Board.

1.2 REFERENCES

.1 Canadian Painting Contractors Association (CPCA) publication “The painting Specifications Manual 2000”, as distributed by the Ontario Painting Contractors Association (OPCA), shall govern all materials and execution practices for the work and materials of this section.

.2 Environmental Protection Agency (EPA)

.1 Test Method for Measuring Total Volatile Organic Compound Content of Consumer Products, EPA Method 24 - Surface Coatings.

.2 SW-846, Test Methods for Evaluating Solid Waste: Physical/Chemical Methods.

.3 Health Canada/Workplace Hazardous Materials Information System (WHMIS)

.1 Safety Data Sheets (SDS).

.4 Master Painters Institute (MPI)

.1 The Master Painters Institute (MPI)/Architectural Painting Specification Manual (ASM).

.2 Standard GPS-1-12, MPI Green Performance Standard.

.3 Standard GPS-2-12, MPI Green Performance Standard.

.5 National Research Council Canada (NRC)

.1 National Fire Code of Canada 2015 (NFC).

.6 Society for Protective Coatings (SSPC)

.1 SSPC Painting Manual, Volume Two, 8th Edition, Systems and Specifications Manual.

1.3 PRODUCT DATA

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

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.2 Submit full records of all *Products* used. List each *Product* in relation to finish formula and include the following which are to correspond with the *Contract Documents*.

.1 Finish formula number.
.2 Colour number.
.3 Location of use.
.4 Manufacturer's product number.
.5 Manufacturer's name and address.

.3 Manufacturer's Instructions: Indicate special surface preparation procedures.

.4 Maintenance Data: Submit data on cleaning, touch-up, and repair of painted and coated surfaces.

1.4 SAMPLES

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

.2 Submit two (2) 12" x 8" sample panels of each type of paint or stain and each colour.

1.5 QUALITY ASSURANCE

.1 Manufacturer Qualifications: All primary products specified in this section will be supplied by a single manufacturer with a minimum of ten years experience.

.2 Installer Qualifications: All products listed in this section are to be applied by a Painting Contractor with a minimum of five years demonstrated experience in surface preparation and field application of the same type and scope as specified.

.3 Standards of acceptance:

.1 Walls: no defects visible from a distance of 36" at 90° to viewing surface.
.2 Ceilings: No defects visible from floor at 45° to surface when viewed using final lighting source.
.3 Final coat to exhibit uniformity of colour and uniformity of sheen across full surface area.

1.6 DELIVERY, STORAGE AND HANDLING

.1 Deliver and store materials in original containers, sealed, with labels intact.

.2 Remove damaged, opened, and rejected materials from the *Place of the Work*.

.3 Provide and maintain dry, temperature controlled, and secure storage.

.4 Observe manufacturer's recommendations for storage and handling.

□

.5 Store *Products* and equipment away from heat generating devices, in a well-ventilated area with temperature range of 7°C to 30°C.

.6 Store temperature sensitive *Products* above minimum and below maximum temperatures recommended by manufacturer.

.7 Remove *Products* and equipment from storage only in quantities required for same day use.

.8 Keep areas used for storage, cleaning, and preparation clean and orderly to the approval of the *Consultant*. After completion of operations, return areas to clean condition to approval of the *Consultant*.

.9 Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

.10 Disposal:

.1 Never pour leftover coating down any sink or drain. Use up material on the job or seal can and store safely for future use.

.2 Do not incinerate closed containers.

.3 For specific disposal or recycle guidelines, contact the local waste management agency or district. Recycle whenever possible.

1.7 EXTRA MATERIALS

.1 At project closeout, supply the Owner or owner's representative one gallon of each product for touch-up purposes. Cans shall be clearly marked with colour name, number and type of paint.

Part 2 Products

2.1 MATERIALS

.1 Only Products listed in the CPCA and MPI Approved Products Lists (APL) are acceptable for use in the Work.

.2 Products for each finish formula to be products of a single manufacturer.

.3 Where possible, select Products exhibiting low odour characteristics. If two (2) Products are otherwise equivalent, select the Product with the lowest odour.

.4 Investigate and report on all existing finishes and compatibility of coating and finishing systems specified. Allow for changes in systems for compatibility with existing finishes.

.5 Conform to latest MPI requirements for interior painting work including preparation and priming.

□

2.2 COLOURS

.1 Second coat in a three (3) coat system to be tinted slightly lighter colour than topcoat to show visible difference between coats.

.2 For deep and ultra deep colours; 4 coats may be required.

