TOWN OF ERIN

SPECIFICATIONS

Architectural | Structural | Mechanical | Electrical

PREPARED FOR

ERIN COMMUNITY CENTRE & ARENA RENOVATIONS

14 Boland Drive
Erin, ON, N0B 1T0

ISSUED FOR BID

March 2024

PREPARED BY:

D+H ARCHITECTS INC.

45 MILL STREET, ORANGEVILLE, ON., L9W2M4
TEL: (519) 941-0912 FAX: (519) 941-9142
E-MAIL: mail@dharchitects.ca
WEB: www.dharchitects.ca

ARCHITECTURAL:

END OF SECTION 00101

DRAWING	TITLE
SITE PLANS:	
A1.0	Survey/Site/Overall Plans
ARCHITECTURAL:	
A2.1	Partial Ground Floor Plan
A2.2	Partial Second Floor Plan
A2.3	Enlarged Ground Floor Plans – Areas #1-6
A2.4	Enlarged Ground Floor Plans – Area #7
A2.5	Enlarged Second Floor Plans – Area #8
A2.6	Enlarged Second Floor Plans – Area #9
A3.1	Partial Roof Plan
A3.2	Roof Details I
A3.3	Roof Details II
A5.1	Partial Elevations
A9.1	Millwork
A10.1	Door/Finish Schedules
A11.1	OBC Matrices
MECHANICAL:	
M1.1	Key Plan, Legend & Schedules
M1.2	Schedules
M1.3	Schedules
M2.1	Arena Part Plans – Demo/Reno
M2.2	Ground Floor Part Plans – Area “A” – Demo/Reno
M2.3	Ground Floor Part Plans – Area “B” – Demo/Reno
M2.4	Second Floor Part Plans – Area “D” – Demo/Reno
M2.5	Roof Part Plan – Area “G” - Demolition
M2.6	Roof Part Plan – Area “G” - Renovation
M3.1	Ground Floor Enlarged Plans – Ice Plant Room - Demo & Reno
M3.2	Ground Floor Enlarged Plans - Area 'E' - Demo & Reno
M3.3	Water Entry Boiler Room Enlarged Plans - Area 'A2'
M3.4	Boiler Room Schematics & 2nd Floor Hot Water Room
M3.5	Fire Protection Part Plans - Demo/Reno
M4.1	Details
ELECTRICAL:	
E1.1	Key Plan, Legend and Details
E1.2	Details and Schedule
E2.1	Ground Floor Fire Alarm Demolition Plan
E2.2	Lighting Demolition Plan
E2.3	Power and Systems Demolition Plan
E2.4	Second Floor Alarm Demolition Plan
E3.1	Ground Floor Fire Alarm Renovation Plan
E3.2	Lighting Renovation Plan
E3.3	Power and Systems Renovation Plan
E3.4	Second Floor Fire Alarm Renovation Plan
E4.1	Part Plan “A” and Addition Electrical Room Plans
E4.2	Second Floor Part Plan “B” – Demolition Plan
E4.3	Second Floor Part Plan “B” – Renovation Plan
E4.4	Roof Plan
E5.1	Distribution Riser Diagram
E6.1	Fire Alarm Riser Diagram
E6.2	Fire Alarm Passive Graphic

End of Section 00102

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

.1 Comply with requirements of the General Conditions and Supplementary General Conditions.

.2 Division 1 requirements apply to all Sections of Work.

.3 In case of conflict between General Conditions and Division 1 requirements, General Conditions will govern.

1.2 DEFINITIONS

.1 In this Specification, all reference to the following headings shall mean or refer to:

Owner: **Town of Erin** Phone: 519-833-2114 x425
14 Boland Drive, Erin, ON
Dee-Enna Dube – Project Manager
Email: DeeEnna.Dube@erin.ca

Architect: D+H Architects Inc. Phone: 519-941-0912 x223
45 Mill Street
Orangeville, ON L9W 2M4
Attention: Mark Hicks
Email: mhicks@dharchitects.ca

Engineers:

Structural: Tacoma Engineers Phone: 519-763-2000
176 Speedvale Avenue West
Guelph, ON N1H 1C3
Attention: Aaron Maksym
Email: aaronm@tacomaengineers.com

Mechanical/Electrical:
DEI & Associates Inc. Phone: 519-725-3555
55 Northland Road
Waterloo, ON N2V 1Y8
Attention: Stephen Demaiter - Electrical Engineer
Email: stdemaiter@deiassociates.ca
Attention: Jesse Anderson – Mechanical Engineer
Email: janderson@deiassociates.ca

Contractor or Sub-Contractor: Shall mean to the Trade, Tradesperson, Worker, or Craftsperson that has been retained to complete that particular phase or section of Work.

1.3 INQUIRIES

.1 Address all correspondence, inquiries, and requests for information to the Owner who has issued the Bid Documentation.

.2 Changes after the Contract Documents are issued for Bid, will be issued as Addendums during the Bid process.

.3 Changes after the Bid process will be issued under Proposed Changes and Change Orders.

1.4 SCOPE OF WORK - GENERAL

.1 The mention hereinafter of any article, material, operation, or method, requires that the Contractor shall provide each item listed of the quality noted and perform each operation prescribed according to conditions stated, providing therefore all necessary labour, equipment, and incidentals for the project to be known as Erin Community Centre/Area Renovations

1.5 SCOPE OF WORK – SPECIFIC

.1 The final responsibility for determining which Trade/Contractor provides labour, material, products, equipment, and services to complete the Work rests solely with the General Contractor.

1.6 N.I.C.

.1 Any work marked N.I.C. (Not in Contract) means that the work is not part of the base Contract, but appropriate preparations are still to be performed to accommodate this work at a later day; either by the Owner or under a separate Contract.

1.7 SUMMARY OF WORK

.1 Provide all items, articles, materials, services, and incidentals, whether or not expressly specified or shown on Drawings, to make finished work complete and fully operational, consistent with the intent of the Contract Documents.

1.8 EXAMINATION

.1 Contractor and Sub-Contractor will examine site (* refer to Instructions to Bidders) and make themselves thoroughly acquainted with same and obtain for themselves any and all information that may be necessary for proper carrying out of Contract.

.2 Claims for additional costs will not be entertained with respect to conditions which could reasonably have been ascertained by an inspection of the site prior to Bid closing.

.3 Ascertain nature and amount of excavations, grading, matter to be removed or brought on site and demolition. Owner does not guarantee information furnished to Contractor

regarding nature, amount, and class of materials to be excavated, removed, or demolished.

.4 Prior to commencement of Work, make careful examination of previously executed work, existing conditions, levels, dimensions, and clearances. Promptly advise Consultant of unsatisfactory preparatory work and substrate conditions; commencement of work implies acceptance of conditions.

1.9 DIVISION OF WORK

.1 Work specified in these Specifications has been divided into technical sections for the purpose of ready reference. Division of work among Sub-Contractors and suppliers is solely the Contractor's responsibility and Consultant assumes no responsibility to act as an arbiter to establish sub-contract limits between Sections or Divisions of Work.

1.10 COORDINATION AND COOPERATION

.1 Coordinate Sections of Work. Work required by Contract Documents or reasonably necessary to complete Work but not included in any specific Section of Specifications is hereby included in this Section.

.2 Products specified in certain Sections of Specification, e.g. Specialties, equipment, etc., may or may not require installation by supplier. Allocate installation of items not normally installed by supplier.

.3 The Contractor and Sub-Contractors will:

1. Coordinate work of their respective trades and cooperate with other tradespersons to facilitate continuous and expeditious progress of the entire work.

2. Provide each other with necessary, instructions and information required for proper execution of the work.

3. Give each other reasonable opportunity for installation of their work.

4. Provide necessary inserts, anchors or other items which must be built in by other trades.

5. Pay cost of extra work caused by and make up time lost resulting from failure to provide necessary cooperation, or information on items to be fixed to or built in, in adequate time.

1.11 DOCUMENTS

.1 The intent of the documents is to include all labour and materials necessary for the proper execution of the Work. It is not intended, however, that materials or Work not covered by or properly inferable from any heading, section or trade in the Specifications shall be supplied unless shown on the Drawings. Descriptions of materials of Work in words which so applied have well known technical or trade meanings shall be held to refer to such recognized standards.

.2 Should the Specifications conflict with the Drawings, the Specifications shall govern. In the case of discrepancies between Drawings, those of larger scale, or if the scales are the same, those of later date shall govern. All Drawings and Specifications shall be interpreted in conformity with the Agreement and these General Conditions shall govern.

.3 The General Contractor shall keep on site, one (1) copy of Contract Documents, reviewed shop drawings, Change Orders, supplementary instructions, field and laboratory test reports, approved building permit drawings and as-built drawings. The General Contractor shall ensure that the Consultant is issued all field and laboratory test reports and as-built conditions.

1.12 ERRORS AND OMISSIONS

.1 Each Contractor shall carefully study and compare all Drawings, Specifications and other instructions and shall at once report to the Consultant any error, inconsistency, or omission they may discover and in no case shall they proceed with work until clarification has been given by the Consultant.

1.13 CODES AND STANDARDS

.1 The Work of all trades shall comply with the requirements of all pertinent codes and regulations including, but not limited to, the Ontario Building Code's latest edition and the Occupational Health and Safety Act. Where codes or standards conflict with each other, the more stringent code and standard shall apply. Each Sub-Contractor must notify the Consultant of any Code infractions on the Documents pertaining to their trade prior to submitting Bids. Where ULC designations are used, strict adherence to the details and specifications of the ULC number must be adhered to. The Sub-Contractor will include in their one (1) year warrantee a written verification that their work does comply with the applicable Code requirements.

1.14 METRIC PROJECTS

.1 This Project is based on the Metric System of Units (SI). Measurements are expressed in metric (SI) units.

.2 Units specified will be taken to be the minimum acceptable unless otherwise noted.

.3 The Contractor is responsible to check and verify with manufacturers and suppliers on the availability of materials and products in metric sizes.

.4 Where a material or product cannot be obtained in the metric size specified, provide the equivalent imperial size available, taking into account the difference in measurement when converted to metric and adjusting systems to accommodate said difference.

.5 Where both metric and imperial sizes or dimensions are shown, the metric size or dimension will govern.

1.15 DEFINITIONS

.1 Where used, word ‘supply’ will mean furnishing to site, in location required or directed, complete with necessary parts.

.2 Where used, word ‘install’ will mean set in place and secured or affixed to building structure as noted or directed.

.3 Where used, word ‘provide’ will mean supply and install as each is described above.

.4 Authorities: those having jurisdiction under law over Work or parts thereof.

.5 Wherever words ‘approved, ‘selected’, ‘satisfactory’, ‘directed’, ‘permitted’, ‘inspected’, ‘instructed’, ‘required’, ‘submit’, ‘ordered’, ‘reviewed’, ‘reported to’, or similar words or phrases are used in Contract Documents, it will be understood, unless context provides otherwise, that words ‘by Consultant’ or ‘to Consultants’ follow.

.6 Words ‘by others’ when used in Specifications or on Drawings will not mean by someone other than Contractor. Only means by which something shown or specified will be indicated as not being in Contract is by initials ‘NIC’ or words ‘not in Contract’, ‘by Owner’, or ‘by Other Contractor’.

.7 Word “Exposed”: will mean visible at completion of Work, in useable areas as well as interior of closets, cabinets, drawers, storage and service rooms, stairwells and exterior surfaces.

.8 Words “make good” will mean to patch or replace damage in a manner equal to that specified for new work.

1.16 ORGANIZATION OF WORK

.1 Drawings are intended to convey Scope of Work and indicate general and approximate location, arrangement and size of fixtures, equipment, ducts, piping, conduit, and outlets. Obtain more accurate information about location, arrangement and size from study and coordination of drawings, and shop drawings, including architectural, structural, mechanical, and electrical and become familiar with conditions and spaces affecting these matters before proceeding with Work. Where job conditions require reasonable changes from indicated location and arrangements, make changes at no extra cost to Owner.

.2 Install and arrange ducts, piping, tubing, conduit, equipment, and fixtures so as to conserve headroom and space as much as possible, to provide no interference and to be neat, orderly, and tidy. Unless otherwise noted, run pipes, ducts, tubing, and conduit, vertical, horizontal, and square with building grid. Conceal pipes, ducts, tubing, and conduit above ceilings, behind furring or in walls, except in mechanical rooms, equipment rooms and unfinished spaces, unless indicated or specified otherwise. Produce, coordinate, and maintain interference drawings.

.3 Manufactured items, shop fabricated items and items fabricated on or off site will be fabricated to fit dimensions of building and site, as measured on site rather than to fit building as shown on Contract drawings.

1.17 LABOUR

.1 Employ only competent personnel on the work. When practicable use local labour.

.2 Foreperson must be able to understand the English language well enough to fully comprehend and carry out instructions issued and to work in complete coordination with other trades.

.3 Rates of wages paid may be subject to increase or adjustment at any time during the construction period, and all increases will be borne by the Contractor or their Subcontractor without additional cost to the Owner.

.4 It is the Owners policy to approve the letting of the Contract only to a General Contractor who provides labourers and sub-trades on the Project with the appropriate union affiliations to prevent Contractual disputes or delays with Contractors, labourers and or Sub-trades performing work for the Owner. Assume all claims and actions taken against the Owner in the event of delay in the progress of the Work resulting from such labour disputes.

1.18 PROTECTION

.1 Protect existing roads, ditches, culverts, pipes, sewers, conduits, sidewalks, and landscaping. Adopt normal safety precautions for protection of workers and the public, including barricades, guards, lights, etc., and assume all claims and actions taken against the Owner in the event of accident or injury to people or property as a result of the work.

.2 Provide protective covering to protect work at all times from damage caused by weather including but not necessarily limited to rain, wind, storms, snow, frost, and heat. At end of day's work, cover all work likely to be damaged.

.3 In cold weather, cover openings in building to prevent heat loss. If weather is too cold to continue operations despite cold weather precautions, cease work and notify the Consultant.

.4 Ensure no damage is caused to existing structures, buildings, foundations, pavement, sidewalks, fences, curbs, landscaping, property, utilities, services and finishes during progress of Work. Repair and make good damage caused by progress of the Work, at no extra cost to Owner, to the complete satisfaction of the respective property Owner and authorities having jurisdiction. Do not proceed with repairs or remedial work without written permission from the Consultant. Only trades specifically capable of performing the work will be allowed to make remedial or repair work.

.5 Keep municipal roads clean of mud and debris resulting from construction traffic. Protect existing sidewalks and curbs in accordance with local laws, by-laws, and regulation.

.6 Prevent soiling of pavement due to spillage, mixing of material or any other cause. Make good damage caused.

.7 Provide necessary pumps (including spare pumps) and temporary drainage for keeping

the Work free of water throughout construction period. Pump water to existing sewers by approved means. Locate sumps away from foundation elements. Control grading around excavation to prevent surface water from draining into excavation and from damaging adjoining property.

.8 Protect completed or adjacent work from damage due to the work of each Section. Damaged work will be made good wherever possible by those performing work originally, but at the expense of those causing damage.

.9 Protect glass and other finishes against heat, slag, and weld spatter by erecting sturdy plywood or other heavy shield.

.10 If tape or strippable coatings are used to protect glass or finished metal surfaces, do not allow them to become baked on or to thermo set.

.11 Adequately protect trowel led concrete floors and finished flooring from damage. Protect floors when moving heavy loads or equipment on them.

.12 Keep floors free from oils, grease, or other materials likely to cause damage, discolouration or affect bond of applied finishes. Once building is enclosed, keep floors as dry as possible after curing. Stockpiling of damp or wet building materials and use of mixing boxes or water buckets without protecting floors from moisture gain by approved means, is prohibited.

.13 Attach and fasten fixtures and fittings in place in safe, sturdy, secure manner so they cannot work loose, fall, or shift out of position during occupancy of building, as result of vibration or other causes in normal use of building. Refer to "Sleeves, Support and Fasteners" listed hereunder.

.14 Fire Protection

1. Take necessary precautions to eliminate fire hazards and to prevent damage to Work, building materials, equipment, and other property both public and private having to do with Work. Inspect Work weekly for this purpose.
2. No fires to be lit on site. Combustible materials will be removed by the Contractor.
3. Store and locate products and equipment packed in cardboard cartons, wood crates and other combustible containers in orderly and accessible manner. Place approved types of fire fighting equipment in vicinity until permanent fire protection and equipment are available.
4. Tarpaulins will be fire resistant.
5. Maintain fire protection for Work. Store paints and volatile substances in a separate and controlled location and inspect frequently. Inspect temporary wiring, drop cords and extension cables for defective insulation or connections frequently. Remove combustible wastes frequently. Prohibit smoking on the job site.
6. Provide and maintain in proper working order one (1) fire extinguisher for each 750 square meters of floor area on each floor, prominently placed, until completion of work, or until permanent fire fighting equipment is available.
7. Fire extinguishers will be minimum 9 kg 4A 60BC type.
8. Where gas welding or cutting is to be done within 3 m or above combustible

material, or above space that may be occupied by persons, interpose shields of non-combustible material. Tanks supplying gases for welding or cutting will be placed at no greater distance from the work than is necessary and will be securely fastened in an upright position. Such tanks will be free from exposure to the sun or high temperature.

.15 Maintain life safety systems in good operating condition throughout the Work.

.16 Should the Work be closed down for any cause, the Contractor will assume full responsibility for protection against frost, water, wind, fire, vandalism, theft, or other such damages during such period.

.17 Prevent sprayed materials from contaminating air beyond application area, by providing temporary enclosures.

.18 Cover or wet down dry materials and rubbish to prevent blowing dust and debris.

.19 Protect building from movement and damage, especially during filling and compaction and until elements are securely anchored and braced to permanent structure and cannot be damaged or moved by filling or compaction.

.20 Protect and maintain established survey markers. If these markers are disturbed, except where service connections have to be installed, the Contractor will bear the cost to have them re-established by an Ontario Land Surveyor.

1.19 REGULATORY DOCUMENTS

.1 Nothing contained in the Drawings and Specifications will be so construed as to be in conflict with any law, bylaw, or regulation of the municipal, provincial, or other authorities having jurisdiction. Work will be performed in conformity with all such laws, bylaws, and regulations.

1. Contract forms, codes, specifications, standards, manuals, and installation, application and maintenance instructions referred to in these Specifications are of the latest published editions at the date of signing the Contract.
2. Carry out work in accordance with requirements of the applicable Provincial and Local Building Codes and Laws, latest issue, including all amendments and revisions. Where conflicts arise the most stringent requirements will apply.
3. Where it is necessary to carry out work outside property lines, such as sidewalks, paving or concrete curbs, comply with applicable requirements of municipal authorities having jurisdiction.
4. Promptly submit written notice to Consultant of observed variance of Contract Documents from requirements of Building Code and authorities having jurisdiction. Assume responsibility for Work known to be contrary to such requirements and performed without notifying Consultant.

.2 Be responsible for security of all areas affected by work of this Contract until taken over by Owner. Take steps to prevent entry to the Work by unauthorized persons and guard against theft, fire, and damage by any cause.

.3 At the end of the day's work, secure all temporary enclosures and lock exterior doors.

.4 The Contractor is responsible for the prevention of vandalism and theft of tools, equipment and materials used and/or stored at the Work.

1.20 SAFETY

.1 Be governed by pertinent safety requirements of Federal or Provincial Governments and of municipal bodies having authority, particularly the Provincial Construction Safety Act, The Provincial Occupational Health and Safety Act, and regulations of Provincial Ministry of Labour, and work in conjunction with proper safety associations operating under the authority of the Workers' Compensation Act. Protect Owner, Owner's employees, the public and those employed on the Work from bodily injury and to protect adjacent public and private property and Owner's property from damage. Furnish and maintain protection, such as warning signs, tarpaulins, guard rails, barriers, guard lights, night lights, railings around shafts, pits, and stairwells, etc. as required. Remove temporary protective measures when no longer required.

.2 In accordance with the General Conditions, temporary work requiring engineering proficiency for the design, erection, operation maintenance and removal will be designed and bear stamp of the registered professional Engineer or Architect. Detail drawings will be submitted to the Consultant for review prior to commencing any work.

.3 Before temporary structure is used, person responsible for design, or their representative, will inspect structure and certify it has been constructed according to their design.

1.21 USE & ACCESS OF SITE AND PREMISES

.1 Accept full responsibility for the site from the time of Contract award until Substantial Performance of the Work.

.2 Check means of access and egress, rights and interests of the Owner which may be interfered with. Do not block lanes, roadways, entrances or exits. Where work in these locations is required, coordinate with Owner temporary or alternative means of egress.

.3 Where encroachment beyond property limits is necessary make arrangement with respective property owners.

.4 Parking of construction personnel vehicles is permitted only on work site or as indicated on drawings.

.5 Maintain fire routes in a manner acceptable to the local authorities.

1.22 PARTIAL OCCUPANCY OR USE

.1 Owner will have the right to enter and occupy the building in whole or in part for the purpose of placing fittings and equipment or for other use before completion of the Contract, if, in the opinion of the Consultant, such entry and occupancy does not prevent or interfere with the Contractor in performance of the Contract.

.2 Such entry will, in no way, be considered as an acceptance of the Works.

1.23 SERVICES AND UTILITY SYSTEMS

.1 Consult with utility companies and other authorities having jurisdiction to determine the locations of existing services on or adjacent to site.

.2 Information indicating the location of existing services, if shown on the Drawings, does not relieve the Contractor of their responsibility to determine the exact number and location of existing services. Contractor will carry out exploratory digging to determine exact location and route of services before proceeding with the Work.

.3 Give proper notices for new services as may be required. Make arrangements with authorities or utilities for service connections required.

.4 Pay any charges levied by utilities or authorities for work carried out by them in connection with this Contract, unless specified otherwise.

.5 Operate and maintain all utility systems affected by work of this Contract, until the building or specific portions thereof have been accepted by the Owner.

.6 Report existing unknown services encountered during excavation to Consultant for instructions. Be responsible for the protection of all active services encountered and for repair of such service if damaged.

.7 Wherever inactive services are encountered, cap off and remove unwanted portion, with approval and in a manner acceptable with authorities and/or public utility concerned. In absence of specific requirements or directions, plug or cap unused or abandoned utility lines at least 3'-0" outside of new building walls, or as required by utilities, codes, and authorities.

.8 Fill unused sleeves and holes not otherwise filled. If unused sleeve is in fire or sound barrier fill so as to restore fire or sound barrier.

1.24 SLEEVES, SUPPORTS & FASTENERS

.1 The use of explosive power tools must be approved in writing by the Consultant. The use of explosive power tools will not be permitted under any circumstances unless equipped with a device which positively prevents free flight of the stud.

.2 Whenever expansion type fastening devices of any kind, which rely upon friction forces created by expansion of device in concrete or masonry, are to be used, submit following data to Consultant for review:

1. load carrying capacity of device;
2. nature and magnitude of force to be applied to device with supporting data;
3. materials to which device is fastened;
4. whether device is self drilling or, if not, size of bit to be used to drill hole to receive device;
5. installation procedure to ensure that fastener is secure and reliable and that

reinforcing bars are not damaged.

.3 If requested by Consultant, conduct on site tests of installed fasteners using approved, independent testing laboratory with properly engineered and calibrated force measuring meters.

.4 Supply fastenings, anchors, and accessories required for fabrication and erection of Work. Where self drilling anchors are used, drive with impact hammer drill supported from floor in jig to hold drill steady. Do not damage reinforcing bars. If they are encountered relocate fastener. Anchors for exterior work and anchors occurring on or in an exterior wall or concrete will be non-corrosive, hot dip galvanized steel or cadmium plated.

.5 Metal fastening will be of same material as metal component they are anchoring or of metal which will not set up electrolysis which would cause corrosion of fastening or metal component under moist conditions.

.6 Exposed metal fastenings and accessories will be of same texture, colour, and finish as base metal on which they occur. Keep to minimum. Space evenly. Lay out neatly.

.7 Fastenings will be of such type and size and installed to provide positive permanent anchorage of unit to be secured. Wood plugs not acceptable. Install anchors at required spacing to provide required load bearing or shear capacity.

.8 Fastenings which cause spalling or cracking of material to which anchorage is being made are not permitted.

.9 Supply adequate instructions and templates and if necessary, supervise installation where fastenings or accessories are required to be built into work of other trades.

1.25 CONCEALMENT

.1 If doubt arises as to means of concealment, or intent of Contract Documents, request clarification from Consultant before proceeding with portion of work in question.

1.26 EMBEDDED CONDUIT, PIPES & SLEEVES

.1 Slab on Grade:

1. Conduits or pipes embedded in concrete slabs on grade will not be larger in outside diameter than one third thickness of slab, and will have minimum 2” concrete cover to finished surface.
2. Where crossovers occur, one conduit or pipe will be depressed to pass under other and sub-grade depressed to increase slab thickness locally.
3. Parallel conduits or pipes will not be closer than three diameters on centre.
4. For conduit greater than 1/3 slab thickness, depress sub-grade to maintain minimum 50 mm concrete above and below conduit, extend coverage 150 mm each side of conduit.

1.27 DEFLECTION

.1 Make allowance at wall and partition heads for deflection of structure above. In absence

of any other specific requirements or directions, allow deflection of structural members in order of span/180 due to live load only. Where partition butts to underside of floor or roof deck or structural framing or joists, clearance will be based on span of members supporting floor or roof deck. In making such allowance use methods which maintain integrity of wall or partition as sound, and/or fire barrier.

1.28 THERMAL EXPANSION AND CONTRACTION

.1 Conform to manufacturer's recommended installation temperatures. If finishes such as tile, resilient flooring stone or other finishes are installed at temperatures different from operation or service temperatures, make provisions for expansion and contraction in service as approved by Consultant. Repair all resulting damage should expansion provisions prove inadequate.

1.29 ACCESS DOORS

.1 Install access doors and inspection panels supplied by Division 15 and 16.

1.30 CUTTING AND PATCHING

.1 Do all cutting, patching, and making good to leave in a finished condition and to make the several parts of the work come together properly. Coordinate work to keep cutting and patching to a minimum.

.2 Regardless of which Section of work is responsible for any portion of cutting and patching, in each case tradesperson qualified in work being cut and patched will be employed to ensure it is correctly done.

.3 Any cost caused by omission or ill-timed work will be borne by party responsible.

.4 Do not endanger any work by cutting, digging, or otherwise altering, and do not cut nor alter any load bearing element without written authorization by Consultant. Provide bracing, shoring and temporary supports as required to keep construction safely supported at all times.

.5 The Subcontractors requiring cuts, holes or sleeves for their work will locate them.

.6 Make cuts with clean, true, smooth edges. Fit unit to tolerance established by test standard practice for applicable work. Make patches invisible in final assembly.

.7 Cutting will be done in a manner to keep patching to minimum. Obtain Consultant's approval of method to be used to conceal new mechanical and electrical services before beginning cutting. Chasing of concrete surfaces is not required.

.8 Complete and tightly fit all construction to pipes, ducts and conduits which pass through construction to completely prevent the passage of air.

.9 Patching and making good will be done by trade specialists in material to be treated, and will be made undetectable in finished work when viewed from distance of 1.5m under normal lighting.

.10 Cutting or coring of any structural concrete is to be reviewed and approved by the Consultant.

1.31 MAKING GOOD

.1 All damages to the work site, completed work, existing buildings, and areas adjacent to the work site due to the execution of this Contract, will be 'Made Good'.

1.32 SCAFFOLDING

.1 Erect scaffolding independent of walls and use in such a manner limiting interference with other work. When not in use, move scaffolding as necessary to permit installation of other work. Construct and maintain scaffolding in a rigid, secure, and safe manner. Remove it promptly when no longer required. Protect surface on which scaffolding is bearing.

1.33 OVERLOADING

.1 The design of the building is based on the full interaction of all its components parts. No provisions have been made for conditions occurring during construction. Ensure no part of the Work is subjected to a load which will endanger its safety or will cause permanent deformation.

.2 Load no part of structure, falsework, formwork or scaffolding during construction with load greater than calculated to bear safely when completed. Make every temporary support as strong as permanent support. Place no load on any part of concrete structure until concrete has cured as specified and has achieved sufficient strength to safely carry such load.

1.34 OWNERSHIP OF MATERIALS

.1 All materials and equipment delivered to the site to form part of the Work will be considered the property of the Owner and will not be removed without the written consent of the Consultant. However, Contractor will have the right to and will remove surplus materials and equipment after Work has been completed. If so directed by the Consultant, remove such surplus materials and equipment at any time prior to the completion of the Work.

1.35 WORK ON NEIGHBOURING PROPERTIES

.1 The Contractor is responsible for total completion and/or making good of site work extending beyond the building limits, and into adjoining properties. Including but not limited to floor areas, walls, ceilings, grassed areas, and other surfaces damaged due to the construction of this project.

.2 If the work is not to be completed by others, this Contractor will include for completing it, in whole or part, such as is dictated by the prevailing existing conditions, and as the work of this Contract may require.

1.36 WORK PERFORMED

.1 Where it is necessary for work to be performed outside regular business hours and where such work requires the Contractor's workers to be admitted to the premises, the Contractor is responsible for the cost of maintaining personnel on the premises during the period of work, when in the opinion of the Owner or authority having jurisdiction, such personnel are necessary and when such personnel would not be present as part of their normal duties.

.2 All work on UGDSB portions of the building must be performed after regular school hours, weekends, or school holidays.

1.37 DRAWINGS REQUIRED BY AUTHORITIES

.1 Supply two (2) copies of detail drawings for various building components as requested by the Municipal Building Departments, Provincial Agency, and Local Fire Department.

.2 Supply drawings indicating proposed methods for shoring of structural steel, structural concrete and masonry if required by the Municipal Building Department. Drawings will bear stamp of registered professional Engineer responsible for design.

1.38 LOCATION OF APPARATUS & FIXTURES

.1 Location of fixtures, apparatus, equipment fittings, outlets, conduits, pipes, and ducts shown or specified, but not dimensioned, will be considered approximate. Consult with Consultant to establish exact location. Contractor, as part of work, will do relocation caused by Contractor’s failure to consult with Consultant. Where job conditions required reasonable changes in indicated locations and arrangements, make changes at no additional cost.

.2 Where ducts, piping and conduits are permitted to be exposed they will be neatly and uniformly laid out parallel to adjacent building lines and parallel to each other where they run in the same direction. Review exposed installation with Consultant prior to start of work. At no cost to Owner make changes to exposed work as directed by the Consultant where such work is not installed in accordance with Consultant's prior review.

.3 Except where locations are specifically noted on Drawings, install exposed mechanical and electrical fixtures including outlets, switches, thermostats, panels, and other items, located on walls, in orderly and neatly laid out manner, sprinkler piping and heads lining up with each other and grouped together where possible. Review installation with Consultant prior to start of rough-in work. Relocate at no cost to Owner any work which does not meet this requirement.

1.39 CONSULTANTS CONSTRUCTION REVIEW

.1 The Consultant's general review during construction and inspection and testing by independent inspection and testing agencies reporting to the Consultant are both undertaken to inform the Owner/Client of the Contractor's performance and will in no way

augment the Contractor's quality control or relieve the Contractor of contractual responsibility.

.2 Should additional work and/or visits by the Consultant be required because of the Contractor's failure to perform in accordance with the contract documents, or if additional design or drafting time is required by the Consultant to provide/review corrective measures caused by the Contractor's failure to perform in accordance with the contract documents, the Contractor will reimburse the Consultant at the rate of direct personnel expense plus 150% overhead plus travel, equipment and material costs plus H.S.T. where applicable. Reimbursement will be in the form of a Change Order applied against the Contract.

1.40 LEGIBILITY OF CORRESPONDENCE

.1 All correspondence submitted to the Consultant must be typed.

1.41 SNOW REMOVAL

.1 When required remove snow and ice from municipal sidewalks, driveways, and lane ways in accordance with local by-laws and dispense of it legally away from site.

1.42 PERMITS, LICENCES, FEES

.1 Owner will obtain the building permit with the cost being born by the Owner.

.2 The Contractor will apply and pay for other permits required, except the Building Permit.

.3 Where permits, licences and inspection fees are required by authorities having jurisdiction for specific trade functions, they will be obtained by particular sub-trade responsible for the work. Cost of such permits are to be included in this tender.

1.43 FIRE RATED ASSEMBLIES

.1 Materials and components used to construct fire rated assemblies and materials requiring fire hazard classification will be listed and labelled, or otherwise approved, by fire rating authority. Labelled materials and their packaging will bear fire ratings authorities label showing product classification.

1. Fire rated door assemblies will include doors, frame, anchors, and hardware and will bear label of fire rating authority showing opening classification and rating.
2. Materials having a fire hazard classification will be applied or installed in accordance with fire rating authority's printed instructions.
3. Fire rated assemblies will be constructed in accordance with applicable fire test report information issued by fire rating authority. Deviation from fire test report will not be allowed.
4. Construct fire rated assemblies as continuous, uninterrupted elements except for permitted openings. Extend fire rated walls and partitions from floor to underside of structural deck above.
5. Fill and patch voids and gaps around openings and penetrations in and at perimeter of assemblies to maintain continuity and to produce a tight seal.
6. Test methods used to determine fire hazard classification and fire endurance rating

will be as required by Ontario Building Code.

1.44 LINES AND LEVELS

.1 Verify elevations, lines, levels, and dimensions indicated and report errors, conflicts, or inconsistencies to the Consultant before commencing work or as soon as discovered.

.2 Accurately lay out work and establish lines and levels in accordance with requirements of Contract Documents.

.3 Set up, maintain, and protect permanent reference points. As the Work progresses, establish benchmarks. Locate and fix column centers, piers, walls, partitions, shafts, wells, windows, and doors.

.4 Provide Subcontractors with, and be responsible for levels and dimensions which Subcontractors require to relate their work to work of Contractor, other Contractors, and Subcontractors. Notify Subcontractors that such lines, levels, and dimensions must be obtained from Contractor.

1.45 DIMENSIONS

.1 Check and verify dimensions wherever referring to work. Dimensions, when pertaining to work of another Section, will be verified with Section concerned. Details and measurements of work which is to fit or conform with work installed will be taken at site.

.2 Do not scale Drawings. If there is ambiguity, lack of information or inconsistency, immediately consult Consultant for directions. Be responsible for extra costs involved through the disregarding of this notice.

.3 Walls, partitions, and screens will be considered as extending from floor to underside of structural deck unless specifically indicated otherwise on Drawings.

.4 Give particular attention to finished dimensions and elevations of Work. Make finished work fit indicated spaces accurately. Make finished work flush, plumb, true to liens and levels and accurate in all respects.

1.46 EXTENDED GUARANTEE

.1 Guarantee = Warranty.

.2 Submit extended guarantees as part of "Operating and Maintenance Manuals" in accordance with requirements of Section 01700 – Contract Closeout.

.3 Arrange extended guarantees in systematic order matching Specification format, include a table of contents listing warranties in same order.

.4 Each guarantee must show:
1. Name and address of project
2. Name of Owner
3. Section Number and Title

.5 Extended guarantees must be presented under Contractor's letterhead, seal and

signature and must bear similar wording to that specified in Contract Documents.

.6 Refer to other Sections for extended guarantees.

1.47 FIRE RATINGS

.1 Where a material, component or assembly is required to be fire rated, all materials must comply with the standard tests and the requirements of the local authorities.

1.48 INSURANCE

1. Provided as per the Town of Erin requirements located in the Request for Bid document provided by the Owner as part of the bid documents.

1.48 PROGRESS SCHEDULE

1. The General Contractor will prepare a full progress schedule of the work in form to be mutually agreed upon by the General Contractor/Consultant and the Owner. Bring up to date at the beginning of each month. Distribute to Consultant/Owner.

1.49 PROJECT MEETINGS

1. Shall be called as required by the General Contractor, Consultant or Owner. Minutes of these meetings will be kept and distributed by the General Contractor to the attendees within three (3) days.

1.50 COORDINATION

1. The Contractors shall cooperate and coordinate with other trades as required for the satisfactory and expeditious work in accordance with the Construction Schedule.

2. Each Contractor shall be responsible for taking and recording of field dimensions necessary for proper incorporation of their work with that of other trades.

3. Each Contractor shall be responsible for all forms, centering, templates, anchors, sleeves, inserts, chases, openings and accessories required to be fixed or inserted in the work of others to accommodate work by that respective Contractor and shall be supplied by the Contractor and either set in place by them or complete instructions as to location, size, and the like, provided to the related trade for their additional work and make up lost time resulting from failure to provide the necessary items, information, and cooperation, in adequate time for the same to be incorporated in the work of other trades.

1.51 EXAMINATION

1. Before beginning work, each trade shall examine the preceding work upon which work of their section depends. Notify the Consultant in writing of unsuitable condition of

preceding work. Beginning of work of any section shall imply acceptance of the obligation to execute work of specified quality.

1.52 SETTING OUT

1. Set out the Work under the direction of the General Contractor.

2. Grades, lines, and levels are shown on drawings. Verify grades, lines, levels, and dimensions and report any errors or inconsistencies before commencing the work or as soon as discovered.

3. Provide and maintain well built batter boards at corners and establish benchmarks in widely separated places. As the work progresses, establish benchmarks for each floor. Locate and fix centres, piers, walls, partitions, shafts, wells, windows, and doors. (Alternatively, use GPS system to layout corners/grids, etc.)

1.53 MEASUREMENTS

1. Each Contractor/Sub-Contractor shall assume complete responsibility for the accuracy and completeness of their own dimensions. Errors in dimensions must be rectified by the responsible trade unless approval in writing is received from the Consultant to leave as is.

2. If there is ambiguity or lack of information on the drawings, contact the Consultant for clarification.

1.54 LOCATION OF APPARATUS

1. The location of apparatus, fixtures and outlets shown or specified shall be considered as approximate only. The actual location shall be as directed and as required to suit the conditions at the time of installation and the work of other trades. Before installation, the Contractor shall consult with the Consultant and ascertain the location required.

1.55 CONCEALMENT

1. Conceal pipes, wiring and ducts in floor, wall, and ceiling construction of finished areas except where indicated otherwise. Consult with Consultant where this is not possible due to on site conditions.

1.56 CUTTING, FITTING & PATCHING

1. Obtain Structural Engineer's approval for cutting, boring or sleeving load bearing members. Patches are to be inconspicuous in final assembly. Fit work airtight to pipes, sleeves, ducts, and conduits.

1.57 OVERLOADING

1. Each trade is responsible to maintain safe loading of the structure. Provide temporary supports as strong as permanent support. Any damages from violations of this requirement will be repaired at the cost of the offending trade.

1.58 BUILDING AIR VAPOUR SEAL

1. Exterior walls, windows, floor, and roof surfaces must achieve an air-tight and vapour-tight condition. Each Contractor or Sub-Contractor is to perform necessary work on their scope of work to meet this objective. General Contractor is to ensure all penetrations and protrusions are sealed adequately.

1.59 SECURITY

1. All Sub-Contractors will be responsible for their own material, handling, hoisting, plant requirements to complete all work contained within his contract. The General Contractor will take reasonable precautions to provide security. Each Contractor/Sub-Contractors will be responsible for safe storage and protection of their own equipment and materials. The Owner will not assume any liability for theft, loss, or damage.

1.60 ACCIDENTS AND FIRST AID SAFETY PLAN

1. Each Contractor/Sub-Contractor shall immediately notify the General Contractor of any and all accidents on the Project.

2. All Contractors shall provide first aid kits for their own employees, to conform to the Workplace Safety and Insurance Board and other pertinent regulations.

1.61 FIRE PROTECTION

1. Each Contractor shall take every precaution to prevent fire occurring on or about the site. Fire fighting equipment will be provided by the General Contractor for the protection of the building. Each Contractor shall be responsible for providing such fire fighting equipment necessary for works pertaining to their trade. Such equipment will comply with the Ontario Building Code and/or directed by the Provincial Fire Commission.

1.62 HAZARDOUS PRODUCTS

1. Each Trade will be responsible to clearly identify any hazardous products, as well as notifying the General Contractor prior to starting work with the products that the workers are trained in the appropriate safety measures as directed by the Ministry of Labour.

1.63 UTILITIES AND SERVICES

1. Before starting the work, the General Contractor shall contact public utilities for location of underground services.

2. Protect, relocate, and maintain existing active services wherever they are encountered. Wherever inactive services are encountered, cap them off and remove the unwanted portion with the approval of the authorities and/or the public utility concerned in the manner approved by them.

3. In case of damage to active services, notify the Consultant, General Contractor and utilities and authorities immediately and make all required repairs under the direction of the appropriate utility. Carry out repairs during off hours if required. In absence of specific requirements of directions, plug or cap unused or abandoned utility lines at least 10 m outside of new building walls or as required by utilities, codes, and authorities.

1.64 PROTECTION OF SITE

1. Protect tops, trunks, and roots of existing trees on the work site that are to remain. General Contractor will box, fence, or otherwise protect trunks of existing trees which may be subject to construction damage before any work is started. Do not permit heavy equipment or stockpiles within branch spread. When approved, remove interfering branches without injury to trunks and cover scars with tree paint. Wherever excavating is required within branch spread of trees that are to remain, do not cut tree roots but tunnel or trench under or around roots by careful hand digging and without injury to roots.

1.65 INSPECTION OF THE WORK

1. The Owner, the Consultant and the Contractor shall have access to the Work for inspection whenever it is in preparation or progress. The Sub-Contractor shall cooperate to provide reasonable facilities for such access.

1.66 REJECTED WORK

1. Defective work whether the result of poor workmanship, use of defective products or damage through carelessness or other act or omission of the Sub-Contractor and whether incorporated in the work or not, which has been rejected by the General Contractor or Consultant as failing to conform to the Sub-Contract Documents shall be removed promptly from the premises by the Sub-Contractor and replaced and/or re-executed promptly in accordance with the Sub-Contract Documents at the Sub-Contractor's expense.

2. Any portion of the work or other Contractor's work destroyed or damaged by such removals or replacements shall be made good promptly at the Sub-Contractor's expense.

3. If, in the opinion of the General Contractor, it is not expedient to correct defective work or work performed in accordance with the Sub-Contract Documents, the General Contractor, having obtained concurrence of such opinion from the Consultant, may deduct from the Sub-Contract Price, the difference in value between the work as done and that called for by the Sub-Contractor Documents.

