



**SPECIFICATIONS**

for

**DAYCARE ADDITION FOR ÉCOLE ÉLÉMENTAIRE CATHOLIQUE SAINTE-MARGUERITE-BOURGEOYS  
60 CLENCH AVE, BRANTFORD, ON**

**CONSEIL SCOLAIRE CATHOLIQUE MONAVENIR  
RFQ 2021-63**

<b>ARCHITECT:</b>	MZE Architecture and Design Inc. 96 Church St., St. Catharines, ON L2R 3C8
<b>CONSULTANTS:</b>	
<b>CIVIL</b>	Mantecon Partners Inc. 15 Foundry Street, Dundas, Ontario, L9H 2V6
<b>MECHANICAL</b>	Mantecon Partners Inc. 15 Foundry Street, Dundas, Ontario, L9H 2V6
<b>ELECTRICAL</b>	Mantecon Partners Inc. 15 Foundry Street, Dundas, Ontario, L9H 2V6
<b>STRUCTURAL</b>	Mantecon Partners Inc. 15 Foundry Street, Dundas, Ontario, L9H 2V6

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60 CLENCH AVE, BRANTFORD, ON  
CONSEIL SCOLAIRE CATHOLIQUE MONAVENIR

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**SPECIFICATIONS**

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**Section**

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**PART 1 – GENERAL**

1. **Division One Requirements:**

1.1. The provisions of all Sections of Division One shall apply to each section of the Specifications, including those of Divisions 15 and 16 (25000, 26000).

2. **Subdivision of Work:**

2.1. The Specifications have generally been divided into trade divisions, and the trade divisions into sections for the purpose of ready reference, but a section may consist of more than one Subcontractor or supplier. The responsibility for determining which Subcontractor or Supplier provides labour, materials, products, equipment and services to complete the work rest solely with the Contractor.

1. Perform the work in accordance with the Ontario Building Code containing the Building Code Act and Ontario Regulation 332/12, latest amendments.
2. Comply with all regulations of all public authorities having jurisdiction.
3. Wherever a code or standard is referred to in the drawings or specifications, it shall be understood to be the latest revision of this code or standard that is intended.
4. Supply, to the Owner, copies of material safety data sheets (MSDS) for all products covered under the Ontario Health and Safety Act and Regulations and WHMIS Regulations. These are to be used on or in conjunction with the work. Include information regarding locations and conditions for use.

**1.1  
CODES AND  
STANDARDS**

1. Note that the Municipal Building permit has been applied for and paid for by the owner.
2. Supply all permits required by local authorities required from them and pay expenses incurred. Permits pertaining to particular trades shall be paid for by the particular trade concerned. Include all permit fees in tender.
3. Be responsible for contacting the Municipal building authority for a field review of the work at those times and in accordance with the directions on the Municipal Building Permit and/or the requirements of the municipality concerned.

**1.2  
PERMITS**

Report omissions, ambiguities and/or contradictions in the project documentation to the Consultant immediately on discovery in writing. The Consultant will then provide written instructions, clarifications or explanations. The Consultant will not be responsible for oral instruction.

**1.4  
DISCREPANCIES  
OMISSIONS**

1. Examine the site carefully prior to the submission of a tender.
2. Extras will not be considered for any additional Work required to deal with difficulties encountered which could have been foreseen by a close site examination.
3. Include in the site examination of all reasonably accessible ceiling and crawlspaces. Check services encountered and required.