.3 Colours as per drawing schedules.

2.3 MIXING AND TINTING

.1 Perform all colour tinting operations prior to delivery of Products to the Place of the Work. Tinting will be allowed at the Place of the Work only with the Consultant's written authorisation.

.2 Mix paste, powder or catalyzed paint mixes in accordance with manufacturer's written instructions.

.3 Use and add thinner in accordance with paint manufacturer's recommendations. Do not use kerosene or similar organic solvents to thin water-based paints.

.4 Thin paint for spraying in accordance with paint manufacturer's instructions.

.5 Re-mix paint in containers prior to and during application to ensure break-up of lumps, complete dispersion of settled pigment, and colour and gloss uniformity. Strain as necessary.

2.4 GLOSS/SHEEN RATINGS

.1 Paint gloss is defined as sheen rating of applied paint, in accordance with following values:

	Gloss @ 60 degrees	Sheen @ 85 degrees
Gloss Level 1 - Matte Finish (flat)	Max. 5	Max. 10
Gloss Level 2 - Velvet-Like Finish	Max.10	10 to 35
Gloss Level 3 - Eggshell Finish	10 to 25	10 to 35
Gloss Level 4 - Satin-Like Finish	20 to 35	min. 35
Gloss Level 5 - Traditional Semi-Gloss Finish	35 to 70	
Gloss Level 6 - Traditional Gloss	70 to 85	
Gloss Level 7 - High Gloss Finish	More than 85	

2.5 INTERIOR PAINT FINISHES

.1 Formula 1: for **concrete horizontal surfaces** (floors and stairs).

□

.1 Apply INT 3.2C, epoxy finish.

.2 Formula 2 (Latex): for **concrete masonry unit** (block and brick).

.1 Apply INT 4.2E, premium, semi-gloss finish coat.

.3 Formula 3 (Alkyd): for **galvanized metal** (doors and frames, railings, perimeter heating and misc. metals (ceiling grid)).

.1 Apply INT 5.3N, premium satin finish.

.4 Formula 4: for **galvanized metal** (existing and new exposed ductwork).

.1 Apply INT 5.3N, premium, matte.

.2 Metal finish to be coordinated with respective Divisions.

.5 Formula 5: for **dimension lumber** (exposed blocking and rough carpentry).

.1 Apply INT 6.2L, custom, matte.

.2 Any exposed rough carpentry as shown on drawings or as noted in Section 06 10 11 Rough Carpentry to be painted out.

.6 Formula 6 (Latex): for **casework** (all interior wood).

.1 Apply INT 6.4T, premium flat, semi-gloss and gloss finish coat depending on location.

.2 Existing cabinetry: gloss.

.3 Existing and new trim above 7ft flat or semi-gloss to existing.

.7 Formula 7 (Latex): for **plaster and gypsum board**.

.1 Apply INT 9.2M, premium, eggshell finish coat.

.2 Paint type to be ‘DULUX® LIFEMASTER® Interior Latex 100% Acrylic Zero VOC paint’ in Eggshell.

.3 Use ‘Zinsser Odourless Interior Oil Base Stain Blocker’ as primer where it is applied on existing plaster, refer to product instruction.

.8 Formula 8: for **acoustic panels and tiles**.

.1 Apply INT 9.3D, premium, eggshell finish coat.

Part 3 Execution

3.1 SCOPE OF WORK

.1 Contractor must read both specifications and drawings for full scope of painting work. Interior finish and color to be as per finish schedule. Identify all items that are to be painted whether new or existing.

3.2 EXAMINATION

.1 Investigate existing substrates for problems related to proper and complete preparation of surfaces to be painted. Report to the *Consultant* in writing any unfavourable conditions before proceeding with application.

□

.2 Examine surfaces to receive coatings for surface imperfections and contaminants that could impair performance or appearance of coatings, including but not limited to, loose primer, rust, scale, oil, grease, mildew, algae, or fungus, stains or marks, cracks, indentations, or abrasions.

.3 Investigate moisture content of surfaces to be painted using electric moisture meter or other approved method and report findings to *Consultant*. Do not proceed with application until conditions fall within the following ranges:

.1 Concrete and concrete masonry: 12% to 14% for solvent coatings, and as recommended by manufacturer for water-based coatings.

.2 Gypsum board and plaster: 12% to 14%.

.3 Wood: maximum 15%.

.4 Correct any defective work or unfavourable conditions expeditiously. Corrective work will not be considered or approved as a change in the *Work*.