1.67 PAYMENT

1. Payment to the Sub-Contractors and material suppliers will be on a monthly draw basis or as approved by Owner. Each submission for payment over $5,000.00 is subject to receipt of Workplace Safety and Insurance Board Clearance and statutory declaration. All final payments are subject to this requirement as per Holdback Section below. It is expected the General Contractor will follow the current requirements of the Construction Act with regards to prompt payment procedures, and ensure Sub-Contractors are compensated in a timely manner according to the prompt payment procedures as described in the Construction Act.

1.68 CLAIMS FOR EXTRAS

1. If a Contractor claims that any instructions by drawings, specifications or supplemental instruction involve extra cost under this Contract they shall give the General Contractor written notice thereof before proceeding to execute the work, and in any event, within two weeks of receiving such instructions, except in an emergency, endangering life or property, in which case, the work shall be immediately executed. No such claims shall be valid unless so made. Fees for extras shall be limited to a maximum of 5% overhead and 5% profit. Hourly work must be accompanied by daily time records signed by the Superintendent. Owner signed Change Orders must correspond to each claim for extras.

1.69 HOLDBACKS

1. All progress payments for work completed are subject to a 10% holdback. All holdback monies will be held until receipt of all documentation deemed necessary by the Consultant, i.e., Statutory Declaration, Workplace Safety and Insurance Board Clearance Form, Guarantee, As-Built's, Date of Last Supply, as per the Construction Act – latest edition.

11.1 HARMONIZED SALES TAX (HST)

.1 HST is to be noted as a separate amount on all invoices.

END OF SECTION 01010

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

.1 Comply with requirements of the General Conditions and Supplementary General Conditions.

.2 General Contractor and Sub-contractors must provide a police record check for any persons working on the site upon request of the Owner.

.3 Should contractor require keys and security codes for the site, a $250 CASH ONLY deposit is required. The contractor is responsible for picking up and returning the keys.

.4 The contractor must provide and use a portable washroom on site. The contractor is NOT permitted to use the school or community centre washrooms.

1.2 PRE-CONSTRUCTION MEETING

.1 Immediately prior to construction, upon notification attend at location of Owner's choice, pre-construction meeting, along with authoritative representatives of certain key Sub-Contractors as specifically indicated in the conference notice.

.2 Purpose of meeting is as follows:

1. Review project communications procedures.
2. Review contract administration requirements, including submittals, payment and change order procedures.
3. Identify critical points on Construction Schedule for positive action. Construction to be fully complete and legally occupied by ?? ***Please note:***
   i. *Designated Substances work and scheduling.*
   ii. *Regular school activities will continue during construction period.*
4. Identify product availability problems and substitution requests.
5. Establish site arrangements and temporary facilities.
6. Revise points, which in Owner's, Consultant's and Contractor's opinion require clarification.

1.3 SITE MEETINGS

.1 Prior to the commencement of the Work, the General Contractor together with the Consultant will mutually agree to a sequence for holding regular "on site meetings". Project Meeting schedule to be every 2 weeks unless determined otherwise by Consultant.

.2 The General Contractor will organize site meetings, ensure persons, whose presence is required are present and relative information is available to allow meetings to be conducted efficiently.

.3 Post and forward copies of progress schedules for advice of Sub-Contractors, Owner, and Consultant.

.4 Review approved progress schedule for rapid and efficient completion of Work according to Contract requirements, with Sub-Contractors and suppliers of products.

.5 Take adequate minutes and keep suitable records of meetings and distribute copies to Owner, Consultant, Sub-Contractors, Inspectors and other interested parties within 3 working days after meetings.

.6 Schedule additional meetings to expedite progress, should work require it.

.7 Keep Owner and Consultant informed of progress, delays, and potential delays during all stages of Work. Do everything possible to meet progress schedule.

1.4 SUPERVISION

.1 Employ an experienced and qualified superintendent who will devote their time exclusively to the Work of this Contract and who will be in complete charge of the Work from commencement to completion. The superintendent will not be changed after commencement of the Work without the Owner's approval.

.2 Supervise, direct, manage and control the work of all forces, including Sub-Contractors and suppliers. Carry out daily inspections to ensure compliance with the Contract Documents and maintenance of quality standards. Ensure inspection staff includes personnel competent in supervising mechanical and electrical trades.

1.5 PROGRESS RECORD

.1 Maintain on site, permanent written record of progress of work. Records will be open to inspection by Consultant at all times and a copy will be furnished to the Consultant upon request.

.2 This record will show weather conditions, dates of commencement, progress and completion of various trades and items of work. Particulars pertaining to erection and removal of forms, pouring of concrete, installation of roofing and other critical or major components, as well as number of employees of various trades and type and quantity of equipment employed daily, will be noted.

.3 Display a copy of the construction schedule in the site office from start of construction to completion. Superimpose actual progress of work on schedule at least once each week.

1.6 RECORD DRAWINGS

.1 Maintain on site at all times a complete and separate set of Contract Documents for use as record documents. Make these documents available for review at all times.

.2 Note clearly, neatly, accurately, and promptly, as the work progresses, all architectural, structural, mechanical, electrical, changes, revisions and additions to the Work and deviations from the Contract Documents.

.3 Refer to Section 01700 – Contract Closeout for requirements on submission of record drawings. The Owner will require AutoCAD, PDF digital copies on a USB data stick and 2 hard copy sets of all as-built drawings. Cost of preparing drawings to be included in the contract price.

.4 AutoCAD drawings for Fire plans required.

1.7 DOCUMENTS ON SITE

.1 Contractor's field office will at all times contain:

1. Complete set of Contract Drawings
2. Specifications
3. Addenda

4. Reviewed Shop Drawings and Samples
5. Change Notice
6. Change Orders
7. Record of Revisions
8. Supplemental Instructions and Sketches
9. Field Test Reports
10. Approved Work Schedule
11. Manufacturers' installation and application instructions
12. Progress reports and meeting minutes
13. Approved building permit drawings
14. Other Permits issued on the project
15. Police record check documents
16. Current Provincial Building Code
17. Local Applicable Codes
18. Copy of CSA Standard, CGSB Specifications ASTM Documents and other standards referred to in the Specifications.
19. As built drawings with all changes to the original Contract Documents recorded and continuously updated.

END OF SECTION 01200

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

.1 Expenditure of cash allowances will be at the entire discretion of the Consultant. All benefits from unexpended portions of these Allowances will revert to the Owner.

.2 Allowances will be deducted whole or in part in the Final Certificate of Payment.

.3 Verification, in the form of invoices or other documentation, will be required before Final Certificate.

.4 Contract sum includes the Contractor's overhead and profit for all cash allowances whether or not they are exceeded.

.5 Where cash allowances pertain to supply only of certain items, they will include all installation costs in bid price basing such costs on the full amount of the particular allowance.

.6 Contract sum excludes the H.S.T. on the total cash allowances.

1.2 SECTION INCLUDES

.1 Cash Allowances.

1.3 CASH ALLOWANCES

.1 Include in Contract Price, cash allowances stated herein.

.2 The Contract Price includes cash allowances which shall be expended as the Owner directs through the Consultant.

.3 Cash allowances, unless otherwise specified, cover net cost to the Contractor of services, products, construction machinery and equipment, freight, handling, unloading, storage installation and other authorized expenses incurred in performing the work stipulated under the cash allowances but do not include any Value Added Taxes payable by the Owner to the Contractor.

.4 The Contract Price and not cash allowance includes Contractors overhead and profit in connection with such cash allowance.

.5 The Contract Price will be adjusted by written change order to provide for an excess or deficit to each cash allowance.

.6 Progress payments on accounts of work authorized under cash allowances shall be included in Consultants monthly certificate for payment.

.7 A schedule shall be prepared jointly by Consultant and Contractor to show when items called for under cash allowances must be authorized by Consultant for ordering purposes so that progress of work will not be delayed.

.8 The amount of each allowance, for work specified in respective Specification sections is as follows:

1. $15,000.00 – provide allowance for purchase of testing and inspection services.
2. $10,000.00 – provide allowance for interior signage.
3. Allowances as shown in Mechanical and Electrical Specifications.

END OF SECTION 01210

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

.1 Comply with requirements of the General Conditions and Supplementary General Conditions.

.2 Unless specified otherwise, make all submissions to the Consultant.

.3 Make all submissions required by the Contract Documents with reasonable promptness and in orderly sequence to cause no delay in the Work.

1.2 WORK INCLUDED

.1 Submission of Shop Drawings.

.2 Submission of Samples

.3 Provision of Mock-ups.

1.3 RELATED SECTIONS

.1 Submission of maintenance and record documents – Section 01700.

.2 Submission of maintenance materials – Section 01700.

1.4 CONSTRUCTION SCHEDULE

.1 At the first scheduled Construction Meeting (referred to as a “Start-up Meeting”, or “Pre-construction Meeting”), submit a detailed, trade by trade progress schedule for the work in a bar chart form acceptable to the Consultant. Prepare the schedule in conjunction with sub-trades who will agree to its feasibility and will commit to the dates therein.

.2 Unless otherwise agreed review and update schedule weekly, relative to work completed, for duration of Contract. Provide Consultant with DIGITAL copies of updated schedule for review.

1.5 OWNER SUPPLIED ITEMS

.1 At the first scheduled Construction Meeting (referred to as a “Start-up Meeting”, or “Pre-construction Meeting”), submit a detailed schedule of requested dates for delivery of Owner supplied and or provided items.

1.6 CASH FLOW CHART

.1 At the first scheduled Construction Meeting (referred to as a “Start-up Meeting”, or “Pre-construction Meeting”), submit a detailed cash flow chart broken down on a monthly basis, in a manner acceptable to the Consultant. Cash flow chart will indicate

anticipated Contractor's monthly progress billings from commencement of Work until completion.

.2 Update cash flow chart whenever changes occur to scheduling and in manner and at times satisfactory to Consultant.

1.7 SCHEDULE OF VALUES

.1 At the first scheduled Construction Meeting (referred to as a "Start-up Meeting", or "Pre-construction Meeting"), submit a detailed schedule of values in accordance with requirements of the General Conditions.

.2 Use Specifications Table of Contents as basis for degree of breakdown required.

.3 Schedule of Values to also include a line item for Close-out Submittals, with a minimum value of 1% of base contract amount (i.e., $10,000 for every $1,000,000 of base contract amount).

.4 Provide additional cost breakdown information if requested by Consultant to assist in certification of the Work.

1.8 SHOP DRAWINGS

.1 Shop drawings, where required, are to be prepared and submitted to the Consultant. This review by the Consultant is for the sole purpose of ascertaining conformance with the general design concept. This review shall not mean the Consultant approves the detail design inherent in the shop drawings, responsibility for which shall remain with the Sub-Contractor submitting the same and such review shall not relieve the Sub-Contractor of their responsibility for errors or omissions in the shop drawings or of their responsibility for meeting all requirements of the Contract Documents.

.2 Each Contractor/Sub-Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for coordination of the work with other sub-trades affected by this Work.

.3 Prepare shop drawings in measurements matching those of the project working drawings only. Shop drawings containing alternative measurements will be rejected.

.4 Term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures, design calculations and other data which will be provided by Contractor to illustrate details of portion of Work. Term "design team" means Consultant and Sub-Consultants whether Sub-Consultants are employees of Consultant or not, and includes Structural, Mechanical, Electrical, etc.

.5 Prior to submission to Consultant, review shop drawings. By this review the Contractor represents that they have determined and verified field measurements, field construction criteria, materials, catalogue numbers, design calculations and similar data or will do so

and that they have checked and coordinated each shop drawing with requirements of Work and of Contract Documents. Indicate review of each shop drawing by stamp, date, and signature of responsible person of Contractor.

.6 Shop drawings will not contain substituted materials unless such substitutions have been requested in advance and approved by Consultant.

.7 For additional detail and clarification of requirements refer to Divisions which refers to these items.

.8 Distribution of Shop Drawings via digital PDF file for each shop drawing required. Submitted to:

1. Consultant (Owner)
2. General Contractor
3. Related Sub-Contractors
4. Building Department, as required

.9 Shop drawings, which require the approval of a legally constituted authority having jurisdiction, will be submitted by Contractor to such authority for approval. Such shop drawings will receive final approval of authority having jurisdiction before Consultant's final review.

.10 No work, requiring a shop drawing submission, will be commenced until the submission has received Consultant's final review. Only shop drawings bearing Consultant's review stamp are to be sent and used on the job site.

.11 Signed/stamped electronic copies will be returned to the Contractor who is then responsible for distribution of copies of reviewed/corrected shop drawing to appropriate Sub-Contractors for appropriate action and to municipal building department for their records of those subjects required by authorities.

.12 The Consultant's review is for the sole purpose of ascertaining conformance with the general design concept. This review will not mean the Consultant approves the detail design inherent in the shop drawings, responsibility for which will remain with the Contractor submitting same, and this review will not relieve the Contractor of his responsibility for meeting the requirements of the Contract Documents. The Contractor is responsible for dimensions to be confirmed and correlated at the job site for information that pertains solely to fabrication processes or to techniques of construction and installation and for coordination of the work of all sub-trades.

.13 The following shop drawings are to be submitted to the Consultant for review, unless otherwise noted:

1. Steel Reinforcement
2. Hollow Metal Doors and Frames
3. Aluminum Windows, Doors, and Frames
4. Wood Doors

5. Finishing Hardware
6. Plumbing Fixtures
7. HVAC Equipment
8. Electrical (Service Equipment and Fixtures, Fire Alarms, Controls)
9. Millwork
10. Structural Steel (with signed Engineer's Seal)
11. Miscellaneous Metals (with signed Engineer's Seal for structural items)
12. Miscellaneous Metals (including but not limited to Stairs, Handrails, and Guards, Ladders).
13. Manufactured Specialties (See Division 10)

1.9 SEQUENCE OF REVIEW

.1 The Sub-Contractor is to submit the specified number of drawings to the General Contractor who will review the submission. The Sub-Contractor will confirm on-site conditions and dimensions.

.2 The General Contractor will submit the shop drawings to the Consultant. The reviewed drawings will be returned to the Sub-Contractor by the General Contractor.

.3 Notify the Consultant of any intentional deviation in the shop drawings from the Contract Drawings along with the submission.

1.10 INTERFERENCE DRAWINGS

.1 Prepare interference and equipment placing drawings to ensure all components will be properly accommodated within the spaces provided.

.2 Prepare drawings to indicate coordination and methods of installation of a system with other systems where their relationship is critical. Ensure details of equipment apparatus and connections are coordinated.

.3 Indicate actual locations of visible items such as air handling outlets, light fixtures, smoke detectors, sprinkler heads, grilles and access panels occurring at these locations.

.4 Have drawings initialed by responsible person of each Subcontractor involved before affixing your own signature.

.5 Submit copies of interference drawings to Consultant for review.

1.11 STANDARDS

.1 Throughout the Specifications, it is stated that materials conform to certain standards as established by CSA, CSGB etc. When requested submit a copy of the actual test results to the Consultant for review.

.2 The Consultant may select specimens of materials delivered to the job site for testing in accordance with the specified standards. If materials fail to meet the standard, the test

will be at the Contractor's expense. Materials failing to meet specified standards will be immediately removed and replaced with new materials and retested in accordance with the specifications at the expense of the Contractor.

1.12 SAMPLES

.1 Submit samples required by Contract Documents and as indicated (as applicable to this project);

1. Millwork and countertop(s)
2. ALL flooring materials and accessories
3. Paint draw downs
4. Ceiling tile
5. As specified in other sections or drawings

.2 Unless indicated otherwise submit samples in duplicate.

.3 Submit samples with identifying labels bearing material or component description, manufacturer's name and brand name, Contractor's name, project name, location in which material or component is to be used, and date.

.4 Prepay any shipping charges involved for delivering samples to destination point and returning to point of origin if required.

.5 Provide samples of special products, assemblies, or components when so specified.

.6 No work requiring a sample submission will commence until submission has received Consultant's final review.

1.13 MOCK-UPS

.1 Provide the following in a location as applicable to product and where directed by Consultant. Size in order to provide adequate example to judge workmanship, substrate preparation and material application (including but not limited to):

1. Unit Masonry (Section 04200)
2. Masonry rehabilitation (Section 04501 & 04510)
3. Roof parapet conditions (Section 07500 & 07620)
4. Decorative Metal Railing (Section 05730)
5. Firestopping & Smoke Seals (Section 07270)

1.14 PROGRESS PHOTOGRAPHS

.1 Concurrently with monthly application for payment submit high resolution digital photograph files (JPEG) to Consultant. Photographs to be properly exposed and in focus.

END OF SECTION 01300

1.1 TEMPORARY FACILITIES

.1 The General Contractor will provide, install, maintain, and locate the following temporary facilities for the Work and for all trades, except where specified otherwise and remove them upon completion of the Work. These facilities shall be considered minimal and shall be increased as necessary.

.2 Maintain temporary utilities, facilities, and controls in a neat and tidy condition.

.3 Remove from site all such work after use.

a. Light and Power

Temporary power is to be provided by the Electrical Contractor from the existing building. Extension cords and lamps therefore shall be provided by Sub-Contractors requiring them.

b. Water

Water is to be provided from the existing building.

c. All Water Hoses

Each Sub-Contractor, requiring water, will bring water from a central source to the work location to where it may be required.

d. Weather-tight Sheds

Each Contractor/Sub-Contractor shall provide his own storage shed until such time that materials, products, tools, and equipment can be stored in the building in locations directed by the Owner.

e. Toilets

A temporary toilet will be provided by the General Contractor. The General Contractor is responsible for general clean-up and maintenance where required.

f. Temporary Heat

Provided by the General Contractor in unheated areas normally heated to minimum temperatures outlined by Code, during services shutdown (gas, electrical power) periods.

g. Access

Roads, walks, ramps, stairs, and such other means of general access to the building and (or floors) as may be required, by the General Contractor. Ladders, scaffolding and other such construction aids by each Contractor/Sub-Contractor unless specifically negotiated with the General Contractor to share common units.

h. Staging Area

In order to keep the building in operation, a general staging area will be set up as agreed to by the Owner at the start of construction.

i. Safety Fencing

As required by the health and Safety Act and Town Requirements.

j. Pedestrian Overhead Protection

Provide Overhead protection at building exits identified on the Drawings. Wood lumber construction to provide temporary overhead protection from falling objects/construction materials. Provide proposed construction methodology via sketch to Consultant for review and approval.

1.2 HANDLING

.1 All materials shall be handled in strict accordance with the manufacturer's recommendations and any deviation from the specified method shall be made in writing to the Architect and shall contain a guarantee clause.

.2 Install all material and equipment in strict accordance with the manufacturer's recommendations, as any modifying of the manufacturer's recommended procedure, may void their guarantees.

.3 Any modification to the manufacturer's recommendations, must have written acceptance from the manufacturer before being approved by the Architect.

.4 Where a part of the work requires men skilled in that particular work or trade, then only men trained or skilled in that particular work or trade shall be used.

END OF SECTION 01500

1. 1 QUALIFICATIONS

.1 Each Contractor/Sub-Contractor shall provide on site a qualified superintendent for the job who is experienced in this scale of construction. The superintendent must not be changed without notifying the Consultant / Owner at least forty-eight (48) hours in advance.

1.2 PROTECTION

.1 In the event of damage to adjacent materials or work causing the damage, each sub-trade will make all repairs and replacements necessary to the approval of the Consultant and at no additional cost to the Owner. In particular, each Trade shall take the necessary precautions to minimize water penetration during construction.

1.3 FASTENINGS

.1 Each trade, except where Contract is for supply only, shall be responsible for all fastening required to complete work of that particular trade.

1. Supply all fastenings, anchors and accessories and adhesives required for fabrication and erection of the work.

2. Exposed metal fastenings and accessories shall be of same texture, colour, and finish as base metal on which they occur.

3. Metal flashings shall be of the same material as the metal on which they occur, and which will not set up an electrolytic action which would cause damage to the fastening or metal component under moist conditions. In general, exterior anchors for windows, roofing sheet metal and anchors occurring on or in an exterior wall or slab shall be non-corrosive or hot-dip galvanized steel.

4. Anchoring and fastening devices or adhesive shall be of appropriate type and shall be used in sufficient quantity in such a manner as to provide positive permanent anchorage of the unit to be anchored in position. Install anchors at spacing to provide for required load carrying capacity.

5. Exposed fastenings will not be permitted without approval by the Consultant prior to use.

6. Supply adequate instructions and templates and, if necessary, supervise installation where fastenings or accessories are required to be built into work of other trades.

7. Fastenings which cause spalling or cracking of material to which anchorage is being made are not permitted.

8. Do not use power actuated fastening devices which are stressed in withdrawal on any part of this work without written approval from the Consultant. Take particular stringent safety precautions when using power actuated fastenings. Only low velocity plunger-type devices are permitted.

END OF SECTION 01600

1. 1 ALTERNATIVE MATERIALS

.1 Whenever materials are specified by their names or by manufacturer's names, the Bid must be based on the use of such materials, unless written approval has been received by the Bidder from the Consultant prior to tender closing in the form of an Addendum to Bid Documents. Suggestions for use of alternative materials will be considered, provided complete descriptive data and relative costs are submitted. Such suggestions and data shall be given on separate sheets submitted with Bid but shall not be incorporated in any way in stipulated sum bid.

.2 Wherever a proposed substitute or alternative is approved it shall be the sole responsibility of the Contractor proposing such alternative to ensure that such an alternative material or equipment is fully compatible with available space, location, method of installation, work of other trades, power characteristics and the like and that it will comply with all pertinent sections of the Ontario Building Code.

END OF SECTION 01630

PART 1 - GENERAL

1.1 PRODUCT QUALITY

.1 Products supplied for work will be new and as far as possible and unless otherwise specified, of Canadian manufacture.

.2 Materials used for temporary facilities are not required to be new, provided they are structurally sound and in suitable and safe operating condition.

1.2 STANDARDS

.1 Where a standard has been adopted by these Specifications incorporate minimum requirements of such standard into the Work.

.2 Where requirements of Specifications are more stringent than those of the standard, follow more stringent requirements.

1.3 CERTIFICATION

.1 Building materials, components and elements specified without the use of trade or proprietary names will meet requirements specified.

.2 If requested by Consultant, submit evidence of meeting requirements specified. Evidence will consist of certification based on tests carried out by an independent testing agency.

.3 Certification based on previous tests for same materials, components or elements is acceptable. Certification will be in form of written test reports prepared by testing agency.

1.4 AVAILABILITY & SUBSTITUTIONS

.1 Products which are specified by their proprietary names or by part or catalogue number form the basis for Contract. No substitutes for these may be used without Consultant's approval in writing.

.2 Where it is found that specified materials have become unavailable for incorporating into the Work, notify Consultant in writing immediately of proposed substitution.

.3 Proposed substitution will be top quality products considered by Consultant to be of equal quality and value to that specified, and suitable for purpose intended.

.4 Products proposed as substitutions, and which are considered by Consultant to be suitable for purpose intended, but which are in his opinion of lesser value and quality than those specified will only be accepted as substitution if reasonable credits are allowed for their use.

.5 In order to substantiate equivalency of proposed materials, products, or processes, submit samples, printed product descriptions, test data, installation instructions, standards, certification, sample, guarantee/warranty forms, list of successful projects

incorporating such proposals, and similar information requested by Consultant.

.6 Whenever a substitute is proposed, any change to contract price as a result of acceptance of proposed product will include adjustments to adjacent structure or space in order to accept minor differences in size or weight between proposed items and corresponding specified items.

.7 Prevent substitution or request for substitution from delaying construction progress.

.8 Requests for substitution resulting from failure to place orders in time will not be entertained. Be responsible for ordering products in time to ensure prompt delivery; bear all costs for failure to comply with these requirements.

.9 Upon Consultant's request submit copies of material and equipment purchase orders.

1.5 PRODUCT DELIVERY, HANDLING & STORAGE

.1 Suitably pack, crate, and protect products during transportation to site to preserve their quality and fitness for the purpose intended.

.2 Store products in original, undamaged condition with manufacturer's labels and seals intact until they are incorporated into completed work.

.3 Handle and store materials in accordance with manufacturer's and supplier's recommendations to ensure preservation of quality, appearance, and fitness for work.

.4 Protect materials from damage by extreme temperatures or exposure to the weather.

.5 Arrange materials so as to facilitate prompt inspection, and remove faulty, damaged, or rejected materials immediately from site.

1.6 TRADEMARKS & LABELS

.1 Trademarks and labels will not be visible in finished work except in mechanical, electrical, communications equipment and elevator machine rooms, to identify equipment, for maintenance and replacement.

.2 Outside of such areas, exposed lettering, numerals and graphic symbols on equipment, fittings, fixtures, components, and accessories, will be subject to Consultant's specific direction and approval regarding placement size, style, colour and other design features. Remove and replace such lettering, etc., for which such direction, etc. has not been obtained.

.3 Except as provided in paragraph 1.6.1, locate trademarks and labels on concealed or inconspicuous surfaces or remove by grinding if necessary or paint out where surface painted, if located conspicuously. Do not damage component.

1.7 PRODUCT DELIVERY SCHEDULE

.1 Contractor is responsible for ensuring suppliers or distributors of materials specified or

alternatives accepted, which he intends to use, have materials on site when required. Contractor will obtain confirmed delivery dates from the suppliers.

.2 Contractor will contact Consultant immediately upon receipt of information indicating materials or items will not be available on time, in accordance with original schedule, and similarly, it will be the responsibility of all Sub-Contractors and suppliers to so inform the Contractor.

.3 Consultant reserves the right to receive from the Contractor, upon request, copies of actual purchase or work orders of any materials or products to be supplied for the Work.

.4 If materials and products have not been placed on order, the Consultant may instruct that such materials and products be placed on order, if direct communication, in writing, from the manufacturer or prime suppliers is available indicating delivery of said materials and products will not be made in sufficient time for the orderly completion of the Work.

.5 The above, in no way releases the Contractor, or their subcontractors and suppliers of their responsibility for ensuring timely ordering of materials and items required, including the necessary expediting, to complete the Work as scheduled in accordance with the Contract Documents.

1.8 WORKMANSHIP

.1 Work will be carried out in accordance with the best trade practice, by mechanics skilled in the type of work concerned.

.2 Products, materials, systems, and equipment will be applied, installed, connected, erected, used, cleaned, and conditioned in accordance with the applicable manufacturer's printed directions.

.3 Where specified requirements are in conflict with manufacturer's written directions, follow manufacturer's directions. Where specified requirements are more stringent than manufacturer's directions, comply with specified requirements.

END OF SECTION 01650

PART 1 – GENERAL

1.1 GENERAL REQUIREMENTS

.1 Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

.2 This Section includes the general administrative and procedural requirements governing execution of the Work including, but not limited to the following:

i. Substantial Completion Procedures
ii. Final Completion Procedures
iii. Warranties
iv. Final Cleaning (See Section 01710)
v. Repair of the Work

1.2 SUBMITTALS

.1 Close-Out Submittals: List of incomplete items.

.2 Certificate of Substantial Completion, Certificate of Insurance, Maintenance Materials

1.3 SUBSTANTIAL COMPLETION PROCEDURE

.1 Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.

.2 Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request:

i. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.

ii. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.

iii. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.

iv. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Consultant or Owner. Label with manufacturer's name and model number where applicable:

a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section. Obtain Architect's signature for receipt of submittals.

b. Submit test/adjust/balance records.

c. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.

v. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. Advise Owner of pending insurance changeover requirements. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions. Complete startup and testing of systems and equipment. Perform preventive maintenance on equipment used prior to Substantial Completion. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings.

vi. Advise Owner of changeover in heat and other utilities.

vii. Participate with Owner in conducting inspection and walkthrough with local emergency responders.

viii. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.

ix. Complete final cleaning requirements, including touchup painting.

x. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects

.3 Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Consultant will either proceed with inspection or notify Contractor of unfulfilled requirements. Consultant will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Consultant, that must be completed or corrected before certificate will be issued.

i. Should the Contractor call for inspections by the Consultant for Substantial Performance or Total Performance prior to having reached these stages, the costs for the inspection will be charged to the Contractor at $1,500.00 per inspection. This amount will be deducted from the Contract amount in the form of a Change Order.

1.4 AS-BUILT DRAWINGS

.1 Each Contractor is to submit to the General Contractor at conclusion of the Project one (1) set of marked-up white prints showing all changes from the Drawings. Each Sub-Contractor is to maintain an as-built set on site during construction for reference by other trades.

i. Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.

ii. Accurately record information in an acceptable drawing technique.

.2 Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with Consultant. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as per Section 01300 "Submittal Procedures" for requirements related to use of Consultant's digital data files.

1.5 MAINTENANCE AND OPERATIONS MANUALS

.1 As soon as possible, and in no event later than two weeks prior to request for substantial performance, check and assemble 1 HARD COPY in a three ring binder all warranties, guarantees, operation and maintenance procedures and certificates.

i. Assemble recommended maintenance procedures from manufacturers, suppliers, and Sub-Contractors whose products require maintenance (such as flooring equipment and roofing).

ii. Present binders to Consultant for submission to Owner. Furnish a complete index in each binder, listing its contents (Provide title of Project; names, addresses, and telephone numbers of Consultants, and Contractor with name of responsible parties; schedule of products and systems, indexed to content of the volume) in detail and stamp and sign the cover page of each and every manual. Also, ensure that the manuals are stamped and signed on the page by the Sub-Contractor submitting them.

.2 **1 PDF Version**: After review of draft manuals, assemble each manual into ONE (1) digital file version. Include a complete operation and maintenance directory. Enable inserted reviewer comments on draft submittals. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel upon opening file.

.3 Recommended maintenance procedures shall contain warnings concerning the use of maintenance materials or practices with might injure the product covered by the recommended maintenance procedure. Should any product be injured or damaged by faulty maintenance materials or practices not warned against in the maintenance manual or by failure of the Sub-Contractor to provide proper maintenance manuals in time, then the Sub-Contractor shall rectify such damage or injury.

1.6 WARRANTIES

.1 Where warranties are required from the Contractor as indicated under the various trades, the Contractor shall deliver these to the Architect before the final (payment) settlement. Leave date of beginning of time of warranty until the Date of Substantial Completion is determined.

.2 Provide: Table of Contents neatly typed, in the sequence of the Table of Contents of the Project Manual, with each item identified with the number and title of the specification section in which specified, and the name of product or work item.

i. Schedule of Warranties: Provide a summary schedule of start and end date of each warranty.

ii. Separate each warranty or bond with index tab sheets keyed to the Table of Contents listing.

iii. Provide full information, using separate sheets as necessary. List Subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

1.7 GUARANTEES

.1 Each Contractor shall warrant and guarantee the title to all work, materials and equipment covered by a progress draw payment, will pass to the Owner upon receipt of such payment by the Contractor, free and clear of all liens, claims, security interest or encumbrances.

.2 If, within one (1) year after the date of substantial completion or within a longer period of time as may be prescribed by law or special guarantee, any of the work is found to be defective or not in accordance with the Contract Documents, the Contractor/Sub-Contractor shall correct it promptly after receipt of a written notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give notice promptly after discovery of the condition.

1.8 START UP/OPERATING

.1 Trades who provide mechanical and electrical equipment to the Project shall start up their work as per the manufacturer's instructions. The Owner shall be shown the correct means of starting the equipment and operating and maintaining it by Mechanical and Electrical Contractors. THIS TRAINING SESSION IS TO BE DIGITALLY RECORDED BY THE GENERAL CONTRACTOR AND TURNED OVER TO OWNER

END OF SECTION 01700

PART 1 – GENERAL

1.1 GENERAL REQUIREMENTS

.1 The Specifications are an integral part of the Contract Documents. Division 1 applies to the Work of this Division.

.2 Related: Cleaning for specific equipment, products, or elements of the work, as stated in each specification section.

1.2 CLEAN-UP

.1 The General Contractor will provide on-site, a garbage box/bin(s) for the use of the Trade Contractors. This box will be located as conveniently as possible. Each Sub-Contractor will be responsible for transporting debris from the work area to and into the box.

.2 Conduct Cleaning and Disposal Operations to comply with all municipal and building codes, ordinances, regulations, and anti-pollution laws. Under no conditions shall debris be disposed of on Owner's property or adjacent properties.

.3 Each Contractor/Sub-Contractor shall, at his own expense and to the sole satisfaction and discretion of the Owner, keep his work areas in a tidy condition and free from the accumulation of waste products and debris. He shall remove from the project all such waste products and debris caused by the performance of the Work. Should he fail to perform these housekeeping requirements, the Owner shall have the right, after notice to the Contractor, to have the work performed by whatever means may be expedient, and the Contractor/Sub-Contractor agrees to pay all costs of the clean-up and removal of such waste products and debris immediately upon being invoiced therefore (or have same deducted from payment).

1.3 CLEANING DURING CONSTRUCTION

.1 Execute daily cleaning to keep the Work, the site and adjacent properties free from accumulations of waste materials, rubbish and windblown debris, resulting from construction operations.

i. Provide on-site containers for the collection of waste materials, debris and rubbish. Remove containers from the site at project completion.

ii. Remove waste materials, debris and rubbish from the site as necessary and dispose of at legal disposal areas away from the site.

iii. Where work is performed adjacent to occupied areas, contractor shall utilize HEPA vacuums to minimize and control dust levels. Use of other types of vacuums shall not be acceptable.

iv. During the course of construction, the building and premises shall present a neat, orderly, and workmanlike appearance.

.2 Dust Control: Clean interior spaces prior to the start of finish painting and continue cleaning on an as-need basis until painting is finished. Schedule operations so that

dust and other contaminants resulting from cleaning process will not fall on wet or newly coated surfaces.

1.4 FINAL CLEANING

.1 Contractor shall do the following special cleaning for all trades before the final completion and acceptance of the work.

i. Remove stains, soil and paint from all glass and wash and polish same.

ii. Clean and polish all finishing hardware.

iii. Clean all plumbing fixtures, accessories, and equipment, including all mechanical equipment.

iv. Clean all flooring products installed. Installed Heavy-duty flooring (recycled rubber skate flooring) requires manufacturer-specified directions to be followed, as per Altro Flooring (refer to 09650 Flooring).

v. Clean premises of all debris and dirt.

vi. Remove grease, mastic, adhesives, dust, dirt, stains, fingerprints, labels and other foreign materials from sight-exposed interior and exterior surfaces.

vii. Clean window frames, entrance frames, hollow metal work.

viii. Clean Ventilating Systems

ix. Broom clean exterior paved surfaces; rake clean other surfaces of the grounds.

x. Prior to final completion, or Owner occupancy, Contractor shall conduct an inspection of sight-exposed interior and exterior surfaces, and all work areas, to verify that the entire Work is clean

END OF SECTION 01710

PART 1 - GENERAL

1.1 INTENT OF SECTION

.1 Section includes demolition, salvage and modifications of existing structures, piping and equipment as indicated on the drawings.

1.2 GENERAL

.1 Coordinate the Work with the General Contractor and Owner to minimize disruptions to the Community Centre/Arena. Include the sequence of removals in the project schedule for review by the Consultant and Owner.

.2 Do not begin removals except in accordance with the approved sequence of construction and until approval has been given by the Owner in writing five (5) days prior to removal, or agreed to at previously scheduled Construction Meeting.

.3 All removed equipment, piping, materials, fixtures, housekeeping pads, supports, etc. to be disposed of by the Contractor unless marked in the field by the Owner. The Owner has the first right of refusal. The Contractor is to request that the Owner mark items to be salvaged, at least five (5) days prior to removal.

.4 All equipment to be removed by the Contractor is to remain in good working order.

.5 Materials to be turned over to the Owner shall be delivered and off loaded into storage within the existing building to remain.

.6 Demolition and salvage work shall create a minimum of interference with the Owner's use of the remaining building.

.7 Removal of Designated Substances (contaminated materials), prior to commencement of demolition (by others). Refer to Designated Substances Report found at end of this section for more details.

.8 Blasting will not be permitted.

1.3 RELATED WORK

.1 Disconnection of Existing Services – Mechanical and Electrical

1.4 COORDINATION

.1 Coordinate all demolition and modification work with any new work to be performed to facilitate completion. All demolition cannot start until released to the Contractor. Coordination is required with the Consultant and the Owner.

.2 Coordinate modification work to allow continuous, uninterrupted access to the existing facilities.

.3 Work to be performed by specified dates and in specified areas of the building as shown on the drawings.

1.5 REGULATORY REQUIREMENTS

.1 Obtain and pay for all demolition permits. Give required notices.

.2 Comply with applicable requirements of CSA S350-M1980 “Code of Practice for Safety in Demolition of Structures”.

.3 Comply with applicable regulations of jurisdictional authorities governing waste management.

1.6 SUBMITTALS

.1 Where required by authorities having jurisdiction, submit for approval drawings, diagrams or details showing sequence of disassembly work or supporting structures and underpinning, if required. Drawings for structural elements shall bear seal and signature of Professional Engineer licensed to practice in Ontario.

.2 Prepare and submit a waste reduction work plan. Describe management of demolition wastes. Identify materials which can be reused, recycled, and indicate method proposed for reducing, reusing, recycling wastes.

PART 2 - PRODUCTS

NOT APPLICABLE.

PART 3 - EXECUTION

3.1 PREPARATION

.1 Ensure that affected areas are unoccupied and discontinued in use and that required screens, partitions, hoardings where required are in place prior to start of demolition work.

.2 Verify that existing services, if required in areas affected by demolition, are disconnected, capped, or removed, prior to start of work.

3.2 GENERAL DEMOLITION REQUIREMENTS – as applicable to work

.1 The general area in which the demolition work is to be performed shall be left clean and free of debris at the end of each shift; access routes must always be kept clear. If required, the general area shall be graded as required to provide a uniform appearance.

.2 All backfilling required in the demolition area shall conform to the governing requirements of the Excavation and backfilling Section.

.3 Demolish existing work as indicated and as required to accommodate new work.

.4 Demolish work in a safe and systematic manner, from top to bottom.

.5 Do not throw or drop demolished materials from heights. Use chutes, conveyors, or hoisting equipment to lower materials.

.6 Demolish in a manner to minimize dusting. Keep dusty materials wetted but prevent flooding or contaminated runoff.

.7 Demolish masonry and concrete elements in small sections. Carefully remove and lower structural framing and other heavy and large objects.

.8 At all times leave work in safe condition, so that no part is in danger of uncontrolled toppling or falling.

.9 Install temporary supports as required to prevent uncontrolled collapse of structures.

3.3 CONCRETE STRUCTURES DEMOLITION

.1 Existing concrete structures, as noted, shall be removed to the limits indicated.

.2 Existing concrete to be removed shall be cut into fragments and reduced in size as required to facilitate removal and disposal.

3.4 PIPING AND EQUIPMENT DEMOLITION

.1 Be responsible for the removal of piping and valves and all other appurtenances associated with the item being removed.

.2 Existing piping shall be cut, removed, abandoned, disconnected, and/or salvaged as indicated on the drawings or as required.

.3 Piping and equipment shall be disconnected, dismantled, and removed as required and in such a manner as to minimize disturbance or damage to adjacent construction.

.4 At any point or location where new work is to be connected or installed, the removal of existing work shall be done so as to facilitate the new installation work to the maximum possible extent.

3.5 SITE WORK DEMOLITION – if applicable

.1 The demolition of existing drives, curbs, walks, culverts, and similar items shall be scheduled and performed so as to minimize inconvenience to the Owner.

3.6 REPAIR OF EXISTING CONSTRUCTION

.1 Where structures to be demolished are connected to structures to remain, remove the existing construction in a careful manner so that adjacent construction, piping, or facilities to be left in place are not cracked or otherwise damaged.

.2 The Contractor will be held responsible for any damage thereto because of his operations.

.3 Holes and damage resulting from removal operations shall be filled, reconstructed, repaired, and finished to match and conform to adjacent surfaces and construction as determined by the Consultant.

3.7 ELECTRICAL REMOVAL

.1 The control stations, control panels, conduits, and other devices associated with the removed equipment may not be shown on the drawings.

.2 The Electrical Sub-Contractor shall be responsible for the following items:

1. Disconnecting electrical power sources from all equipment and devices to be moved or removed.
2. Removing electrical conductors from the conduits serving the equipment to be moved or removed.

3. Removing local starters, control stations, control panels and other local control devices not an integral part of the associated equipment to be moved or removed.
4. Disconnecting and removing abandoned motor control centres, and motor control line-ups.
5. Removing exposed conduit connecting equipment and devices to be moved or removed and the power sources.
6. Where abandoned conduit not indicated to be retained for future use enters a structural surface above the operating floor, it shall be undercut 25 mm with edges dovetailed and the structure tightly and neatly repaired to resemble the remaining surface.
7. Where such a conduit enters a structural surface below the operating floor, it shall be cut flush with the floor or within 25 mm of other surfaces, and those in floors and walls filled with expanding grout to a depth of one diameter, but 50 mm minimum.
8. On any equipment to be reapplied or abandoned in place, unused conduit openings shall be plugged, and original identity nameplate shall be reversed or removed. Circuit lists and nameplates at sources of power shall be neatly corrected for changes in loads. Electrical items in motor control centres, control panels, panel boards, etc. separate from abandoned equipment shall be left as spares, unless indicated otherwise.
9. Existing status and control panels shall be disconnected, removed, and returned to the Owner.

.3 Remove abandoned power cable, electrical control panels, and power distribution equipment as required. Coordinate this work with the Owner and the Construction Manager.

.4 Abandoned conduits in good condition and at least as large as indicated for new circuits may be used as part of contract installation.

.5 Salvaged items to be reinstalled or delivered to the Owner's on-site storage shall be handled carefully.

.6 Removed electrical equipment shall first be offered to the Owner and if the Owner refuses right to Ownership, the equipment shall be removed for disposal.

3.8 ITEMS TO BE SALVAGED BY THE CONTRACTOR

.1 Removal and salvage of any item of equipment or facility includes removal and salvage of all accessories, piping, wiring, supports, associated electrical starters and devices, base plates, and frames, and all other appurtenances, unless otherwise directed.

.2 Existing materials and equipment removed, and not reused as a part of the work, shall become the Contractor's property.

.3 Existing materials and equipment to be removed by the Contractor, and reused as a part of the work shall remain the property of the Owner.

.4 The Contractor shall carefully remove, in a manner to prevent damage, all materials and equipment specified herein or indicated to be salvaged and reused or to remain the property of the Owner.

.5 The Contractor shall store and protect salvaged items specified or indicated to be reused in the work.

.6 Any items damaged in removal, storage, or handling through carelessness or improper procedures shall be replaced by the Contractor in kind or with new items.

.7 The Contractor may, at his option, furnish and install new items in lieu of those specified or indicated to be salvaged and reused, in which case such removed items will become the Contractor's property.