**1.4  
EXAMINATION  
DURING TENDERING**

1. Verify limitations imposed on the Work by the presence of utilities and services. Ensure that they are not damaged.

**1.5  
PUBLIC UTILITIES  
AND SERVICES**

- 
- |  |   |
|--|---|
| <p>2. Notify service authorities to enable them to take appropriate action with regard to the affected areas. Obtain locates as required.</p> <p>3. Location of existing concealed or buried services or structure indicated in the documents has not necessarily been taken from "as-built" drawings and may be approximate only. Exercise appropriate precautions when carrying out the Work in the area of these services. Notify Consultants immediately of any discrepancies.</p> <p>4. Locate poles, pipes, conduit, wires, fill pipes, vents, regulators, meters, and sanitary service Work in inconspicuous locations. If not shown on drawings, verify location of service Work with Consultant before commencing installation.</p>   | <p><b>1.5<br/>PUBLIC UTILITIES<br/>AND SERVICES<br/>(Cont'd)</b></p>      |
| <p>1. Immediately following award of the Contract, verify all field service connections to ensure that drainage runs can meet the site service inverts.</p> <p>2. Give notification immediately of any apparent difficulties or discrepancies. No extras will be considered for rerouting drainage lines without prior review with the Consultant.</p>   | <p><b>1.6<br/>VERIFICATION<br/>OF INVERTS</b></p>                         |
| <p>1. Cooperate with other Contractors who may have separate contracts with the Owner, permit the completion of the Work as expeditiously as possible.</p> <p>2. Prior to commencement of the Work, ensure that all other Contractors understand the extent of the Work, the conditions and materials on the project, the schedule of completion, restrictions to safety, and to access. Ensure that all Sub-contractors fully understand the extent of Work involved with Other Contractors.</p>  | <p><b>1.7<br/>COORDINATION<br/>OF OTHER<br/>CONTRACTORS'<br/>WORK</b></p> |
| <p>1. Ensure that all necessary job dimensions are taken and that the Work of trades is coordinated for the proper execution of the Work. Assume complete responsibility for the accuracy and completeness for dimensions, and for coordination.</p> <p>2. Verify that all Work, as it proceeds is executed in accordance with dimensions and positions indicated. Maintain levels and clearances to adjacent Work, as set out in the drawings; assure that Work installed in error is rectified before constructions resumes.</p> <p>3. Check and verify all dimensions and the interfacing of all services. Verify with each trade all dimensions, pertaining to the Work of other trades. Be responsible for the cooperation of various trades to achieve the proper performance of the Work.</p> <p>4. Avoid scaling the drawings. Immediately inform the Consultant of ambiguity or lack of information. Assume the responsibility for non-compliance.</p> <p>5. Field measure installed Work to assure the fit of dependent details.</p> <p>6. Advise Consultant of discrepancies, omissions on drawings, such as reflected ceiling plans, jointing patterns for paving, or ceramic tile, which affect aesthetics, or which interfere with services, equipment or surfaces. <b>DO NOT PROCEED</b> without review with the Consultant.</p> <p>7. Ensure that each Sub-contractor communicates requirements for site conditions and surfaces necessary for the execution of the Sub-contractor's Work, and that he provides setting drawings, templates and all other information necessary for the location and installation of material, holes, sleeves, inserts, anchors, accessories, fastenings, connections and access panels. Inform other Sub-contractors whose Work is affected by these requirements and preparatory Work.</p> | <p><b>1.8<br/>BUILDING<br/>DIMENSIONS<br/>AND COORDINATION</b></p>        |

8. Ensure that other Sub-contractors are assisted in the execution of required preparatory Work by Sub-contractors whose own Work is dependent on this preparatory Work.
9. Prepare interference drawings to properly coordinate the Work where necessitated. Refer to Section 01340.

Do not install permanent or permanently attached labels, trademarks, and nameplates in visible locations on materials and components, unless required for operating instruction or by Jurisdictional Authorities

**1.9  
LABELS AND  
NAMEPLATES**

1. The Owner shall have the right to enter and occupy the building, in whole or in part, for the purpose of placing fittings, equipment and the like, before completion of the Contract, such entry and occupancy must not prevent or interfere with the Contractor in the performance of the Work. Such entry shall in no way be considered as an acceptance of the Work in whole, or in part, nor shall it imply acknowledgement that the terms of the Agreement are fulfilled.