3.3 PREPARATION

.1 Prepare surfaces to receive work of this section in accordance with Chapter 3 of the CPCA Manual.

.2 Prepare existing surfaces to be repainted in accordance with Article 6.2 of CAN-CGSB-85.100.

.3 Clean surfaces thoroughly prior to coating application.

.4 Do not start work until surfaces to be finished are in proper condition to produce finished surfaces of uniform, satisfactory appearance.

.5 Stains and Marks: Remove completely, if possible, using materials and methods recommended by coating manufacturer; cover stains and marks which cannot be completely removed with isolating primer or sealer recommended by coating manufacturer to prevent bleed-through.

.6 Remove Mildew, Algae, and Fungus using materials and methods recommended by coating manufacturer.

.7 Remove dust and loose particulate matter from surfaces to receive coatings immediately prior to coating application.

.8 Remove electrical cover plates, light fixtures, surface hardware on doors, door stops, washroom accessories, and all other surface mounted fittings and fastenings prior to undertaking any painting operations. Store for reinstallation after painting operations have been completed.

.9 Move or protect equipment and fixtures adjacent to surfaces indicated to receive coatings to allow application of coatings.

.10 Cover or move portable equipment as necessary to carry out painting operations. Replace as painting operations progress.

□

.11 Prevent contamination of cleaned surfaces by salts, acids, alkalis, other corrosive chemicals, grease, oil, and solvents before prime coat is applied, and between applications of remaining coats. Apply primer, paint, or pre-treatment as soon as possible after cleaning and before deterioration occurs.

.12 Remove existing painting coat and sand with 80grit sandpaper where repaint is required, location refer to architecture drawing.

3.4 PROTECTION

.1 Protect surfaces not to be painted from paint splatters, markings, and other damage resulting from the work of this section. If damaged, clean and restore such surfaces as required or directed. Such reparatory work will not be considered or approved as a change in the *Work*.

.2 Cover or mask floors, windows, and other ornamental hardware adjacent to areas being painted to prevent damage and to protect from paint drops and splatters. Use non-staining coverings.

.3 Protect items that are permanently attached.

.4 Protect factory finished *Products* and equipment.

.5 Protect passing persons in and about the *Place of the Work*.

3.5 SURFACE PREPARATION

.1 Concrete and Concrete Masonry: Clean surfaces free of loose particles, sand, efflorescence, laitance, form oil, curing compounds, and other substances which could impair coating performance or appearance.

.2 Concrete Floors: Remove contaminants which could impair coating performance or appearance. Verify moisture transmission and alkaline-acid balance recommended by coating manufacturer; mechanically abrade surface to achieve 80-100 grit medium-sandpaper texture.

.3 Existing Coatings:

.1 Remove surface irregularities by scraping or sanding to produce uniform substrate for coating application; apply one coat primer of type recommended by coating manufacturer for maximum coating adhesion.

.2 If presence of lead in existing coatings is suspected, cease surface preparation and notify Consultant immediately.

.4 Gypsum Board: Repair cracks, holes and other surface defects with joint compound to produce surface flush with adjacent surfaces.

.5 Plaster: Repair cracks, holes and other surface defects as required to maintain proper surface adhesion. Apply patching plaster or joint compound and sand to produce surface flush with adjacent undamaged surface. Allow a full cure prior to coating application as recommended by the patching compound manufacturer's recommendations.

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3.6 APPLICATION

.1 Method of application to be in accordance with manufacturer's instructions and CPCA Painting Specification Manual.

.2 Brush application:

.1 Work paint into cracks, crevices, and corners. Paint surfaces not accessible to brushes by spray, daubers, or sheepskins.

.2 Brush out runs and sags.

.3 Remove runs, sags, and brush marks for finished work and repaint.

.3 Use dipping, sheepskins, or daubers only when no other method is practical in places of difficult access and only when specifically authorised by the *Consultant*.

.4 Apply each coat of paint as a continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.

.5 Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.

.6 Sand and dust between each coat to remove visible defects.

.7 Where paint application abuts other materials or other coating colour, terminate coating with a clean sharp termination line without coating overlap.

.8 Finish tops of cupboards, cabinets, and projecting ledges, both above and below sight lines, as specified or indicated for surrounding surfaces unless specifically indicated otherwise.

.9 Finish inside of cupboards and cabinets as specified or indicated for outside surfaces unless specifically indicated otherwise.

.10 Finish closets and alcoves as specified or indicated for adjoining rooms unless specifically indicated otherwise.