.8 All other existing materials and equipment removed by the Contractor shall not be reused in the work, shall become the property of the Contractor, and shall be removed from the jobsite.

3.9 INSTRUMENTATION

.1 Any mounting brackets, enclosures, stilling wells, piping, conduits, wiring, or holes that remain after removal of equipment and associated support hardware shall be removed or repaired in a manner acceptable to the Owner and Consultant.

.2 Transmitters or switches containing mercury shall be removed and disposed of in an approved manner and by personnel knowledgeable about appropriate methods of handling mercury.

3.10 CONCRETE MODIFICATIONS

.1 Remove existing concrete where such removal is indicated on the drawings or directed by the Consultant.

.2 Remove all dust, grease, curing compounds, impregnations, waxes, foreign particles, and disintegrated material.

.3 If chipping is necessary, the edges shall be perpendicular to the surface or slightly undercut. Feather edges will not be permitted.

.4 Remove all defective existing concrete down to sound concrete where indicated on the drawings or as directed by the Consultant.

.5 Where existing concrete is to be removed, fill, repair, and finish the surfaces smooth and flush with adjacent undisturbed surfaces.

.6 Unless otherwise indicated on the drawings or directed by the Consultant, clean and leave in place existing reinforcing exposed during concrete removal operations.

.7 Where indicated on the drawings, extend existing reinforcing into the new construction by mechanical connection to the existing reinforcement. Mechanical connections shall be as specified in the Cast-in-Place Concrete Section – Section 03300.

.8 Any reinforcement bars the Consultant allows to be cut shall be cut off not less than 25 mm inside the finished and repaired surface. All anchor bolts, piping, and other hardware projecting from concrete surfaces after piping and equipment have been

removed shall be cut 25 mm inside the finished or repaired surface. Reinforcement bars and other steel construction to be removed may be flame-cut.

.9 Remove concrete bases of existing equipment that have been relocated or removed, down to the reinforcing steel of the supporting slab. Initiate removal of curb base with a concrete saw, cutting around the perimeter, taking care not to chip or spall the surface of remaining structure. After existing materials have been removed, exposed reinforcing steel and structural slab shall be cleaned and filled with new concrete, finished to match the surrounding surface.

.10 Concrete materials and placement shall be in accordance with the Cast-in-Place Concrete Section – Section 03300. Grouting shall be in accordance with the grouting section.

3.11 DISPOSAL AND CLEAN-UP

.1 All materials, rubbish and debris resulting from demolish work shall become the Bidder's property and shall be removed from site and legally disposed of unless specifically indicated otherwise.

.2 Do not allow demolished materials to accumulate on site. Promptly, as work progresses, remove and legally dispose of materials away from site.

.3 Separate and salvage materials suitable for reuse and/or recycling from general waste stream.

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

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

.6 Collect, handle, store on-site and transport off-site, salvaged materials, salvaged for reuse and/or recycling in separate condition. Transport to authorized reuse/recycling location.

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

.8 Burying, burning, selling waste materials on site is prohibited.

.9 Disposal of liquid wastes into waterways, sewers is prohibited.

.10 Clean-up work, storage, and waste collection areas as work progresses.

3.12 FIELD QUALITY CONTROL

.1 Disassembly and removal of structural elements shall be carried out under the supervision of a Professional Engineer licensed to practice in Ontario.

END OF SECTION 02222

PART 1 - GENERAL

1.1 GENERAL

.1 The Specifications are an integral part of the Contract Documents. Division 1 applies to the Work of this Section.

1.2 SECTION INCLUDES

.1 Provide labour, materials, equipment, products, and services to complete the work of this Section and as generally described below.

.2 Clearing and grubbing.

.3 Excavation for new concrete slabs.

.4 Granular base and sub-base under slab.

.5 Compaction.

1.3 PROTECTION

.1 Prevent damage to benchmarks, and existing surface or underground utility lines. Make good any damage.

.2 Protect bottoms of excavations from softening. Should softening occur, remove softened soil, and replace with concrete, as specified for footings.

.3 Protect soil from freezing adjacent to and below all footings.

.4 Provide adequate protection around benchmarks, layout markers, survey markers and geodetic monuments.

.5 Effect approved measures to minimize dust as result of this work.

.6 Do not stockpile excavated material to interfere with site operation or drainage.

.7 Street must be kept clean to the satisfaction of the local authorities.

1.4 SUB-SURFACE CONDITIONS

.1 Geotechnical Investigation has not been conducted for this Project. The Owner, Architect and Engineer assume no responsibility for site scope or found conditions.

1.5 LEVELS, ELEVATIONS

.1 Site survey data shown was provided by Van Harten Surveying Inc.

1.6 UTILITY LINES

.1 Before commencing work, establish the location and extent of underground utility lines in the area of excavation. Those shown on the drawings are for general reference only.

1.7 MEASUREMENTS

.1 Record footing founding levels on as-built drawing.

PART 2 – PRODUCTS

2.1 CRUSHED STONE

.1 OPSS Granular 'A' crushed stone.

2.2 CONCRETE BACKFILL

.1 Minimum MPa strength at 28 days unless a higher strength is required by specific structural design and is so noted on the drawings or by change notice.

PART 3 - EXECUTION

3.1 EXAMINATION

.1 Ensure in examination of the site that all possible factors concerning earthwork are investigated and that the following are known in particular:

1. Methods and means available for material handling, disposal, storage, and transportation.
2. Physical conditions of site, including ground water table drainage courses.
3. Conformation and condition of ground surfaces.
4. Character, quality, and quantity of surface and sub-surface materials.
5. Existing and proposed underground service location.

3.2 ELEVATIONS

.1 Employ a competent instrument man to establish levels. This Contractor is responsible for verification of levels in relation to drawings. Notify the Architect of required changes prior to making the change.

3.3 CLEARING AND GRUBBING

.1 General: Clearing and grubbing will be required for all areas indicated on the drawings to be excavated, improved on or which fill is to be constructed. All cleared and grubbed materials, including trash, shall be deposited as directed by the Consultant.

.2 Clearing and Grubbing: Clearing shall consist of removal and disposal of trees, shrubbery, and other vegetation as well as brush and rubbish within the areas to be improved and constructed upon.

.3 Grass and Topsoil: Grass, grass roots and incidental topsoil shall not be left beneath fill area, nor shall this material be used as fill or backfill material.

3.4 TOPSOIL

.1 Remove unusable soil to on site location as directed by Consultant.

.2 Retain sufficient topsoil to be spread as necessary on areas requiring same. All surplus topsoil to be relocated on site as directed by Consultant.

3.5 CUT AND FILL

.1 Cut and fill to design grades in preparation for work by others.

.2 Parking - cut and fill to 400 mm below finish elevation.

.3 Landscaped Areas – cut and fill to 300 mm below finish elevation.

3.6 GENERAL EXCAVATION

.1 Excavate generally and trench for footings to the depths indicated with changes in level accurately cut and located. Keep excavation material free of the foundation trench and allowing a comfortable working dimension for later trades.

.2 In all cases, excavation for footings shall be to solid bearing. Should the bottom of an excavation become softened and, in the opinion of the Engineer be unsuitable for bearing, from wetting or other cause, deepen the excavation to acceptable solid bearing.

.3 Should the footing excavation be carried too deep in error, fill with concrete the same as the footing. Fill under sidewalks and floor slabs with crushed stone or gravel. Level footing excavation by cutting only. No fillings will be accepted for straightening. Compact footing excavation to 100% Standard Proctor Density at the required elevation.

.4 This Contractor shall protect the excavation from drying, rain, snow, freezing and ingress of surface or ground water and provide pumps and pumping should excavation need such.

.5 When the footing excavation is completed, notify the Architect for inspection before proceeding. Soils Investigation company will also verify bearing capacity of excavations. Provide safety barriers where required by authorities and current codes. Do not disturb layout markers.

3.7 SHORING

.1 Shoring, where required, is part of this Section and the decision as to whether shoring is required or not must be made by the Contractor for this Section who will be responsible for its inclusion, design, and maintenance. The design must carry the seal of a Professional Structural Engineer.

.2 Include shoring required to prevent the excavations from caving in and leave in place until removal is required by working conditions. It must be free of walls and footings and be partially or entirely removable without causing damage to other work.

3.8 SURPLUS EARTH

.1 Surplus excavated material to be removed to location on site as directed by Consultant.

3.9 UNDERSLAB FILL

.1 Compact sub-base to 98% SPD. Sub-base fill to be Type A.

.2 Fill 150 mm (6") of crushed stone to underside of concrete slab. Compact to 98% SPD.

3.10 WORK ON MUNICIPAL PROPERTY

.1 All work done on Municipal property must meet all pertinent Municipal Standards and Specifications. Contractor is to check this information before submitting Tender. The Contractor is responsible to call Municipality for any required inspections.

END OF SECTION 02315

PART 1 - GENERAL

1.1 GENERAL

.1 The Specifications are an integral part of the Contract Documents. Division 1 applies to the Work of this Division.

1.2 WORK INCLUDED

.1 Reinstatement of existing grass areas during construction, or after all exterior works are complete, with tasks amounting to:

1. Place topsoil.
2. Plant trees/shrubs.
3. Sodding/seeding of areas damaged by Contractor.
4. Fertilizer.

1.3 RELATED WORK BY OTHERS

.1 Section 01010 General Requirements related to:

1. 1.18 Protection;
2. 1.23 Services and Utility Services;
3. 1.31 Making Good;
4. 1.35 Work on Neighbouring Properties.

1.4 PRODUCT DELIVERY, STORAGE AND HANDLING

.1 Schedule deliveries so that storage of materials on site prior to installation is minimal.

.2 Remove broken and damaged roots.

.3 Cut sod by approved methods in accordance with recommendations of the Nursery Sod Growers Association (N.S.G.A.) of Ontario. Cut in pieces approximately 1.00 square metres in area with a minimum soil thickness of 20 mm.

.4 Roll or fold sod prior to lifting in such a manner as to prevent tearing or breaking.

.5 Protect sod during transportation to prevent drying and ensure that it arrives at the site in a fresh and healthy condition.

.6 Install sod immediately after arrival. If there is a delay in installation, keep sod moist and cool and protected from direct exposure to the sun until installation.

.7 Provide fertilizer in standard manufacturer's containers, clearly marked with the name of the manufacturer, weight and analysis.

.8 Store fertilizer in a weatherproof storage area until use.

.9 Supply manufactured items such as fertilizer, bone meal, mulch, etc., in standard containers, clearly indicating contents, weight, component analysis, and the name of the manufacturer.

1.5 REPLACEMENTS

.1 During the warranty period, remove from site any plant material that has died or failed to grow satisfactorily.

.2 Replace planting material in the next planting season.

.3 Replaced material will have an equal warrantee to the original.

1.6 JOB CONDITIONS

.1 Proceed with sodding operations only during suitable weather conditions and in accordance with good horticultural practice.

1.7 INSPECTION

.1 Obtain approval from the Consultant of the finished topsoil surface before proceeding with sodding.

1.8 EXAMINATION

.1 Review sub-base for general grades and drainage pattern.

1.9 GUARANTEE

.1 Guarantee all plant materials for one (1) year from data of acceptance by Owner.

.2 Guarantee all sodded areas for a period of six (6) months from the date of acceptance.

.3 During the guarantee period replace all material that is dead or not in satisfactory, healthy growing state or which does not meet the requirements of the Specifications, at no extra cost to the Contract.

.4 Final determination of the acceptability of the plants and sod will be made by the Landscape Architect.

.5 All replacements must be plants of the same size and species as shown on the plant list, supplied and planted in accordance with the Drawings and Specifications.

1.10 SUBSTITUTIONS

.1 Supply and install plant material as specified on the plant list.

.2 Substitutions with other plant material will not be allowed without the written approval of the Landscape Architect.

1.11 MAINTENANCE

.1 Maintain all newly sodded areas from the time of planting/installation until final acceptance by the Landscape Architect.

.2 Maintenance shall include all measures necessary to establish and maintain all plants in vigorous and healthy growing condition, including but not limited to:

1. Watering when required and in sufficient quantities to saturate the root system.
2. Pruning, including the removal of the dead or broken branches.
3. Keep all accessories in good condition and properly adjusted. Repair or replace accessories when required at no extra cost.
4. At the time of acceptance, all materials must be in a healthy, vigorous growing condition.
5. Mowing at regular intervals to maintain a maximum height of 60 mm. Do not cut more than one third (1/3) of the grass height at any one mowing. Trim and clip edges. Remove clippings after mowing and clipping.
6. Watering when required and in sufficient quantities to prevent sod from drying out.
7. Weed control when required and/or directed. Use herbicide only in accordance with the manufacturer's recommendations, federal, provincial and local bylaws or ordinances.

1. Make good all damage resulting from the use of herbicides at no extra cost.

8. Make good any erosion that results from faulty workmanship and/or material at no extra cost.
9. Replace with new sod any dead, deteriorated, or bare spots.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Topsoil: reuse existing material where acceptable - minimum 150 mm.

.2 Grass Sod:

1. Certified No. 1 grade cultivated turf grass sod with a composition of 50% Kentucky Blue Grass and 50% Merion Blue Grass or as specified on the drawings, grown and sold in accordance with the N.S.G.A. classifications. At the time of sale, the sod must have a strong, fibrous root system and be free of stone and burned or bare spots. Mosses and clover shall not be apparent in the turf with no more than two (2) broadleaf weeds or ten (10) other weeds per 40 square meters.
2. Wooden Pegs: 25 mm x 25 mm x 230 mm minimum length hardwood pegs.

.3 Hydro Seed: all other grassed areas.

.4 Fertilizer for Sod: 5/20/20 at 300 kg/ha.

.5 Water: potable.

2.2 QUALITY

.1 Comply with "Guide Specifications for Nursery Stock" latest edition of Canadian Nursery Trades Association.

.2 Use trees and shrubs of good quality.

.3 Refer to drawing schedule for size requirements and root protections.

2.3 TOPSOIL

.1 Topsoil: fertile and friable sandy loam with a minimum 2% organic matter content with acidity values between pH 6.0 and 7.5, free from admixtures of subsoil, clay lumps, stones or roots over 50 mm in diameter, toxic chemicals or any other foreign matter.

.2 Test all topsoil, native and imported, for nitrogen, phosphorous, magnesium, soluble salt content, texture, organic matter content, pH and chemical residues through accredited laboratory with recommendations for improvement for intended use. Make improvements in accordance with analysis.

.3 Topsoil may be taken from existing stockpile provided it meets specified requirements

.4 At no cost to the Contract, provide topsoil from another source if quantity of suitable stockpiled material is not sufficient.

PART 3 - EXECUTION

3.1 PREPARATION

.1 Provide a finished topsoil surface that is smooth and firm against footprints, with a fine loose texture, before sod is placed. Finished topsoil surface is to be free of rocks or other deleterious material.

.2 Cultivate sub-base of areas receiving topsoil to a minimum depth of 75 mm.

.3 Install 150 mm topsoil to finish grade where seeded, to 40 mm below finish grade where sodded. This Contractor to do final levelling.

.4 Flower or shrub beds to have 450 mm topsoil.

.5 Apply fertilizer six (6) days prior to sodding and seeding at the rate recommended by the manufacturer. Mix fertilizer into top 50 mm of topsoil.

.6 Obtain the approval of the Landscape Architect of all planting excavations as outlined.

.7 Roll topsoil to compact surface.

3.2 SOD

.1 Provide sod over where noted on plan and within 3 m of building.

.2 Protect sod on site from excessive moisture or drying.

.3 Roll laid sod to remove depressions and irregularities.

.4 Maintain sod. Water and cut for two (2) months.

.5 Apply one treatment of fertilizer 10-10-10 two (2) months after sod installation.

.6 Patch and repair any dead or diseased sod.

.7 Warrant sod area for one (1) year.

3.3 CLEAN-UP

.1 At the completion of the planting and sodding operations, remove all surplus material from the site at no extra cost.

.2 Make good all damage resulting from work carried out under this Contract at no extra cost.

3.4 SEED – Hydro Seed

.1 Include 100% Natural Organic Fertilizer, tackifier, straw mulch. Seeding rate: 80 kg/acre. Seed mix:

1. 33% slender wheat grass.
2. 33% hard fescue.
3. 33% foral blue grass.

END OF SECTION 02800

PART 1 - GENERAL

1.1 GENERAL

.1 The Specifications are an integral part of the Contract Documents. Division 1 applies to the Work of this Division.

1.2 WORK INCLUDED

.1 Supply and install:
1. Concrete repair mortar to address concrete column base deterioration, and deficiencies.
2. Concrete repair mortar (cementitious repairs) to address arena slab deterioration and deficiencies.
3. Load-bearing concrete slab – exterior
4. Pedestrian concrete slab – exterior
5. Cementitious self-levelling floor compound
6. Concrete removals – interior
7. Reinforcement
8. Underslab vapour barrier
9. Shop drawings for reinforcing steel (rebar)

1.3 RELATED WORK BY OTHERS

.1 Supply and install sleeves, anchors, base plates.

.2 Polyurethane sealant application – Section 07910.

1.4 QUALITY ASSURANCE

.1 Levels of finished concrete floors shall be within 6 mm of established elevation in any 6.0 m square.

1.5 REFERENCE STANDARDS

.1 Latest editions of the following reference standards shall apply:

1. CSA:
    1. CAN3-A23.1, 2, 3 - Concrete Materials and Method of Construction
    2. CAN3-A23.2 - Methods of Tests for Concrete
    3. CAN3-A23.3 - Design of Concrete Structure for Buildings
    4. CAN3-A5M77 - Portland Cements
    5. CAN3-A266.1M78 - Air Entraining Admixtures for Concrete, Latest Edition of the Ontario Building Code
2. CSA G30.5-1972 - Welded Steel Wire Fabric
3. CSA G30.12-M77 - Billet Steel Bars
4. AC1 347-78 - Recommended Practice for Concrete Formwork
5. ASTM E 1745 Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs
6. ASTM E 1643 Standard Practice for Selection, Design, Installation, and Inspection

of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs.

1.6 LOADING

.1 Loading on finished floors and walls must be within the tolerances of the design of the walls.

1.7 JOB RECORDS

.1 Record on job site set of prints, the time and date of each pour and high and low temperature during each pour. Record any elevational variations from the drawing requirements.

1.8 SUBMITTALS

.1 None required.

1.9 UNIT PRICES

.1 The unit prices apply to both additions and deletions to the contract.

1. Include the following unit prices with the tender form at the time of tendering.

2. Small areas of repair will be added together to determine the total amount of repair.

.2 UNIT PRICE No. 1A – CEMENTITIOUS REPAIR AT HORIZONTAL SLAB EDGE

1. Perform cementitious repair as specified herein upon completion of work by Section 03300 – Cast-in-place Concrete

2. Price per square metre of cementitious repair.

.3 UNIT PRICE No. 1B – CEMENTITIOUS REPAIR AT CONCRETE CURB

1. Perform cementitious repair as specified herein upon completion of work by Section 03300 – Cast-in-place Concrete

2. Price per lineal metre of cementitious repair, capped to maximum of 10% of the total perimeter length of the arena dasher boards.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Concrete - CSA A23.1 M77

Component Strength	Slump	Maximum Aggregate Size	Air Entrainment
Slab-on-grade–32 MPa			6% (Class C2)
Sidewalks – 35 MPa			6%

.2 Plasticizing Admixture - CSA A266.1

1. Type WN:
    1. Pozzolith by Master Builders.
    2. WRDA by W.R. Grace & Co.
    3. Porzite by Sternsons Limited.
2. Use only with approval of Structural Engineer.

.3 Air Entraining Admixture - CSA A 266.1 M78

6% air entrainment for sidewalks, curbs, piers and walls and any other concrete exposed to weather.

.4 Expansion Strip

12 mm x 100 m fibreboard

.5 Underslab Fill (by Section 02315)

1. 150 mm compacted clear stone to 98% S.P.D.
2. Minimum 125 mm compacted granular A fill below sidewalks.

.6 Tie Wires

1. # 16 or heavier annealed wire.

.7 Reinforcing Mesh (slabs on grade)

1. 152 mm x 152 mm x MW 18.7 welded wire mesh.

.8 Reinforcing Steel

1. C.S.A. Specification G-30.12 M-1977.
2. Grade - MPa 400.
3. Keep reinforcement clean prior to concrete pour.
4. Clearances:
    1. Footings – 75 mm minimum cover (bottom of footings).
    2. Floors and Formwork - 40 mm cover.
5. Provide chairs, bolsters, bar supports, spacers required for the job.

6. See Structural Drawings for minimum bar lap length.

.9 Vapour Barrier

1. 15 mil Permanator™ underslab vapour retarder by W.R. Meadows. (Acceptable alternate –Stego Wrap Vapour Barrier 15 mil.).

.10 Concrete Repair Mortar:

1. SikaTop 123+ polymer modified fast setting repair mortar, as supplied by Sika Canada.
2. SikaTop 111+ polymer modified fast setting repair mortar, as supplied by Sika Canada.
3. MeadowCrete FnP polymer modified fast setting repair mortar, as supplied by W.R. Meadows
4. Alternate with approval of Structural Engineer.

.11 Bonding Agent: Bonding agent to be as per manufacturer's written instruction for the repair mortar selected above.

.12 Cementitious Self-levelling Floor Compound: Sikafloor-100 Level polymer-modified cementitious floor levelling compound, plus applicable primers, as supplied by Sika Canada.

PART 3 - EXECUTION

3.1 EXAMINATION

.1 Ensure that neither water is present nor flooding water is permitted on foundation beds and skim coats where footings and other concrete work are to be placed. Place concrete only on frost-free ground. Remove previously frozen bearing surfaces and fill with concrete as specified for footings.

.2 Ensure that all foundations bear on undisturbed soil.

.3 Ensure that compacted fill has been placed to meet specified requirements; and that under-slab services have been installed, inspected, tested, and approved prior to placing concrete.

3.2 FORMWORK

.1 Clean tight fitting formwork of a material thickness suitable to the forces of the task. Forms to be coated with a non-staining mineral oil, prior to placement of steel. Building-in of inserts and boxes by this Contractor, as detailed by the other trades. Dovetail slots supplied and installed by this Contractor. Formwork to be securely held in position. Costs for corrective action required for wall foundations out of line will be charged to this Contractor.

3.6 SLAB INSPECTION

.1 Sound the entire concrete slab on grade to identify all damage & deteriorated concrete

using hammer-sounding and mark the areas with chalk for review by Engineer. Sounding/marking to include perimeter of slab adjacent to the curb.

3.7 CONCRETE REMOVAL

.1 Saw cut the perimeter of approved areas to a depth of ¾". Do not saw-cut outside the areas identified for removal. Do not cut any existing embedded colling pipes in the slab

.2 Remove concrete within the identified areas to full depth of the slab or as per engineer instructions. Minimum removal depth shall provide 1" clear space around all embedded elements.

.3 Remove additional fractured or unsound concrete, following review of repair areas by Engineer.

.4 Remove and dispose of all concrete removed.

.5 Feather edging shall not be permitted. Therefore, additional saw-cutting at the perimeter of repair areas may be required to ensure a minimum ¾" vertical edge.

3.3 VAPOUR BARRIER

.1 Install Vapour Barrier/Retarder in accordance with manufacturer's instructions and ASTM E 1643:

1. Unroll vapour barrier/retarder with the longest dimension parallel with the direction of the pour.
2. Lap vapour barrier/retarder over footings and seal to foundation walls.
3. Overlap joints 150 mm [6 inches] and seal with manufacturer's tape.
4. Seal all penetrations (including pipes) per manufacturer's instructions.
5. No penetration of the vapour barrier/retarder is allowed except for reinforcing steel and permanent utilities.
6. Take precaution to avoid damage to vapour barrier during installation of wire mesh and concrete placement.

3.4 PLACING OF STEEL

.1 Locate in exact position specified. Address any questions to the Engineer. Lap according to CSA Codes. Non-corrosive mechanical spacers are required to hold steel in place. Splices are to be staggered. Bends are to be machine made. Fasten at least 50% of crossings. Field review of steel in place by Engineer is required prior to pouring concrete. Provide adequate notice: Reference CAN3-A23.3M77, CSA W186-1978.

.2 Bars must be clean before placing concrete.

3.8 INSERTS

.1 Set sleeves, ties, anchor bolts, pipe hangers and other inserts, openings, and sleeves, in concrete floors and walls, as required by other trades as directed by the General Contractor. Sleeves, openings, etc. greater than 100 mm x 100 mm not indicated on structural drawings must be approved by Architect.

.2 No sleeves, ducts, pipes, or other openings shall pass through joists, beams, or columns, except where expressly detailed on structural drawings or approved by Architect.

.3 Do not eliminate or displace reinforcement to accommodate hardware. If inserts cannot be located as specified obtain approval of all modifications from Architect before placing of concrete.

.4 Check locations and sizes of sleeves, curbs, openings, etc., shown on structural drawings with architectural, mechanical, and electrical drawings.

3.9 PLACING OF CONCRETE

.1 Dampen all prepared surfaces to ensure that the surface is saturated surface dry.

.2 Apply epoxy bonding agent at minimum 0.5mm thick, using a paintbrush, roller or suitable spay gun. Work bonding agent well into the substrate to ensure complete coverage over surface irregularities.

.3 Place the Concrete Repair Mortar prior to the bonding agent drying. If agent dries, re-apply bonding agent as per manufacturer's instructions – re-tempering is not acceptable.

.4 Concrete placement shall be by hand trowel application. Work concrete against the edge of all repairs. Level surface using a wood or sponge float and finish flush with original slab profile. Finish concrete surface once the surface stiffens.

.5 Cure concrete as per manufacturer's written instructions including continuously moist curing for a minimum of 2 days.

3.10 FINISH

.1 Machine trowel smooth finish for carpet or tile.

.2 Broom finish exterior concrete.

.3 Tolerances 3 mm in any 6.0 m square, free of spalling, waviness, or other blemishes.

.4 Slope to drain where necessary.

.5 Keep concrete slab and sidewalks covered with plastic and moist for first four (4) days of curing.

.6 Exposed honeycombing in concrete work to be patched with concrete filler, both interior of walls, footings as required, at no additional cost. All form ties holes must be sealed on the outside with asphaltic sealer recommended for the task.

3.11 COLD WEATHER

.1 No concrete may be poured in weather colder than five (5) degrees Celsius unless all

material and area is heated. No admixtures will be permitted unless previously approved by Architect or his Consultant. Request details from the Architect should such a pour be necessary.

.2 Take adequate measures to protect concrete from exposure to freezing temperatures at least seven (7) days after concrete placement.

3.12 CONCRETE SIDEWALKS

.1 Supply and install 35 MPa concrete with 6% air entrainment, 125 mm thick.

.2 Include minimum 150 mm compacted granular 'A' fill and 150 mm x 150 mm 9 x 9 welded wire mesh. Provide full depth control joint at 6.0 m maximum length end tooled joints and 1500 mm on centre or as detailed.

3.13 SELF-LEVELLING FLOOR COMPUND

.1 Study application area to determine the need for perimeter isolating strips, and feather-edge locations.

.2 Apply primer to existing floor as recommended by manufacturer. Existing surface to be scarified as needed according to manufacturer instructions.

.3 Application of self-levelling compound shall render the existing floor area free from surface irregularities once cured. Apply enough compound to create a smooth surface, while feathering out edges to existing floor surface beyond scope shown on the Drawings.

.4 Do not allow compound to spill over stair treads.

.5 Clean areas of extraneous compound application not requiring levelling.

END OF SECTION 03300

PART 1 - GENERAL

1.1 GENERAL

.1 The Specifications are an integral part of the Contract Documents. Division 1 applies to the Work of this Division.

1.2 WORK INCLUDED

.1 Supply and installation of:
1. Concrete block infill/replacement
2. Concrete unit masonry infill/replacement
3. Brick unit masonry infill/replacement
4. Reinforcement (horizontal & vertical)
5. Loose lintels for interior/exterior applications
6. Clean-up and removal of debris from site
7. Installation of HM door frames
8. Weepers

1.3 WORK EXCLUDED

.1 Installation of doors.

.2 Installation of windows.

.3 Caulking, except masonry control joints.

.4 Supply of items built in.

.5 Shoring for openings - by Section 06100.

.6 Air barrier.

.7 Supply and install lateral support brackets.

.8 Masonry control joints by Section 07910 – Caulking.

1.4 RELATED SECTIONS

.1 Related sections include:
1. Section 04501 – Masonry Repointing
2. Section 04510 – Masonry Cleaning

1.5 REFERENCE STANDARD

.1 Do masonry work to the latest editions of the following:
1. CAN3-5304-M, OBC Section 4.4. CSA A371
2. CAN-A370-M, CSA/CAN3A165.2, CSA/CAN 3-A:2.2-M

1.6 SUBMITTALS – as required by Section 01300 Submittals

1.7 PRODUCT HANDLING

.1 Ensure that materials arrive on the site dry and are kept dry.

1.8 WEATHER CONDITIONS

.1 When air temperature is below five (5) degrees Celsius, provide and maintain heating to the current work and for the previous twenty-four (24) hours.

.2 Heat water to a maximum twenty (20) degrees Celsius and heat sand without

scorching.

.3 Do not add calcium or other additives to the mortar.

1.9 PROTECTION

.1 Provide all necessary or required temporary bracing for masonry work and leave in place until permanent lateral support is in place.

.2 Protect built-in items from damage.

.3 Cover end-of-day work to protect from rain/snow.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Water: Clean, free of deleterious acids, alkali, salt, or organic materials.

.2 Sand:
1. Washed, clean, sharp, free of deleterious substances.
2. Grade in accordance with CSA Specification A82.

.3 Concrete Block:
1. Standard weight concrete block unless otherwise noted on drawings.
    1. Colour and size to match existing.
    2. Suggested suppliers: Boehmers, Permacon, or Shouldice.
2. Cull out blocks with chips or surface cracks.
3. Bullnosed block – all interior doors.

4. Brick Veneer:
    1. Colour and size to match existing (Ontario size)
    2. Suggested Suppliers: Boehmers, Permacon, Shouldice, Hanson, Brampton Brick.
5. Mortar:
    1. Type N mortar CSA Can3-A8-M77.
    2. Colour – to match existing.
    3. Bond beams, lintels, piers – use 20 MPa concrete mortar.
6. Reinforcement:
    1. Block:
        1. Block-lock truss type, galvanized - heavy duty -lap 150 mm.
        2. Use manufactured corner ties.
    2. Bond Beams & Vertical Steel:
        1. Grade MPA 400 rebar to sizes noted.

7. Control Joint Filler: Ethofoam backing rod or asphaltic impregnated ten test strip sized to suit gap.

8. Damp Proof Course: One layer rubberized fibre reinforced membrane at base course, window, and door lintels. Blueskin “TF”by Bakor (or approved equal). Overlap joints and corners 100mm and seal. End dams over all openings.

9. Mortar Net – MN10.

PART 3 - EXECUTION

3.1 LAYING

.1 Lay plumb and true all in accordance with Section 4 of the Ontario Building Code. Use running bond except where shown as soldier coursing. All interior concrete block work to be level, plumb, and free from imperfections. UGDSB will ask that inferior quality or poorly installed units removed at mason costs.

.2 Assume complete responsibility for dimensions, plumbs and levels of the work and constantly check same.

.3 Non-bearing walls to extend to within 25 mm of underside of floor and roof construction. Install lateral 38 x 38 x 300 angle supports at 1600 c/c and install insulation for gap filler.

.4 Corners of bearing and non-bearing walls are to be tied with reinforcement.

.5 Re-tempering will not be permitted.

.6 No masonry may be laid in weather below five (5) degrees Celsius without hoarding and heating protection. Contact Architect for instructions for cold weather masonry.

.7 Interior block to have tooled joints except first 100 mm for rubber base and for special wall finishes.

.8 Inspection and testing required for all thru-wall flashing, mortar, and air barrier work as outlined by the Board's Consultant. Cost to be drawn from testing allowance. Daily inspections will be required while work is in progress. Confirm that a Board approved inspection agency is used for testing.

3.2 BUILD-IN

.1 Cooperate with other trades with respect to building in items supplied by others.

3.3 CONTROL JOINTS

.1 Provide continuous vertical control joints in masonry at locations noted. No piece of wall shall be longer than 8 metres without a control joint. Include ethofoam backing rod or ten test and caulking in colour to match mortar. Use every precaution to ensure no mortar ties cross joint.

3.4 CLEAN-UP

.1 Upon completion, rub down the masonry work to remove excess mortar.

.2 Fill in chipped or damaged corners, etc.

.3 Scrub and rinse off to leave in A1 condition.

.4 Remove debris from site.

END OF SECTION 04200

PART 1 - GENERAL

1.1 GENERAL

.1 The Specifications are an integral part of the Contract Documents. Division 1 applies to the Work of this Section.

.2 The specifications shall be read as a whole by all parties concerned.

1.2 WORK INCLUDED

.1 The Work shall include:

1. Supply, labour, materials, tools, and equipment to complete the Work as specified, to include for the provision of mortars for repointing purposes.

1.3 WORK EXCLUDED

.1 The Work excluded:

1. New unit masonry required within the project scope.

2. Removal and reinstatement of control joints, expansion joints, or sealants.

1.4 RELATED SECTIONS

.1 Related sections include:

1. Section 04510 – Masonry Cleaning

1.5 UNIT PRICES

.1 The unit prices shall apply both to additions and deletions to the contract.

.2 Provide the following items as unit prices within the Contract at the time of Tendering:

1. UNIT PRICE #1: Concrete Veneer Ribbed Block Masonry Repointing

2. UNIT PRICE #2: Brick Masonry Repointing

1.6 REFERENCE STANDARDS

.1 Be governed by the latest requirements of the following ASTM standards:

1. ASTM C136-96 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
2. ASTM C144-99 - Standard Specification for Aggregate for Masonry Mortar.
3. ASTM C150-00 - Standard Specification for Portland Cement.
4. ASTM C270-00 - Standard Specification for Mortar for Unit Masonry.
5. ASTM C780-00 - Standard Test Method for Pre-construction and Construction

Evaluation of Mortars for Plain and Reinforced Unit Masonry.
6. ASTM E11 - Specification for Wire-cloth Sieves for Testing Purposes.

.2 Be governed by the latest requirements of the following CSA Standards referenced in the specification:

1. CAN3-A5-M77 - Portland Cements
2. CSA A179-14 (R2019) - Mortar and Grout For Unit Masonry

1.7 SUBMITTALS

.1 Submit samples of the following:

1. Portland Cement
2. CSA Standard Mortar Sand
3. Patching Mortar

.2 Conform to the requirements of Section 01300 Submittals for procedure.

1.8 PRODUCT HANDLING

.1 Be governed by the latest requirements of the following ASTM standards:

1. ASTM C136-96 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.

1.9 WEATHER CONDITIONS

.1 When air temperature is below five (5) degrees Celsius, provide and maintain heating to the current work and for the previous twenty-four (24) hours.

.2 Heat water to a maximum twenty (20) degrees Celsius and heat sand without scorching.

.3 Do not add calcium or other additives to the mortar.

1.10 PROTECTION

.1 Provide all necessary or required temporary bracing for masonry work and leave in place until permanent lateral support is in place.

.2 Protect built-in items from damage.

.3 Cover end-of-day work to protect from rain/snow.

1.11 MOCK-UPS

.1 Provide 1m^2 mock-up.

.2 Acceptable mock-up locations confirmed by the Consultant shall constitute part of the Work, and the rest of the installation must exhibit the same level of quality as to be indicative of a whole.

1.12 ESTIMATED QUANTITIES OF REPOINTING WORK

.1 The Drawings indicate an approximate lineal measure of repointing type. Areas to be confirmed and agreed upon onsite with Consultant prior to beginning. Estimated quantities will be calculated and tallied by the Contractor to be included with their Progress Draws to qualify the unit rate calculations used to arrive at a final amount to be drawn per stain type.

PART 2 – PRODUCTS

2.1 PRODUCT

.1 Water: Clean, free of deleterious acids, alkali, salt, or organic materials.

.2 Sand:

1. Washed, clean, sharp, free of deleterious substances.
2. Grade in accordance with CSA Specification A82, using the following CSA sand analysis:

Tyler Sieve Size	Percentage by weight passing each sieve	Approximate percentage by weight retained at each sieve	Cumulative Percentage
No. 4 (4.75 mm)	100	0	
No. 8 (2.36 mm)	90-100	0	5
No. 16 (1.18 mm)	85-100	10	10
No. 30 (600 μm)	65-95	15	25
No. 50 (300 μm)	15-80	50	85
No. 100 (150 μm)	0-35	15	100
No. 200 (75 μm)	0	0	100

.3 Portland Cement:

1. Federal White Cement Limited, Woodstock ON.
2. Lehigh Cement, c/o Daubois Inc., Quebec.

.4 Water: Clean, free of deleterious acids, alkali, salt, or organic materials.

1. Washed, clean, sharp, free of deleterious substances.
2. Grade in accordance with CSA Specification A82.

.5 Mortar:
1. Type N mortar CSA Can3-A8-M77.
2. Colour – to match existing.
3. Bond beams, lintels, piers – use 20 MPa concrete mortar.

.6 Patching Mortars
1. Keim: distributed by Liner Rolpanit Inc, Toronto, ON
2. Sika Canada Inc.
3. Grace Construction Products
4. Harcros Pigments Canada, Toronto, ON

.7 Aggregates
1. Upper Canada Stone Company Ltd., Mississauga, ON
2. Mar-Co Clay Products, PO Box 67, Wallenstein, ON
3. Asbury-Wilkinson, Mississauga, ON
4. Coloured Aggregates: Scarborough ON

PART 3 - EXECUTION

3.1 EXAMINATION

.1 Verify cut-out locations. Mark joints to be cut out with coloured chalk. Confirm locations with Consultant prior to cutting out joints.

.2 Remove loose mortar patches and joint material surrounding joints.

.3 Remove all sealants surrounding, and within, existing joints.

.4 Remove wall accessories and anchorage (screws, metal joinery, etc.).

3.2 CUTTING OUT JOINTS

.1 Cutting out of the joint consists of raking, hand tooling and/or using power router tools to cut the joint back a maximum depth of 40mm from the finish face of the masonry. Existing ribbed concrete veneer blocks have a flush face measured from the joint location.

.2 Rake / flush joint with hand tools, or routing power tools no wider than the original joint, and no further back than 40mm. If friable material is encountered after the initial 40mm cut out, mark locations for further review by Consultant.

.3 Hand tools acceptable: hooked-end metal tools.

.4 Routing power tools acceptable:

.5 Depth: maximum 40mm from flush face of the masonry.

.6 Cleaning: When cutting-out is completed in each area of the building, brush down the wall and clean all joints of loose material and grit. Hose down the entire wall area with mains-pressure water to remove all dust.

3.3 JOINT FLUSH

.1 No finish pointing is to be carried out until all masonry cleaning and masonry repair work is complete in that area (by 04510 Masonry Cleaning).

.2 Immediately before back pointing and pointing operations remove surface efflorescence from joints and surrounding masonry by dry brushing and removal of dust with vacuum cleaning equipment.

.3 Wall and joints must be saturated with water prior to pointing installation (backup and face pointing). Application of packing mortar tot dry joints and/or wall surfaces will constitute non-acceptance by the Consultant of the application.

.4 Immediately before pointing, thoroughly flush joints with water until absorption is controlled and the surface stays damp.

3.4 BACKUP POINTING

.1 Apply backup pointing to joints in maximum 20 mm deep layers, allowing each layer to set. Allow space for specified face pointing depth and recess.

.2 Backup pointing is to bring the mortar to 20 mm from the arrises of the units.

.3 Where the sides of the joint are not flush, back point the specified distance back from the arris that is farthest back into the masonry face.

.4 Pack joints and cracks solidly filling all accessible voids. Press and tamp mortar solidly into the joint.

.5 After initial set of mortar (thumb-print hard) rake mortar back to specified depth and vigorously tamp the joint with a short-handled, dense brush to compact the mortar, eliminate initial shrinkage cracks and roughen the surface.

.6 Remove mortar splatter and staining immediately after back pointing.

.7 Obtain review and acceptance of backup pointing from the Consultant before proceeding with finish pointing. This review shall include inspection for very fine cracks in backup pointing.

3.5 FACE POINTING

.1 Fill joints with mortar to face of masonry. Press and tamp mortar solidly into the joint.

.2 Cavities should not occur behind face pointing. Cut out and repoint where such cavities occur.

.3 Tool face joints:

1. After initial set of mortar (thumb-print hard) rake mortar back to specified depth and profile and vigorously tamp the joint with a short-handled, dense brush to compact the mortar, eliminate initial shrinkage cracks and texture the surface.

2. Standard Joint: Finish joints 5 mm back of the arrises with a flat, recessed, brush-stippled joint.

3. Flush Joint (membrane covered): Finish joints flush with the arrises with a flat, brush-stippled joint.

.4 Carry all finish pointing of joints along the lines of spalls, chips, depressions, and the like along the unit's arrises. Provide flush or standard joints as specified:

1. Concrete ribbed veneer block masonry: flush strike.

2. Clay brick: standard strike.

.5 In general, use flush joints where brickwork is concealed and standard where exposed to view.

3.6 CLEANUP

.1 Clean the face of the brickwork with a soft carpet pad or other suitable device to remove staining and mortar splatter.

.2 Remove staining to the masonry units with sponge and water before it hardens, and after the joints are finished.

.3 Control drying by installing protection:

.4 Protect mortar from rain, direct sunlight, washdown water, and wind by covering with damp burlap and tarpaulins to ensure slow curing of the mortar.

.5 After initial set of mortar maintain damp state for one day by misting with water as required.

END OF SECTION 04501

PART 1 - GENERAL

1.1 GENERAL

.1 The Specifications are an integral part of the Contract Documents. Division 1 applies to the Work of this Section.

.2 The specifications shall be read as a whole by all parties concerned.

1.2 WORK INCLUDED

.1 The Wok shall include:

1. Supply, labour, materials, tools, and equipment to complete the Work as specified, to include for the provision of masonry cleaning of existing unit masonry surfaces of soiling and staining without damaging the surface matrix.

2. Provide all required protection and isolation to protect areas requiring different cleaning techniques and prevent cross-contamination of surfaces while cleaning.

1.3 WORK EXCLUDED

.1 Installation of doors.

1. New unit masonry required within the project scope.

2. Interior masonry walls

1.2 RELATED SECTIONS

.1 Related sections include:

1. Section 04501 – Masonry Repointing

1.4 UNIT PRICES

.1 The unit prices shall apply both to additions and deletions to the contract.