**1.10  
USE OF PREMISES  
BEFORE  
SUBSTANTIAL  
PERFORMANCE**

2. Provide facilities for such access and installation.

1. Existing grades and other known conditions of site are shown on Site and Civil Plans. This survey information has been established by personnel engaged by the Owner. No responsibility is assumed by the Owner or Consultant for accuracy of this survey information.

**1.11  
LINES, LEVELS,  
BUILDING  
LOCATION AND  
EXISTING BUILDING  
SURVEY**

2. Establish all necessary lines and levels, and erect substantial batter boards and maintain their accurate position.

3. Where required, engage and pay an Ontario Land Surveyor to:

- 3.1. Lay out new building on site and establish a permanent benchmark or widely separated benchmarks, as required by building configuration.
- 3.2. Verify elevations established for each floor as construction proceeds.
- 3.3. Verify relation of building floor elevations to permanent benchmarks.
- 3.4. Correlate geodetic elevation of benchmark with the elevations in use by all public utilities adjacent to the project.
- 3.5. Verify accuracy of all site dimensions shown on Drawings.
- 3.6. Provide the Consultant a survey certificate, verifying location of building on site.
- 3.7. Provide the Consultant a survey certificate, verifying location of all footings relative to property lines, before construction proceeds on the footings.

4. At Substantial Performance take field elevations with respect to final grading and certify that the building constructed, and lot grading is in conformity with the registered site plan agreement and sign off on the site plan in accordance with the requirements of the Municipality.

Fabricate and install the Work of all Sections in accordance with the best practice by craftsmen skilled in the Work of the respective Section. Unless otherwise specified, the manufacturer's latest printed instructions shall be rigidly complied with in the methods and materials to be used in the installation of the Work. Notify the Consultant in writing if these Specifications and/or drawings conflict in any way with manufacturer's instructions. The Consultant will then rule which specifications shall be followed. If applicable, a copy of those instructions shall be made available at job site.