.11 Finish top, bottom, edges, and cutouts of doors after fitting as specified or indicated for door surfaces unless specifically indicated otherwise.

.12 Re-prepare and re-coat unsatisfactory finishes; refinish entire area to corners or other natural terminations.

3.7 MECHANICAL AND ELECTRICAL EQUIPMENT

.1 Paint exposed conduits, piping, hangers, ductwork, and other mechanical and electrical equipment. Colour and texture to match adjacent surfaces, except for exposed gas and fire protection piping.

.2 Touch up scratches and marks on factory painted finishes and equipment with paint or finish as supplied by the manufacturer of that equipment.

.3 Do not paint over nameplates.

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.4 Keep sprinkler heads free of paint.

.5 Paint inside of ductwork where visible behind grilles, registers, and diffusers with primer and one (1) coat of matte black paint.

.6 Paint disconnect switches for fire alarm system and exit lights in red enamel.

.7 Paint both sides and edges of backboards of telephone and electrical equipment before installation. Leave equipment in original finish except for touch up as required, and paint conduits, mounting accessories, and other unfinished items.

3.8 CLEANING

.1 Clean and reinstall all hardware items that were removed before painting operations.

.2 Remove protective coverings and warning signs as soon as practical after operations cease.

.3 Remove paint splashings on exposed surfaces that were not painted. Remove smears and splatter immediately as operations progress.

.4 Protect freshly completed surfaces. Avoid scuffing newly applied paint.

.5 Restore areas used for storage, cleaning, mixing and handling of paint to clean condition.

END OF SECTION

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Part 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 06 10 11 - Rough Carpentry: Wood blocking and nailers.

.2 Section 09 22 16 - Non-Structural Metal Framing: Concealed supports in metal stud walls.

1.2 SHOP DRAWINGS

.1 Provide shop drawings in accordance with supplementary and/or general conditions. Show dimensional layouts together with fabrication and installation details based on site conditions.

.2 The general contractor, upon request, to forward to this sub-contractor a complete set of architectural drawings, specifications, addenda and colour schedule for use in preparation of shop drawings and execution of installation.

1.3 INSPECTION

.1 Prior to commencement of erection, all surfaces to be checked for irregularities, trueness and rigidity and projections and defects to be reported immediately to the general contractor for correction.

.2 On completion of the installation all materials and workmanship to be inspected for proper operation, rigidity and appearance, and any defective materials to be replaced with new materials prior to final inspection.

1.4 INSPECTION

.1 Samples to be provided to the architect, if requested, for his perusal and approval of all materials to be utilized in this installation.

1.5 STORAGE / DELIVERY

.1 The general contractor to be responsible for providing a dry, warm storage area capable of being locked for the storage of all materials. The general contractor shall unload all materials at the site and place in the aforementioned room.

1.6 SPECIAL PROTECTION

.1 During installation utmost care to be taken by workmen to ensure the protection of the work from damage by other trades until the building is ready for occupation and handed over to the owner.

.2 Protection of all materials during the painting operation shall be carried out by the use of polyethelene covering which shall be the responsibility of the painting contractor.

1.7 SPECIAL CLEANING

.1 Upon completion of all work – clean down, remove all stains, loose dirt and excessive adhesive, and leave all elements in a first-class condition at the point of handing over to the owner.

1.8 MAINTENANCE

.1 A label stating instructions for the care and maintenance of whiteboards to be affixed to the upper right hand corner of all whiteboard elevations for the use of the buildings maintenance staff.

1.9 WARRANTY

.1 Installation of all materials to be warranted for a period of 1 (one) year. This warranty covers both labour and material for replacement of defective materials.

.2 Whiteboards to be warranted for a period of 10 (ten) years against defects due to normal usage, and wear, and upon completion of contract a written warranty to be submitted to the owner by the sub-contractor.

Part 2 PRODUCTS

2.1 INSTALLATION / ERECTION

.1 Erection of materials to be carried out by competent craftsmen supervised by a foreman with at least 10 years experience in this specialized field.

.2 Overhead work such as ceiling grids, plumbing, electrical services, communications systems, painting, etc., to be in an advanced stage of completion in order not to impede this sub-contractor. Millwork units forming integral part of the chalkboard/tackboard installation to be located and affixed to the walls before commencing chalkboard/tackboard installation.

.3 Erection of materials shall be carried out in a substantial manner to ensure a rigid, straight, square, plumb and horizontal lines level.