.2 Provide the following items as unit prices within the Contract at the time of Tendering:

1. UNIT PRICE #1: Removal of efflorescence.

2. UNIT PRICE #2: Removal of atmospheric stains.

3. UNIT PRICE #3: Removal of surface paint stains.

1.5 REFERENCE STANDARDS

1.6 SUBMITTALS

.1 Submit manufacturer's product data and MSDS for the following:

1. All chemicals and cleaning materials used on the project

1.7 PRODUCT HANDLING

.1 Store solvent-based chemicals in sealed containers to prevent evaporation.

.2 Do not store flammable or dangerous chemicals in the building.

.3 Store materials in approved containers.

1.8 WEATHER CONDITIONS

.1 Do not use any water-based cleaning methods when there is risk of frost within 28 days after completion of the operation.

.2 Allow at least one month or longer if required for walls to dry after completion of this work before below-freezing average temperatures occur.

.3 Do not chemically clean masonry when the surface temperature is below 10*C.

.4 Do not clean masonry in full, hot sunlight. Provide shading of work areas as required.

1.9 ALTERNATIVES

.1 Alternatives to listed chemical cleaners will only be approved by Consultant if sufficient proof can be presented that the alternative cleaning method is comparable.

1.10 EXISTING CONDITIONS

.1 Do not clean severely deteriorated or friable material until reviewed by Consultant. Repairs may be required before cleaning.

.2 Report to the Consultant in writing additional areas of deteriorated masonry not indicated on the drawings that are revealed during cleaning.

.3 Obtain Consultant's acceptance in writing before cleaning areas around severely deteriorated or friable masonry.

1.11 ESTIMATED QUANTITIES OF CLEANING WORK

.1 The Drawings indicate an approximate graphic area of cleaning per stain type. Numerical areas to be confirmed and agreed upon onsite with Consultant prior to beginning. Estimated quantities will be calculated and tallied by the Contractor to be included with their Progress Draws to qualify the unit rate calculations used to arrive at a final amount to be drawn per stain type.

PART 2 – PRODUCTS

2.1 PRODUCTS

.1 General products:

1. Water
    1. Potable, clear and free of contaminants.
    2. Treat water having a high iron content to minimize iron content. Provide continuous flow filtration as required.
2. Tools and Equipment
    1. Brushes: natural bristle or soft plastic (nylon) type.
        11. Do not use ferrous-metal brushes. They are abrasive and will leave rust particles in the stone surface.
    2. Scrapers: wood, plastic, or stainless steel only.
        12. Do not use ferrous-metal scrapers.
    3. Pails: moulded rubber or plastic only.
    4. Spray Bottles: handheld polyethylene bottles and sprayer mechanism.
    5. Sponges: natural or synthetic sponges. Test to ensure that the solvents do not cause the sponge colour or composition to bleed or dissolve.
    6. Cotton Swabs: 100% cotton, such as Q-Tips.
    7. Honing Stones: fine-grained natural sandstone or fine carborundum.
    8. Vacuum: industrial vacuum with 2" hose.
    9. Poly sheeting: 1.6mm (6 mil poly) polyethylene sheeting

.2 Atmospheric Stain removal:

1. Non-ionic Surfactants (low foam)
2. Vulpex Liquid Soap (Sculpture Supply Canada)
3. Raindance TM/MC Low Foam Cleaner #50 (Diversey Canada, Mississauga)

.3 Efflorescence Stain removal:

1. Water
    1. Potable, clear and free of contaminants.
    2. Treat water having a high iron content to minimize iron content. Provide continuous flow filtration as required.
2. Water Pressure Equipment
    1. Water Pipes and Fittings: plastic or nonferrous metal to minimize rust staining of masonry.
    2. Washdown Spray Heads: 15 degree or wider fan-tip water spray head.

.4 Paint Stain removal:

1. Graffiti Buster II (Biochem Systems) - is biodegradable.
2. Peel-Away 1 (Dumond Chemicals) - gel-based application.
3. SafStrip/EnviroKlean (ProSoCo) – gel based application.
4. Do not use sodium hydroxide based chemicals (caustic soda, highly alkaline chemicals). These will promote efflorescence.

PART 3 - EXECUTION

3.1 EXAMINATION

.1 Protection of property: Seal and protect windows, doors, wall openings and adjacent materials in an acceptable manner to prevent the entry of water, dust, or chemicals into the building.

.2 Protect the building against damage, including but not limited to:

1. Glass breakage.
2. Door and window trim and framing damage.
3. Solvent action, abrasion, or puncture damage.
4. Staining of interior walls.
5. Corrosion of metal trim.

3.2 SURFACE PREPARATION – ALL SURFACES

.1 Dry-brush or scrape off all heavy accumulations of foreign material from ledges, sills and like.

.2 Provide dry removal of salts efflorescence as follows:

1. Dry brush all efflorescence from the surface using stiff natural or nylon bristle brushes and vacuum to remove traces of local efflorescence.
2. In addition to the desalination procedure, and under the direction of the Consultant, vacuum salts efflorescence from the masonry as it occurs. Interior applications are to use HEPTA vacuum equipment to control spread of contaminants.
3. Prior to final pointing, vacuum efflorescence which has developed inside joints. Obtain direction from Consultant.

.3 Remove dust and soil using low-pressure 50 psi air-blast:

.4 Exercise care when working around loose or friable material.

3.3 INITIAL WASHDOWN – ALL SURFACES

.1 Provide overall surfactant pressure washdown of all surfaces at beginning of work.

.2 Washdown all trim and ledges to remove pigeon-dirt and dust from ledges and projections.

1. Use fan-tip nozzle with low pressure (less than 50 psi).
2. If damage to masonry of any kind occurs, use mains-pressure water washdown.

.3 Agitate soiled areas with brushes as required.

3.4 ATMOSPHERIC REMOVAL

.1 Perform all initial procedures previously described.

.2 Pressure surfactant cleaning:

1. Pre-wet all surfaces in the areas to be cleaned. Use medium pressure spray.
2. Apply Raindance surfactant diluted (cold water) to give 5% solution by weight, using a long handled soft natural fibre or plastic bristle brush. Alternatively apply 5% solution with low-pressure hand-held spray unit.
3. For hot water surfactant solution and hot water washdown, use 3% surfactant in hot water. Use long handled soft natural fibre or plastic brushes.
4. Hand brush to create a thick lather, continue agitation until area is cleaned. Do not allow to dry-out. Rinse down with low-pressure (100 psi max. at 4 gpm) water spray with medium fan-tip nozzle.
5. Remove all surfactant from surface by rinsing before it dries out. Rinse down to grade.
6. Breakdown heavily soiled and greasy areas by adding solvent cleaners and agitating to breakdown soiling before continuing with surfactant cleaning.

.3 Hand surfactant cleaning:

1. Use Vulpex surfactant for localised spot cleaning of greasy areas or other material. Dilute by manufacturer instructions.
2. Apply using a spray bottle and sponge. Scrub heavier stains using nylon or natural bristle brushes.
3. Use a fine-grained honing stone on the heaviest stains.
4. Sponge areas clean with water until surfactant residue is removed.
5. Maintain spray bottles of clean water on site for rinsing the surfaces.

3.5 EFFLORESCENCE REMOVAL

.1 Perform all initial procedures previously described.

.2 Pressure surfactant cleaning:

1. Pre-wet all surfaces in the areas to be cleaned. Use medium pressure spray.
2. Apply Raindance surfactant diluted (cold water) to give 5% solution by weight, using a long handled soft natural fibre or plastic bristle brush. Alternatively apply 5% solution with low-pressure hand-held spray unit.

3. For hot water surfactant solution and hot water washdown, use 3% surfactant in hot water. Use long handled soft natural fibre or plastic brushes.
4. Hand brushing not required for this application.
5. Remove all surfactant from surface by rinsing before it dries out. Rinse down to grade.
6. Breakdown heavily soiled and greasy areas by adding solvent cleaners and agitating to breakdown soiling before continuing with surfactant cleaning.

3.6 PAINT STAIN REMOVAL

.1 Perform all initial procedures previously described.

.2 Mechanical removals:

1. Remove heavy buildup of paint staining: light dressing with pneumatic chisels and stiff brushes.
2. Remove tool marks caused by this procedure using handheld carborundum rubbing blocks
3. Use Graffiti Buster II paint stripper with hot water washdown to remove residue remaining after mechanical removal.

.3 Gel-based application cleaning:

1. Apply gel-based paint stripper by low-pressure spray gun (if viscosity allows) or brush without initial agitation or stroking.
   11. Spray Application: use a portable one-gallon hand pump sprayer with stainless steel tank and solvent proof fittings.
   21. Brush application: provide a maximum of one gallon of stripper in a small container at any one time to workers to minimize solvent loss.
   31. The effectiveness of the stripper is drastically reduced when the more volatile solvents are lost.
2. Re-apply stripper and allow it to react for further 5 minutes.
   12. After this time most of the useful solvents have volatilized and the cleaning action is minimal.
   22. Do not allow stripper to dry out on wall. Apply more stripper as required to keep surface wet.
   32. Hand agitate with soft brushes if necessary.
3. Rinse-off with hot water (180*F) at medium pressure to minimize damage to the base masonry:
   13. Do not use water pressure to blast off soiling. Allow solvent action to do this.
   23. High pressure rinse-off can act like sandblasting and lead to cavities in the surface.
4. Repeat application of stripper and wash-off a minimum of three (3) times or until organic soiling is removed.

3.7 FINAL WASHDOWN

.1 Provide final pressure surfactant washdown as directed at completion of work

1. Regarding residues: Maintain internal gutters and collection troughs free and clear of debris and cleaning residues at all times.

11. Use fan-tip nozzle with low pressure (less than 50 psi).

2. Dispose of all residues in accordance with regulations.

3. Clean and polish all window glazing at completion of work.

END OF SECTION 04510

PART 1 – GENERAL

1.1 GENERAL

.1 The Specifications are an integral part of the Contract Documents. Division 1 applies to the Work of this Division.

1.2 WORK INCLUDED

.1 Columns
.2 Beams
.3 Channels, plates
.4 Bearing plates for columns, beams
.5 Lintels (beams and angles)
.6 Anchor bolts
.7 Connections
.8 Shop drawings c/w Engineer's seal
.9 Shop painting
.10 Field touch-up and removal
.11 Bolt holes for nails, pin welded to beams

1.3 RELATED WORK BY OTHERS

.1 Setting of plates and anchor bolts
.2 Reinforcing steel and mesh
.3 Finish painting
.4 Miscellaneous metals

1.4 REFERENCE STANDARDS

.1 The latest editions of the following reference standards shall govern to the work of this section:

1. CSA Standard S16, "Steel Structures for Buildings".
2. CSA Standard W47.1 "Certifications of Companies for Fusion Welding of Structural Steel".
3. CSA Standard W59, "Welded Steel Construction".
4. CSA Standard G40.21M, "Structural Quality Steel", Grade 300W or 300T.
5. The latest edition of the National Building Code and the Ontario Building Code.

.2 Refer also to Standards applicable for "Materials" and "Design" noted in this Specification.

1. CISC Code of Standard Practice.

.3 Welding shall conform to design and procedure requirements of CSA W47.1 and W59. Fillet welds shall be not less than 5 mm.

1.5 DESIGNS

.1 Materials, workmanship, fabrication, erection, and design of structural steel shall conform to the requirements of CSA-S16 except as amended or extended herein and as shown on the Drawings.

.2 Connections shall be designed in accordance with CSA S16 and W59.1 except as

amended or extended herein. Connections shall be designed to withstand forces indicated or shall develop full strength of connected members unless otherwise detailed.

.3 Shop connections shall be made with A325 bolts or welding. Field connections between steel members shall be made with A325 bolts and shall be bearing type connections. No ordinary bolts shall be used except where shown on the Drawings or approved by the Engineer. Welding and bolting shall not be combined in a connection to resist the same stresses.

.4 Beam to column and beam to beam connections shall be in accordance with CISC Handbook or Steel Construction, except single angle and end plate connections are not acceptable.

.5 Column to base plate connections shall develop full compression strength of column and a moment of 1.5 KN/m unless otherwise detailed.

.6 Connections for hollow structural sections (HSS) shall be detailed and fabricated in accordance with "Design Manual for Connections" prepared by Stelco.

.7 Comply with the requirements of the latest Ontario Building Code and the Ontario Construction Safety Act.

1.6 QUALIFICATIONS

.1 Welding shall be undertaken by fabricators fully approved by the Canadian Welding Bureau to qualification requirements of CSA W47.1 for Division 1 or 2.

.2 Welding shall be subjected to a searching, visual, examination. Notwithstanding the requirements of CSA W59, the Engineer may request non-destructive testing of critical welds. Should any welds prove defective, the cost of preparing and repairing the welds shall be borne by this Contractor.

1. Non-destructive testing, if required, shall be carried out in accordance with Section 5 of AWS Code for Arc and Gas Welding.

1.7 SUBMITTALS

.1 Shop drawings shall be submitted for review well in advance of fabrication. The drawings are to include the seal of the manufacturer's/supplier's Engineer.

.2 Shop drawings shall provide the following information:

1. All information necessary for fabrication of component parts including extent of shop paint coverage.
2. Plate and anchor bolt details and setting base plates for both precast and site poured concrete.
3. Erection diagrams showing location and size of all members and details of field connections.
4. Complete welding procedure for welded construction showing type, size, location and position of each weld, number and sequence of passes, type of electrodes and preheat required if requested.
5. State on the drawings that friction type high tensile bolt connections are used.

6. Show on the drawings grade of steel for each component part.
7. Review of shop drawings by the Engineer is a precaution against oversight or error. It is not a detailed check and must not be construed as relieving the Contractor of responsibility for making the work accurate and in conformity with the Contract Documents. Design of items for which the Contractor is responsible under the Contract will not be reviewed. Work done prior to the receipt of the reviewed drawings will be at the risk of the Contractor. Review comments are not authorization for changes to the Contract Value.
8. Field dimensions are the responsibility of the Contractor.

.3 Specimen samples, laboratory test reports and mill test reports shall be provided for examination, if requested by the Engineer.

1.8 DELIVERY, STORAGE AND HANDLING

.1 Provide adequate and suitable facilities for storage and protection of all materials and accessories and be responsible for any loss of, or damage to, when handling and delivering.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Materials shall be new materials conforming to requirements of the latest editions of the following Standards and Specifications:

1. Structural Steel Shapes Rolled in Canada: CSA G40.21M, Grade 350W.
2. Structural Steel Shapes Not Rolled in Canada:
    1. Plates and Sage Rods: ASTM A36.
3. Hollow Structural Sections: CSA G40.21M, Grade 350W, Class C.
4. Ordinary Bolts and Nuts: ASTM A307.
5. High Tensile Bolts and Nuts: ASTM A325.
6. Anchor Bolts and Nuts: ASTM A36 or ASTM A307 unless otherwise noted on the drawings.
7. Welding Electrodes (Low Hydrogen Type): CSA W48.1 compatible with steel grades to be welded.
8. Stud Anchors: Nelson Fluxed Headed Anchor Studs is manufactured by Gregory Fasteners Ltd. or approved equal.
9. Bearing Plates: A36 (250 MPa) material minimum.
10. Shop Primer:
    1. The shop paint and surface preparation for painting shall conform to the latest editions of the following applicable specifications of the "Canadian Government Specification Board".
        1. CGSB Specifications: 1-GP-14C; 1-GP-40D; 1-GP-140E.
    2. Shop paint may also conform to CISC/CPMA 1-73.
    3. Minimum one (1) coat shop primer, touched up as required on site.
11. Galvanizing: Exterior exposed steel.

2.2 FABRICATION

.1 Fabrication and workmanship will conform to requirements of CSA S16, except as amended or extended herein and as shown on the Drawings.

.2 Cutting holes in structural members will not be permitted unless detailed on the Drawings or approved in writing by the Engineer.

.3 Prior to painting, all structural steel shall be cleaned of loose mill, scale, rust, and deleterious material.

.4 Preparation of the steel work and shop painting shall be in accordance with CSA S16.

.5 Steel work shall receive one (1) shop coat and one (1) touch-up field coat of primer.

.6 Shop coat primer shall be omitted on steel surfaces in contact with friction type high tensile bolted connections and areas of field welds.

.7 All the surfaces and connections of steel members that are exposed to atmosphere and become inaccessible at the completion of the project shall receive two (2) additional field coats or primer after erection of the steel. The primer shall be the same as the material for the shop coat. **OR** alternatively provide hot dip galvanized type.

.8 On the joists, provide chord extensions where shown. The joist seats shall be as shown. Camber to the dead load deflection unless otherwise noted.

2.3 CONNECTIONS

.1 Design connections to conform to CSA Standard S16 and the CISC Handbook of Steel Construction.

.2 Use double headers or end connection plates whenever possible. Single angle headers shall not be used unless a written request. Minimum depth of headers and end plates shall be one half the beam depth.

.3 If the shear generated in column web exceeds its shear capacity, the web shall be suitably reinforced for the excess.

.4 If shears are not indicated, design beam connections to support reaction from maximum uniformly distributed load that can be safely supported by beam in bending, provided no point loads act on beam.

.5 Provide at least one 10 mm stiffener plate on each side of web of beams continuous over columns unless another type of stiffener is shown on the drawings.

.6 Make shop and field connections with high tensile bolts or by welding.

.7 Design connections at the ends of tension members or compression members not finished to bear, to develop the strength by the computed design load, at the stresses permitted but for not less than 50 percent of the effective strength of the member.

PART 3 - EXECUTION

3.1 EXAMINATION

.1 Check all of the dimensions and elevations at the job site and verify the location of all column bases and anchor bolts before erecting steel members. Report all defects and discrepancies from Contract and shop drawings which affect this work to the Engineer

before proceeding with erection. Commencement of erection shall imply acceptance of other work.

3.2 ERECTION

.1 Structural steel shall be erected in accordance with requirements of CSA S16, except as amended or extended herein and as shown on the Drawings.

.2 Provide hardened washers under the turned element of all A325 bolts.

.3 Where horizontally adjustable connections are used, provide field welded connections after final erection and adjustment of steel members.

.4 The procedure for setting base plates must permit inspection of the degree of contact between grout and base.

.5 Care shall be taken to prevent structural members from falling or being subjected to shock or impact. Hammering members into position and using iron sledges will not be permitted. Report to the Engineer any failure of members to come properly together before taking measures for correction.

.6 Minimum joist bearing 65 mm on steel beams, 100 mm on masonry walls. Centroid bearing in all situations. All welding and bridging to be installed prior to deck installations. No cutting of joists or bridging to be done without Engineer's approval (both supplier and project engineers).

3.3 QUALITY CONTROL

.1 It is the responsibility of the Contractor to provide only materials which meet the standards and design requirements.

.2 Spliced sections must be tested by a radiology test by an independent testing company at the Contractor's expense. Report the results to the Project Engineer prior to the materials leaving the shop.

3.4 SUBSTITUTIONS

.1 Submit all proposals for substitutions to the Architect in writing in advance of shop drawings. Each item shall be clearly identified. Do not proceed with a proposal unless it is accepted in writing.

.2 Substitutions of alternate sections will be allowed provided the new members have equal or greater capacity and stiffness and are of dimensions acceptable at that location. Clearly identify all substitutions on shop drawings.

3.5 INDEPENDENT FIELD TESTING

.1 The General Contractor will appoint an independent inspection and testing agency acceptable to the Engineer.

.2 The cost of inspection will be paid by the Owner.

.3 The inspection agency will be an organization certified by the Canadian Welding Bureau to CSA Standard W178 for the test methods specified.

.4 Assist the agency in its work. Provide all reasonable help needed. Fabrication shall not commence until details of inspection have been worked out with the inspection agency.

.5 Work will be inspected in the shop and when erected. Store fabricated members in the shop so that they are accessible for inspection.

.6 Inspections will include:

1. Checking that mill test reports are properly correlated to materials.
2. Ensuring that fabrication and erection procedures conform to the requirements of the Specifications.
3. Check of welders CWB Certificate.
4. Checking fabricated members against specified member shapes.
5. Inspection of all welded connections including spot checking of joint preparation and fit-up, particularly including splices in joist chords. Perform non-destructive testing of all splices in joist chords occurring within the middle half of the span.
6. Checking of bolted joints.
7. Checking that tolerances are not exceeded during erection or during fit-up of field welded joints.
8. Inspection of field cutting.
9. Shop paint and field touch-up.

.7 Arrange for the inspector to:

1. Be present during the welding of splices in beam or trusses on site.
2. Start field inspection as soon as each section of the erection work is completed, plumbed and all bolts tightened.

.8 The inspector will undertake non-destructive testing of welding in a representative 10% of welded connections and of all butt welds in direct tension.

.9 The inspector will check high strength bolts in a representative 10% of bolted connections by torque testing each bolt. All bolts will be checked by a tap of the hammer. He will remove nuts from 1% of all bearing bolts and check that thread is excluded from the shear planes.

3.6 CUTTING FOR OTHERS

.1 When other trades require to connect to steel framing, make all necessary preparation. Show such connections/holes on shop drawings.

3.7 ADJUSTMENT AND CLEANING

.1 After erection, apply one (1) coat primer paint (equal to shop primer) to all locations which are without shop primer or have damaged shop primer.

END OF SECTION 05120

PART 1 - GENERAL

1.1 GENERAL

.1 The Specifications are an integral part of the Contract Documents. Division 1 applies to the Work of this Division.

.2 Conform to the conditions of the contract and supplementary general conditions.

1.2 WORK INCLUDED

.1 Supply and install the following:

1. Structural steel deck and closures (as noted on Drawings).

1.3 RELATED SECTION

.1 Section 05120 - Structural Steel and Steel Joists

.2 Section 09911 - Painting.

1.4 REFERENCE STANDARDS

.1 Latest editions of the following shall apply:

1. Canadian Standards Association (CSA):
    1. CAN/CSA-S16.1-94, Limit States Design of Steel Structures.
    2. CSA-S136-94, Cold Formed Steel Structure Members.
    3. CSA47.1-92, Certification of Companies for Fusion Welding of Steel Structures.
    4. CSA 55.3-1965, Resistance Welding Qualification Code for Fabricators of Structural Members used in Buildings.
    5. CSA W59-M1989, Welded Steel Construction, (Metal Arc Welding) Metric.
2. Canadian General Standards Board (CGSB):
    1. CAN/CGSB-1.181-92, Ready-Mixed Organic Zinc-Rich Coating.
3. American Society for Testing and Materials (ASTM):
    1. ASTM A 653/A 653M-95, Specification for Steel Sheet, Zinc- Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
4. Canadian Sheet Steel Building Institute (CSSBI):
    1. CSSBI 10M-96, Standard for Steel Roof Deck.
    2. CSSBI 12M-96, Standard for Composite Steel Deck.

1.5 DESIGN REQUIREMENTS

.1 Design steel deck using limit states design in accordance with CSA S136 and, CSSBI 10M and CSSBI 12M.

.2 Steel deck and connection to steel framing to carry dead, live or other loads including lateral loads, diaphragm action, composite deck action, and uplift as indicated.

.3 Deflection under specified live load not to exceed 1/240 of span, except that when

gypsum board ceilings are hung directly from deck, live load deflection not to exceed 1/360 of span.

1.6 SHOP DRAWINGS

.1 Submit shop drawings erection drawings in accordance with Section 01300 - Submittal Procedures.

.2 Submit drawings stamped and signed by qualified professional engineer registered or licensed in the Province of Ontario.

.3 Submit design calculations if requested by Consultant.

.4 Indicate deck plan, profile, dimensions, base steel thickness, metallic coating designation, connections to details and accessories.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 22 gauge LZC zinc-iron alloy (ZF) coated steel sheet: to ASTM A653/A653M structural quality Grade 230, with ZF75 coating, for interior surfaces not exposed to weather, painted, finish, 38mm or 75 mm minimum base steel thickness as noted on drawings.

.2 Decks to be painted: zinc-iron alloy coated decks suitable for finish painting.

.3 Closures: in accordance with manufacturer's recommendations.

.4 Primer: zinc rich, ready mix to CAN/CGSB-1.181.

2.2 TYPES OF DECKING

.1 Steel roof deck: 75 mm minimum base steel thickness or 38 mm maximum deep profile, non-cellular, perforated on vertical face of flutes, interlocking side laps. Flat sheet for cellular deck, .91 mm minimum base steel thickness.

.2 Acoustic Deck: where noted on the drawings.

PART 3 - EXECUTION

3.1 GENERAL

.1 Structural steel work: in accordance with CAN/CSA-S136 and CSSBI 10M and CSSBI 12M.

.2 Welding: in accordance with CSA W59, except where specified otherwise. Weld to all supporting members with 20 mm puddle welds at 300 mm on centre in interior flutes, 150 mm on centre in perimeter flutes. Button punch all seams at 600 mm on centre.

.3 Companies to be certified under Division 1 or 2.1 of CSA W47.1 for fusion welding of steel and/or CSA W55.3 for resistance welding.

3.2 ERECTION

.1 Erect steel deck as indicated and in accordance with CSA S136 CSSBI 10M and CSSBI 12M, as applicable, and in accordance with reviewed erection drawings.

.2 Lap ends: to 50 mm minimum.

.3 Immediately after deck is permanently secured in place, touch up metallic coated top surface with compatible primer where burned by welding.

.4 Prior to concrete placement, steel deck to be free of soil debris, standing water, loose mil scale and other foreign matter.

.5 Temporary shoring, if required, to be designed to support construction loads.

.6 Place and support reinforcing steel as indicated.

3.3 CLOSURES

.1 Install closures in accordance with approved details.

3.4 OPENINGS AND AREAS OF CONCENTRATED LOADS

.1 No reinforcement required for openings cut in deck which are smaller than 150 mm square.

.2 Frame deck openings with any one dimension between 150 to 300 mm as recommended by manufacturer, except as otherwise indicated.

.3 For deck openings with any one dimension greater than 300 mm and for areas of concentrated load, reinforce in accordance with structural framing details, except as otherwise indicated.

3.5 CONNECTIONS

.1 Install connections in accordance with CSSBI recommendations as indicated.

END OF SECTION 05310

Part 1 GENERAL

1.1 SECTION INCLUDES

.1 Loadbearing and wind bearing formed steel stud for wall framing.

1.2 RELATED SECTIONS

.1 Division 01 of this Specification.

.2 Section 05120 - Structural Steel for Buildings.

.3 Section 05310 - Steel Deck.

.4 Section 06101 – Rough Carpentry.

1.3 REFERENCES

.1 AWS D1.3/D1.3M-2008 - Structural Welding Code – Sheet Steel.

.2 ASTM A307-07b - Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.

.3 ASTM A325M-09 - Structural Bolts, Steel, Heat Treated 830 MPa Minimum Tensile Strength.

.4 ASTM A653/A653M-09 - Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

.5 ASTM A792/A792M-09a - Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.

.6 ASTM C954-07 - Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs from 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness.

.7 ASTM C955-09a - Load-Bearing (Transverse and Axial) Steel Studs, Runners (Tracks), and Bracing or Bridging for Screw Application of Gypsum Panel Products and Metal Plaster Bases.

.8 CAN/CGSB-1.181-99 - Ready-Mixed, Organic Zinc-Rich Coating.

.9 CAN/CGSB-7.1-98 - Lightweight Steel Wall Framing Components.

.10 CAN/CSA-S16-09 - Design of Steel Structures.

.11 CAN/CSA-S136-07 - North American Specification for the Design of Cold-Formed Steel Structural Members.

.12 CAN/ULC-S101-07 - Standard Methods of Fire Endurance Tests of Building Construction Materials.

.13 CSA-W47.1-09 - Certification of Companies for Fusion Welding of Steel Structures.

.14 CSA-W55.3-08 - Certification of Companies for Resistance Welding of Steel and Aluminum.

.15 CSA-W59-03 (R2008) - Welded Steel Construction (Metal Arc Welding).

.16 CSSBI (Canadian Sheet Steel Building Institute - 51-06 - Lightweight Steel Framing Design Manual, 2nd Edition.

.17 SSPC (The Society for Protective Coatings) - Steel Structures Painting Manual.

1.4 PERFORMANCE REQUIREMENTS

.1 Size components to withstand design loads per Structural Notes and 2006 Ontario Building Code.

.2 Maximum Allowable Deflection: 1/360 of span.

.3 All Assemblies:

.1 Design to CSA-S136.

.2 Design to provide for movement of components without damage, failure of joint seals, undue stress on fasteners, or other detrimental effects when subject to seasonal or cyclic day/night temperature ranges.

.3 Design assembly to accommodate construction tolerances, deflection of building structural members, and clearances of intended openings.

.4 Seismic Loads: Design and size components to withstand seismic loads and sway displacement as calculated in accordance with code applicable at place of the Work.

.5 Design stud system supporting masonry veneer to requirements of CSA-S304.1 with stud deflections limited to L/360.

.6 Conform to requirements of fire rated assemblies per Architectural.

.7 Make allowances for increased loads and corresponding member resistance required around openings, including effects on the track and track to structure connections. The wind loadbearing steel stud subcontractor is responsible to provide the entire exterior wall stud system.

1.5 ADMINISTRATIVE REQUIREMENTS

.1 Coordination:

.1 Coordinate with other work having a direct bearing on work of this section.

1.6 SUBMITTALS FOR REVIEW

.1 Section 01300: Submittals.

.2 Product Data: Provide data on standard framing members; describe materials and finish, product criteria and limitations.

.3 Shop Drawings:

.1 Indicate component details, framed openings, bearing, anchorage, loading, welds, type and location of fasteners and accessories or items required of related work.

.2 Indicate framing members layout.

.3 Describe method for all connections.

.4 Do not fabricate until Submittals are reviewed by consultant, including comments and revisions required by the consultant’s review.

1.7 SUBMITTALS FOR INFORMATION

.1 Section 01300: Submittals.

.2 Installation Data: Manufacturer's special installation requirements including special procedures and perimeter conditions requiring special attention, upon request.

1.8 CLOSEOUT SUBMITTALS

.1 Section 01700: Contract Closeout.

1.9 QUALITY ASSURANCE

.1 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three (3) years documented experience.

.2 Installer Qualifications: Company specializing in performing the work of this section with minimum three (3) years documented experience and approved by the manufacturer.

.3 Design structural elements under direct supervision of a Professional Structural Engineer experienced in design of this Work and licensed in the Province of Ontario.

.4 Form, fabricate, install, and connect components to CSSBI 51 - Lightweight Steel Framing Design Manual.

Part 2 PRODUCTS

2.1 FRAMING MATERIALS

.1 Framing Materials: Cold-rolled steel conforming to CSA-S136, with metallic coating to ASTM A653/A653M or ASTM A792/A792M, minimum coating thickness Z275, G90.

.1 See Structural information on drawings.

2.2 ACCESSORIES

.1 Bracing, Furring, Bridging: Formed sheet steel, thickness determined by performance requirements specified.

.2 Plates, Gussets, Clips: Formed sheet steel, thickness determined by performance requirements specified.

.3 Welding Materials: CSA-W59.

.4 Touch-Up Primer for Galvanized Surfaces: CAN/CGSB-1.181, zinc rich.

2.3 FASTENERS

.1 Bolts, Nuts and Washers: ASTM A325M, hot-dip galvanized to minimum requirements of CSSBI.

.2 Self-drilling, Self-tapping Screws: Steel, hot dip galvanized to minimum requirements of CSSBI.

.3 Anchorage Devices: To suit

2.4 FABRICATION

.1 Fabricate assemblies of formed sections of sizes and profiles required.

.2 Provide cut-outs centred in webs of members to accommodate services and bridging.

.3 Fit, reinforce, and brace framing members to suit design requirements.

.4 Fit and assemble in largest practical sections for delivery to site, ready for installation.

.5 Do welding to CSA-S136, CSA-W59 and AWS D1.3, as applicable.

Part 3 EXECUTION

3.1 EXAMINATION

.1 Verify existing conditions before starting work.

.2 Verify that substrate surfaces and building framing componentsare ready to receive work.

.3 Verify that rough-in utilities are in proper location.

3.2 ERECTION OF STUD WORK

.1 Install components to manufacturer's written instructions and to reviewed shop drawings.

.2 Align floor and ceiling tracks; locate to wall layout. Secure in place with fasteners at maximum 600 mm on centre. Coordinate installation of acoustic sealant with floor and ceiling tracks per Architectural.

.3 Place studs at maximum 400 mm on centre; not more than 50 mm from abutting walls and at each side of openings. Connect studs to tracks using method specified on shop drawings.

.4 Construct corners using minimum three studs. Double stud wall openings, door jambs, and window jambs.

.5 Erect load bearing studs one piece full length. Splicing of studs is not permitted.

.6 Erect load bearing studs, brace, and reinforce to develop full strength, to achieve design requirements.

.7 Coordinate placement of insulation in multiple stud spaces after erection.

.8 Install intermediate studs above and below openings to align with wall stud spacing.

.9 Provide deflection allowance in stud track, directly below horizontal building framing at non-load bearing framing.

.10 Attach cross studs to studs for attachment of fixtures anchored to walls.

.11 Install framing between studs for attachment of mechanical and electrical items, and to prevent stud rotation.

.12 Touch-up field welds and damaged galvanized surfaces with primer.

3.3 ERECTION TOLERANCES

.1 Plumb: not to exceed 1/500th of member length.

.2 Camber: not to exceed 1/1000th of member length.

.3 Spacing: not more than 3.0 mm from design spacing.

.4 Gap between end of stud and track web: not more than 4 mm.

3.4 FIELD QUALITY ASSURANCE

.1 Include in the work of this Section periodic field review of the installation of the stud system during construction by the Professional Engineer whose stamp is on the reviewed Shop Drawings.

.2 Submit periodic reports to the Consultant and Contractor describing progress of work and stating whether it conforms to the Contract Documents. Report non-compliance in detail and recommend corrective measures.

.3 Provide letter from the Professional Engineer to the Consultant certifying that the work is in general conformance with the reviewed Shop Drawings and the requirements of the Ontario Building Code.

END OF SECTION 05410

PART 1 - GENERAL

1.1 GENERAL

.1 The Specifications are an integral part of the Contract Documents. Division 1 applies to the Work of this Division.

1.2 WORK INCLUDED

.1 Supply and install the following:

1. Structural wall-mounted brackets.
2. All support metals required for anchorage/support of mechanical/electrical installations.
3. Shop priming.
4. Shop drawings complete with Engineer's seal for structural items.
    1. Review drawings thoroughly and include any other items located. List each item included in tender.

1.3 WORK EXCLUDED

.1 Work detailed under Section 05120 - Structural Steel.

.2 Installation of plate anchors in masonry and concrete.

.3 Loose Lintels, under Section 04200 – Unit Masonry.

.4 Finish painting.

1.4 SUBMITTALS/SHOP DRAWINGS

.1 Submit shop drawings to the Consultant for approval.

.2 Drawings to indicate materials, thickness, finish, connections, method of anchorage, number of anchors, reinforcement, and accessories.

.3 Miscellaneous Metal Contractor to be responsible for field measurements.

.4 Clearly note details which are different from the drawings and give back-up rationale for the changes. This will help reduce unnecessary recirculation of the drawings.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Materials to be new and of a strength equal to the task required based on N.B.C. and C.S.A.

.2 Shop Primer: CGSB 1-GP-40 dm red oxide paint.

.3 Steel section and plates: to CSA G40-21 latest edition.

.4 Galvanized steel pipe: CSA 863, ASTM A120.

.5 Stainless steel: CSA G110.6-1968 with No. 4 polished finish.

.6 Galvanizing hot-dip, minimum coating 600 g/m^2-CSA G164-1972.

.7 Sulphur: Commercial grade for setting metal posts.

.8 Welding materials: CSA W59-1977.

.9 Bolts and anchor bolts: ASTM A307-768.

.10 Galvanizing primer, zinc rich, ready mix CFSB 1GP-181m.

2.2 WORKMANSHIP

.1 Welding to be done by C.W.B. approved welders to C.S.A. W59 standard.

.2 All exposed welding and joints must be smooth and safe.

.3 Screws to be countersunk.

2.3 CONNECTIONS

.1 All exposed fastenings to be of the same material, colour and finish to which it is applied.

.2 All fastenings must be adequate and safe for this job.

2.4 SHOP PRIMER

.1 Apply one (1) shop coat of primer to all metal items except those already galvanized or aluminum or for concrete embedment.

.2 Field prime touch-up only in temperatures above seven degrees Celsius. Do not paint surfaces which are to be field welded.

PART 3 - EXECUTION

3.1 EXAMINATION

.1 Take site measurements to ensure that work is fabricated to fit around construction, obstruction, or projections.

3.2 INSTALLATION

.1 Erection plumb and true.

.2 Included all fasteners, lags, expansion shields, etc. required for proper installation.

.3 Insulate between dissimilar metals.

.4 Touch-up after installation, with metal oxide primer or zinc primer, appropriate to the particular metal.

END OF SECTION 05500

PART 1 - GENERAL

1.1 GENERAL

.1 The Specifications are an integral part of the Contract Documents. Division 1 applies to the Work of this Division.

1.2 WORK INCLUDED

.1 Supply and install the following:

1. Safety Railings to Roof Hatch
2. Galvanized Steel Fixed-clip Connectors

1.3 WORK EXCLUDED

.1 Work detailed under Section 05120 - Structural Steel.

.2 Installation of plate anchors in masonry and concrete.

.3 Loose Lintels, under Section 04200 – Unit Masonry.

.4 Finish painting.

1.4 SUBMITTALS/SHOP DRAWINGS

.1 Shop Drawings: Indicate configuration and dimension of components, adjacent construction, required clearances and tolerances, and other affected Work.

1. General: Show connections of units and hardware to other Work. Include schedules showing location of each type and size of unit.

.2 Product Data: Manufacturer's technical data for each type of hatch assembly, including setting drawings, templates, finish requirements, and details of anchorage devices.

.3 Contract Closeout Submittals

1. Installation, Operating & Maintenance manuals

1.5 QUALITY ASSURANCE

.1 Qualifications:

1. Manufacturer/Installer: Company specializing in manufacturing and installation of components specified in this Section with minimum of 5 years documented experience.

1.6 DELIVERY, STORAGE AND HANDLING

.1 Deliver materials to Project site ready use.

.2 Exercise proper care in handling of Work so as not to disrupt finished surfaces.

.3 Store materials under cover in a dry and clean location off the ground.

1.7 WARRANTY

.1 Safety railings: Provide manufacturer's standard 5-year warranty. All safety railings shall be free from manufacturing defects in materials and workmanship for a period of five (5) years from the date of shipment. Should a product fail to function in normal use within this period, manufacturer shall furnish a replacement or new part at manufacturers' discretion.

PART 2 - PRODUCTS

2.1 MANUFACTURER

.1 Babcock-Davis, 9300 73rd Ave N., Brooklyn Park, MN 55428, PH: 888-412-3726, www.BabcockDavis.com

.2 Simpson Strong-Tie: 9 Kenview Blvd. Brampton ON, (905) 458-5538

2.2 FIXED-CLIP CONNECTORS

.1 FCB45.5 Bypass Framing Fixed Clip Connector

1. The FCB clip is an economical, high-performance fixed-clip connector that can be used for a variety of framing applications. It is rated for tension, compression, shear, and in-plane loads and offers the designer the flexibility of specifying different screw and anchorage patterns that conform to desired load levels.
2. Length: 5.5 inches (140mm)
3. 54 mil (16 ga.) steel.
4. Galvanized (G90).
5. Anchors: #10 self-drilling wood and metal screws.

2.3 SAFETY RAILINGS

.1 Safety Railing System: Model SRC Roof-hatch manufacturer's standard system including rails, clamps, fasteners, safety barrier at railing opening, and accessories required for a complete installation; attached to roof hatch and complying with OSHA 29 CFR 1910.23 & 29 CFR 1926.502 requirements and authorities having jurisdiction.

6. Height: 42.125 inches (1070 mm) above finished roof deck.
7. Rails:
    1. Aluminum pipe, 1-1/4 inch (31 mm), 1.66 inch (42 mm) outside diameter, schedule 40 6061 T6 alloy pipe.
    2. Fittings: Cast aluminum 5052-H32 alloy with set screw hold.
    3. Mounting Brackets: 3/16 inch (4.75 mm) steel, zinc plated with nut backing plate.
    4. Exit: Self-closing gate, 1-1/4 inch (32 mm) aluminum self-closing with coil spring.

PART 3 - EXECUTION

3.1 EXAMINATION

.1 Take site measurements to ensure that work is fabricated to fit around construction, obstruction, or projections.

3.2 INSTALLATION

.1 Erection plumb and true.

.2 Included all fasteners, lags, expansion shields, etc. required for proper installation.

.3 Insulate between dissimilar metals.

.4 Touch-up after installation, with metal oxide primer or zinc primer, appropriate to the particular metal.

.5 Safety Railings:

.1 To Manufacturer's instructions.

.6 Fixed-clip Connectors:

.2 See Drawings: screw pattern as shown in Drawings.

END OF SECTION 05552

PART 1 - GENERAL

1.1 GENERAL

.1 The Specifications are an integral part of the Contract Documents. Division 1 applies to the Work of this Division.

1.2 WORK INCLUDED

.1 Supply and install the following:

1. Continuous base rail guard system with glass infill panels.
2. Painting of steel rail components in-situ.

1.3 WORK EXCLUDED

.1 Work detailed under Section 05310 Steel Decking.

.2 Work detailed under 05410 Structural Metal Lightweight Framing.

.3 Work detailed under 07910 Caulking.

.4 Work detailed in 08710 Finishing Hardware.

.5 Work detailed under 08800 Glass and Glazing.

.6 Work detailed under 09911 Painting and Finishing

1.4 SUBMITTALS/SHOP DRAWINGS

.1 Submit under provisions of Section 01300 Submittals.

.2 Shop Drawings: Indicate configuration and dimension of components, adjacent construction, required clearances and tolerances, and other affected Work.

1. General: Submit plan and typical section detail to depict the proper configuration, assembly, installation, and termination of each product specified in this section. Including: Section details, mounting methods, typical elevations, and key plan layout.

.3 Product Data: Manufacturer's technical data for each type of hatch assembly, including setting drawings, templates, finish requirements, and details of anchorage devices.

.4 Verification Samples: For each finish product specified, two samples, representing actual product, color, and finish.

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 five (5) years' experience.:

1. Manufacturer/Installer: Company specializing in manufacturing and installation of components specified in this Section with minimum of 5 years documented experience.