**1.12  
WORKMANSHIP**

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| <p>1. <b>Minimum Standard:</b> unless reference is made in the Contract Documents to other standards, all work shall conform to or exceed the minimum applicable standards of the Ontario Building Code, (latest edition), and/or the governing Jurisdictional Authorities.</p> <p>2. <b>Construction Safety:</b> include all provision for construction safety, such as fences, barricades, bracing supports, storage facilities, sanitation facilities, fire protection, standpipes, electrical supply, temporary heat, steam supply, ventilation, construction equipment with its supports and guards, stairs, ramps, platforms, runways, ladders, scaffolds, guardrails, temporary flooring, rubbish chutes, walkway lighting, and morality lighting, all as required by the Occupational Health and Safety Act (latest edition), and amendments thereto and the Fire Code (latest edition), as well as all other applicable regulations of Jurisdictional Authorities.</p> <p>1. Make good defects in the Work on which further execution of work depends.</p> <p>2. Verify dimensions of prepared work before fabrication of that work which is dependent on the prepared work.</p> <p>3. Do not proceed with the execution of the work unless the work which is to receive it and site conditions are satisfactory. Commencement of all work of all sections shall imply that prepared work and site conditions are satisfactory.</p> <p>Where reference is made to published standards and codes, such references shall be considered to refer to the latest edition (revision) approved by the organization issuing that publication, which is current at the date of this specification.</p> <p>Record exact location of all services with dimensions to the Grid Lines and Datum lines, and show on Record Drawings <b>prior</b> to placing concrete. <b>DO NOT</b> place concrete until this is done. Coordinate Mechanical, Electrical, and concrete trades.</p> <p>Assess requirements for sleeving the structural elements for passing of pipes, conduits and other mechanical or electrical components, and include all work required for approved interfacing between the structure, all mechanical and electrical work, and other components of the work.</p> <p>Include work required to modify indicated location of pipes, ducts, conduits, and other mechanical or electrical components to fully conceal components from view in finished spaces.</p> <p>Enforce all requirements established by jurisdictional authorities and underwriters for life safety, fire prevention, and fire protection.</p> <p>Where drawings or specifications indicate an existing material reused, this will imply that the available quantity of that salvaged material may be reused. It does not imply that there is necessarily enough to perform the entire operation. The Contractor will determine available quantity and reuse those portions in good condition, augmenting it with whatever quantity of new and matching material as may be required. Contractor is to pay all costs.</p> <p>1. All patching and making good generated by the Work of this contract shall be done and paid for by the trade dealing in the particular material to be patched.</p> | <p><b>1.13<br/>REGULATORY<br/>REQUIREMENTS</b></p> <p><b>1.14<br/>EXAMINATION<br/>BEFORE<br/>EXECUTION OF<br/>WORK</b></p> <p><b>1.15<br/>SPECIFICATION<br/>REFERENCE TO<br/>STANDARDS AND<br/>CODES</b></p> <p><b>1.16<br/>LOCATION OF<br/>SERVICES</b></p> <p><b>1.17<br/>SLEEVING</b></p> <p><b>1.18<br/>CONCEALING<br/>MECHANICAL AND<br/>ELECTRICAL<br/>COMPONENTS</b></p> <p><b>1.19<br/>LIFE AND FIRE<br/>SAFETY</b></p> <p><b>1.20<br/>"REUSE<br/>EXISTING"</b></p> <p><b>1.21<br/>PATCHING AND<br/>"MAKING GOOD"</b></p> |
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2. Wherever existing openings are indicated as filled in, new openings cut into existing walls, existing items removed, or any form of alteration to an existing surface or material indicated, the term "make good" shall be deemed to apply whether specifically noted or not. **1.21  
PATCHING AND  
"MAKING GOOD"  
(Cont'd)**
3. Where the term "make good" is used or implied on the drawings or in these specifications to refer to repairing or filling operations performed on existing floors, walls, ceilings, or any other exposed surfaces, it is intended that the finished surfaces shall match and align with the existing adjoining surfaces. For continuous surfaces refinish to nearest intersection.
4. Unless the entire room, in which the patching operations are performed is scheduled to be repainted, the painter shall paint only the specific area of the patch and existing disturbed areas.
1. Ensure that positive drainage is provided to roof, floor, and site drains and catch basins, as set in their final positions, and at all other locations to prevent water infiltration into the buildings. Provide constant slopes for drained surfaces to drains and drainage courses. **1.22  
DRAINAGE**
2. If water is found to be ponding on roof areas due to incorrectly located drains, install additional drains to alleviate water ponding. If extra drains are required coordinate the location of rainwater leaders with Consultant.
- Install materials supplied by Owner where called for in the technical sections of the specifications. Coordinate shipping and delivery with Owner. Provide protected storage on site. Do all work required to complete installation, in accordance with manufacturer's directions. **1.23  
MATERIALS  
SUPPLIED BY  
OWNER**
1. The Owner will retain possession of the following salvaged materials: Refer to Architectural Drawings for items to be salvaged. **1.24  
SALVAGED  
MATERIAL**
2. Remove all items as part of the Work and file on site where directed by the Owner, or remove from site.
3. Mechanical, electrical services and/or items scheduled for demolition or removal shall be terminated, disconnected and/or removed by Divisions 23 and 26.
1. Unless specifically indicated or specified, work indicated outside the property lines is to be included in the Contract. Perform all work such as, but not, restricted to landscaping, asphalt, concrete, and mechanical and electrical services in accordance with specifications and details issued by the applicable Municipality. **1.25  
WORK SHOWN OR  
SPECIFIED OUTSIDE  
PROPERTY LINES**
2. Include connections to all municipal and public service lines, and modifications to sidewalks and roadways where so required to provide access to the project site, unless shown otherwise on the drawings.
3. Where work is required to be done by the Municipality, include cost in the Contract.
1. Maintain at job site, one copy of each of the following and make same available to the Consultant upon request: **1.26  
DOCUMENTS ON  
JOBSITE**
- 1.1. Contract drawings
  - 1.2. Specifications
  - 1.3. Addenda
  - 1.4. Reviewed Shop drawings
  - 1.5. Change Orders