.4 All aluminum trims to be attached in such a manner that all fastenings shall be concealed. Fastening to be accomplished by the use of #10 x 25.4mm (1") steel wood screws attached to the walls by the use of rawl plugs.

.5 Tackboards to be adhered to wall surface by the use of an adhesive as recommended by the supplier applied in egg-size blobs at approximately 200mm (8") centres. Tackboards to be pressed firmly into this adhesive to ensure proper adhesion.

.6 Whiteboards to be joined together by the use of a 14 gauge x 25.4mm (1") wide steel spline and an extruded polyvinyl slotted insert to ensure a flush butt joint with a hairline appearance.

2.2 WHITEBOARDS

.1 Acceptable Manufacturer/ Basis of Design: by ASI Visual Display Products, Mississauga, Ontario, consisting of a sandwich type construction composed of face panel, core and balancing rear sheet, in maximum panel sizes of 1219mm x 2438mm (4'0" x8'0")

.1 **Porcelain Enameled Steel Sheet:** ASTM A424/A424M, Type I, Commercial Steel, manufactured in accordance with Porcelain Enamel Institute's PEI-1002 specification consisting of sandwich-type construction of face panel with fired-on vitreous finish, core, and balancing rear sheet.

.2 Face Sheet Writing Surface:

.1 Polyvision e3 CeramicSteel, ultra-smooth writing surface; scratch, stain, bacteria, and fire resistant. Continuous coil-coating process, consisting of steel core of light gauge covered on both sides with thin enamel coatings for thickness of 0.014 inch (0.356 mm).

.2 Color: White Low Gloss.

.3 Core – 11.1mm (7/16") impregnated sound absorbing fibreboard laminated under heat and pressure to face panel and back sheet utilizing adhesives that ensure rupturing of the component materials before failure of joint contact surfaces.

.4 Back up balancing sheet – 28 gauge zinc coated stretcher leveled steel in one unjointed section. Overall thickness of Whiteboard lamination shall be 12.7mm (1/2").

.5 Colour of Whiteboards - to be determined by the Architect from the manufacturer's standard colour range.

2.3 ALUMINUM TRIM

.1 **ASI Visual Display Products,. Architectural Series 200**, aluminum to be 6063T5 alloy with clear etched and anodized 0.051mm (.002') satin finish free from extruding draw marks and surface scratches.

.2 **PERIMETER** – a.s.p. No. 205 trim for all tackboards and also vertical jambs of Whiteboards –

.3 19.1mm (3/4") exposed face and weight of approximately 91g (.20 lbs.) per lineal foot.

.4 **DIVIDER BAR** – a.s.p. No. 207 trim for adjacent Whiteboard/tackboard panels and adjacent tackboard/tackboard panels of elevations greater than 2438mm (8'0") – 12.7mm (1/2") exposed face and weight of approximately 113g. (.25lbs.) per lineal foot.

.5 **MAPRAIL** – a.s.p. No. 206 trim for Whiteboard elevation only complete with integral Forbo insert, end stops and two (2) combination roller maphooks per 1829mm (6) lineal feet – 50.8mm (2") exposed face and weight of approximately 159g. (.35lbs.) per lineal foot.

.6 **MARKERTRAY** – a.s.p. No. 212 triangular box section for Whiteboard elevations only complete with contour fitting end castings – 102mm (4") projection from finished wall *(86mm (3 3/8") projection from face of board)* and weight of approximately 454g (1.0 lbs.) per lineal foot.

.7 **MARKERTRAY OVER MILLWORK** – a.s.p. No. 264 wall mounted markertray for elevations mounted directly on/above millwork - 70mm (2 ¾") projection from finished wall *(50mm (2") projection from face of board)* and weight of approximately 200g. (.45 lbs.) per lineal foot.

.8 **SPLINE** - Whiteboards to be joined together by the use of a 14 gauge x 25.4mm (1") wide steel spline and an extruded polyvinyl slotted insert to ensure a flush butt joint with a hairline appearance.

Part 3 EXECUTION

3.1 SCHEDULE

.1 WB-1 White Board

.1 Provide the following:

.1 Aluminium Trim along perimeter of board with mitred corners

.2 Marker Tray

.3 Size: Overall size as per drawings to be assembled from standard sizes 2 x 3 / 3 x 4 / 4 x4 / 4x6 / 4 x 8 ft. as per Consultant mark-up on submittal.

.4 Fasteners: concealed.

.5 Ledgers: Continuous solid wood ledgers 3 - ¾ x 4 inches securely fastened horizontally into existing walls for leveling and closure.

END OF SECTION