.2 Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.

.1 Do not proceed with remaining work until workmanship, color, and sheen are approved by Consultant.

.2 Refinish mock-up area as required to produce acceptable work.

.3 Certification:

.1 System components: Pre-engineered by registered Professional Engineer licensed in the Province of Ontario;

2. Attachments to building structure: Pre-engineered by registered Professional Engineer licensed in the Province of Ontario.

1.6 DELIVERY, STORAGE AND HANDLING

.1 Deliver materials to Project site ready use.

.2 Exercise proper care in handling of Work so as not to disrupt finished surfaces.

.3 Store materials under cover, indoors, in a dry and clean location off the ground.

1.7 WARRANTY

.1 Glazed railings: Provide manufacturer's standard 5-year warranty. All safety railings shall be free from manufacturing defects in materials and workmanship for a period of five (5) years from the date of shipment. Should a product fail to function in normal use within this period, manufacturer shall furnish a replacement or new part at manufacturers' discretion.

PART 2 - PRODUCTS

2.1 MANUFACTURER

.1 Devtech International Inc. Architectural Glazing Systems: 27 Erinville Drive, Erin, Ontario, N0B 1T0: 1-519-854-4527: Contact: Mark Stevenson.

.2 Substitutions or alternates are not permitted for the components contained in this specification section.

2.2 CONTINUOUS BASE RAIL GUARD COMPONENTS

.1 Continuous Steel Rail:

1. Continuous 5/16" bent galvanized steel plate with minimum yield strength of 380 MPa.
2. Minimum 4 ½" (115mm) glazing pocket.

3. Minimum 4” (102mm) glazing embedment space.

4. Galvanized (G90).

.2 Glazing:

.1 7/8” (21.5mm) total thickness dual-layer laminated low-iron glass with iconoplast interlayer by Dupont (SGP Interlayer) to suit no top-rail application. Edges polished, corners bump-ground.

.2 Shims as required.

.3 Provide permanent safety labelling of the glazing in inconspicuous lower corners of each glazing panel. Labelling to satisfy local Authorities Having Jurisdiction in the Province of Ontario.

.3 Silicone:

.1 Clear structural silicone per manufacturer’s specifications.

.2 Backer rod to suit spacing (2 to 1 ratio width/depth).

.4 Fasteners:

.1 Hilti KH-EZ screw anchors with minimum 3 1/4” (82mm) length. Hex-head, carbon steel with zinc coating.

2.3 FINISH

.1 Paint Finish:

.1 Alkyd paint: suitable for galvanized metal applications. Provide primer application prior to alkyd finish coats. Treatment application prior to primer to be weak acid solution.

PART 3 - EXECUTION

3.1 EXAMINATION

.1 Take site measurements to ensure that work is fabricated to fit around construction, obstruction, or projections.

3.2 PREPARATION

1. Coordinate setting drawings, diagrams, templates, instructions, and directions for installation of anchorages. These include items such as sleeves, concrete inserts, anchor bolts, and miscellaneous items having integral anchors that are to be embedded in concrete and masonry construction.

2. Coordinate delivery of anchorages to project site.

3. Coordinate that blocking is in place for all mounting fasteners.

4. Clean debris and dust from surfaces and embed holes thoroughly prior to installation.

5. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

1. Install railing system in accordance with manufacturer's approved Shop Drawings and instructions.

2. Install components plumb and level, accurately fitted, free from distortion and defects.

3. Provide anchors for connecting railings to supporting construction.

4. Perform cutting, drilling, and fitting required for installation of handrails. Accurately set handrails in location, alignment, and elevation, measured from established lines and levels.

5. Fit exposed connections accurately together to form tight joints except as necessary for expansion.

3.4 PROTECTION

1. After installation, General Contractor or Owner shall be responsible for protection of products during the balance of construction.

2. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION 05730

PART 1 - GENERAL

1.1 GENERAL

.1 The Specifications are an integral part of the Contract Documents. Division 1 applies to this Work of this Division.

1.2 WORK INCLUDED

.1 Supply and install:

1. Furring and strapping.
2. Wood framed walls.
3. Blocking and reinforcing.

.2 Install:

1. Doors and frames.
2. Hardware.
3. Manufactured specialities.

1.3 RELATED WORK BY OTHERS

.1 Supply of various items to be installed.

.2 Section 06200 – Millwork.

.3 Section 09911 – Painting/Finishing.

1.4 REFERENCE STANDARDS

.1 Stress grade lumber CSA 086, 0122 graded to N.L.G.A. Standard grading rules for Canadian Lumber. All wood to be kiln dried.

.2 Canadian structural wood panels -CSA 0151-M1978, CSA 0325.

.3 Pressure treated wood -CSA 080-1974 and Revisions to CSA 08051-1975 and CSA 08052-1976 (CWPB approved).

1.5 DELIVERY AND STORAGE

.1 Protect all finish material from weather and from damage while in transit and on the job. Replace any material or work not suitable for installation.

1.6 SUBMITTALS

.1 Submit shop drawings to Consultant for review.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Framing and structural lumber: No. 1 and 2 grade spruce or better, dressed four sides to sizes noted on drawings, except blocking which can be No.2.

.2 Wall Sheathing: 11 mm OSB.

.3 Caulking:

1. Tremco, Mono or better.
2. Acoustic Sealant – Tremco.

.4 Wall Blocking:

1. As required for handrails, manufacturing specialties, etc.

PART 3 - EXECUTION

3.1 WORKMANSHIP

.1 All work to be firmly and accurately set to receive finish materials by others.

3.2 WORK FOR OTHER TRADES

.1 Do all cutting, fitting, repairing in woodwork required by other trades.

3.3 BEARING

.1 Minimum bearing of structural material is 37 mm or as detailed on the structural drawings.

3.4 ERECTION

.1 Erect all wood products and members in strict accordance with details recommended by Engineered Wood Association and manufacturers' instructions.

END OF SECTION 06100

PART 1 - GENERAL

1.1 GENERAL

.1 The Specifications are an integral part of the Contract Documents. Division 1 applies to the Work of this Division.

1.2 WORK INCLUDED

.1 Supply and install:

1. Finish Carpentry Items.
2. Countertops.
3. New lower cabinets: Rm.211 Servery
4. Custom Shelving Units

.2 Preparation for installing Utilities.

1.3 RELATED WORK BY OTHERS

.1 Section 06100 - Carpentry

.2 Section 09250 – Gypsum Board

.3 Section 09650 – Flooring

.4 Section 09911 – Painting & Finishes

1.4 EXAMINATION - COORDINATION

.1 Be responsible for obtaining on site dimensions for millwork and confirming suitability of walls to receive millwork.

.2 Coordinate with other work having a direct bearing on the work of this section.

.3 Convene a pre-installation meeting 1 week before starting installation of this section.

1.5 SUBMITTALS

.1 Submit shop drawings per Submittal Section - all items required.

.2 Samples - submit to Consultant sample of finish and hardware prior to manufacturing items.

1.6 QUALITY ASSURANCE

.1 Perform work in accordance with AWMAC Premium quality.

.2 Perform cabinet construction in accordance with AWMAC custom quality.

.3 Manufacturer Qualifications: company specializing in manufacturing the products specified in this section with minimum 5 years documented experience.

.4 Installer Qualifications: company specializing in installing the products specified in this section with minimum 5 years documented experience.

1.7 PRODUCT HANDLING

.1 Do not deliver to site until there is an acceptable, heated, dry storage area. Deliver with protective coverings.

.2 Protect installed work and keep counter tops covered until final inspection.

1.8 ENVIRONMENTAL REQUIREMENTS

.1 During and after installation of work of this section, maintain the same temperature and humidity conditions in building spaces as will occur after occupancy.

1.9 SEQUENCING

.1 Coordinate sizes and locations of cut-outs and ALL other related Work specified in other Sections to ensure ALL MILLWORK products can be supported and installed as indicated.

PART 2 - PRODUCTS

2.1 MATERIALS – LUMBER

.1 Fasteners: Hex-head screw 4.5 mm, 3/16 inch diameter x suitable length.

.2 Concealed Joint Fasteners: Threaded steel.

.3 Hardwood Lumber: AWMAC Grade I; premium hard, maple species, plain sawn, maximum moisture content of 6 percent; with vertical grain, of quality suitable for transparent finish.

.4 Softwood Lumber: AWMAC Grade I; premium species, plain sawn, maximum moisture content of 6 percent; with vertical grain, of quality suitable for transparent finish.

2.2 SHEET MATERIALS

.1 Hardwood Plywood: CHPVA AA, A, B; veneer core; premium, hard maple face species, plain sliced; of quality suitable for transparent finish.

.2 Particleboard: ANSI A208.1; composed of wood chips, medium density, moisture resistant; of grade to suit application; sanded faces.

2.3 FABRICATION

.1 Fabricate to AWMAC Premium standards.

.2 Shop prepare and identify components for matching during site assembly.

.3 Shop assemble casework for delivery to site in units easily handled, permitting passage through building openings.

.4 When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.

.5 Apply plastic laminate finish in full uninterrupted sheets consistent with manufactured sizes. Fit corners and joints hairline; secure with concealed fasteners. Locate counter butt joints minimum 600 mm (2 feet) from sink cut-outs.

.6 Apply wood laminate by grain matching adjacent sheets to book matching.

.7 Apply laminate backing sheet to reverse side of plastic laminate finished surfaces.

.8 Provide cutouts for plumbing fixtures, inserts, appliances, outlet boxes, fixtures, and fittings. Verify locations of cutouts from on-site dimensions. Seal cut edges.

2.4 SHOP/FACTORY FINISHING

.1 Sand work smooth and set exposed nails and screws.

.2 Apply wood filler in exposed nail and screw indentations.

.3 On items to receive transparent finishes, use wood filler which matches surrounding surfaces and of types recommended for applied finishes.

.4 Seal, stain and varnish exposed to view surfaces. Spray apply only.

.5 Seal, stain and varnish semi-exposed to view surfaces. Spray and brush apply.

.6 Seal surfaces in contact with cementitious materials.

2.5 HORIZONTAL COUNTER SURFACES

.1 Plastic Laminate

1. Materials: See Section 06470.
2. Countertops: Washrooms E112, E113, E206, E207, Servery E211

.2 Stainless steel

1. Countertops: Kitchen/Servery E116/E117
2. Thickness: 16 ga.
3. Grade: type 304 stainless steel with minimum 8% nickel content by volume
4. Finish: #4 finish (mechanically polished)
5. All corners /weld joints ground smooth with rounded corners max. 1/16" radius
6. 4" high backsplash

2.6 CABINET MATERIALS

.1 Standard quality millwork complete with post-formed plastic laminated tops.

.2 Cupboard shelves 19mm p.lam on particleboard adjustable shelving complete with 3 mm PVC edge banding on pilaster strips.

.3 Exposed gables, doors, tops, and bottoms to be 19 mm p.lam on particleboard complete with hardwood nosing.

.4 Two (2) year written guarantee for tops.

.5 Exposed Shelving: 19 mm plywood veneer, with maple veneer complete with PVC edge banding. (plywood is for all exposed shelving, hardwood edge with veneer.)

.6 Drawers: gentle close hardware (metal guides and plastic runners).

.7 Backsplashes to be stainless steel – 22 gauge.

.8 Colours: proposed colours and finishes listed below – samples to be provided for review by Owner and Architect for approval and if alternate manufacturer proposed).

1. Cabinetry LIST
    1. E112/113/206/207 Washrooms:
    2. Lower Cabinets: E211 Servery

2.7 CABINET HARDWARE (specific to E211 Servery cabinetry)

.1 Cabinet Drawer Handles: Richelieu. Transitional Metal Pull 863 BP 83696195. 96 mm centre to centre.

1. Finish: brushed nickel.
2. Sizes: varies, handles to be +/- 60mm from edge of door face.

.2 Door Bumpers: Haefele. Self-adhesive; Model No. 356.21.428.
1. Finish: Clear

.3 Hinge Cabinet on Cabinet Doors: Hettich International. SELEKTA TOP 4000 & 4035 series, Automatic hinge for snap on fixing opening angle 140 - 180°. Self-closing hinge application of full/half or insert overlap to be confirmed by the cabinet maker.
1. Finish: to match hardware.

.4 Drawer Runners: Richelieu. Easy close, full extension slide. Model: 3832EC2G14 to 3832EC2G24, as applicable.

.5 Shelf Standards: Hettich International. VARI ALU Shelf standard and support for cabinet interior - Vari Alu 1 x 6 mm.
1. Finish: Nickel Plated.

.6 Moldings and Nosings: Richelieu. Flexible T Molding. Model: 114125105, Light Grey
1. Contractor to provide sample prior to final approval.

PART 3 - EXECUTION

3.1 EXAMINATION

.1 Verify existing conditions before starting work.

.2 Verify adequacy of backing and support framing.

.3 Verify location and sizes of utility rough-in (mechanical/electrical/building items) associated with work of this section.

3.2 INSTALLATION

.1 Install Work in accordance with AWMAC Premium Grade.

.2 Set and secure casework in place; rigid, plumb, and level.

.3 Use fixture attachments in concealed locations for wall mounted components

.4 Use concealed joint fasteners to align and secure adjoining cabinet units and countertops

.5 Carefully scribe casework abutting other components, with maximum gaps of 1 mm (1/32 inch). Do not use additional overlay trim for this purpose.

.6 Secure cabinet and counter bases to floor using appropriate angles and anchorages.

.7 Countersink anchorage devices at exposed locations. Conceal with solid wood plugs of species to match surrounding wood; finish flush with surrounding surfaces.

3.3 ADJUSTING

.1 Test installed work for rigidity and ability to support loads.

.2 Adjust moving or operating parts to function smoothly and correctly.

.3 ERECTION TOLERANCES:
1. Maximum Variation from True Position: 1.5 mm (1/16 inch).
2. Maximum Offset from True Alignment with Abutting Materials: 0.7 mm (1/32 inch).

3.4 CLEANING

.1 Clean casework, counters, shelves, hardware, fittings, and fixtures.

END OF SECTION 06200

PART 1 - GENERAL

1.1 SUMMARY

.1 Drawings and general provisions of the Contract, including General and Supplementary Conditions.

.2 Division 1 Specification Sections, apply to this Section.

.3 Section Includes:

1. Plastic Laminate for counters and vanities
2. Window Sills – new and existing windows

1.2 RELATED WORK

.1 Work of this Section is related to work specified in the following sections:

1. Section 06200 - Millwork.

1.3 SUBMITTALS

.1 Product Data: Manufacturer's technical literature for decorative plastic laminate material, adhesive for bonding plastic laminate, miscellaneous accessories, and related components.

.2 Samples:

1. Decorative plastic laminates, 125 x 175 mm (5 x 7”), for each type, colour, pattern, and surface finish.

.3 Product: Decorative plastic laminate materials confirming to Formica Specifications or accepted equal.

1.4 QUALITY ASSURANCE

.1 Fabricator/Installer Qualifications: Company specializing in fabricating and installing decorative plastic laminate finished work with a minimum three (3) years experience.

.2 Material, equipment, and workmanship shall conform to industry-standard practices, conditions, procedures, and recommendations as specified by ANSI/NEMA LD3-1995 Section 4, Architectural Woodwork Quality Standards, DLPA (Decorative Laminated Products Association) and ANSI 161.2-1979 standards.

.3 Source Limitations: Obtain decorative plastic laminate materials through one source from a single manufacturer.

.4 Fire-Test-Response Characteristics: Provide decorative plastic laminate with the following surface burning characteristics as determined by testing identical products per ASTM E 84 by UL or another testing and inspecting agency acceptable to authorities having jurisdiction:

1. Flame-Spread Index: 25 or less.
2. Smoke-Developed Index: 450 or less.

1.5 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store, handle, and protect materials in accordance with manufacturer’s written instructions.

1. Provide protective coverings of suitable material. Take special precautions at corners.

1.6 SEQUENCING

.1 Coordinate sizes and locations of cut-outs and other related Work specified in other Sections to ensure that interior architectural woodwork can be supported and installed as indicated.

PART 2 - PRODUCTS

2.1 PRODUCTS AND MANUFACTURERS

.1 Acceptable Manufacturers: Arborite, Formica, Wisonart, or Nevamar. Colour choices, however, are specific to manufacturer chosen per type. Substitutions by Section 01630.

2.2 MATERIALS AND COMPONENTS

.1 Decorative Plastic Laminate: Manufacturers standard and custom decorative surface papers with melamine resins, bonded under heat and pressure to Kraft paper backing sheet with phenolic resins.

1. Grade: Grade 10, HGS VGP CLS BKH.
2. Thickness: 1.2 mm.
3. Surface burning characteristics in accordance with ASTM E84.
4. Counters to be post formed laminated plastic on 19mm particle board.
5. Counter tops to be laminated with waterproof adhesive.
6. All counter top front and backsplash edges to be rounded.
7. Laminated backer on all countertops.
8. Colors and Patterns:
    1. E112 Washroom countertop: 4877-38 “Grey Mesh”, Wilsonart
    2. E113 Washroom countertop: 4877-38 “Grey Mesh”, Wilsonart
    3. E112/E113 counter valence panels: 7909-60 “Fusion Maple”, Wilsonart
    4. E206 Washroom countertop: 9320-PA “Blue Felt”, Formica
    5. E207 Washroom countertop: 9320-PA “Blue Felt”, Formica
    6. E206/207 counter valence panels: 7909-60 “Fusion Maple”, Wilsonart
    7. E211 Servery countertop: AV208SD “Soothing Sea Mist”, Pionite
    8. E211 Servery cabinetry facing finish: D403-60 “White Sand”, Wilsonart

2.3 ACCESSORY MATERIALS

.1 Adhesive for Bonding Plastic Laminate: for standard and post-forming grade: use semi-rigid (PVAc) or rigid (Urea Resorcinol) adhesives for colour core surfacing material use semi rigid (PVAc) or unpigmented contact cement applied to adhesive manufacturer’s recommendations.

PART 3 - EXECUTION

3.1 EXAMINATION AND PREPARATION

.1 Examine surfaces for conditions that would adversely affect decorative plastic laminate surfacing.

.2 Laminate to be bonded to a suitable substrate such as medium-density fibre board (MDF) or a 45# density particle board (CS 236-66; Type 1, Grade B, Class 2) unless otherwise indicated on drawings. The following materials are not recommended for use:

plywood, plaster, gypsum board, or concrete. Maximum panel widths to be 610 mm for Grade 20.

3.2 INSTALLATION

.1 Workmanship shall conform to industry-standard practices, procedures and recommendations as specified by ANSI/NEMA LD3-1995 Section 4, Architectural Woodwork Quality Standards, DLPA (Decorative Laminated Products Association) and ANSI 161.2-1979 standards.

.2 Install decorative plastic laminate in accordance with manufacturer's written installation instructions, approved Submittals, and requirements of Section 06200 – Millwork.
1. Provide templates and rough-in measurements.

3.3 CLEANING AND PROTECTION

.1 Cleaning:
1. Clean decorative plastic laminate surfaces in accordance with manufacturer's instructions.

.2 Protection:
1. Do not permit construction near unprotected surfaces.

END OF SECTION 06470

PART 1 - GENERAL

1.1 GENERAL

.1 The Specifications are an integral part of the Contract Documents. Division 1 applies to the Work of this Division.

1.2 WORK INCLUDED

.1 Sound batt insulation – interior walls.
.2 Miscellaneous insulation - batts, spray foam.
.3 Ceiling-hung blanket insulation.

1.3 WORK EXCLUDED

1. Pipe insulation by mechanical trade.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Wall insulation:

1. For interior studs batt insulation various thicknesses as per wall types: Rockwool (see Sound batt below). No substitute.
2. For exterior wall (spray): Polyurethane spray foam insulation to fill cavity as shown on wall type. Acceptable Manufacturers: Wall Tite, Cornel, Icycnen, Elastochem, or approved alternate.
3. For exterior wall (batt): Comfort Batt® (stud wall cavity).

.2 Miscellaneous fibreglass batt and foam insulation for wall/floor and wall/roof joints, window and door surrounds.

.3 6 mm poly for stud walls. Taped joints. See Section 07190 – Sheet Vapour Barrier.

.4 Sound Batt – Rockwool: Safe 'n Sound® for interior stud walls. Size to fill wall stud.

.5 Rigid insulation –Styrofoam SM. Cast-in-place foundation wall below concrete slabs and sidewalks where detailed on drawing. Install to thickness shown on drawings.

.6 Ceiling-hung blanket insulation: fibreglass batts to match existing size, weight and thickness. Acceptable manufacturer: Owens Corning PSK-faced blanket batts or approved equivalent

.7 Metal strapping for ceiling-hung blanket insulation: cold-rolled, hot-dipped galvanized spiked straps. Acceptable manufacturer: Insul-hold by J&R Products, or equivalent.

PART 3 - EXECUTION

3.1 INSTALLATION- WALL BATTS

1. Wall stud insulation: snug fit and neatly cut.
2. Foam all exterior frame joints, pipe holes, etc.
3. Tape joints of poly.

3.2 INSTALLATION – CEILING-HUNG BATTS

.1 Installation is restricted to patch and repair only.

.2 Examine existing strapping for degradation in area to be patched. Replace strapping if corrosion, metal fatigue or physical metal shearing has occurred in the strapping.

.3 Install batts to match existing layer, pile height and in-line with the existing PSK faced surface (underside).

.4 Join batts at edges with compatible joint tape from manufacturer (Owens Corning) for edge sealing.

3.3 CLEAN-UP

.1 Leave work area and adjacent materials clean.

END OF SECTION 07210

PART 1 - GENERAL

1.1 GENERAL

.1 The Specifications are an integral part of the Contract Documents. Division 1 applies to the Work of this Division.

1.2 RELATED WORK

.1 Section 07210 – Insulation / Air Barrier.

.2 Section 09250 - Gypsum Board.

.3 Mechanical and Electrical - DIVISIONS 15 and 16.

1.3 REFERENCES

.1 Ontario Building Code O. Reg. 350/06.

.2 CAN-S115M Standard Method of Fire Tests of Through Penetration Fire-Stops.

.3 ASTM E814-06 Standard Test Method for Fire Tests of Through-Penetration Fire-Stops.

.4 NFPA 101-Life Safety Code.

.5 CAN/ULC-S102-M Standard Test Method for Surface Burning Characteristics of Building Materials.

.6 Canadian Electrical Code.

1.4 SUBMITTALS

.1 Make submittals in accordance with Section 01300.

.2 Prior to start of work, submit list of proposed fire-stopping and smoke seal materials together with suitable documentation to verify that specified requirements will be met.

.3 Submit proposed U.L.C. listing including test data, fire resistance rating and design number for each type of fire stop assembly required. Listing shall identify assemblies as applicable to the actual location including all components.

.4 Submit MSDS for review and acceptance by the Owner prior to delivery to the project site.

.5 Upon Consultant's request, submit samples of materials.

.6 Product data for each type of product specified.

1. Certification by fire-stopping manufacturer that products supplied comply with local regulations controlling use of volatile organic compounds (VOC's) and are non-toxic to building occupants.
2. Product certificates signed by manufacturers of fire-stopping products certifying that their products comply with specified requirements.
3. Product test reports from, and based on tests performed by, a qualified testing and inspecting agency evidencing compliance of fire-stopping with requirements based on comprehensive testing of current products.

.7 Provide identification of products proposed for each application found in the Work. Include drawings of proposed use.

1.5 QUALITY ASSURANCE

.1 Fire-stopping and smoke seal components shall be listed and labelled by ULC.

.2 Install materials under environmental conditions specified by material manufacturer.

.3 Fire-Test-Response Characteristics: Provide fire-stopping that complies with the following requirements and those specified under the "System Performance Requirements" article:

1. Fire-stopping tests are performed by a qualified testing and inspecting agency. A qualified testing and inspecting agency is UL, Warnock Hersey, or another agency performing testing and follow-up inspection services for fire-stop systems that is acceptable to authorities having jurisdiction.
2. Through-penetration fire-stop systems are identical to those tested per ASTM E814 under conditions where positive furnace pressure differential of at least 0.01 inch of water is maintained at a distance of 0.78 inch below the fill materials surrounding the penetrating items in the test assembly. Provide rated systems complying with the following requirements:
    1. Through-penetration fire-stop system products bear classification marking of qualified testing and inspecting agency.
    2. Through-penetration fire-stop systems correspond to those indicated by reference to through-penetration fire-stop system designations listed by UL in their "Fire Resistance Directory," by Warnock Hersey, or by another qualified testing and inspecting agency.
3. Fire-resistive joint sealant systems are identical to those tested for fire-response characteristics per ASTM E 119 under conditions where the positive furnace pressure differential is at least 0.01 inch of water, as measured 0.78 inch from the face exposed to furnace fire. Provide systems complying with the following requirements:
    1. Fire-Resistance Ratings of Joint Sealants: As indicated by reference to design designations listed by UL in their "Fire Resistance Directory" or by another qualified testing and inspecting agency.
    2. Joint sealants, including backing materials, bear classification marking of qualified testing and inspection agency.

.4 Information on drawings referring to specific design designations of through-penetration fire-stop systems is intended to establish requirements for performance based on conditions that are expected to exist during installation. Any changes in conditions and designated systems require the Consultant’s prior approval. Submit documentation showing that the performance of proposed substitutions equals or exceeds that of the systems they would replace and are acceptable to authorities having jurisdiction.

.5 Installer Qualifications: Engage an experienced Installer who has completed fire stopping that is similar in material, design, and extent to that indicated for Project and that has performed successfully.

.6 Single-Source Responsibility: Obtain through-penetration fire-stop systems for each kind of penetration and construction condition indicated from a single manufacturer.

.7 Field-Constructed Mock-up: Prior to installing fire-stopping, erect mock-ups for each different through-penetration fire-stop system indicated to verify selections made and to demonstrate qualities of materials and execution. Build mock-ups to comply with the following requirements, using materials indicated for final installations:

1. Locate mock-ups on site in locations indicated or, if not indicated, as directed by Consultant.
2. Notify Consultant one (1) week in advance of the dates and times when mock-ups will be erected.
3. Obtain Consultant's acceptance of mock-ups before start of final unit of Work.
4. Retain and maintain mock-ups during construction in an undisturbed condition as a standard for judging completed unit of Work.
5. Accepted mock-ups in an undisturbed condition at time of Substantial Completion may become part of completed unit of Work.

.8 Provide fire-stopping products containing no detectable asbestos as determined by the method specified in 40 CFR Part 763, Subpart F, Appendix A, Section 1, "Polarized Light Microscopy."

.9 Coordinating Work: Coordinate construction of openings and penetrating items to ensure that designated through-penetration fire-stop systems are installed per specified requirements.

.10 Pre-installation Conference: Conduct pre-installation conference at Project site to review fire-stopping applications and requirements with all affected parties.

1.6 SYSTEM PERFORMANCE REQUIREMENTS

.1 General: Provide fire-stopping systems that are produced and installed to resist the spread of fire, according to requirements indicated, and the passage of smoke and other gases.

.2 F-Rated Through-Penetration Fire-stop Systems: Provide through-penetration fire-stop systems with F ratings indicated, as determined per ASTM E 814, but not less than that equalling or exceeding the fire-resistance rating of the constructions penetrated.

.3 T-Rated Through-Penetration Fire-stop Systems: Provide through-penetration fire-stop systems with T ratings, in addition to F ratings, as determined per ASTM E 814, where indicated and where systems protect penetrating items exposed to contact with adjacent materials in occupy-able floor areas. T-rated assemblies are required where the following conditions exist:
1. Where fire-stop systems protect penetrations located outside of wall cavities.
2. Where fire-stop systems protect penetrations located outside fire-resistive shaft enclosures.
3. Where fire-stop systems protect penetrations located in construction containing doors required to have a temperature-rise rating.
4. Where fire-stop systems protect penetrating items larger than a 100 mm diameter nominal pipe or sixteen (16) square inches in overall cross-sectional area.

.4 Fire-Resistive Joint Sealants: Provide joint sealants with fire-resistance ratings indicated, as determined per ASTM E 119, but not less than that equalling or exceeding the fire-resistance rating of the construction in which the joint occurs.

.5 For fire-stopping exposed to view, traffic, moisture, and physical damage provide products that do not deteriorate when exposed to these conditions.
1. For piping penetrations for plumbing and wet-pipe sprinkler systems, provide moisture-resistant through-penetration fire-stop systems.
2. For floor penetrations with annular spaces exceeding four (4) inches or more in width and exposed to possible loading and traffic, provide fire-stop systems

capable of supporting the floor loads involved either by installing floor plates or by other means.

3. For penetrations involving insulated piping, provide through-penetration fire-stop systems not requiring removal of insulation.

.6 For fire-stopping exposed to view, provide products with flame-spread values of less than 25 and smoke-developed values of less than 450, as determined per ASTM E 84.

1.7 FIRE-STOPPING, GENERAL

.1 Compatibility: Provide fire-stopping composed of components that are compatible with each other, the substrates forming openings, and the items, if any, penetrating the fire-stopping under conditions of service and application, as demonstrated by fire-stopping manufacturer based on testing and field experience.

.2 Accessories: Provide components for each fire-stopping system that are needed to install fill materials and to comply with "System Performance Requirements". Use only components specified by the fire-stopping manufacturer and approved by the qualified testing and inspecting agency for the designated fire resistance-rated systems. Accessories include but are not limited to the following items:

1. Permanent forming/damming/backing materials including the following:
    1. Semi-refractory fibre (mineral wool) insulation.
    2. Ceramic fibre.
    3. Sealants used in combination with other forming/damming materials to prevent leakage of fill materials in liquid state.
    4. Fire-rated formboard.
    5. Joint fillers for joint sealants.
2. Temporary forming materials.
3. Substrate primers.
4. Collars.
5. Steel sleeves.

.3 Applications: Provide fire-stopping systems composed of materials specified in this Section that comply with system performance and other requirements.

1.8 PROJECT CONDITIONS

.1 Environmental Conditions: Do not install fire-stopping when ambient or substrate temperatures are outside limits permitted by fire-stopping manufacturers or when substrates are wet due to rain, frost, condensation, or other causes.

.2 Ventilation: Ventilate fire-stopping per fire-stopping manufacturers' instructions by natural means or, where this is inadequate, forced air circulation.

.3 Comply with the requirements of the Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials and regarding labelling and provision of Material Safety Data Sheets (MSDS).

PART 2 - PRODUCTS

2.1 GENERAL

.1 Manufacturers: Manufacturers of Fire Stop Components shall be listed in the ULC Fire Resistance Directory - Volume III.

.2 Fire stopping and smoke seal systems: in accordance with CAN-S115-M, asbestos free and capable of maintaining an effective barrier against flame, smoke, and gases in compliance with requirements of jurisdictional authorities; labelled by ULC. Fire resistance rating of installed systems shall be equal to fire resistance rating of adjacent/surrounding building components.

.3 Fire stopping materials: foamed in place insulation, mortar, grout, gun grade sealant, fire rated mineral fibre felt, or other materials bearing ULC label for required fire rating and compatible with the tested and approved U.L.C. design listing.

.4 Smoke seals and fire stopping exposed to view: sealant type.

.5 Service penetration assemblies: certified by ULC in accordance with CAN-S115-M and listed in ULC Guide No. 40 U19.

.6 Service penetration fire stop components: certified by ULC in accordance with CAN-S115 and listed in ULC Guide No. 40 U19.13 and ULC Guide No. 40 U19.15 under the Label Service of ULC.

.7 Fire stopping and smoke seals at openings intended for ease of re-entry such as cables: elastomeric seal; do not use cementitious or rigid seal at such locations.

.8 Fire stopping and smoke seals at openings around penetrations for pipes, ductwork and other mechanical items requiring sound and vibration control; elastomeric seal; do not use a cementitious or rigid seal at such locations.

.9 Primers: to manufacturer’s recommendation for specific material, substrate, and end use.

.10 Water (if applicable): potable, clean and free from injurious amounts of deleterious substances.

.11 Damming and back-up materials, supports and anchoring devices: to manufacturer’s recommendations, and in accordance with tested assembly being installed as acceptable to authorities having jurisdiction.

.12 Sealants for vertical joints: non-sagging.

.13 Ensure fire-stopping materials used are suitable for each particular application. Where fire-stopping will be subjected to loading, use, and install materials which will support the load. Obtain Consultant's approval before proceeding with installation.

2.2 FILL MATERIALS FOR THROUGH-PENETRATION FIRE-STOP SYSTEMS

.1 Ceramic-Fibre and Mastic Coating: Ceramic fibres in bulk form formulated for use with mastic coating, and ceramic fibre manufacturer's mastic coating.

.2 Ceramic-Fibre Sealant: Single-component formulation of ceramic fibres and inorganic binders.

.3 Endothermic, Latex Compound Sealant: Single-component, endothermic, latex formulation.

.4 Intumescent, Latex Sealant: Single-component, intumescent, latex formulation.

.5 Intumescent Putty: Non-hardening, dielectric, water-resistant putty containing no solvents, inorganic fibres, or silicone compounds.

.6 Intumescent Wrap Strips: Single-component, elastomeric sheet with aluminum foil on one side.

.7 Job-Mixed Vinyl Compound: Pre-packaged vinyl-based powder product for mixing with water at Project site to produce a paintable compound, passing ASTM E 136, with flame-spread and smoke-developed ratings of zero per ASTM E 84.

.8 Mortar: Pre-packaged dry mix composed of a blend of inorganic binders, fillers, and lightweight aggregate formulated for mixing with water at project site to form a non-shrinking, homogenous mortar.

.9 Pillows/Bags: Re-usable, heat-expanding pillows/bags composed of glass-fibre cloth cases filled with a combination of mineral-fibre, water-insoluble expansion agents and fire-retardant additives.

.10 Silicone Foam: Two-component, silicone-based liquid elastomer that, when mixed, expands and cures in place to produce a flexible, non-shrinking foam.

.11 Silicone Sealant: Moisture-curing, single-component, silicone-based, neutral-curing elastomeric sealant of grade indicated below:

1. Grade: Pourable (self-levelling) formulation for openings in floors and other horizontal surfaces and non-sag formulation for openings in vertical and other surfaces requiring a non-slumping/gunnable sealant, unless indicated fire-stop system limits use to non-sag grade for both opening conditions.

.12 Solvent-Release-Curing Intumescent Sealant: Solvent-release-curing, single component, synthetic-polymer-based sealant of grade indicated below:

1. Grade: Pourable (self-levelling) formulation for openings in floors and other horizontal surfaces and non-sag formulation for openings in vertical and other surfaces requiring a non-slumping/gunnable sealant, unless indicated fire-stop system limits use to non-sag grade for both opening conditions.

.13 Products: Subject to compliance with requirements, provide one of the following:

1. Endothermic, Latex Sealant:
    1. Fyre Shield by Tremco Inc.
    2. Flame-Safe FS 1900+/- by Grace Construction Products.
2. Intumescent Latex Sealant:
    1. Metacaulk 950 by The RectorSeal Corporation.
    2. Fire Barrier IC 15WB Sealant by 3M Fire Protection Products.
    3. Flamesafe FS 1900 by Grace Construction Products.
3. Intumescent Putty:
    1. Fire Barrier Mouldable Putty by 3M Fire Protection Products.
    2. Flamesafe FSP 1000 Putty by Grace Construction Products.
    3. Flamesafe FSP 1077/1825 Putty Pads by Grace Construction Products.
4. Intumescent Wrap Strips:
    1. Dow Corning Fire Stop Intumescent W rap Strip 2002 by Dow Corning Corp.
    2. Fire Barrier FS-195 Wrap/Strip by 3M Fire Protection Products.
    3. Flamesafe FSW 100 or 150 Wrap Strip by Grace Construction Products.
5. Job-Mixed Vinyl Compound:
    1. USG Fire Code Compound by United States Gypsum Co.
6. Mortar:
    1. K-2 Fire-Stop Mortar by Bio Fireshield, Inc.
    2. K-10 Fire-stop Mortar, Bio Fireshield, Inc.

3. Equal product by The RectorSeal.
4. KBS-Mortar Seal MS 50 and Flamesafe FS 22B by Grace Construction Products.

7. Pillows/Bags:
   1. Fire-stop Pillows, Bio Fireshield, Inc.
   2. KBS Sealbags and Flamesafe Bag or Pillow by Grace Construction Products.
8. Silicone Foams:
   1. Dow Corning Fire Stop Foam 2001 by Dow Corning Corp.
   2. 3M Fire Barrier Rated Foam FIP 1-Step.
9. Silicone Sealants:
   1. Dow Corning Fire-stop Sealant 2000 by Dow Corning Corp.
   2. Dow Corning Fire-stop Sealant SL 2003 by Dow Corning Corp.
   3. Fyre-Sil by Tremco Inc.
   4. Fyre-Sil S/L by Tremco Inc.
10. Solvent-Release-Curing Intumescent Sealants:
    1. Biostop 500 Intumescent Fire-stop Caulk by Bio Fireshield, Inc.
    2. Fire Barrier CP 25N/S Caulk by 3M Fire Protection Products.
    3. Fire Barrier CP 25S/L Caulk by 3M Fire Protection Products.

2.3 FIRE-RESISTIVE ELASTOMERIC JOINT SEALANTS

.1 Elastomeric Sealant Standard: Provide manufacturer's standard chemically curing, elastomeric sealants of base polymer indicated that complies with ASTM C 920 requirements, including those referenced for Type, Grade, Class, and Uses, and requirements specified in this Section applicable to fire-resistive joint sealants.

.2 Sealant Colours: Provide colour selections made by Consultant from manufacturer's full range of standard colors for products of type indicated.

.3 Single-Component, Neutral-Curing Silicone Sealant: Type S; Grade NS; Class 25; exposure-related Use NT, and joint-substrate-related Uses M, G, A, and (as applicable to joint substrates indicated) O.

1. Additional Movement Capability: Provide sealant with the capability to withstand the following percentage changes in joint width existing at time of installation, when tested for adhesion and cohesion under maximum cyclic movement per ASTM C 719, and remain in compliance with other requirements of ASTM C 920 for uses indicated:
   1. Fifty (50) percent movement in both extension and compression for a total of 100 percent movement.

.4 Multi-component, Non-sag, Urethane Sealant: Type M; Grade NS; Class 25; exposure related Use NT, and joint-substrate-related Uses M, A, and (as applicable to joint substrates indicated) O.

1. Additional Movement Capability: Provide sealant with the capability to withstand the following percentage change in joint width existing at time of installation, when tested for adhesion and cohesion under maximum cyclic movement per ASTM C 719, and remain in compliance with other requirements of ASTM C 920 for uses indicated:
   1. Fifty (50) percent movement in both extension and compression for a total of 100 percent movement.

.5 Single-Component, Non-sag, Urethane Sealant: Type S; Grade NS; Class 25; and Uses NT, M, A, and (as applicable to joint substrates indicated) O. Products:

1. Dow Corning 790, 795, Dow Corning Corp.
2. 864 by Pecora Corp.

.6 Single-Component, Spray Applied, Water-Based Sealants:

1. 3M FireDam Spray, CEJ115P & CEJ115P spray sealants by 3M Fire Protection Products.

PART 3 - EXECUTION

3.1 EXAMINATION

.1 Examine substrates and conditions, with Installer present, for compliance with requirements for opening configurations, penetrating items, substrates, and other conditions affecting performance of fire-stopping. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

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

.2 Maintain insulation around pipes and ducts penetrating fire separation.

.3 Surface Cleaning: Clean out openings and joints immediately prior to installing fire-stopping to comply with recommendations of fire-stopping manufacturer and the following requirements:

1. Remove all foreign materials from surfaces of opening and joint substrates and from penetrating items that could interfere with adhesion of fire-stopping.
2. Clean opening and joint substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with fire-stopping. Remove loose particles remaining from cleaning operation.
3. Remove laitance and form release agents from concrete.

.4 Priming: Prime substrates where recommended by fire-stopping manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.

.5 Masking Tape: Use masking tape to prevent fire-stopping from contacting adjoining surfaces that will remain exposed upon completion of Work and that would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove smears from fire-stopping materials. Remove tape as soon as it is possible to do so without disturbing fire-stopping's seal with substrates.

3.3 MIXING

.1 For those products requiring mixing prior to application, comply with fire-stopping manufacturer's directions for accurate proportioning of materials, water (if required), type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other procedures needed to produce fire-stopping products of uniform quality with optimum performance characteristics for application indicated.

3.4 INSTALLATION - GENERAL

.1 Install fire stopping and smoke seal materials in accord with manufacturer's recommendations and ULC test requirements.

.2 Provide temporary forming as required and remove forming only after materials have gained sufficient strength and after initial curing.

.3 Tool or trowel exposed surfaces to a neat finish.

3.5 INSTALLING THROUGH-PENETRATION FIRE-STOPS

.1 General: Comply with the "System Performance Requirements" article in Part 1 and the through-penetration fire-stop manufacturer's installation instructions and drawings pertaining to products and applications indicated.

.2 Install forming/damming materials and other accessories of types required to support fill materials during their application and in the position needed to produce the cross-sectional shapes and depths required to achieve fire ratings of designated through penetration fire-stop systems. After installing fill materials, remove combustible forming materials and other accessories not indicated as permanent components of fire-stop systems.

.3 Install fill materials for through-penetration fire-stop systems by proven techniques to produce the following results:

1. Completely fill voids and cavities formed by openings, forming materials, accessories, and penetrating items.
2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
3. For fill materials that will remain exposed after completing Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

3.6 INSTALLING FIRE-RESISTIVE JOINT SEALANTS

.1 General: Comply with the "System Performance Requirements" article in Part 1, with ASTM C 1193, and with the sealant manufacturer's installation instructions and drawings pertaining to products and applications indicated.

.2 Install joint fillers to provide support of sealants during application and at position required to produce the cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability and develop fire resistance rating required.

.3 Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration, and providing uniform, cross-sectional shapes, and depths relative to joint width that optimum sealant movement capability. Install sealants at the same time joint fillers are installed.

.4 Tool non-sag sealants immediately after sealant application and prior to the time skinning or curing begins. Form smooth, uniform beads of configuration indicated or required to produce fire-resistance rating, as well as to eliminate air pockets, and to ensure contact and adhesion of sealants with sides of joint. Remove excess sealant from surfaces adjacent to joint. Do not use tooling agents that discolour sealants or adjacent surfaces or are not approved by sealant manufacturer.

3.7 SCHEDULE

.1 Fire-stop all openings in fire rated assemblies and fire separations in accordance with the requirements of the Ontario Building Code.

.2 Provide fire stopping and smoke seal at control joints, between fire rated walls/partitions and structural deck above, and at other locations, as required, to maintain integrity of smoke and fire barriers.

.3 Fire stopping and smoke seal in locations exposed to view shall be of the sealant type, alternatively, other fire stopping material may be used, provided it is covered by a bead of sealant.

.4 Seal holes or voids made by through penetrations, poke-through termination devices, and unpenetrated openings or joints to ensure continuity and integrity of fire separation are maintained.

3.8 INSPECTION

.1 Notify consultant when ready for inspection and prior to concealing or enclosing fire stopping materials and service penetration assemblies.

3.9 CLEAN-UP

.1 Clean off excess fill materials and sealants adjacent to openings and joints as work progresses by methods and with cleaning materials approved by manufacturers of fire-stopping products and of products in which opening, and joints occur.

.2 Remove temporary dams after initial set of fire stopping and smoke seal materials.

.3 Protect fire-stopping during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated fire-stopping immediately and install new materials to produce fire-stopping complying with specified requirements.

END OF SECTION 07270

PART 1 – GENERAL

1.1 GENERAL

.1 The Specifications are an integral part of the Contract Documents. Division 1 applies to the Work of this Section.

1.2 SCOPE OF WORK

.1 Furnish all labour, materials, and equipment necessary to supply and install:

1. Prefinished steel soffit and required accessories for complete installation as indicated on drawings and specified herein.
2. Caulking related to this work.
3. Trim and fasteners.

1.3 RELATED WORK

.1 Section 04200 Unit Masonry

.2 Section 06100 Rough Carpentry

.3 Section 07620 Sheet Metal Flashing & Trim

.4 Section 07910 Caulking

1.4 REFERENCES

.1 ASTM:

1. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials
2. ASTM D 958 - Practice for Determining Temperatures of Standard ASTM Molds for Test Specimens of Plastics.
3. ASTM E2768-11 – Standard Test Method for Extended Duration Surface Burning Characteristics for Building Materials (30 min Tunnel Test). Results: Zero Flame Spread, Smoke Developed Index of 5. Meets criteria for Class A fire rating
4. ASTM E136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C
5. ASTM C423 - Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method (NRC)
6. ASTM E1477 - Standard Test Method for Luminous Reflectance Factor of Acoustical Materials by Use of Integrating-Sphere Reflectometers (LRV).

.2 CGSB:

1. CAN/CGSB-51.32, Sheathing, Membrane, Breather Type.
2. CAN/CGSB-93.2, Prefinished Aluminum Siding, Soffits and Fascia, for Residential Use.

3. CAN/CGSB-93.3, Prefinished Galvanized and Aluminum-Zinc Alloy Steel Sheet for Residential Use.
4. CAN/CGSB-93.4, Galvanized and Aluminum-Zinc Alloy Coated Steel Siding Soffits and Fascia, Prefinished, Residential.
5. CGSB 93.5, Installation of Metal Residential Siding, Soffits and Fascia.

.3 UL & Underwriters Laboratories of Canada (UL/ULC)

6. UL 723, Standard Method of Test for Surface Burning Characteristics of Building Materials.
7. CAN/ULC S102, Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.
8. CAN/ULC S114, Standard Test Method for determination of non-combustibility in building materials.

.4 American Architectural Manufacturers Association (AAMA)

9. AAMA 2606-05 Voluntary Specification, Performance requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.
10. AAMA 2604 - Voluntary Specification, Performance requirements and Test Procedures for High Performing Organic Coatings on Aluminum Extrusions and Panels.
11. AAMA 2603 - Voluntary Specification, Performance requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels.

.5 International Code Council Evaluation Service (ICC-ES) - CC-ES Evaluation Report

1.2 SAMPLES

.1 Submit samples in accordance with Section 01300 – Submittal Procedures.

.2 Submit duplicate 300mm x 300mm samples of soffit material, of colour and profile specified.

.3 Submit shop drawings indicating dimensions, profiles, attachment methods, schedule of wall elevations, trim and closure pieces, [soffits, fascia, metal furring, and related work].

.4 Submit Manufacturer's installation instructions.

.5 Colour: submit colour samples to Architect for review with Owner and colour selection.

1.3 QUALITY ASSURANCE

.1 The work of this section to be executed in by skilled workmen fully qualified in the installation of this material and in strict accordance with manufacturer's written instructions.

1.4 STORAGE

.1 Store materials in weather tight enclosures and take all necessary precautions to protect finish from damage.

1.5 WARRANTY

.1 Provide a written guarantee, signed, and issued in the name of the owner, covering the metal cladding/siding material for 15 (fifteen) years from the date of Substantial Completion.

.2 The manufacturer's warranty is limited to replacement of defective material only, rather than installation of the same. Faulty installation shall be corrected by the installing contractor. The warranty required herein is the sole remedy against the manufacturer and there are no other implied warranties. In any event, the manufacturer shall not be liable for incidentals or consequential damages.

PART 2 – PRODUCTS

2.1 MATERIALS

.1 Pre-finished Steel Roll-form Vented Soffit and Components:

1. Approved manufacturer: Agway Metals.
2. Finish coating: powder coated finish
3. Colour: Base colour “White White”. Provide manufacturer’s standard colours for further colour clarification prior to ordering per 01300 Submittals.
4. Thickness: 0.455 mm (26 ga.) base metal thickness.
5. Profile: Vented Soffit CH5-32 32” (813mm), continuous roll-form to length as required by drawings.
6. Approved alternate by submission Section 01630.

2.2 ACCESSORIES

.1 Exposed trim: coordinate finish trim installation with 07467 Preformed Steel Siding/Panels items specified and Architectural Drawings.

PART 3 – EXECUTION

3.1 INSTALLATION

.1 Install cladding (soffit) in accordance with CGSB 93-GP-5M and in strict accordance with manufacturer’s written instructions.

.2 Examination: Confirm acceptability of wall sheathing for soundness, measurement, and flatness. Verify that building framing is ready to receive siding system.

.3 Install starter strips, inside and outside corners, edgings, soffit, drip, cap, sill, and window/door opening flashings as required.

.4 Install outside corners, fillers, and closure strips with carefully formed and profiled work.

.5 Install soffit as indicated.

.6 Maintain joints in exterior cladding, true to line, tight fitting, hairline joints.

.7 Attach components in manner not restricting thermal movement.

.8 Caulk junctions with adjoining work with sealant.

3.2 ADJUSTING AND CLEANING

.1 All exposed metals, or trims to be touched up with paint as required.

.2 Upon completion of all work of this section, clean up and remove excess materials, debris, and equipment from the site.

END OF SECTION 07429

PART 1 – GENERAL

1.1 GENERAL

.1 The Specifications are an integral part of the Contract Documents. Division 1 applies to the Work of this Section.

1.2 SCOPE OF WORK

.1 Furnish all labour, materials, and equipment necessary to supply and install all prefinished steel siding, soffits and required accessories for complete installation as indicated on drawings and specified herein.

1.3 RELATED WORK

.1 Demolition

.2 Section 04200 Masonry

.3 Section 07500 Modified Bituminous Roofing

.4 Section 07620 Sheet Metal Flashing & Trim

.5 Section 07910 Caulking

1.4 REFERENCES

.1 CAN/CSA – A247 – Insulating Fibreboard.

.2 ANSI B18.6.4 – Screws, Taping and Metallic Drive, Inch Series, Thread Forming and Cutting.

.3 CSA B111 – Wire Nails, Spikes and Staples.

.4 CAN/CGSB-51.32-M77 – Sheathing, Membrane, Breather Type.

.5 CGSB 93.4 GP-4M – Coated Steel Siding, Soffits, and Fascia, Steel Galvanized, Pre-finished.

1.5 SAMPLES

.1 Submit samples in accordance with Section 01300 – Submittal Procedures.

.2 Submit duplicate 300mm x 300mm samples of siding material, of colour and profile specified.

.3 Submit shop drawings to Consultant for review. Indicate dimensions, profiles, attachment methods, schedule of wall elevations, trim and closure pieces, [soffits, fascia, metal furring, and related work].

.4 Colour: to be selected by Consultant and approved by Owner from standard colours.

1.6 QUALITY ASSURANCE

.1 The work of this section is to be executed by skilled workers fully qualified in the installation of this material and in strict accordance with manufacturer's written instructions.

1.7 STORAGE

.1 Store materials in weather tight enclosures and take all necessary precautions to protect finish from damage.

PART 2 – PRODUCTS

2.1 MATERIALS

.1 Exterior Sheet: Minimum 0.455mm base metal - steel coated with ASTM A792 55% Aluminum-Zinc Alloy, factory prefinished to Architect/Owner's selection.

2.2 FINISHES

.1 Finish: Prefinished, coil coated. 1.0 mil fluropolymer (PVDF)
.2 Colour: As selected by Owner from manufacturer's standard colours.

2.3 SIDING COMPONENTS

.1 Prefinished Metal Panel Siding: Steel coated with ASTM A792 55% Aluminum-Zinc Alloy factory prefinished, roll-formed, to specified profile, for vertical installations.
1. Approved manufacturer: Agway Metals.
2. Base Metal Thickness: 0.455 mm (26 gauge).
3. Exposed Face: 305 mm (12 inch).
4. Profile: "Century Rib", 22 mm deep, 915 mm width, face-fastened installation.
5. Alternate manufacturer: VicWest Cladding "Diamond Rib" profile.

.2 Fasteners: All connections of metal cladding to structural members to be made with #14 x 25mm self-drilling screws with colour nylon heads.
.3 Exposed Metal Trim:
1. Composition: Match to metal siding panel.
2. Finish/Colour: Match to metal siding panel.
3. Base Metal Thickness: 0.455 mm (26 gauge).
4. Shapes: Base Trim, J Channel, Top J Channel Insert, Hidden Closure, Outside Corner, Inside Corner, Joiner J, Drip Cap, Window Batton, Open Outside Corner, Open Inside Corner, Bottom J Receiver, Snap-T Outside Corner, Two Piece J-Channel, Joiner J Insert, Snap-T Inside Corner, Two Piece Joiner J.

2.3 FASTENERS

.1 Screws: ANSI B18.6.4
.2 Nails: to CSA B111. Screws to ANSI B18.6.4 purpose made stainless steel, coloured to match cladding, c/w neoprene washers.
.3 All connections of metal cladding to structural members to be made with #14 x 25 mm self-drilling screws with colour nylon heads.

2.4 JOINT SEALANTS

.1 Per Section 07910 as required by installation instructions.
.2 Per CGSB 19-GP-5M/CAN/CGSB-19.24/CAN/CGSB-19.18 as applicable.

2.5 ACCESSORIES

.1 Supporting sub-girts, spacers and clips: 3". Minimum 1.2 mm (0.048 inches) thick formed galvanized steel, ASTM A446 Grade A with Z275 zinc coating.

PART 3 – EXECUTION

3.1 INSTALLATION

.1 Install cladding in accordance with CGSB 93-GP-5M and in strict accordance with manufacturer's written instructions.

.2 Examination: Confirm acceptability of wall sheathing for soundness, measurement, and flatness. Verify that building framing is ready to receive siding system.

.3 Preparation: Protect siding surfaces with isolation coating from concrete, mortar, plaster, or other cementitious surfaces.

.4 Install continuous starter strips, inside and outside corners, edgings, soffit, drip, and cap. Colour to match pre-formed metal cladding and as provided by manufacturer.

.5 Install outside corners, fillers, and closure strips with carefully formed and profiled work.

.6 Install sub-girts to structural supports or masonry back-up using self tapping screws.

.7 Install pre-formed metal cladding/siding to sub-girts with coloured fasteners.

.8 Install soffit, fascia, eaves trough and downspouts as indicated.

.9 Maintain joints in exterior cladding, true to line, tight fitting, hairline joints.

.10 Attach components in manner not restricting thermal movement.

.11 Caulk junctions with adjoining work with sealant.

3.2 ADJUSTING AND CLEANING

.1 All exposed metals, or trims to be touched up with paint as required.

.2 Upon completion of all work of this section, clean up and remove excess materials, debris, and equipment from the site.

END OF SECTION 07467

PART 1 - GENERAL

1.1 GENERAL

.1 All conditions of the Contract and Division 1 and 2 apply to this Section.

.2 This Section specifies general requirements and procedures for conventional built-up and modified bituminous roofing.

.3 Additional requirements may be specified in individual Sections of the Specification.

1.2 RELATED WORK

.1 Section 01010 - General Requirements.
.2 Section 06100 - Rough Carpentry.
.3 Section 07467 – Preformed Steel Siding or Panels.
.4 Section 07620 – Sheet Metal Flashing & Trim.
.5 Section 07910 - Caulking
.6 Section 10999 – Roof Hatch
.7 Division 15 - Roofing - Plumbing and Drainage.
.8 Division 16 – Electrical.

1.3 REFERENCES

The latest edition of all Standards shall apply if the referenced standards have been superseded.

Primer and Paint:
.1 CAN/CGSB-1.181-99 Ready-Mixed Organic Zinc-Rich Coating.
.2 CGSB 37-GP-9Ma-83 Primer, Asphalt, Unfilled, for Asphalt Roofing, Dampproofing and Waterproofing.
.3 CGSB 37-GP-15M-84 Application of Asphalt Primer for Asphalt Roofing, Dampproofing and Waterproofing.

Vapour Barrier and Air Seal:
.4 CAN/CGSB-51.33-M89 Vapour Barrier Sheet, Excluding Polyethylene, for Use in Building Construction.

Insulation:
.5 ASTM C612-04 Mineral Fiber Block and Board Thermal Insulation.
.6 ASTM C726-05 Mineral Fiber Roof Insulation Board.
.7 CAN/ULC-S126-M86 (R2000) Fire Spread Under Roof-Deck Assemblies.
.8 CAN/ULC-S701-05 Thermal Insulation, Polystyrene, Boards and Pipe Covering.
.9 CAN/ULC-S702-97 Thermal Insulation, Mineral Fibre for Buildings.
.10 CAN/ULC-S704-03 Thermal Insulation, Polyurethane and Polyisocyanurate Boards, Faced.
.11 CAN/ULC-S705.1-01 Thermal Insulation - Spray Applied Rigid Polyurethane Foam.
.12 CAN/ULC-S705.2-98 Thermal Insulation - Spray Applied Rigid Polyurethane Foam.
.13 CAN/ULC S706-02 Wood Fibre Thermal Insulation for Buildings.
.14 CAN/ULC S770-03 Determination of Long-term Thermal Resistance (LTTR) of Closed-Cell Thermal Insulating Foams.

Felt and Membrane:
.15 ASTM D1970-01 Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection.
.16 CGSB 37-GP-56M-85 Membrane, Modified, Bituminous, Prefabricated, and Reinforced for Roofing.
Miscellaneous Roofing Sealants and Adhesives:
.17 CAN/CGSB 37.29-M-89 Rubber-Asphalt Sealing Compound.

Miscellaneous Fixtures:
.18 CAN/CGA-8.1-M86 (R2001) Elastomeric Composite Hose and Hose Couplings for Conducting Propane and Natural Gas.

Fasteners:
.19 ASTM A153/A153M-05 Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
.20 ASME B18.6.1 – 1981 Wood Screws (Inch Series).

(Supersedes CSA B35.4-1972)
.21 ASME B18.6.4 – 1999 Thread Forming and Thread Cutting Tapping

(Supersedes CSA B35.3-1969)Screws and Metallic Drive Screws, Inch Series.
.22 CSA B111-1974 (R2003) Wire Nails, Spikes and Staples.
.23 CAN/CSA-G164-M92 (R2003) Hot Dip Galvanizing of Irregularly Shaped Articles.

Aggregates and Pavers:
.24 CSA A231.1-99 (R2003) Precast Concrete Paving Slabs.

1.4 QUALIFICATIONS

.1 Employ only experienced and qualified workers that can provide quality results. Replace all work that results from inferior products or installation.

1.5 EXAMINATION

.1 Examine surfaces and report any adverse conditions that could negatively impact the appearance and performance of the work.

1.6 CO-ORDINATION

.1 Coordinate work with related work specified in other Sections to ensure that the construction schedule, water tightness, and protection of the building and work are maintained at all times.

1.7 SUMMARY OF WORK

.1 Complete all work as specified in the Summary of Work, Specifications and Drawings.

.2 Work of this Section includes the supply and installation of Modified Bituminous Roof System including vapour barrier, insulation, coverboard, membrane and associated accessories to provide a complete system to Specifications and Drawings. Colour of cap sheet to be light grey.

.3 Work of this Section includes the removal of existing equipment, mechanical and

electrical services, metal flashings, etc. so as to obtain unobstructed access to work areas, and reset at completion; or, provide new as specified in the Summary of Work.

.4 Review the extent of the work with the Architect/Consultant on site before proceeding.

.5 Work “as described” is held to include all incidental items that by implication, good trade practices, or customary usage are required to complete the work, even though they may not be specifically mentioned or shown.

.6 Additional requirements may be specified in individual Sections of the Specifications and/or shown on the Drawings.

1.8 SUBMITTALS

.1 Submit to the Consultant a list of materials intended for use before they are ordered.

.2 Submit Manufacturer’s instructions for each product used in the work.

.3 Submit a letter from the Manufacturer of the proposed membrane stating that the Roofing Contractor is an approved applicator of the system.

.4 If applicable, submit a letter from the Manufacturer of the thermal barrier/insulation adhesive stating that the Roofing Contractor is an approved applicator.

.5 If applicable, submit Pull Out Test results for fasteners before proceeding with the work.

.6 If applicable, submit a letter from the Manufacturer for Insulating Fill stating that the work has been inspected and installed in conformity with specified requirements.

.7 Submit Cut Test results for the finished roofing.

.8 Submit certificates or letters of approval from local authorities having jurisdiction for all necessary mechanical and electrical work.

.9 Additional requirements may be specified in individual Sections of the Specifications.

.10 Submittals shall be in accordance with Section 01300.

1.9 SHOP DRAWINGS, PRODUCT DATA, SAMPLES AND MOCK-UPS

.1 Submit Engineered Shop Drawings before proceeding with fabrication, including but not limited to the following:

1. Insulation: Base insulation or coverboard and fastener layout;
2. Insulation: Tapered Insulation (sumps) at roof drains as specified under Tapered Insulation & Crickets;

.2 Construct built-in Mock-Ups for review before proceeding with the work, including but not limited to the following:

1. Miscellaneous Fixtures: Installed roof drain / overflow scuppers;

2. Miscellaneous Fixtures: Installed modified bitumen membrane sheet layout at drains;
3. Miscellaneous Fixtures: Installed custom-fabricated scuppers; and,
4. Parapets with cap flashing.
5. Abutment flashing at Arena roof to vertical wall.
6. Ridge cap at Arena roof.

.3 All colours and profiles to be approved by the Owner from Manufacturer's standard colour charts. Use colours to match adjacent materials as close as possible where exposed.

.4 Carry out submittals in accordance with Section 01300 and Section 01340.

1.10 INSPECTION AND TESTING

.1 Work will be reviewed by the Consultant.

1.11 CONTRACTOR QUALITY CONTROL

.1 Contractor's quality control shall be completed – submit procedure for review by Consultant.

.2 Arrange for inspections by manufacturer's representative.

1.12 WARRANTY

.1 The work of this Section shall be included in the warranty as specified in Section 01300.

1.13 CLEANING AND PAINTING

.1 Provide cleaning and painting as specified in Section 01710.

PART 2 – PRODUCTS

2.1 GENERAL

.1 All standards, regulations and specifications listed herein are considered to be the latest available edition.

.2 Compatibility between materials is essential. Use only materials that are known to be compatible when incorporated in the roof assembly.

2.2 PRIMERS, PAINTS, AND ADHESIVES

.1 Modified Bitumen Primer: For built-up roofing, use "910-01" by Bakor. For modified roofing, as recommended by the membrane manufacturer. To CGSB 37-GP-9Ma-83.

.2 Zinc Rich Paint: Ready mix to CAN/CGSB-1.181-99.

.3 Adhesives: Two component polyurethane low rise foam adhesive. Duotack by Soprema or approved equal.

2.3 VAPOUR BARRIERS AND AIR SEALS

.1 Wood Deck Applications: 1-ply self-adhering modified bitumen membrane. SOPRAVAP'R by Soprema or approved equal.
.2 Vapour Barrier Adhesive: ULC listed in conformity with Manufacturer's recommendations for materials being employed.
.3 Air Seal on Wood Deck: Provide air seal on specified decks by extending the bitumen vapour barrier as specified in the Summary of Work and/or shown on the Drawings.
.4 Air Seal at Pipe Projections: Flexible membrane, FR-40 by Lexcor Roofing Products, as shown on the Drawings.
.5 Air Seal at Drains: Minimum 18-gauge galvanized sheet metal plate covered with SOPRAVAP'R or Sopraseal Stick 1100 by Soprema or approved equal, size minimum 600 mm x 600 mm (24" x 24") as shown on the Drawings.

2.4 INSULATION

.1 Polyisocyanurate: Rigid foam board, minimum compressive strength 138 kPa (20 psi), Type III, Class 2, manufactured with HC blowing agent, to CAN/ULC-S704-03 and S770-03 for LTTR values. Approved and listed for FM 1-90 wind classification. Thickness as specified in the Summary of Work and/or shown on the Drawings, maximum board size 1200 mm x 1200 mm (4' x 4').

.2 Tapered Drain Sumps: Polyisocyanurate or Roxul Monoboard Plus. Type and size as specified in the Summary of Work and/or shown on the Drawings.

.3 Tapered Insulation and Crickets: Polyisocyanurate or Roxul Monoboard Plus. Type, size and thickness as specified in the Summary of Work and/or shown on the Drawings.

.4 Spray-In-Place Urethane: As specified in the Summary of Work and/or shown on the Drawings, conforming to CAN/ULC-S705.1-01 and CAN/ULC-S705.2-98.

.5 Batt Insulation (for Metal Sleeves): Mineral wool fibre, with density 32 kg/m3 (2 lb/ft3), to CAN/ULC-S702-97, ROXUL FLEXIBATT or ROXUL PLUS or approved equal, thickness as specified in the Summary of Work and/or shown on the Drawings.

2.5 COVERBOARD

.1 25 mm (1.0") mineral fibre insulation Monoboard Plus by Roxul, Soprarock DD Plus by Soprema or approved equal.

2.6 FELTS AND MEMBRANES

.1 Modified Bitumen Base Sheet for Modified Roofs – Self-Adhering and Torch Grade: 180 gm/m2 non-woven polyester reinforced, SBS polymer modified base sheet to CGSB 37-GP-56M-85 – Type 2, Class C, Grade 2.

.2 Modified Bitumen Cap Sheet Membrane - Torch Grade: 180 gm/m2 reinforced, SBS polymer modified cap sheet, to CGSB 37-GP-56M-85, Type 1, Class A, Grade 2. Colour as specified in the Summary of Work.

.3 Self-Adhering Base Sheet: Minimum 140 gm/m2 non-woven polyester reinforced, SBS polymer modified base sheet to CGSB 37-GP-56M-85 – Type 2, Class C, Grade 2. Sopralene Flamstick by Soprema or “NP 180 Tack Sheet” by Bakor Inc., or approved equal. Self-adhering base sheet primer as recommended by membrane Manufacturer.

.4 Firestop Tape: Self-adhering glass-reinforced modified bitumen membrane, minimum thickness 1.5 mm (1/16”) x 150 mm (6”) wide. Soprema Sopraguard self-adhering membrane or approved equal.

.5 Firestop Underlay Membrane: Over wood deck, install 1-ply self-adhering modified bitumen membrane. Lastobond 195 by Soprema or approved equal.

.6 Flexible Membrane: FR-40 by Lexcor Roofing Products or approved equal.

2.7 MISCELLANEOUS ROOFING SEALANTS AND ADHESIVES

.1 Modified Sealant: Polybitume by Bakor or approved equal, to CAN/CGSB 37.29-M-89.

.2 Two Component Liquid Membrane Sealant: Liquid membrane, two component, synthetic rubber by Grace Canada Ltd., Cold Gold Flashing Cement by IKO Industries or approved equal.

.3 Modified Membrane Adhesive: As recommended by the modified membrane Manufacturer.

.4 Box Filler: One-part pourable sealer by Chemlink Inc. and M1 Structural Sealer Primer.

2.8 MISCELLANEOUS FIXTURES

.1 Sanitary Vent Stack Flashings: Type and size as specified in the Summary of Work and/or shown on the Drawings, by Altra Metal Specialties Inc. or approved equal: Aluminum, tapered body w/ tapered rubber gasket collar, 300 mm (12”) G-AVTB-R12;

.2 Vandal Resistant Vent Cap: Stainless steel vandal resistant vent cap G-VRC by Altra Metal Specialties or approved equal.

.3 Metal Sleeves: Type and size as specified in the Summary of Work and/or shown on the Drawings, by Altra Metal Specialties Inc. or approved equal: Aluminum, tapered body. 300 mm (12”) G-ATS-12;

.4 Pipe Rain Collar: Clamp-on type rain collar, aluminum G-ASRC or copper G-CSRC, by Altra Metal Specialties Inc. or approved equal, or as otherwise specified in the Summary of Work and/or shown on the Drawings.

.5 Roof Drains: To Section 15100.

.6 Scuppers and Thru-wall Overflow Scuppers (Custom-Fabricated): To Section 07620.

.7 Metal Flashings: To Section 07620.

2.9 FASTENERS

.1 Use galvanized, copper, or stainless as most compatible with materials being joined.

.2 All nails and spikes to meet CSA B111-1974 (R2003).

.3 All tapping and driving screws to meet ASTM B18.6.4 – 1999.

.4 All wood screws to meet ASTM B18.6.1 – 1981.

.5 All galvanizing to meet ASTM A153/A153M-05 and CAN/CSA-G164-M92.

.6 All fasteners for decks must meet Factory Mutual approvals.

.7 All fasteners, size and spacing to meet the most stringent requirements of this Section, the Drawings, the Ontario Building Code or Factory Mutual requirements.

.8 Obtain approval when using hammer drills since drilling hours may be restricted.

.9 Wood Deck Insulation Fasteners: For securing insulation to wood deck. Use fasteners as in .9 with metal plates. Length to penetrate deck by 13 mm (0.5”).

.10 Horizontal Membrane Fasteners: For securing membrane to insulation stops, same as Wood Deck Fasteners.

.11 Vertical Flashing Fasteners: For Wood: No. 10 hot dip galvanized spiral nails. For Metal: Powers No. 12 “Deck Screws” with “Perma-Seal” coating. For Concrete, Brick or Masonry: Perma-Grip (Tru-Fast) “Tap-Grip” concrete screw with “Tru-Kote” coating, Powers “Tapper” concrete screw with “Perma-Seal” coating”, Powers “Roofing Spike” with “Perma-Seal” coating, or Powers “Zamac Nailin”. All fasteners to be 50 mm (2”) length with 25 mm (1”) hot dipped galvanized solid caps.

.12 Metal to Wood: Where exposed fasteners are specified or shown, use No. 10 cadmium plated, pre-finished hex head screws with neoprene and steel washers by Atlas Bolt or approved equal, of sufficient length to penetrate the base minimum 32 mm (1.25”). Minimum length 38 mm (1.5”). Colour of screw head to match colour of flashing. Provide touch-up paint as required to coat all exposed surfaces of screws damaged during the driving process. Alternatively, use screws with colour match nylon caps where shown or approved by the Consultant.

.13 Pull Out Tests: The type of fastener may be subject to results of pull-out tests. When security of fasteners appears to be in doubt, and at locations of steel deck surface corrosion, in consultation with the Consultant and fastener supplier, provide pull out tests at a minimum of five locations for each type of material and fastener being employed. Minimum pull out resistance of each fastener shall be 45 kg. (100 lb.). Submit results to Consultant and act on Manufacturer's written recommendations on the type, length and spacing of fasteners to hold the item being secured permanently in place, and to prevent warping, deflection, or displacement of materials against all wind and weather conditions. Submit summary of findings to the Consultant for review before proceeding.

PART 3 – EXECUTION

3.1 GENERAL

.1 Execute work in accordance with the Summary of Work, Drawings and Details.

.2 Anchor roofing to requirements of Insurance Underwriter and authorities having jurisdiction.

.3 Do not install any roofing when temperatures, including wind chill, is below -26°C (-15°F).

.4 Lay out work to avoid working over newly installed felts. If any foreign material is inadvertently incorporated into the membrane, remove the material immediately and repair to restore membrane to its original integrity. Repair with 2-ply modified bitumen base and cap sheet to match the original membrane type. All repair felts or sheets shall lap over the repair area and each previous ply 150 mm (6") in each direction. Broom all repair areas into place to ensure positive contact.

.5 Maintain equipment in good working order to ensure control of roofing operations and protection of work. Types of roofing equipment and laying techniques to be employed are to meet the approval of the Architect/Consultant.

.6 Before bitumen has set, avoid foot traffic or prolonged point loading on membrane that will result in displacement of bitumen between plies of felt or membrane.

.7 Do not penetrate roof deck with any fastening devices that would do damage or impair the function of the roof assembly.

3.2 DAILY OPERATIONS

.1 Unless otherwise specified, complete entire roofing operation up to the line of termination of each day's work to meet the design intent in order to safeguard and protect the work and building from damage and weather.

.2 Install base and cap sheet membrane and flashing the same work period.

3.3 PRIMER

.1 Prime masonry and concrete surfaces which will be in direct contact with asphalt at the rate of 0.15L/m2 (0.33 gal/100ft2) to CGSB 37-GP-15M-84. Ensure that surfaces are tack-free before proceeding.

.2 For self-adhering modified bitumen base sheet flashing, install modified bitumen primer as recommended by membrane Manufacturer at a rate of 0.15 to 0.25 L/m2 (0.33 – 0.55 gal./100 ft2).

.3 Limit quantity of primer at deck openings and points of termination to prevent bleed through to the building interior.

.4 Broom primer into surface.

.5 Re-prime all surfaces not covered the same work period that become contaminated with dust or become marred due to their exposure to roof traffic or weather.

3.4 AIR SEALS

.1 Unless otherwise specified in Section 06101, provide air seals at the roof perimeter and roof openings as shown on the Drawings.

3.5 VAPOUR BARRIER ON WOOD DECKS

.1 Prime deck and install 1-ply self-adhering modified bitumen base sheet. Overlap side laps approximately 75 mm (3”) and end laps approximately 150 mm (6”). Seal all overlaps by hot air welding for temporary waterproofing.

.2 Lap vapour barrier onto air seal a minimum 100 mm (4”) to maintain systems continuity, as shown on the Drawings.

3.6 BASE INSULATION

.1 Install base insulation over vapour barrier to design intent and thickness as specified in the Summary of Work and/or shown on the Drawings.

.2 On Steel Decks: N/A

.3 Stagger all end joints of insulation a minimum 300 mm (12”).

.4 Stagger both end and side joints between insulation layers.

.5 Butt sheets of insulation with moderate contact. Do not force insulation into place. Cut neatly at projections and points of termination. Replace all broken, damaged or misfit boards as work progresses.

.6 Where necessary, back-cut insulation to allow it to conform and stay bonded to irregular surfaces without bridging.

.7 Shim all insulation at areas of deck depression or deflections with mineral wool insulation cut to suit so as to maintain the level of finished surface.

.8 At perimeters, provide separate strip of self-adhered membrane over air seal and vapour barrier extending up face of wood blocking and return minimum 25 mm (1") to envelope insulation.

3.7 TAPERED INSULATION AND CRICKETS

.1 Install tapered insulation as specified in the Summary of Work and/or as shown on the Drawings. Tapered insulation may be the first layer of insulation or may be installed over the base insulation.

.2 When tapered insulation is installed directly on the deck, install to the requirements for Base Insulation. Conform to Factory Mutual requirements for spacing and number of fasteners required to provide FM wind uplift rating, unless otherwise required by the Summary of Work. Submit Engineered Shop Drawings from the Manufacturer showing layout of the insulation boards and the spacing and number of fasteners for the field, perimeter, and corners of the roof for review prior to manufacture.

.3 When tapered insulation and or crickets are installed over the base insulation, install set in spray-applied polyurethane adhesive.

.4 Offset the end joints between the first layer of insulation and the tapered insulation a minimum of 300 mm (12").

.5 Unless otherwise specified in the Summary of Work and/or shown on the Drawings at all drain locations, provide tapered insulation to form a sump all around the drain to promote positive drainage. Insulation to be tapered as per the tapered insulation plan. Make allowance for the thickness of the drain flange and clamp to ensure water flow will not be impeded. Adjust drain sumps and locations to suit site conditions.

.6 Where specified in the Summary of Work and/or shown on the Drawings, cover the base insulation with coverboard installed in specified insulation adhesive. On wood deck, install coverboard secured in place with fasteners and plates to Manufacturer's FM approved fastener layout.

.7 Install insulation adhesive in beads of 13 mm (0.5") to 19 mm (0.75") spaced at 150 mm (6") o.c. over body of roof and at 100 mm (4") at corners 3 m x 3 m (10' x 10'). Where roof corners are smaller than specified above, install adhesive at 100 mm (4") o.c.

.8 Install insulation into wet adhesive immediately. Do not allow adhesive to skin over. Walk boards into place with moderate contact at joints.

.9 Follow Manufacturer's printed instructions for adhesive application, especially during cold weather.

.10 Store adhesive in heated area 12 hours prior to use when applied during cold weather.

.11 Stagger all end joints of insulation a minimum 300 mm (12").

.12 Butt sheets of insulation with moderate contact. Do not force insulation into place. Cut neatly at projections and points of termination. Replace all broken, damaged or misfit boards as work progresses.

.13 Where necessary, back-cut insulation to allow it to conform and stay bonded to irregular surfaces without bridging.

.14 Following placement, walk boards into place to ensure positive bonding is achieved. Shim all insulation at areas of deck depression or deflections with mineral wool insulation cut to suit so as to maintain the level of finished surface.

3.8 MODIFIED ROOF MEMBRANE

.1 As specified in the Summary of Work or shown on the Drawings, construct modified roof membrane from one of the following:
- i. 1-ply 180 gm/m2 base sheet torched in place;
- ii. 2-ply 360 gm/m2 base sheet torched in place;
- iii. 1-ply 180 gm/m2 cap sheet torched in place.

3.9 MEMBRANE FLASHINGS (Modified Roofs)

.1 Construct membrane flashings at eaves, walls, and joints as specified in the Summary of Work and/or shown on the Drawings from one of the following:
- i. 1-ply self-adhering modified bitumen base sheet in primer
- ii. 1-ply 180 gm/m2 base sheet torched in place
- iii. 1-ply 180 gm/m2 cap sheet torched in place.

.2 Use only adhesive or sealants that are shown to be compatible and approved for use by membrane Manufacturer and meet the specified standards.

.3 Lay out all sheets so as to allow them to relax a minimum of 30 minutes. When temperatures are below 5°C (40°F) keep and lay out rolls in heated storage. Install rolls before temperature fallback of the sheet occurs.

.4 Check for granular embedment, width, and alignment. Do not use the last meter of any roll for the construction of the roof membrane. This may be used for membrane flashings.

.5 Roof membrane is to be installed in large sheets, minimum of 1/3-roll lengths.

.6 Lay all membrane and membrane flashings starting at low point so that seams do not face the flow of water.

.7 Overlap all end laps minimum 150 mm (6") and side laps 75 mm (3").

.8 Offset all end laps between plies or between adjacent plies minimum 1200 mm (4’–0”).

.9 Install all membrane into place true to line, free of buckles, air pockets, fishmouths or tears.

.10 At valley locations, run membrane continuously with the slope of the main roof. Lay out all sheets to ensure granular surface and minimum exposure at side laps are maintained through valley area and short section of roof beyond.

.11 At side or end laps or other locations where cap sheet is supplied without a prepared edge, use a torch and trowel or “Bedder Tool” and embed granules at overlaps to ensure proper bonding of overlapping sheets is achieved.

.12 Ensure all corners and laps are properly lapped and sealed for watertightness.

.13 Carry membrane to or up all vertical surfaces to point shown on the Drawings.

.14 Cut off corners of roof membrane at 45° at end laps to be covered by the next roll prior to installation of following sheet.

.15 Do not walk on membrane during application and until sufficient cooling has taken place so as to allow for traffic without doing damage or marring the membrane surface.

.16 Cut all base sheet underlay and base sheet and cap sheet flashings from across the roll in 1000 mm (3’-3”) sections.

.17 Prime all surfaces to be covered with base sheet underlay or torch-applied base sheet with modified bitumen primer as recommended by membrane Manufacturer. Ensure primer is dry before proceeding with membrane installation. Where primer is installed but not covered by membrane the same work period, re-prime before proceeding.

.18 Provide chalk line guide and install all membrane flashing true to line. Work membrane flashing with a torch, trowel, and damp sponge.

.19 Touch up bare spots, corners, scuffs, and bleed out runs on cap sheet and cap sheet flashings that exceed specified exposure limits with granules matching membrane colour, as the membrane is being installed.

.20 When metal flashings are to be built into the roof membrane, carry the base sheet over the outside edge of the building minimum 50 mm (2"). Turn over and secure to the outside face of the building with nails and cap at 225 mm (9") o.c.

.21 Should any deficiencies occur during the membrane or membrane flashing installation, immediately stop membrane application, and correct the deficiency before proceeding. Notify Architect/Consultant and obtain approval for proposed repair methods. Questionable areas will be cut out and replaced.

.22 Torch Application:

i. The types of torches are to be approved by the membrane Manufacturer. Use only experienced workers that are trained in proper torching techniques, torch safety and fire protection by the membrane Manufacturer or Roofing Trade Association.
ii. Install membrane by softening both surfaces simultaneously. Unroll membrane slowly into the fluid bitumen ensuring a continuous bond with

consistent 3 to 6 mm (0.125" to 0.25") bitumen flow beyond each side of the roll. Ensure that the membrane is not overheated at any location and that bitumen flow does not exceed specified requirements.

iii. Ensure a watertight seal at all membrane joints and points of termination.

.23 Self-Adhered Application:

i. Ensure all surfaces are clean, dry, and smooth. Prime prior to application of membrane to Manufacturer's recommendations.
ii. Install self-adhering base sheet to Manufacturer's recommendations.
iii. Both the self-adhered and torched base sheets are to be installed the same work period. Ensure to offset joints as specified for three (3)-day application.

3.10 BUILD-UP LOW POINTS

.1 Prior to the application of the modified cap sheet, check roof slopes to ensure positive roof drainage will be achieved at low points where the roof will pond water. Pay particular attention where openings in the roof may block the flow of water. Provide an additional layer of torch applied base sheet to build up low areas and areas around roof openings. Repeat operation with additional layers of base sheet until area of ponding is eliminated. Each ply of base sheet is to extend beyond the preceding ply by 225 mm (9"). Maximum thickness at any one point shall be 13 mm (1/2"), or 4 layers of membrane.

.2 Alternatively, build up low points with slope correcting fill, or install sloped insulation crickets.

3.11 BASE SHEET UNDERLAY

.1 On surfaces that contains combustible materials at parapets, walls, curbs, etc., that are intended to be covered with a torched-on membrane flashing, prime surface and install 1-ply self-adhering base sheet underlay. Ensure primer is dry before membrane installation.

.2 Commence application of self-adhering membrane at roof wall transition and carry up all vertical surfaces and to points of termination shown on the Drawings.

.3 Work membrane with hand pressure and roller to ensure that a proper bond is achieved.

3.12 BASE SHEET FLASHINGS

.1 Install specified base sheet flashings prior to installing the cap sheet.

.2 Install specified base sheet flashing starting at the low point. Layout rolls in place to verify alignment and proper overlap and re-roll prior to installation.

.3 Carry membrane flashings up vertical surfaces and over eaves and parapets to points shown on the Drawings.

.4 Carry base sheet flashings 100 mm (4") onto roof surface.

.5 Install gusset reinforcing pieces at all corner locations.

.6 Seal side and end laps with a torch. Seal the top of the membrane and corners with a hot air welder to form a continuous seal.

.7 Work membrane with hand pressure to achieve proper bonding.

.8 At canted eaves, parapets and built-up wood curbs, back nail base sheet flashing with fasteners having 25 mm (1") diameter solid caps at 225 mm (9") o.c.

.9 At vertical surfaces, seal top edge of sheet with a continuous bead of modified sealant or liquid membrane if cap sheet is not installed the same work period.

.10 Cover base sheet flashing with cap sheet as specified.

3.13 CAP SHEET FLASHINGS

.1 Install specified cap sheet flashings after installing the membrane cap sheet.

.2 Install specified cap sheet flashing starting at the low point. Layout rolls in place to verify alignment and proper overlap and re-roll prior to installation.

.3 Carry membrane flashings up vertical surfaces and over eaves and parapets to points shown on the Drawings. At wall locations, unless otherwise specified, cap sheet flashings are to extend up 25 mm (1") higher than base sheet flashings.

.4 Overlap inside and outside corner and ensure they are installed and trimmed neatly in accordance with Manufacturer's recommendations.

.5 Carry cap sheet flashings 150 mm (6") onto roof surface.

.6 Complete all overlaps and seal the top of the membrane and corners with a hot air welder to minimize the risk of fire as conditions dictate.

.7 Seal side and end laps with a torch. Seal the top of the membrane and corners with a hot air welder to form a continuous seal.

.8 Work membrane with hand pressure to achieve proper bonding.

.9 At walls and pre-manufactured equipment curbs, nail through cap sheet and base sheet flashing with fasteners having 25 mm (1") diameter solid caps at 225 mm (9") o.c. Seal top of flashing with a continuous bead of modified sealant or liquid membrane as shown on the Drawings to achieve a watertight seal.

3.14 DRIP FLASHINGS

.1 Where drip flashings are specified in the Summary of Work and/or shown on the Drawings to be installed, extend membrane base sheet over and down the outside face of the building minimum 50 mm (2") unless otherwise shown on the Drawings.

.2 Install drip flashings true to line on top of completed membrane base sheet. Prime only galvanized steel or copper and set flashing in a continuous layer of modified sealant. Ensure that primer is dry before proceeding. Do not prime prefinished galvanized steel. Secure roof flange of flashing with roofing nails staggered at 150 mm (6"), o.c. Locate nails no closer than 75 mm (3") from face.

.3 For prefinished galvanized steel, join flashings with "S" locks on the face of the flashing only. Overlap end joints of the flange 50 mm (2"). Seal all overlaps including upturns continuous with modified sealant as metal flashing is being installed. Clean off any material exposed to view.

.4 For galvanized steel or copper flashings, mitre and continuously solder all inside and outside corners of roof flanges.

.5 Coat exterior face of metal flashing with liquid soap for protection.

.6 Prime only galvanized steel or copper surfaces to be covered with membrane with modified bitumen primer. Ensure that primer is dry before proceeding. Do not prime prefinished galvanized steel.

.7 Install a piece of 180 gm/m2 modified bitumen base sheet, size minimum 150 mm x 150 mm (6" X 6"), centred over joints and corners of flashing and carried to within 25 mm (1") of face. Review procedures with the Consultant before proceeding.

.8 Install gussets where drip flashings meet cant strips. Construct from 1 ply of 180 gm/m2 modified bitumen base sheet torched in place, size 150 mm x 150 mm (6" X 6"), with a second (2nd) ply over top, size 225 mm x 225 mm (9" X 9"). Review procedures with the Consultant before proceeding.

.9 Install modified bitumen base sheet flashing. Continue base sheet to 25 mm (1") from the face and extend onto roof beyond flange a minimum of 150 mm (6"). Ensure that a positive bond is achieved to all metal so as to provide a continuous, permanent, and watertight seal.

.10 Install specified membrane cap sheet and trim flush with outside face with hot roofing knife. Heat edge with a hot air welder and work edge of membrane flashing with a wet sponge as required to obtain a positive continuous permanent watertight seal to the metal flashings.

.11 Clean flashing of soap and contaminants at the conclusion of work.

3.15 CUSTOM-FABRICATED SCUPPERS

.1 Install scuppers and overflow scuppers through eaves and parapet walls as specified in the Summary of Work and/or as shown on the Drawings.

.2 Install overflow scuppers at new locations on every roof area constructed with only one drain as specified in the Summary of Work and/or shown on the Drawings.

.3 Scuppers shall be minimum 200 mm (8”) wide as shown on Drawings.

.4 Except at overflow scuppers, reduce the insulation thickness to a minimum 25 mm (1”) for a distance of 1200 mm (4’-0”) from scupper to provide positive drainage and ensure that water flow will not be impeded. Adjust wood blockings and flashings to suit site conditions.

.5 Install scuppers on top of modified membrane base sheet and prior to the installation of the modified flashings and membrane cap sheet.

.6 Cut neat hole through base sheet and cant 25 mm (1”) larger than specified scupper size to prevent bitumen drippage.

.7 At new wall scupper locations, confirm location and install opening.

.8 Install scupper plumb, level and true to line.

.9 Prime and set flanges in a continuous layer of modified sealant. Ensure primer is dry before proceeding.

.10 Secure flange to the cant at outer edges at a minimum of four locations.

.11 Prime and flash flange with 1-ply of 180 gm/m2 modified bitumen base sheet. Extend base sheet flashing to within 25 mm (1”) of the metal upturn and continue 125 mm (5") beyond flange.

.12 Install specified base sheet flashing, membrane cap sheet, and cap sheet flashing as specified elsewhere in this Section, terminating, and cutting neatly at metal upturn.

.13 Seal junction of metal upturn and membrane with modified sealant. Touch up surface with matching granules.

.14 Protect exposed surfaces during roofing operation and clean surfaces free of bitumen before leaving site.

.15 Provide new down pipes or water-conductors as specified in the Summary of Work and/or as shown on the Drawings, to Section 07620.

.16 Connect new down pipes or water-conductors into existing drainage system or provide surface drainage as specified in the Summary of Work and/or as shown on the Drawings.

.17 When surface drainage is specified, install concrete splash pad under downspouts and water-conductors to protect the surface from erosion. Size 600 mm x 600 mm (24” x 24”) concrete paver, or use oversize pavers as specified in the Summary of Work. Elevate concrete paver on 50 mm (2") thick polystyrene insulation. Cut insulation 38 mm (1.5") smaller on all sides so paver overhangs and protects

insulation from direct sunlight. Underscore the insulation both top and bottom with 19 mm x 19 mm (0.75” x 0.75”) drain grooves as shown on the Drawings.

3.16 ROOF PENETRATIONS (Miscellaneous)

.1 Install new flashings and sleeves at plumbing, mechanical, electrical, and miscellaneous roof penetrations as specified in the Summary of Work and/or as shown on the Drawings.

.2 Inspect and clean vent pipes and stacks clean of debris to operational condition.

.3 Make all roof penetrations air and watertight at the deck level by installing flexible membrane seal over the pipe and extending 150 mm (6”) onto the roof deck. Clamp flexible membrane to pipe and seal with modified sealant. Seal the vapour barrier to the air seal with a continuous layer of modified sealant.

.4 Trim membrane base sheet at roof projections.

.5 Adjust the existing pipes to specified heights by either cutting down or extending the pipes with matching materials attached with mechanical couplers. Ensure pipes are 38 mm (1.5”) higher than flashing to allow for sealing to prevent condensation.

.6 Install metal flashings and sleeves on top of the completed membrane roofing.

.7 Prime and set flanges in a continuous layer of modified sealant. Ensure primer is dry before proceeding.

.8 Protect all metal sleeves and flashings not to be covered with roofing with flashing protector to prevent bitumen stains and damage.

.9 Prime and flash flanges with 1-ply 180 gm /m2 modified bitumen base sheet to within 25 mm (1") of the upturn and continuing a minimum of 225 mm (9") beyond flange onto roof Ensure primer is dry before proceeding.

.10 Install specified membrane cap sheet to the upturn.

.11 Seal the joint between the metal upturn and the cap sheet with modified sealant and tool to form a minimum 19 mm (0.75”) wide bead. Touch up surface with matching granules.

.12 Insulate all stacks and sleeves unless otherwise shown on the Drawings. Insulate with loosely packed mineral wool insulation or two-part polyurethane foam if otherwise shown on the Drawings. Seal the opening between the top of the flashing and the pipe with polyurethane sealant sloped minimum 30º to shed water, unless otherwise shown on the Drawings.

.13 On vent pipes with telescopic caps, seal cap to the top of the vent pipe with a continuous 13 mm (0.5”) thick bead of polyurethane sealant to prevent a condensation trap.

.14 On vent pipes with tapered rubber gasket collar, verify size and install collar as shown on the Drawings.

.15 On vent pipes install vandal proof cap to the Manufacturer's recommendation if specified in the Summary of Work and/or shown on the Drawings.

.16 Install rain collars on all stacks as shown on the Drawings. Weld rain collars 22-gauge or heavier. Where collars are less than 22-gauge, install custom or pre-manufactured collars soldered or caulked in place as shown on the Drawings.

.17 Remove and replace all damaged flashings and poorly fitting collars. Clean exposed surfaces free of bitumen before leaving site. Paint all sleeves marred with bitumen with two coats of oil-based paint to match flashing colour.

END OF SECTION 07500

PART 1 - GENERAL

1.1 General

1. The Specifications are an integral part of the Contract Documents. Division 1 applies to the Work of this Division.

2. Section includes for provision of all labour, materials, equipment and services for sheet metal flashing and trim Work in accordance with Contract Documents.

1.2 Related Sections

1. Section 06100 - Carpentry
2. Section 07210 – Insulation/Air Barrier
3. Section 07910 - Caulking

1.3 References

1. ASTM A 525M, Standard Specification for Sheet Steel, Zinc Coated (Galvanized) by the Hot Dipped Process, General Requirements.

2. Canadian Sheet Steel Building Institute (CSSBI) Bulletin No. 9, Core and Maintenance of Pre-finished Sheet Steel Building Products.

1.4 Operations

1. Perform operations, at times designated by the *Owner*, that will not adversely affect occupants of building and operations in and around site access and egress.

1.5 Protection

1. Protect work of this section from damage. Damaged work which cannot be satisfactorily repaired, restored or cleaned, shall be replaced at no cost to *Owner*.

1.6 Submittals

1. Submit samples of flashing and sheet metal type and colour to *Consultant* and *Owner* for review prior to commencing work.

1.7 Mock-Up

1. Fabricate mock-ups in minimum 2440 mm (8 ft.) lengths with reviewed materials, approved methods including, joints, seams, expansion joints, starter strips and fasteners.

2. Mock-up, if accepted, shall represent the minimum standard for work. Mock-up may be included as part of final work

1.8 Quality Assurance

1. Flashing and Sheet Metal Work shall be executed in accordance with SMACNA Architectural Sheet Metal Manual - 1993 (Addendum No. 1 – October 31, 1997), by skilled trades having a minimum of five (5) years related experience.

1.9 Warranty

1. Provide minimum two (2) year Warranty from date of Substantial Performance, as certified by *Consultant*. Warranty shall be submitted against defects in workmanship and materials.

2. *Contractor* must extend the Warranty on replaced parts and workmanship for a period of two (2) years from date of acceptance of replacement parts and workmanship. Defects will

include but will not be limited to leaking, failure to stay in place, lifting, deformation and breaking of weathertight seals.

3. Provide all additional Warranties that may be available from manufacturer.

PART 2 - PRODUCTS

2.1 Material

1. Prefinished steel sheet: Galvanized steel, 0.71 mm (24 gauge) core nominal thickness, conforming to ASTM A525, Z275 zinc coated (galvanized) to designation G90 by the hot dip process, with a prefinished coat. **Profiles as detailed – TO MATCH EXISTING.**

2. Prefinished Coat: Perspectra Plus Series, factory applied coating. Colour to be approved by *Owner* from standard colours listed in General Colour Card – White.

3. Starter strips: Fabricated from prefinished steel sheet, 0.87 mm (22 gauge) core nominal thickness. Minimum 100 mm (4 in.) wide face or as detailed and to be continuous.

4. Termination Bar: 3 mm x 25 mm (1/8 x 1 in.) Aluminum Bar.

5. Fasteners: In accordance with Section 06 10 00 – Rough Carpentry

6. Touch-up paint: As supplied and recommended by sheet steel manufacturer.

7. Exposed Sheet Metal Fasteners: Self-Drilling Hex Head with washer and colour coded cap

8. Cap, Counter and Fascia Metal to be fabricated to layouts and details shown on drawings and to extent required.

9. Overflow Scuppers (Where Shown on Drawings): Fabricated from 0.71 mm (24 gauge) stainless steel. To be a minimum 200 mm wide x 100 mm high (8 x 4 in.) with continuously soldered seams with a 150 mm (6 in.) wide apron/flanges. To be capped with prefinished metal.

10. Sealants: In accordance with Section 07920 – Joint Sealers/Caulking.

PART 3 - EXECUTION

3.1 Fabrication

1. Shop fabricate flashing, sheet metal and trim in accordance with requirements of SMACNA and the Contract Documents. Form sheet metal on bending brake, shaping, trimming and hand seaming on bench.

2. Form sections square, true, and accurate to size. Flashings shall be free from distortion, oil canning, twists, buckles, discolouration, and other defects detrimental to appearance and performance.

3. Double back all edges a minimum of 13 mm (1/2 in.).

4. Form joints with S-locks and make allowances for movement. Mitre and form standing seams at all corners. Make allowance for movement at joints.

5. Fabricate cap flashings, counter flashings and starter strips to details shown and where required.

6. Fabricate metal in 2400 mm (8 ft.) maximum lengths with an unbroken face less than 225 mm (9 in.). Form flashings with an exposed unbroken face exceeding 225 mm (9 in.) and a girth greater than 610 mm (24 in.) in 1220 mm (4 ft.) maximum lengths.

7. Provide horizontal stiffening rib "V" on all face metal exceeding 225 mm (9 in.) in girth and where shown on drawings.

8. Provide an 'S-Lock' joint at all end joints and at all horizontal joints between the cap flashing and the vertical flashing and between the vertical flashing and base counter flashing.

9. Where soldered joints are absolutely necessary and where approved for use in pre-painted metal, clean paint off both surfaces before soldering for minimum area necessary.

10. Sheet metal coming in contact with a metal of a different type must be back painted with two (2) coats of isolation coating.

3.2 Sheet Metal Flashing and Trim

1. Provide a continuous starter strip for all metal cap and counter flashings and gravel stops secured at a maximum 405 mm (16 in.) on centre.

2. Install flashings and sheet metal that includes but not limited to; cap flashings, counter flashings, curb and sleeper counter flashings, starter strips and other miscellaneous trim work in accordance with Contract Documents.

3. Parapet and perimeter cap flashings shall be installed with a **minimum 5% positive slope** to interior of roof. Slope to be provided by installation of continuous wood shims, plywood, and wood blockings as detailed and in accordance with Section 06 10 00 – Rough Carpentry.

4. Saw cut new reglet or re-use existing (where approved by *Consultant*), into masonry surfaces to accommodate installation of sheet metal flashings. Reglet is to be a minimum 19 mm wide x 25 mm deep (3/4 in. x 1 in.).

5. Install sheet metal work with concealed fasteners. Install exposed fasteners only when and where permitted by *Consultant*. Install fasteners in an approved manner as to prevent water penetration at point of fastening and to be evenly and neatly distributed. Provide fasteners with washers.

6. At reglets, return top edge of flashings into reglet 25 mm (1 in.). Secure flashings with pin grips spaced at maximum 405 mm (16 in.) on centre and apply sealant bead to shed water.

7. Provide continuous termination bar at top edge of membrane flashings. Fasten termination bar to substrate at a maximum 305 mm (12 in.) on centre with appropriate fasteners.

8. Fasteners are to be located a minimum of 305 mm (12 in.) above the roof membrane – where possible.

9. End joints of adjacent lengths shall be completed using ‘S-Lock’ joints. This shall be accomplished by inserting the end of one length in a 25 mm (1 in.) deep "S" lock formed in the end of the adjacent length. Concealed portion of the "S" lock shall extend 25 mm (1 in.) outwards and shall be nailed to substrate.

10. Top edge of counter flashing shall be inserted under cap flashings.

11. Provide two exposed fasteners on interior side of cap flashing, evenly spaced per 2400 mm (8 ft.) length

3.3 Clean-up

1. Remove all excess materials, debris, tools, and equipment as work proceeds and on completion, or sooner if requested b *Consultant*.

END OF SECTION 07620

PART 1 - GENERAL

1.1 GENERAL

.1 The Specifications are an integral part of the Contract Documents. Division 1 applies to the Work of this Division.

1.2 WORK INCLUDED

.1 Include:

1. Caulking at all openings and joints - inside and outside.
2. Caulking around fittings.
3. Caulking around plumbing trims, toilets and fixtures, sinks, counter wall junctions.
4. Fire-stop caulking.
5. Acoustic caulking.
6. Sealing of arena slab permitter joint between the slab and curb.

1.3 RELATED WORK BY OTHERS

.1 Exclude:

1. Sheet metal and roofing caulking, caulking glass panel.
2. Sealing of vapour barrier.
3. Cast-in Place Concrete by Section 03300.
4. Masonry caulking by Section 04200.

1.4 ENVIRONMENTAL CONDITIONS

.1 Apply caulking and sealant only to completely dry surfaces and at air and material temperatures above minimum established by manufacturer's specifications.

1.5 GUARANTEE

.1 Provide a written guarantee that caulking work is guaranteed for three (3) years against leakage, cracking, crumbling, melting, shrinkage, running, loss of adhesion or staining adjacent surfaces.

1.6 STANDARDS

.1 CAN 2-19.24-M80, CAN2-19.13-M82

.2 CAN/CGSB 19.22M.

1.7 SAMPLE

.1 Submit type and sample to Architect before installation.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Sealant –

1. Sikaflex 1C SL by Sika Canada
2. Pourthane SL by W R Meadows.
3. Two part Dymeric by Tremco approved for specific application.

.2 Primer – compatible with sealant selected.

.3 Backer Rob – closed cell, 25% larger than joint width.

.4 Backing - Tremco Joint Backing.

.5 Void Filler - loose glass fibre.

.6 Acoustic – Tremco 30 CTG or Tremstop Arcylics.

.7 All materials suitable for specific application.

.8 Interior joints – Tremflex 834 Latex & Sika 15LM

.9 Sink tops, toilets, urinals – Tremsil 200.

.10 Fire-stop Caulking - CP 25 Fire Barrier or as required to suit size of opening. Alternate: 3M Fire Barrier IC 15WB Caulk.

.11 Acoustic Caulking – Non-hardening, no VOC formulation, Silen Seal Acoustic caulking, Quiet Zone Acoustic caulk by Owens Corning or approved equal.

.12 All materials suitable for specific application.

PART 3 - EXECUTION

3.1 PREPARATION

.1 Remove by brushing, scrubbing, scraping, or grinding loose mortar, dust, oil, grease, oxidation, and all other materials affecting bonds of sealant and caulking to adjacent materials.

.2 Where joint edge is degraded, repair edge as per 03300 Concrete

.3 Proceed only after review by Engineer.

3.2 APPLICATION

.1 Install the Joint Sealant System into prepared joints in accordance with the manufacturer's published instruction for use.

.2 Mask areas adjacent to joints to assure neat sealant lines with Masking Tape.

.3 Do not allow masking tape to touch clean surfaces to which the sealants are to adhere.

.4 Install Backing Rod to ensure depth of the sealants is equal to approximately 50% of the width of the joint gap. Using the approved tool, smoothly and uniformly place the Backing Rod to the specified depth, compressing the Backing Rod 25% to 50% and securing a positive fit.

.5 Do not twist or braid Backing Rod and avoid lengthwise stretching of the material.

.6 Determine appropriate Joint Sealer System primer for the substrate material and condition and apply to joint surfaces to be sealed.

.7 Apply sealant in a continuous operation using a positive pressure adequate to properly extrude the sealant tight against the primed surface and fill and seal the joint gap.

.8 Do not use tooling agent unless specifically so recommended in writing by the manufacturer of the sealants.

.9 Clean adjacent surfaces free from sealant as the installation progresses, using solvent or cleaning agent recommended by the manufacturer of the sealant.

3.3 FIRE-STOP CAULKING

.1 Fire-stop caulking to be provided for pipes, wires or other penetrations passing through fire separations.

.2 Fire-stop caulking to seal one (1) hour fire separation at precast floor deck.

.3 Select product that is adequate for the size of gap.

3.4 ACOUSTIC CAULKING

.1 Apply continuous bead of acoustic caulking around mechanical and/or electrical penetrations through demising walls.

.2 Apply continuous bead of acoustic caulking to top edge of gypsum board to third floor demising wall between suites.

END OF SECTION 07910

PART 1 - GENERAL

1.1 GENERAL

.1 The Specifications are an integral part of the Contract Documents. Division 1 applies to the Work of this Division.

1.2 WORK INCLUDED

.1 Supply of rigid steel door frames, doors, and rigid window screens as shown on drawings, shop drawings, ULC labels attached, anchors.

.2 As applicable: Insulated Hollow Metal Doors to be used on exterior doors.

.3 Painting of doors.

1.3 RELATED WORK BY OTHERS

.1 Exclude:

1. Installation - Section 06100.
2. Finishing Hardware – Section 08710.
3. Glazing - Section 08800.
4. Finish Painting – Section 09911.

1.4 SHOP DRAWINGS

.1 Provide shop drawings clearly indicating door frame types, rates, swings, etc.

1.5 PRODUCT HANDLING

.1 Protect materials from rust and damage during delivery and storage.

1.6 WARRANTY

.1 Steel doors to be warranted from defects in workmanship for a period of 3 years.

PART 2 - PRODUCTS

2.1 MATERIALS - HOLLOW METAL DOORS (CAN/CGSB-8Z.SM)

.1 Acceptable Manufacturers are: Artec, Baron, Daybar Steel Doors and Frames, Trillium Steel Doors Ltd, & S.W. Flemming.

.2 Exterior entrance systems to include double glazed hermetically sealed window units for energy efficiency.

.3 Insulated Hollow metal doors and frames throughout building exterior except for the main entrance.

.4 Hollow metal doors and frames throughout building interior.

1. Where indicated in the Door Schedule, reinforced hollow metal doors with solid wood core will be used.

.5 All entrance and vestibule doors to be installed with continuous hinges.

.6 Steel doors to be warranted from defects in workmanship for a period of 3 years

.7 Doors to be factory reinforced for surface mounted hardware

.8 Doors to be sized to ensure 3mm minimum clearance at jambs and head. Minimum clearance of 20mm required between the bottom of the door and the floor. Architect to make it clear that if these clearances are not met, doors will be removed and replaced.

.9 All panic and door hardware to be installed at industry standard height.

.10 Interior of all metal door frames must be primed – properly for galvanized finishes.

.11 Exterior Doors: 16 ga. base steel with **G90 galvanized finish**. Label doors as noted on schedule. Door panels spot welded only not crimped – insulated. Doors with head lite sized to receive double glazed hermetically sealed glazing units.

.12 Interior Doors: 18 ga. base steel with W25 wipe coat galvanized finish. Door panels spot welded only not crimped.

.13 Vinyl Closer Cap: Snap in black vinyl cap.

.14 Glazing or panel Stop Screws: Oval head counter-sunk cadmium plated.

.15 Filler: Two component epoxy type.

.16 Hinge Reinforcing: 14 ga. steel bars continuously welded.

.17 Provide hinge guards to the Kindergarten Washrooms. Shall be installed 25mm above finish floor and be 2083mm long. Colour to be light Grey.

2.2 INSULATED METAL INFILL PANELS

.1 44.5mm thick, 16 ga. base steel with G90 galvanized finish laminated to each side of polyisocyanurate insulation cove. Weld continuously each side.

2.3 HOLLOW METAL FRAMES

.1 Exterior Frames: 16 ga. base steel with G90 galvanized finish. Thermally broken and insulated. Properly prime painted. Sized to received double glazed hermetically sealed glazing units.

.2 Interior Frames: 16 ga. base steel with W25 wipe galvanized. Where noted on schedule, 3 piece knock down frames are acceptable.

.3 Channel Spreader Floor Anchors and Wall Anchors: 18 ga. base steel to ULC regulations for thickness of materials, spacing and anchorage methods.

.4 Welded in Place Hardware for Reinforcing:

1.	Mortise Locksets and Deadlock	18 ga.
2.	Surface and Panic Devices	18 ga.
3.	Bored or Cylindrical Lock	18 ga.
4.	Surface Applied Closers	12 ga.
5.	Hold Open Arms	12 ga.

.5 Door Bumpers: Black neoprene stud.

.6 Reinforcing Channel: to CSA G40.21 - M1978, Type 300W.

.7 Anchor Screws: 10 mm diameter flat head, counter sunk galvanized screw anchors.

2.4 FABRICATION OF DOORS

.1 Fabricate doors in accordance with details, reviewed shop drawings and ULC or UL requirements. Spot weld. Crimp not acceptable

.2 Mortise, reinforce, drill, and tap doors and reinforcements to receive hardware using templates provided by finish hardware supplier.

.3 Provide for glazing as indicated and provide necessary glazing stops. Provide additional reinforcing as required to accommodate glazing. Allow for double glazed hermetically sealed glazing units at all exterior door and sidelites.

.4 Sand welds smooth with base metal surface.

.5 Fill seams depressions, intersecting corners completely with epoxy filler and sand smooth.

.6 Provide under cut doors where indicated.

.7 Doors to be square and true.

.8 Vinyl filler-shall be installed and sealed to recessed channel and closure to top of doors.

.9 Fill interior voids of doors with sound-deadening core material. Fill exterior doors with rigid fibreglass.

.10 Where indicated on the Door Schedule, fill interior voids of doors with solid core wood material as reinforcing material.

.11 After fabrication touch-up doors with primer where galvanized finish damaged during fabrication.

.12 Attach U.L.C. labels to fire rated doors as indicated on door schedule and as required.

2.5 FABRICATION HOLLOW METAL FRAMES

.1 Fabricate frames as detailed to Canadian Steel Door and Frame Manufacturer's Association "Canadian Manufacturing Specifications for Steel Doors and Frames", 1978; except where specified otherwise.

.2 Cut mitres and joints accurately and weld continuously on inside of frame profile.

.3 Grind welded corners and joints to flat plane fill with metallic paste filler and sand to uniform smooth finish.

.4 Touch-up frames with primer where galvanized finish damaged during fabrication.

.5 Extend frames to finish floor line and provide concealed floor anchors and removable metal spreader.

.6 Supply six loose galvanized corrugated 'T' jamb anchors per door frame or as required by jamb type.

.7 Anchors for labelled frames to conform to ULC or UL regulations for thickness of materials, spacing and anchorage methods.

.8 Reinforce head of frames wider than 1200 mm.

.9 Glazing or panel stops to be mitred or coped at corners and drilled for counter sunk screws. Allow for double glazed hermetically sealed glazing units at all exterior sidelites.

.10 Install three (3) bumpers on strike jamb for each single door.

PART 3 - EXECUTION

3.1 ERECTION

1. Erect all units plumb, square and true, in proper alignment with other units (by Section 06100). On completion, caulk neatly around complete unit between steel and adjacent materials with silicone sealant suitable for materials caulked. Apply isolation coating to steel in contact with dissimilar metals, concrete or masonry. Caulking to be completed by Caulking Contractor.

END OF SECTION 08110

PART 1 - GENERAL

1.1 GENERAL

.1 The Specifications are an integral part of the Contract Documents. Division 1 applies to the Work of this Division.

1.2 WORK INCLUDED

.1 Electrically operated steel sectional overhead doors.

.2 Operating hardware, controls, and supports.

1.3 RELATED WORK BY OTHERS

.1 Exclude:

1. Structural Steel Frames – Section 05120.
2. Finish Painting – Section 09911.

1.4 SUBMITTALS

.1 Shop Drawings: Indicate opening dimensions and required tolerances, connection details, anchorage spacing, hardware locations, and installation details.

.2 Product Data: Provide information on component construction, anchorage method, and hardware.

1.5 REFERENCES

.1 ASTM International (ASTM) A653/A653M-03 - Standard Specification for Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

1.6 WARRANTY

.1 One (1) year warranty by manufacturer - CSOFMA Standard.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

.1 Richards Wilcox: Thermatite T150-MR Standard Lift

.2 C.H.I. Overhead Doors: 3206 Insulated Steel Standard Lift

.3 Approved Alternate

2.2 MATERIALS

.1 Galvanized Steel Sheet:

1. ASTM A653/A653M, Structural Quality, G60 coating class.

.2 Glazing: Clear 1/4 inch (6mm) tempered glass.

2.3 COMPONENTS

.1 Door Sections:

1. Type: Micro-grooved sandwich style.
2. Material: Galvanized steel.
3. Gauge: 28 gauge exterior skin with 28 gauge interior skin, polyurethane core sections.
4. R-Value: Minimum R13
5. Thickness: Nominally 1.5 inches.
6. Rails: Tongue-and-groove.
7. End caps: Wrap-around box style, 20 gauge galvanized steel, full height of section.
8. Insulation: 95 percent closed cell, foamed-in-place polyurethane with thermal break.
9. Vision lites:
    1. Rectangular, 12 x 24] inches, set with silicone sealant and screws.
    2. Pattern: 3 wide x 2 high, centred.
10. Exhaust ports: Aluminum, with hinged cover.

.2 Tracks:

1. 2 inches wide, roll-formed galvanized steel, 16 gauge for doors up to 10 feet high, 14 gauge for doors exceeding 10 feet high.
2. Hinge and Roller Assemblies: Heavy duty hinges and adjustable roller holders of galvanized steel, with floating hardened steel bearing rollers, located at top and bottom of each panel, each side.

.3 Spring Counterbalance:

1. Oil tempered torsion springs mounted on cross-header shaft supported by galvanized steel ball bearing end plates and centre carrier brackets as required.
2. Counterbalance transferred to doors via aircraft quality braided steel lift cables.

.4 Bottom Weatherstripping: Vinyl weather seal, full width of door.

.5 Head and Jamb Weatherstripping: Flexible one piece vinyl extrusions.

.6 Lock: Inside slide type, adjustable keeper, spring activated.

.7 Electric Operator:

1. Power supply: 120 VAC, single phase.
2. Sufficient power to operate door at average speed of 12 inches per second.
3. Disconnect for chain hoist operation in case of power failure.
4. Control station: 120 VAC; push button station marked OPEN and CLOSE. Confirm controls with Owner.

.8 Safety Device: choice to be confirmed with Owner:

1. Photoelectric sensor; detect obstruction and reverse door without requiring door to contact obstruction.

2. Electric pneumatic edge; obstruction and reverse door upon contact with pneumatic hose.
3. Electric edge; detect obstruction and reverse door upon contact with electric strips in vinyl housing.
4. Electric edge; fail-safe, self-monitoring.

.9 Finish:

1. Exterior panel surfaces: Baked-on enamel primer and polyester finish coat in white colour.
2. Interior panel surfaces: Baked-on polyester primer.

PART 3 - EXECUTION

3.1 INSTALLATION

1. Install door assembly in accordance with manufacturer's instructions.
2. Anchor to adjacent construction without distortion or stress.
3. Securely brace door tracks suspended from structure. Secure tracks to structural members only.
4. Fit and align door assembly including hardware, level and plumb, to provide smooth operation.
5. Position head and jamb weatherstripping to contact door sections when closed; secure in position.
6. Make wiring connections between power supply and operator and between operator and controls.

3.2 ADJUSTING

1. Adjust to operate smoothly throughout full operating range.

END OF SECTION 08360

PART 1 - GENERAL

1.1 GENERAL

.1 The Specifications are an integral part of the Contract Documents. Division 1 applies to the Work of this Division.

1.2 WORK INCLUDED

.1 Supply of finishing hardware for doors listed below including all templates, screws, bolts, etc. required for installation.

1.3 RELATED WORK BY OTHERS

.1 Installation of hardware by Section 06200 – ALL CABINETS.

1.4 HARDWARE LIST

.1 The hardware functions are shown with the Door Schedule on the drawings.

.2 Cabinet hardware is part of Section 06200 - Millwork.

.3 Supply to the door frame manufacturer templates for hardware to be mounted on the frames, locating holes and cut-outs, and showing screw sizes and types.

.4 Supply a hardware list to enable satisfactory job organization of hardware showing all items to be supplied, locations to be used, manufacturers, models, sizes, finishes, colours, etc. This list is a shop drawing under Section 01300 – copies provided as per Section 01300. Use ULC listed and labelled hardware for all doors noted as labelled in door schedule. Provide accessible labelled hardware for handicap washrooms.

.5 Submit with list, one cut sheet for each type of hardware on the list.

1.5 EQUIVALENCY

.1 No alternatives or substitution can be made without written consent from the Architect and must be applied for and accepted before the closing of hardware tenders.

1.6 DELIVERY AND STORAGE

.1 Be responsible for the delivery of all items.

1.7 PACKAGING

.1 Pack and mark each individual item showing content and location so that unopened packages may be correctly selected for installation in accordance with the Hardware List and include all parts required in each package.

1.8 MAINTENANCE MATERIALS

.1 Provide maintenance data, parts list, and manufacturer's instructions for each type of

closer, lockset, fire exit hardware.

.2 Supply two (2) sets of wrenches for maintenance work.

PART 2 - PRODUCTS

2.1 MATERIALS SPECIFIED

.1 ALL new finishing hardware to match existing hardware.

.2 Hinges - Stanley

.3 Locks/latches (all lever handle) - Schlage required.

.4 Push-pull kickplates – Ferrum.

.5 Door Stop Holders – Ferrum.

.6 Surface, Dutch Door Bolts – Ives.

.7 Thresholds - KN Crowder.

.8 Acceptable manufacturers for Power-door Operators (PDO's):

1. Swingmaster 4500 from Besam;
2. Gyrotech 8700;
3. Horton 4000.

2.2 FINISH

.1 C32D - Brushed Aluminum (rated) C260.

2.3 KEYS

.1 Supply two (2) keys for each lockset whether keyed alike to other locksets or not. Three (3) master keys, all locks to be master keyed. Stamp key code on keys and locks.

PART 3 - EXECUTION

3.1 MOUNTING HEIGHTS

.1 Lock sets and Latch sets - 990 mm.

.2 Deadlocks - 1525 mm.

.3 Panic Sets - 1065 mm.

.4 Push and Pull Units - 1120 mm.

3.2 POWER-DOOR OPERATORS

.1 Installed to manufacturer's specifications.

.2 As detailed in the Drawings.

1. Ensure swing arm installation does not impinge on a directly adjacent wing wall. Swing arm to open into clear space.

END OF SECTION 08710

PART 1 - GENERAL

1.1 GENERAL

.1 The Specifications are an integral part of the Contract Documents. Division 1 applies to the Work of this Division.

1.2 WORK INCLUDED

.1 Borrowed light Screens

1.3 RELATED WORK BY OTHERS

.1 Section 05730 – Glazed Metal Railings.

.2 Section 08110 - HM frames.

1.4 ENVIRONMENTAL CONDITIONS

.1 Glaze with compounds, sealants, or tapes only when glazing surfaces are at temperatures over 4 degrees Celsius and when positive that no moisture is accumulating on them from rain, mist, or condensation.

1.5 PRODUCT HANDLING

.1 Replace scratched, etched, or defective glazing resulting from manufacturing, setting, handling, or storage before or during installation.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Glazing compound shall be compatible with materials used and in accordance with manufacturer's recommendation.

.2 Fire Rated Glass:

1. Ceramic fire-rated glass – 5mm thick safety-filmed Keralite Select F by VetroTech, division of St-Gobain. Glass shall be ULC- Listed in accordance with CAN-ULC S-104/S-106, and also impact-safety tested to CAN/CGSB 12.1.M90. Install in accordance with ULC-Listing and Manufacturer’s instructions. Glazing tape shall be PVC. Butyl glazing tape is not allowed.
2. Approved equals will be considered.

.3 Interior Glass:

1. Plain glass 6 mm float glass (PG).
2. Laminated plate glass, 6 mm clear safety CAN 2-12.13-M79F (TPG).

PART 3 - EXECUTION

3.1 INSTALLATION

.1 Install materials in accordance with manufacturer's specifications.

.2 Ensure that projections have been removed from rebates and that they provide

sufficient width and depth for clearances.

.3 Do not set any glass without glazing beds or gaskets.

.4 Remove excess glazing compounds or sealants from glass and adjacent surfaces by methods not harmful to the surfaces.

3.2 BREAKAGE AND CLEANING

.1 On completion, remove and replace all broken, cracked, or damaged glass in this Section and replace.

.2 Touch-up painting.

.3 Clean glass of all dirt, putty, etc. Polish it and leave the job in first class condition.

END OF SECTION 08800

PART 1 - GENERAL

1.1 GENERAL

.1 The Specifications are an integral part of the Contract Documents. Division 1 applies to the Work of this Division.

1.2 WORK INCLUDES

.1 Supply and install:

1. Steel studs – complete with slotted deflection track for non-bearing interior walls.
2. Wallboard and ceiling board.
3. Patch and repair damaged areas where removed for mechanical and electrical installations.
4. Accessories and fasteners.

1.3 RELATED WORK BY OTHERS

.1 Wood framing – Section 06100.

.2 Supply of doors Section 08110.

.3 Finish painting by Painting Contractor – Section 09911.

1.4 PRODUCT HANDLING

.1 Store materials in protected dry areas, and free of excess humidity. Store gypsum board flat in piles with edges protected.

.2 Ensure that finish metal materials are not bent, dented, or otherwise deformed.

.3 Package fire rated materials with ULC labels attached.

1.5 ENVIRONMENT CONDITIONS

.1 Install work only in areas closed and protected against weather and maintain temperature above 12 degrees Celsius. In cold weather, ensure that heat is introduced in sufficient time, before work commences, to bring surrounding materials up to temperatures and maintained until materials installed by this Section are completed.

1.6 REFERENCE STANDARD

.1 Drywall CSA-A82.27.

1.7 GUARANTEE

.1 One year warranty against fasteners popping and normal cracks.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Gypsum Wallboard

1. 12.70 mm or 15.8 mm, ivory paper face, grey paper backed, with tapered edge. Use fire rated board, bearing ULC label, as noted on "Typical Partition Types" and

drawings.
2. 15.8 mm, ivory paper face, grey paper backed, with tapered edge.
3. 15.8 mm, ivory paper face, grey paper backed, with tapered edge, fire rated board Type “X”, bearing ULC label, as noted on "Typical Partition Types" and drawings.

.2 Joint Materials

1. Joint reinforcing tape: 50 mm perforated paper.
2. Joint compounds: latex, resin base, possessing good adhesion mixed with fresh unadulterated water having no detrimental effect on compounds or premixed asbestos free compound.

NOTE: Must use proper tape for Aquatough drywall.

.3 Accessories

1. Corner beads
2. Casing Beads: 25 ga steel, wiped coated, channel shaped.
3. Control Joint: crimped roll formed zinc with flanges for tape reinforcement, or two casing beads set with gap for movement and backed with flexible air seal membrane.

.4 Fastenings

1. 6 g. x 31.75 mm for 15.8 mm board.
2. 6 g. x 25.4 mm for 12.7 mm board, self drilling type.
3. Direct glue to block, install as per adhesive manufacturer's instructions.

.5 Insulation

1. Sound attenuation blanket size as noted in wall types (minimum 90% width/cavities). Regular batt insulation will not be accepted.

.6 Sound Bar – (Where required).

.7 Ceiling Grid - (Where required) 45 x 45 – USG DGVW 26 Heavy Duty grid.

2.2 STEEL STUDS

.1 Standard gauge sizes as noted on wall types and structural drawing. Walls over 4.0 m high continuous channel bridging maximum 2400 c/c vertical. (Note: Gauge must be suitable for the heights required.) As shown, use steel studs for furring, bulkheads and dropped ceilings. Structural steel studs where required complete with engineered stamped drawings.

2.3 CONTROL JOINTS

.1 CGC control joint No. 093 or approved equal where detailed.

PART 3 - EXECUTION

3.1 EXAMINATION

.1 Before application of drywall commences, ensure that services have been installed, tested, and approved when applicable and that all fitments are secured with permanent

fasteners. Also verify that work by others to be covered by the drywall has been completed to ULC standards in fire rated assemblies.

3.2 INSTALLATION

.1 Wall Application

1. Cooperate with Section 06100 in regard to the provision of backing materials and support for such items as coat racks, shelving, mirror, etc.
2. Install drywall panels exactly horizontal with screws @ 200 mm on centre along edges and @ 300 mm on intermediate studs. Panels at door and window openings shall be minimum 300 mm wide. Install to intermediate studs first and then panel edges. Perimeter screws shall be maximum 12.50 mm on adjacent board. Drive screws until only slightly countersunk below the surface without breaking the paper surface. Where drywall panels butt to a surface other than drywall, install drywall square casing bead, so that a proper filled joint can be made. N.B. - include expansion joints to coincide with building expansion joints, or maximum 9000 mm (30') spacing. Provide rough or finished opening for other trades after sizes required. All edges of gypsum board to be supported and or blocked on fire rated walls and ceilings as per Ontario Building Code and the fire code.
3. Install casing beads around finished openings, where drywall abuts other materials, where specifically detailed and generally to provide a clean and neat appearance. Completely seal around pipes projecting through drywall. (USE TAPED HALF BEADS TO FINISH EXPOSED EDGES – NOT J MOULD – E.G. AT WINDOWS ETC)

.2 Ceiling Application

1. 12.7 or 15.8 drywall to ceilings. Fix onto T-bar grid. Where possible support edges of ceiling board on edges of wallboard.

.3 Sound Control Partitions

1. Floor channels laid on beads of caulking. All electrical boxes, etc. to be wrapped with flexible foam plastic tape on four sides and back. Sound attenuation blankets shall be used. Apply drywall as specified. Continuous bead of caulk at top of drywall and around any objects protruding from the wall. Tape and fill all joints, screw heads, etc.

.4 Wall and ceiling application shall meet ULC requirements for locations noted. All edges to be supported and/or blocked.

.5 Control Joint: Break panel behind joint and back by double framing members and 50 mm wide gypsum panel strip. Attach control joint to face layer with 14.33 mm galvanized staples 150 mm on centre on both flanges along entire length of joint.

.6 Resilient Wall Channel: Screw independently to wall stud. Screwing wallboard through channel to stud will not be permitted.

3.3 TAPING AND FINISHING

.1 Apply compound in minimum of three coat system including areas to be textured. Sand for smoothness with bright light. Repair any areas required after prime paint coat has applied.

3.4 CLEANING AND PATCHING

.1 Remove droppings and excess joint compound from work of others and from work of this Section before it sets.

.2 Make good to cut-outs for services and other work, fill in defective joints, holes, and other depressions with joint compound.

END OF SECTION 09250

PART 1 - GENERAL

1.1 GENERAL

.1 The Specifications are an integral part of the Contract Documents. Division 1 applies to the Work of this Division.

1.2 WORK INCLUDED

.1 Supply and install new suspended ceiling system in all areas noted.

.2 Replaced damaged T-bar and replaced tiles where affected by new mechanical and electrical work.

.3 Replacement of existing ceiling tiles in their entirety.

1.3 RELATED WORK BY OTHERS

.1 Exclude:
1. Suspended drywall ceilings by Section 09250.

1.4 REFERENCE STANDARDS

.1 Fabrication and installation of suspension system ASTM-C-636-76.

1.5 SAMPLES

.1 Submit 600 mm x 600 mm sample of ceiling tile for approval.

1.6 PRODUCT HANDLING

.1 Deliver material in original containers c/w manufacturer's labels and seals intact.

.2 Store in heated dry area.

1.7 MAINTENANCE MATERIALS

.1 Provide one sealed carton of each type of acoustical tile. This carton should be of the same manufacturer run.

PART 2 - PRODUCTS

2.1 MATERIALS-SUSPENSION SYSTEM

.1 Suspension System: Non-rated. As manufactured by Armstrong World Industries Canada Ltd. (alternative as manufactured by Donn Products Can. Ltd., Oakville, Ontario).

.2 Main Tees:
1. 25 mm face and 37 mm height.
2. Punch at 150 mm for splicing.
3. Finish pre-coated with white satin. Design to support 12.7 kg over 1200 mm with

less than 1/360th span deflection.

.3 Cross Tees:
1. 25 mm face and 25 mm height.
2. End formed to automatically engage, level and lock to main tees. Finish pre-coated white satin.
3. Design to support 12.7 kg over 600 mm with less than 1/360th span deflection.

.4 Wall Moulding:
1. Angle type to match tees, pre-notched shadow moulding where noted. Finished pre-coated satin white. Size 25 mm x 25 mm.

.5 Suspension system shall be capable of supporting suspended or troffer lighting fixtures as are elsewhere specified or shown.

.6 Minimum 12 ga. annealed steel wire.

2.2 MATERIALS - CEILING PANELS

.1 Acceptable Manufacturers: Armstrong, BPB Celotex Baroque BET-197 Masonite of Canada, Canadian Gypsum Co.

.2 Note: Replacement tiles in areas required to match existing are IMPERIAL SIZES.

PART 3 - EXECUTION

3.1 PREPARATION

.1 Do not erect suspension system until anchors, blocking, sound and fire barriers, electrical and mechanical work have been inspected and approved.

3.2 INSTALLATION-SUSPENSION SYSTEM

.1 Attach main tees, suspended dead level at 1.219 m on centre, using No. 12 galvanized wire spaced at 1.219 m on centre both ways.

3.3 INSTALLATION-CEILING PANELS

.1 Install ceiling panels in accordance with the reflected ceiling plan. Ceilings shall be laid out so that border tiles are not less than 150 mm (6") in width, to include grilles, diffuser, lights, and all other suspended fixtures in an approved pattern. The whole to Architect's satisfaction.

3.4 SPECIAL OPENINGS

.1 Cooperate with other Sections to provide special openings or cut to receive fixtures, grilles, safety lights, detectors, and sprinkler heads. Templates are to be provided and used in accordance with instructions by the manufacturer of the projecting or recessed items.

3.5 CLEAN-UP

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

Remove all excess materials (except extra stock) and cuttings.

END OF SECTION 09500

PART 1 - GENERAL

1.1 GENERAL

.1 The Specifications are an integral part of the Contract Documents. Division 1 applies to the Work of this Division.

1.2 WORK INCLUDED

.1 Supply and install porcelain tile flooring and porcelain tile base.

.2 Supply and install Heavy-duty Resilient Flooring and rubber cove base. See Drawings and Finish Schedule.

.3 Supply and install Commercial-duty Resilient Flooring and rubber cove base. See Drawings and Finish Schedule.

.4 Supply and install Multi-purpose Resilient Flooring and rubber cove base. See Drawings and Finish Schedule.

.5 Supply and install vinyl-chloride tile and rubber cove base. See Drawings and Finish Schedule.

.6 Supply and install floor transition strips.

.7 Sealing, cleaning, and finishing.

.8 Moisture-testing of sub-floor.

1.3 RELATED WORK BY OTHERS

.1 Concrete slab finishing.

1.4 ENVIRONMENTAL CONDITIONS

.1 Install flooring only when base surfaces and air temperatures have been maintained above twenty (20) degrees Celsius for seventy-two (72) hours preceding installation and maintained during and after installation for three (3) days.

1.5 SPECIAL PROTECTION

.1 Prevent traffic and work on newly laid floors by barricading until work is set. Avoid static loading during first week after installation. Provide adequate fire protection when adhesives are being used.

1.6 SUBMITTALS

.1 Supply one (1) sample of each material to be installed.

1.7 MAINTENANCE MATERIALS

.1 Provide maintenance manual which gives clear instructions as to the maintenance and care of each material.

.2 Leave: one (1) box each of porcelain tile (floor and base), 2.0 m of rubber base, 1.0 m

each type of transition specified (see Drawings), and larger leftover pieces of sheet goods for Owner's repair use.

1.8 GUARANTEE

.1 Provide written guarantees for each product for their normal guarantee period.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 See Schedule on Drawing.

.2 Heavy-duty Resilient Flooring:

1. “Maxflor+” supplied by Advantage Sport.
2. 10 mm
3. 38”x38” glue-down square tiles, and 38”x38” adhesive-free interlocking tiles.
4. Colours: Charcoal (w/ accent colour TBD).
5. Alternate: “Reaction” supplied by Caliber Sport Systems, colour “Charcoal”, accent TBD.

.3 Rubber Cove Base:

1. 100 mm high, non-patterned, preformed corners by Tarkett or equal.
2. Colours: Storm Cloud 0071 (Ground floor), Sisal 130 (Second floor)

.4 Commercial Kitchen-duty Resilient Flooring:

1. “Altro Classic 25” by Altro Flooring.
2. Sheet vinyl, welded seams, glue-down application.
3. Colours: Graphite (Alternate: Pewter Grey)

.5 Porcelain Tile:

1. Vestibule E101, Corridor E105, Mop Room E102A, Washrooms E112 & E113:
    1. “Simply Modern” (Stonepeak) as supplied by Division 9.
    2. 30 cm x 60 cm (12” x 24”) with 6”x12” cove base, USG1224163.
    3. Colour: Simply Grey.
2. Stair #10 (S10) on existing treads:
    1. “Simply Modern” (Stonepeak) as supplied by Division 9.
    2. 30 cm x 30 cm (12” x 12”) cut to tread depth, USG1212163
    3. Colour: Simply Grey.

.6 Porcelain Tile Base: To match floor tile.

.7 Multi-purpose Resilient Flooring:

1. “Recreation Rec 60” sheet floor by Gerfloor Canada.
2. 6 mm thick and square edge.
3. Colour: Canadian Maple.

.8 Tactile Warning Indicator Flooring: to be installed flush with adjoining flooring and/or metal edge strip (see Drawings A10.1)

1. Tactile Warning Surface by Tarkett (Johnsonite).

2. Rubber floor material at 3.18mm thick.
3. Colour: “Storm Cloud 0071”.

.9 Stair Nosings: to be installed integral with porcelain tile tread finish.

1. Flexible Vinyl Stair Nosing: “VIRCN-XX-A”, by Tarkett.
2. 1/4” (6mm) transition with visually impaired colour strip with grit tape.
3. Colour: “Storm Cloud 007”
4. Grit-tape colour: Yellow.

.10 Adhesives: As recommended by the floor material manufacturers. Include seam adhesive as recommended by the resilient flooring manufacturer.

.11 Metal Edge Strips:

1. Extruded aluminum edge strips by Schluter Systems: appropriate trim for edge and transition strips. See Drawings for locations.
    1. Porcelain tile edge: “Schiene” A80.
    2. Control joint: “Dilex-EKSB 60 HB V4A”.
2. Install in strict conformance with manufacturer’s specifications.
3. Submit sample profile for approval prior to installation.

.12 Vinyl Transition Strips:

1. Extruded vinyl transition strips by Tarkett Flooring: appropriate trim for transition strips. See Drawings.
    1. Transition Type “1”: “CCA-XX”, colour “Storm Cloud 0071”.
    2. Transition Type “2”: “CTA-XX-Z”, colour “Storm Cloud 0071”.
    3. Transition Type “3”: “CTA-XX-PL”, colour “Storm Cloud 0071”.
    4. Transition Type “4”: “CD-XX”, colour “Sisal 130”.
    5. Transition Type “5”: “CTA-XX-A”, colour “Sisal 130”.
    6. Transition Type “6”: “CTA-XX-HT”, colour “Sisal 130”.
2. Install in strict conformance with manufacturer’s specifications.
3. Submit sample profile for approval prior to installation.

.13 Grout: Tech Accucolour sanded grout with grout boost for stain resistance and as recommended by tile manufacturer. Colour as selected from standard colour samples.

.14 Cleaner: Neutral chemical compound that will not damage flooring or affect its colour. Resilient flooring requires manufacturer’s cleaning specifications to be followed exactly.

1. Heavy-duty Resilient flooring: AltroClean 44 by Altro Flooring. Alternate: DinoClean by Dinoflex.

.15 VCT Tile flooring: by Armstrong, Tarkett or equal.

1. 305mm x 305mm x 3mm square tile;
2. Colour-through type;
3. Colour: Limestone Beige (Armstrong), Stone Taupe Quartze (Tarkett).

PART 3 - EXECUTION

3.1 EXAMINATION

.1 Before proceeding, examine surface carefully as specified. Fill any small holes and cracks. DO NOT PROCEED if the base surface is unacceptable and cannot be made good. Take moisture tests to verify that the concrete slab is within the range recommended by the applicable manufacturer's specifications. Submit test to Architect.

3.2 INSTALLATION

.1 Sheet Linoleum:

1. Spread compatible adhesive evenly using notched trowel as per manufacturer's recommendations.
2. Lay linoleum in designated pattern with all seams straight and tight.

.2 Porcelain Tile:

1. Install using thin set method with full bed of compatible adhesive.
2. Cut neatly around openings and protrusions.
3. Align joint straight using 6 mm space.
4. Internal base angles - square. Exterior base angles - bullnosed.
5. Use divider strips as indicated where tile abuts other flooring material.
6. Seal joints with grout sealer kept tight.

.3 Rubber Sports Flooring:

1. Install in strict conformance with manufacturers instructions.
2. All joints tight fitting and flat.

.4 Rubber Base: Use pre-moulded ends and corners.

.5 Transition and Metal Edge Strips: Install as per manufacturers instructions and as required for specific application.

.6 Tactile Warning Indicator Flooring: install exterior grade plywood subfloor under rubber TWI to build up the material to match the surrounding porcelain install. TWI to be installed flush with abutting tile and metal edge strips.

.7 Remove adhesive from resilient flooring surfaces as the work progresses.

.8 Allow sheet flooring to set for forty-eight (48) hours after installation then clean the surface of the flooring and base.

.9 Remove excessive grout compound on quarry and ceramic tiles.

END OF SECTION 09650

PART 1 - GENERAL

1.1 GENERAL

.1 The Specifications are an integral part of the Contract Documents. Division 1 applies to the Work of this Division.

1.2 WORK INCLUDED

.1 Supply and install:

1. Painting to drywall and concrete block.
2. Painting of hollow metal doors, hollow metal frames, and window frames.
3. Painting of interior and exterior miscellaneous metals.
4. Painting of stair stringers and railings (guards).
5. Sealing and staining of veneer slab doors and trim.
6. Water Proofing Paint in shower and washroom areas.
7. Paint-applied Zinc Coatings of structural steel.
8. Paint-applied vapour barrier coatings to wall surfaces and concrete block.

1.3 RELATED WORK BY OTHERS

.1 Unit Masonry - Section 04200.

.2 Hollow metal door installation – Section 08110.

.3 Exclude: shop priming, textured spray, touch-up of pre-finished metals, special coatings, parking stall stripping, fence painting.

1.4 EXAMINATION

.1 Examine surfaces to receive paint and stain. Report in writing to the General Contractor any deficiencies which will interfere with a top-quality finish.

.2 Existing block wall surfaces will have some paint peeling with existing oil base underneath. Observations and reporting of these walls to Consultant required before proceeding.

.3 Be responsible for all temporary removals of fixtures, fitments, and equipment necessary for access to paintable surfaces. Such items will be stored on premises, and returned to their original locations after full paint cure time has elapsed.

1.5 STORAGE OF MATERIALS

.1 Suitable storage for painting materials shall be as allocated by the General Contractor. Store materials in a hazard-free manner. Provide fire extinguisher in storage room while paint is being stored and used. Protect paint from freezing.

1.6 PROTECTION

.1 Protect adjacent work and materials with masking and covers. Protect workmen from

toxic fumes.

.2 Remove electrical plates, surface hardware, etc. before painting. Store in a safe place and reinstall when painting is completely dry.

.3 Remove all paint splatters from adjacent work and materials.

1.7 ENVIRONMENTAL CONDITIONS

.1 Temperature of the painting area must be between ten degrees Celsius and twenty-five degrees Celsius and be maintained above ten (10) degrees Celsius for twenty-four (24) hours after each coat of paint is applied. Broom clean areas prior to painting to avoid excessive dust collection on the painted surface.

1.8 MAINTENANCE MATERIALS

.1 Provide one (1) sealed litre can of each colour type of paint used, complete with clearly marked labels.

PART 2 - PRODUCTS

2.1 MATERIALS - PAINT

.1 Materials specified for painting as manufactured by ICI, Glidden, Pratt and Lambert, Benjamin Moore, Cico, Para Paints are acceptable but use one manufacturer throughout.

.2 In all cases, materials applied must meet the flame spread rating requirements of the Ontario Building Code for the particular application in this project.

.3 All paints and finishes to be low V.O.C.

2.2 MATERIALS – WATER PROOFING PAINT

.1 Water Proofing Paint by Sherwin Williams or approved equal.

.2 Apply to all exposed concrete and concrete block in shower and washroom areas.

2.3 MATERIALS – PAINT-APPLIED GALVANIZATION

.1 Galvanizing Paint:

1. Fosroc Galvafroid, a zinc-rich cold galvanizing coating.
2. Sherwin-Williams Zinc-Clad IV.

.2 Applied to all exposed exterior lintels and exposed structural steel to the exterior.

2.4 MATERIALS – PAINT-APPLIED VAPOUR BARRIER

.1 Benjamin-Moore Ultra-Spec Vapour Barrier Primer/Sealer K573

.2 Sherwin-Williams Moisture Vapour Barrier Interior Latex Primer/Sealer

.3 Approved alternate with the following performance criteria:

1. Perm rating of less than 0.7 Perms;

2. Ability to coat to minimum .0031" thick dry with two coat application;
3. Latex-based formulation that can accept other paint finishes over top.

2.5 COLOUR SCHEDULE

.1 The Architect will supply to the General Contractor for use on the job, a complete schedule of paint colours within two (2) weeks of the receipt of request from the General Contractor for the same.

PART 3 - EXECUTION

3.1 PREPARATION

.1 Inspect drywall and masonry work for deficiencies and notify General Contractor of any areas to be repaired or cleaned prior to commencing priming. Clean areas to be painted of all dust, dirt, oxidation, grease, etc. using stiff fibre brushes and solvent where required.

.2 Sand smooth all wood, removing rough grain, chattering, etc. before priming or staining.

.3 Maximum moisture content of any surface to be painted shall be 12%.

.4 Clean new metal surfaces to be painted by: removing rust, loose mill scale, welding slag, dirt, oil, grease and other foreign substances in accordance with the following:

1. Solvent cleaning: SSPC-SP-1
2. Hand tool cleaning: SSPC-SP-2
3. Power tool cleaning: SSPC-SP-3

.5 Remove traces of blast products from surfaces, pockets, and corners to be painted by brushing with clean brushes, blowing with clean dry compressed air, or vacuum cleaning.

.6 Touch-up shop primer to CGSB 85-GP-10M with primer as specified in applicable section. Touch-up to include cleaning and painting of field connections, welds, rivets, nuts, washers, bolts and damaged or defective paint and rusted areas.

.7 Prepare galvanized steel and zinc coated steel surfaces to CGSB 85-GP-16M.

.8 Prepare new steel surfaces exposed normally to dry conditions to CGSB 85-GP-14M.

.9 Do not paint baked enamel, chrome plated, stainless steel aluminum or other surfaces finished with final factory finish except as directed by Architect. All primed surfaces shall be finish painted under this Section.

3.2 APPLICATION

.1 Method of application to be as approved by Consultant. Apply paint by brush, roller, air sprayer. Conform to manufacturer's application instructions unless specified otherwise.

.2 Spray Application:

1. Obtain Consultant's approval for spray application.
2. Provide and maintain equipment that is suitable for intended purpose, capable of properly atomizing paint to be applied and equipped with suitable pressure regulators and gauges.
3. Keep paint ingredients properly mixed in containers during paint application either by continuous mechanical agitation or by intermittent agitation as frequently as necessary.
4. Apply paint in a uniform layer with overlapping at edges of spray pattern.
5. Brush out immediately all runs and sags.
6. Use brushes to work paint into cracks, crevices and places which are not adequately painted by spray.

.3 Water Proofing Paint:

1. Apply in strict conformance with manufacturer's recommendations.

.4 Apply each coat of paint as a continuous film or 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 as recommended by manufacturer.

.6 Keep sprinkler heads free from paint.

.7 Paint all natural gas piping, yellow. Existing gas piping to receive new paint, and must be surface prepared per "3.1 Preparation" section.

3.3 WORKMANSHIP

.1 A minimum of one (1) prime coat and two (2) final coats will be required. However, workmanship and quality are to the complete satisfaction of the Architect and the finished result is the only determining factor in the number of finish coats.

.2 Sand lightly between coats in all cases to remove surface roughness.

.3 Do not apply enamel without first fine sanding the complete area.

.4 Shellac all knots with heavy orange shellac before painting, in a manner to stop all bleed-through.

.5 Fill all holes in all materials after the prime coat using a putty stick or other approved means. For stain work, apply the filling medium after staining and match the colour of the filler to the stain exactly.

.6 All doors shall be finished fully on the tops and bottoms as for the faces with full coats of filler, stain, varnish, paint, etc. as specified.

3.4 PAINTING MATERIALS LIST

.1 For Reference, ICI/Glidden specification numbers unless otherwise indicated:

1. 6100 Velvet
2. 5300 Semi-gloss
3. 5200 Satin

.2 Interior Concrete Blocks – non-vapour barrier paints

1. 1st coat: Latex Block Filler 8350
2. Finish coats: 1516 Alkyd semi-gloss

.3 Interior Painted Wood

1. 1st coat: 5589 Primer Low Odour Alkyd
2. Finish coats: 5300

.4 Interior Painted Drywall

1. 1st coat: 9650 Primer
2. 2 Finish coats: 1516 Alkyd semi-gloss

.5 Exterior Painted Elements

1. 1st coat: 5589 Alkyd
2. Finish coats: 2516 Alkyd semi-gloss

.6 Interior Painted Plain Steel (Frames/Doors/Stairs)

1. 1st coat: 8496 Kromate Metal Primer
2. 2 Finish coats: 5460 Alkyd

.7 Exterior Painted Galvanized Steel

1. 1st coat: 8189 Galvanized Metal Primer
2. Finish coats: 5460 Semi-Gloss Low Odour Alkyd

.8 Structural Steel

1. Alkyd for shop primed ferrous metal surfaces. Apply two (2) coats eggshell enamel CAN/CGSB-1.60.

.9 Interior Walls w/ Paint-applied Vapour Barrier

1. Two (2) coats minimum to .0031” thickness (dry);
2. Sheen as indicated with paint specification.

3.5 PROTECTION, PATCHING AND CLEANING

.1 Touch-up and refinish minor defective work. Refinish entire wall, ceiling, or similar surface where finish is not acceptable.

.2 Contractor is responsible to protect existing building surfaces not required to be painted from splatter, markings, and other damage. If damage occurs, clean and restore surfaces to original condition as directed by Consultant.

.3 Leave storage areas clean.

END OF SECTION 09911

PART 1 - GENERAL

1.1 GENERAL

.1 The Specifications are an integral part of the Contract Documents. Division 1 applies to the Work of this Division.

1.2 WORK INCLUDED

.1 Supply, deliver and install all toilet partitions and urinal screens as indicated on the drawings and as required by actual conditions at the building.

.2 The toilet partitions shall include the furnishing of all necessary screws, special screws, bolts, special bolts, expansion shields and all other devices necessary for the proper installation and application of the toilet partitions.

1.3 RELATED WORK BY OTHERS

.1 Metal lockers – Section 10505.

.2 Grab bars and washroom accessories - Section 10800.

1.4 REFERENCES

.1 All toilet partitions must be schedules, supplied and installed in accordance with:

1. Ontario Building Code.
2. AODA (Accessibility for Ontarians with Disabilities Act).
3. CSA (Canadian Standards Association).
4. ANSI (American National Standards Institute)

.2 In all cases the above references shall be taken to mean the latest edition of that particular standard including all revisions.

1.5 SUBMITTALS

.1 Make all submittals in accordance with Section 01300 – Submittals.

.2 Submit electronic copies of product sheets and/or catalogue cuts of all products listed in the shop drawings.

.3 Upon request, a returnable sample of the toilet partition shall be submitted to the Consultant/Owner for approval not later than ten (10) days after requested. All samples must be properly identified including name of supplier and name of manufacturer.

.4 At completion of the job, furnish to the Owner two (2) copies of the Operations and Maintenance Manual. The instructions should bound within the Owner's Operations Manual as described in Section 01700. The manual shall consist of a hard cover three ring binder with the project name in the front. Include in the manual the following information:

1. Maintenance instructions.
2. Catalogue pages for each product.
3. Name/address and phone number of the manufacturer and their Sales Agent.
4. Copy of the final shop drawings.

1.6 SHOP DRAWINGS

.1 Submit electronic copies of detailed shop drawings for the Consultant's/Owner's review before two (2) weeks of being ready to order partitions, being mindful of the lead time required for such items, install date and proper scheduling. The shop drawings should indicate plans, elevations and hardware.

1.7 QUALITY ASSURANCE

.1 Manufacturers and model number listed are to establish a standard of quality. Similar items by approved manufacturers that are equal in design, function, quality and finish may be accepted upon prior written approval from the Consultant/Owner.

.2 All requests for acceptable substitutions must be made in writing and submitted to the Consultant at least fourteen (14) days prior to tender closing. If requested, all requests for substitutions must be accompanied by product literature and actual product samples.

.3 Toilet partition shop drawings and toilet partitions shall be procured from a source of supply approved by the Consultant/Owner. Supplier is responsible for the complete toilet partition sub-contract.

1.8 DELIVERY, STORAGE AND HANDLING

.1 Toilet partitions must be delivered to the job site in the manufacturer's original packages and marked to correspond with the approved shop drawings.

.2 Toilet partitions must be delivered in an amount of time deemed appropriate by the Consultant/Owner.

1.9 WARRANTY

.1 The toilet partition manufacturer shall guarantee all Solid Plastic Toilet Partitions by written certification, for a period of twenty (20) years against breakage, delamination and corrosion of solid plastic parts. Warranty is for manufacturer's material only and does not include installation errors, improper usage or vandalism.

1.10 MAINTENANCE

.1 Upon request, at completion of the project, the toilet partition supplier may be required to brief Owner's maintenance staff regarding proper care of toilet partitions, such as required lubrications, adjustments, cleaning, etc.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

.1 Only those manufacturers names and product numbers listed herein, are approved for use on this project.

1. Approved manufacturer: Hadrian Manufacturing Inc., 965 Syscon Road, Burlington, ON, Telephone: 905-333-0300, Fax: 905-333-1841.

.2 All other manufacturers must request approval as per Section 01630 – Substitutions.

.3 Absolutely no variations from listed and pre-approved items will be permitted.

2.2 MATERIALS

.1 Toilet Partitions:

1. Construction Features: Doors, panels and pilasters shall be powder-coated, honeycomb core metal panels.
2. Doors shall be 25 mm (1”) thick by 1,397 mm (55”) high straight cut with fine radius edges. Standard series.
3. Panels shall be 25 mm (1”) thick by 1,397 mm (55”) high straight cut with fine radius edges.
4. Pilasters shall be 25 mm (1”) thick and cut with fine radius edges.
5. Headrail: Shall be 32 mm (1.25”) by 44 mm (1.75”) extruded anodized aluminum with anti-grip design. Wall thickness to be 1.5 mm (0.060”) and shall be securely attached to wall and pilasters with manufacturer’s fittings in such a way as to make a rigid installation. All joints in headrails shall be made at a pilaster.
6. Pilaster Fastening Method: Pilasters shall be securely and rigidly fastened to the floor on vertically adjustable floor brackets. The floor fastening shall be concealed and protected by a 102 mm (4”) high solid plastic pilaster shoe. One full-height continuous aluminum channel shall be used at the pilaster to panel connection. Three heavy-duty aluminum brackets shall be used at the pilaster to wall connection.
7. Hardware & Fittings: Doors shall be equipped with a full-height continuous 16 gauge stainless steel hinge with a stainless steel hinge pin. Hinges shall be fastened to door and pilaster with tamper-proof 6-lobe security head stainless steel thru-bolts and to the edge of door and pilaster with #10 by 25 mm (1”) screw. Strike-keeper and throw latch shall be of stainless steel. One full-height continuous aluminum channel shall be used at the pilaster to panel and pilaster to wall connection. Include stainless steel coat hook and bumper and oversized black rubber bumper door stop and bag hook. Theft-proof 6-lobe security head stainless steel screws/fasteners.

.2 Urinal Screens:

1. Construction Features: Panels and pilasters shall be powder-coated, honeycomb core metal panels.

2. Panels shall be 610 mm (24”) deep the top at 1422 mm (56”) and bottom at 356 mm (14”) above finished floor.
3. Wall mounted brackets as supplied from the manufacturer.
4. Mounting: Stirrup brackets.

2.3 FINISH

.1 Doors, panels and pilasters shall be constructed of powder-coated, honeycomb core metal panels.

.2 Colour: : Dovetail 828 (anit-graffiti paint finish).

PART 3 - EXECUTION

3.1 EXAMINATION

.1 The Contractor must examine all site conditions that would prevent the proper application and installation of toilet partitions. Any defect must be immediately identified and corrected, prior to the installation of the toilet partitions.

3.2 INSTALLATION

.1 All toilet partitions must be mounted according to manufacturers standard locations and those specified on the drawings.

3.3 FIELD QUALITY CONTROL

.1 After installation has been completed, provide for a site inspection of all toilet partitions to determine that all items have been supplied and installed as per the enclosed details. Also, check the operation and adjustment of all toilet partitions. Any discrepancies or malfunctioning product must be reported to the Architect immediately.

3.4 ADJUSTMENT AND CLEANING

.1 Adjust operating hardware to work smoothly and without force. Adjust hinges of toilet compartment doors so that all doors remain open to the same degree when unlatched.

.2 Refinish damaged or defective work so that no variation in surface appearance is discernable. Refinish work at site only if approved by Architect.

.3 Remove from work soil and dirt deposits resulting from fabrication and installation.

3.5 PROTECTION

.1 The Contractor must provide for the proper protection of all toilet partitions until the Owner accepts the project as complete.

3.6 TOILET PARTITION SCHEDULE

.1 Provide toilet partitions as specified in all above sections and as per the detailed

Architectural Drawings.

END OF SECTION 10155

PART 1 - GENERAL

1.1 GENERAL

.1 The Specifications are an integral part of the Contract Documents. Division 1 applies to the Work of this Division.

1.2 WORK INCLUDED

.1 Supply and install pair-hinged operable wall and track.

.2 Pocket door closure doors.

.3 Structure suspension as necessary (integrating existing structure and/or hardware).

.4 Submit shop drawings as per requirements of Section 01300.

1.3 WORK BY OTHERS

.1 Structural support, hole drilling - Section 05120.

.2 Rough carpentry - Section 06100.

.3 Gypsum Board Installation - Section 09250.

1.4 SOUND TRANSMISSION CONTROL

.1 Sound transmission class (S.T.C.) for the operable wall shall be (48-52) Class G weighing 59 kg per square meter as per ASTM E-90-70 certified tests made in a 4265 mm x 2745 mm opening.

.2 The acoustical folding partition vinyl panel surfacing shall have the following characteristics as per ASTM E84-70 tunnel tests and CAN4-S102-M83 Surface Burning Characteristics of Building Materials.

1. Flame spread 20
2. Fuel contributed 5
3. Smoke developed 40

1.5 SAMPLES

.1 Submit a 300 mm x 300 mm sample of the operable wall finishes and colour for approval.

1.6 SUBMITTALS

.1 Submit electronic copy of shop drawings indicating information such as: installation requirements, dimensions, track support and details, typical head section, stacking and track configuration, finish, hardware, as well as the location of the acoustical folding partitions.

.2 Submit written folding wall operation and maintenance instructions all in accordance with the Specification Requirements.

1.7 GUARANTEE

.1 Supply a written guarantee, signed, and issued in the Owner's name, against warping, buckling, cracking, delaminating, joint failure, rupture of track and suspension system, defects in material and workmanship for a period of five (5) years from date of signature of the certificate relative to the final acceptance of the work.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 The operable wall shall be manually operated panels, 1220 mm wide and 75 mm thick with panel skins of 18 ga. steel. Panel finish shall be factory applied vinyl colour and texture as selected by Owner and shall meet or exceed ASTM E-84. All frames and seal closures shall be in clear anodized finish. Flame spread 20, smoke development 40, fuel contributed 5. Refer to drawings for dimensions and locations.

.2 Base bid shall be “Moderco” Signature 800 Series or equal, supplied and installed by authorized manufacturer’s representative.

1. Paired panels (8 @ approximately 940mm width).
2. Minimum STC rating of 48 dB.
3. Finish: fabric, colour to be determined by Owner.

.3 Modernfold, Coreflex and Hufcor are acceptable alternates.

.4 Operation of partition shall be top supported, manually operated.

2.2 SEALING MECHANISMS

.1 Top and bottom sound control shall be assured by retractable seals simultaneously operated by removable handle. Seals shall not contact floor or track during movement of panels.

.2 Vertical Seals:

1. Vertical seals between panels shall consist of tongue and groove aluminum astragals creating an acoustical interlock. Each pair of panels shall come with concealed integral panel locking device such that when engaged will result in a single straight unit. (Ceiling rails shall not be acceptable).

2.3 TRACK AND HARDWARE

.1 Review the existing track hardware. It should consist of:

1. Heavy-duty extruded aluminum track supported by threaded rods, having the same length as the opening overall width;
2. All necessary hardware pertaining to its installation;

3. Structural aluminum track shall be 89 mm wide and 69 mm deep;
4. Support an assembly of four nylon-coated radial ball-bearing wheels;
5. Centered on each panel.

.2 If upon inspection the track is found to be faulty, damaged, structurally unsound, or incompatible with the specified door panels, the track and supporting structure is to be demolished, and replaced with new track and supporting structure to manufacturer's specifications.

2.4 TYPES OF CLOSURE

.1 Where shown on plan half-panel closure shall be hinged on the stacking end of the wall.

.2 Provide pocket enclosure doors equipped with gaskets for continuous perimeter seal where noted on the drawing. Doors to have same construction and thickness as panels.

2.5 HARDWARE

.1 The twin panel sections for the acoustical folding partitions will be joined by heavy-duty extruded vinyl hinges having successfully accomplished the 950,000-cycle test at the Massachusetts Institute of Technology.

.2 The closing seal will be assured by polished aluminum handles and jambs, thus permitting the heavy-duty Draw-tite latches to adequately control sound transmission loss.

PART 3 - EXECUTION

3.1 INSTALLATION

.1 The acoustical operable wall shall be installed straight, plumb and level in strict conformity with the manufacturer's requirements and ASTM E557, as well as the structural support which must be executed by other trades.

END OF SECTION 10652

PART 1 - GENERAL

1.1 GENERAL

.1 The Specifications are an integral part of the Contract Documents. Division 1 applies to the Work of this Division.

1.2 WORK INCLUDED

.1 Washroom Accessories.

1.3 RELATED WORK BY OTHERS

.1 Backer boards where required. Installation by Section 06100 – Carpentry.

.2 Door Signs – Manufactured Specialties - Section 10999.

1.4 SUBMITTALS

.1 Shop drawings (pdf files) should be submitted for review well in advance of order. Fixture costs of each unit to be submitted.

.2 Confirm final order with the Owner through the General Contractor prior to order.

PART 2 - PRODUCTS

2.1 WASHROOM ACCESSORIES

.1 Manufacturer:

1. Frost Products Ltd., 5280 John Lucas Drive, Burlington, ON L7L 5Z9, Telephone: 905-332-5700, www.frostproductsltd.com.

1. E112: Female Washroom

1 liquid soap dispenser (auto)	714-C
4 toilet paper holder (2 roll)	171-P
1 towel dispenser (mechanical)	109-60P
1 waste receptacle (wall mount)	304-NLS
4 sanitary napkin disposal units	641
1 handicap grab bar (610mm rear toilet)	1001-N24
1 Koala baby change table	KB200
4 coat hooks	1138-S

2. E113: Male Washroom

1 liquid soap dispenser (auto)	714-C
2 toilet paper holder (2 roll)	171-P
1 towel dispenser (mechanical)	109-60P
1 waste receptacle (wall mount)	304-NLS
1 handicap grab bar (610mm rear toilet)	1001-N24
2 handicap grab bars (610mm urinal)	1001-N24
2 coat hooks	1138-S

3. E206: Male Washroom

1 liquid soap dispenser (auto)	714-C
2 toilet paper holder (2 roll)	171-P
1 towel dispenser (mechanical)	109-60P
1 waste receptacle (wall mount)	304-NLS
1 handicap grab bar (610mm rear toilet)	1001-N24
1 L-shaped grab bar	1003-NP30X30
2 handicap grab bars (610mm urinal)	1001-N24
2 coat hooks	1138-S

4. E207: Female Washroom

1 liquid soap dispenser (auto)	714-C
4 toilet paper holder (2 roll)	171-P
1 towel dispenser (mechanical)	109-60P
1 waste receptacle (wall mount)	304-NLS
1 handicap grab bar (610mm rear toilet)	1001-N24
1 L-shaped grab bar	1003-NP30X30
4 sanitary napkin disposal units	641
4 coat hooks	1138-S

5. E121: Female Water Closet

1 liquid soap dispenser (auto)	714-C
1 toilet paper holder (2 roll)	171-P
1 towel dispenser (mechanical)	109-60P
1 waste receptacle (wall mount)	304-NLS
1 sanitary napkin disposal units	641
2 coat hooks	1138-S

6. E122: Washroom

1 liquid soap dispenser (auto)	714-C
1 toilet paper holder (2 roll)	171-P
1 towel dispenser (mechanical)	109-60P
1 waste receptacle (wall mount)	304-NLS
1 multi-coat hook unit (3-hook)	1147
2 coat hooks	1138-S
1 Shower Rod	1145-36S
1 Shower Curtain	1144-502
1 Shower Curtain Hooks Kit	1144-501L

7. E132, E130, E126, E125: Washroom/Showers, each room to receive:

1 liquid soap dispenser (auto)	714-C
1 toilet paper holder (2 roll)	171-P
1 towel dispenser (mechanical)	109-60P
1 waste receptacle (wall mount)	304-NLS
1 multi-coat hook unit (3-hook)	1147
2 coat hooks	1138-S
1 Shower Curtain Hooks Kit	1144-501L

8. E211 Servery, room to receive:

1 liquid soap dispenser (auto)	714-C
1 towel dispenser (mechanical)	109-60P

PART 3 – EXECUTION

3.1 INSPECTION

.1 Do not proceed with the Work of this Section until conditions detrimental to the proper and timely completion of the Work have been corrected in an acceptable manner.

3.2 INSTALLATION

.1 Install toilet room accessories at locations shown on Drawings according to manufacturers' printed installation instructions. Exact locations determined by Engineer/Architect.

1. Installation by this Contract to include Owner supplied soap dispensers and toilet paper holders as listed in paragraph 2.1 above.

.2 Secure toilet room accessories to supporting substrate with fasteners and anchors of types necessary for rigid anchorage to substrate construction.

.3 Install toilet room accessories plumb and true with horizontal lines level.

.4 Conceal evidence of drilling or fitting in adjacent surfaces.

3.3 TESTING

.1 Proof test grab bars to manufacturers specifications.

.2 Provide certificate of test results.

3.4 CLEAN-UP

.1 After installation, clean toilet room accessories in a manner not to damage finish and leave in conditions satisfactory to Architect/Engineer.

3.5 SPECIAL TOOLS OR KEYS

.1 Deliver properly identified special tools or keys of each type required for theft proof fasteners and for refilling dispensers or emptying receptacles.

3.6 COMMISSIONING

.1 Instruct Owner on cleaning and maintenance.

END OF SECTION 10800

PART 1 - GENERAL

1.1 GENERAL

.1 The Specifications are an integral part of the Contract Documents. Division 1 applies to the Work of this Division.

1.2 WORK INCLUDED

.1 Include all miscellaneous specialities listed below for installation by Specific Divisions and including Section 06100.

1. Signs:
    1. Interior accessibility signs (not included in Washroom Accessories):
    2. Door Signs
2. Roof Access Hatch and Guard Rail
3. Exterior Tactile Warning Indicators – existing sidewalk
4. Protective suspended nylon netting – arena ceiling
5. Roof Ladder with platform (coordinate with Architectural drawing 10/A3.1)
6. Wall-mounted Utility Ladder (interior)

1.3 RELATED WORK BY OTHERS

.1 Site preparation & landscaping details.

.2 Section 07500

.3 Section 06100 - Provision of backing for fastening purposes.

.4 Electrical (as applicable): electric conduits, wiring, disconnect and boxes to connect to power supply and key switches at hand height. Permanent connections from disconnect to control box.

1.4 PROTECTION

.1 Protect the work of this Section and that of the other trades from damage due to these operations.

.2 The Contractor shall make good any such damage at his own expense and to the approval of the Consultant.

1.5 SUBMITTALS

.1 Submit PDF copies of each of the following:
1. Manufacturer’s shop drawings.
2. Manufacturer’s standard one (1) year warranty and limited warranties.
3. Manufacturer’s Operations and Maintenance instructions.

1.6 WARRANTY

.1 As per manufacturer’s warranty for each speciality.

PART 2 – PRODUCTS

2.1 SIGNAGE: INTERIOR

.1 **DOOR SIGNS (See Door Schedule.)**

1. Fix to doors where required, according to Door Schedule.
2. SCB1-1 Helvetica upper and lower case. Plastic minimum 3 mm thick x 75 mm wide and length required for word. Adhere to door with two-sided adhesive.
3. Mount at maximum height of 1500 mm A.F.F.
4. Acrylic Door Signs:
    1. 215 x 279 clear acrylic sign holder with concealed fasteners.
    2. Fix to wall adjacent to all doors to each assembly area.

.2 **INTERIOR WALL SIGNS**

1. Provide directional washroom signs (4 total) TBD.
2. Signs to be 305 x 205 and mounted 1200mm above finished floor and to also incorporate raised Braille lettering.

2.2 ROOF ACCESS HATCH (1 unit)

.1 Steel Roof Hatch insulated for roof access. Base Spec: Babcock-Davis BG3630 914mm x 762mm (36” x 30”) or as size detailed on drawings. Or approved alternate.

1. Cover: 1.99mm (14ga) satin finish galvanized steel.
2. Cover Insulation: 50mm (2”) rigid polyisocyanurate.
3. Cover Liner: .85mm (22ga) satin finish galvanized steel.
4. Curb Frame: 305mm (12”) high 1.99mm (14ga) satin finish galvanized steel with all exposed joints welded to ensure water-tight construction.
5. Curb Insulation: 50mm (2”) Rigid polyisocyanurate.
6. Mounting Flange: 89mm (3.5”) wide complete with mounting holes.
7. Cover Operator: Heavy duty concealed spindle/spring operators, zinc plated, and chromate sealed with 3.51mm (10ga) galvanized steel bracket assembly.
8. Weather Gasket: extruded sanoprene; 100% recovery at 50% deflection.
9. Locking Mechanism: Inside and outside padlock hasps.
10. Finish: White (high reflectance).
11. Install according to manufacturer’s instructions.
12. Hardware: zinc- plated to manufacturer’s specifications.

.2 Guard Rail: Skyline Group Hatch Barrier 5004. Or approved alternate

1. 11ga. G90 galvanized steel tube;
2. 5/8” steel base plates with powder coat finish;
3. Type 304 stainless steel fasteners to suit;
4. With self-closing gate at hatch open end.

2.3 TACTILE WARNING INDICATORS (retrofit for sidewalk)

.1 Tactile strips sized per details on Drawing A2.3.

.2 Material Test Reports: Submit complete test reports from qualified accredited independent testing laboratory’s to qualify that materials proposed for use are in compliance with requirements and meet or exceed the properties indicated on the specifications. All tests shall be conducted on a Cast in Place Detectable/Tactile Warning Surface Tile system as certified by a qualified independent testing laboratory and be current within a 24-month period.

.3 Submit Maintenance Instruction as per manufacturer’s specified installation and maintenance practices for the product used.

.4 **Surface applied** tactile strip: Armor-Tile epoxy polymer composition employing aluminum oxide particles in the tile face.
.5 Manufacturer: KINESIK ENGINEERED PRODUCTS. Other manufacturers will be considered provide they are AODA compliant and meet all requirements. Meeting all applicable ASTM standards.
.6 Colour: Black

2.4 PROTECTIVE SUSPENDED NYLON NETTING – ARENA CEILING

.1 Acceptable supplier: Athletica Sport Systems
.2 Material: nylon
.3 Colour: black (match existing)

2.5 ROOF LADDER

.1 Acceptable supplier: Liftsafe Fall Protection, Echelle Canada, Masters Carr, or approved alternate
.2 Wall-mount Ladder (to correspond with required climbing height) with integrated crossover platform.
.3 Material: galvanized steel
.4 Coordinate size and step number requirements with architectural detailing and existing conditions
.5 Provide mounting hardware as required (not included with ladder components)

2.6 WALL-MOUNTED UTILITY LADDER

.1 Acceptable supplier: Masters Carr, Skyline Group or approved alternate
.2 Wall-mount Ladder #7981T__ (to correspond with required climbing height)
.3 Material: powder-coated steel
.4 Colour: yellow
.5 Coordinate size and step number requirements with architectural detailing and existing conditions
.6 Provide mounting hardware as required (not included with ladder components)

PART 3 - EXECUTION

3.1 EXAMINATION/PREPARATION

.1 Do not begin installation until substrates have been properly prepared.

.2 Clean surfaces thoroughly prior to installation.

.3 Prepare surfaces using the methods recommended by the product manufacturer for achieving the best result.

3.2 ERECTION

.1 **All Listed Specialties – install in strict accordance with Manufacturer's instructions;** secure permanently, plumb, and true; clean up and remove all construction debris and packaging material.

.2 Extinguishers and Signage
1. Erect/fasten in specific locations as detailed on drawings, necessary for proper installation and as per manufacturer's instructions. Secure permanently, plumb, and true.

.3 Tactile Warning Indicators

1. Install in specific locations as details on drawings.
2. Install in strict accordance to selected manufacturer's installation instructions/in accordance with AODA guidelines.
3. Install in freshly poured concrete.

.4 Protective Suspended Nylon Netting:

1. Install in strict accordance with Manufacturer's installation instructions.
2. Installation is for repair and replacement of old netting only. Repair locations to coincide with insulated blanket repair areas (Section 07210).

.5 Roof Ladder/Wall-mounted ladder

1. Contractor shall be familiar with the requirements of OBC SB-8 for the installation requirements of mounted utility ladders.
2. Install in strict accordance with Manufacturer's installation instructions for the interior wall-mounted ladder.
3. Concrete block substrate installation: heavy duty thru-bolt masonry anchors to suit.
    1. Heavy-duty masonry anchor: Type 304 stainless steel bolts minimum 12mm (1/2") diameter w/ hex- heads, nuts, and washers to suit.
4. Structural steel stud framing substrate installation: provide solid wood or sheet metal backup structure to receive positive thread engagement of heavy-duty threaded metal lag screws.
    1. Heavy-duty lag screw: Type 304 stainless steel lag bolts minimum 12mm (1/2") diameter w/ hex- heads, washers to suit.

END OF SECTION 10999