- |  |                     |
|--|---------------------|
| 1.6. Other modifications to Contract   | 1.26                |
| 1.7. Field Test Reports  | <b>DOCUMENTS ON</b> |
| 1.8. Building Permit Drawings  | <b>JOBSITE</b>      |
| 1.9. Copy of approved work schedule  | <b>(Cont'd)</b>     |
| 1.10. Manufacturer's installation and application instructions                       |                     |
| 1.11. Ontario Building Code and Guide to the Ontario Building Code, latest editions. |                     |

Note that this project is under site plan agreement with the City of Brantford and as such is subject to extra City Inspection of services and parking areas. Ascertain and carry the City's charges for those special inspections. The Contractor will arrange for an Ontario Land Surveyor's Final Certificate of Compliance, the charges to be paid by the Owner. Owners will post the necessary bond for the site plan agreement.

1.27  
**SITE PLAN  
AGREEMENT**

Smoking will not be permitted anywhere in the building. Any smoking shall take place outside the limits of the property.

1.28  
**SMOKING  
RESTRICTIONS**

Not Used

**PART 2 - PRODUCTS**

Not Used

**PART 3 - EXECUTION**

**END OF SECTION**

This Section describes requirements applicable to all Sections within all Divisions.

**1.1**  
**RELATED**  
**DOCUMENTS**

Refer to and acknowledge other words, terms, and definitions in CCDC 2 - 2020 Definitions.

**1.2**  
**WORDS**  
**AND TERMS**

1. Drawings, specifications, and schedules are complementary each to the other, what is called for by one to be binding as if called by all. Should any discrepancy appear between documents, which leave doubt as to the intent or meaning, abide by Precedence of Documents article below or obtain direction from the Consultant.
2. Drawings indicate general location and route of conduit and wire/conductors. Install conduit or wiring/conductors and plumbing piping not shown or indicated diagrammatically in schematic or riser diagrams to provide an operational assembly or system.
3. Install components to physically conserve headroom, to minimize furring spaces, or obstructions.
4. Locate devices with primary regard for convenience of operation and usage.
5. Examine all discipline drawings, specifications, and schedules and related Work to ensure that Work can be satisfactorily executed. Conflicts or additional work beyond work described to be brought to attention of Consultant.

**1.3**  
**COMPLEMENTARY**  
**DOCUMENTS**

The Work of this Contract comprises of a Daycare addition at École élémentaire Sainte-Marguerite-Bourgeois, located at 60 Clench Avenue, Brantford, ON.

**1.4**  
**WORK COVERED**  
**BY CONTRACT**  
**DOCUMENTS**

Construct all the Work under single lump-sum contract.

**1.5**  
**CONTRACT**  
**METHOD**

1. The building will be occupied. Refer also to appendices.
  - 1.1. Base bid: Include for phasing of work:
    - 1.1.1. Phase 1: Award of Contract – June 1, 2025
      - Install fencing to enclose the established area of work.
      - Install temporary ground and second floor exits to provide safe student exit from the building.
      - Construct the new classroom and stair addition.
    - 1.1.2. Phase 2: June 1, 2025 -
      - Begin exterior work - installation new asphalt paving and civil work south of the existing school. Include for temporary fencing to isolate the work area.
    - 1.1.3. Phase 3: June 30 – August 22, 2025
      - Remove the temporary fencing
      - Complete interior connection of Stair 136 to existing building and making good at existing corridor 126A
      - Complete exterior work including asphalt paving and civil work south of the existing school.
  - 1.2. Refer also to Drawing A1.1 for fencing schedule.

**1.6**  
**WORK**  
**SEQUENCE**

2. A Daycare addition is to be located at the south wing of the building. In general, it includes rooms 135, 136, 236, and adjacent ancillary spaces.
  - 2.1. The existing Daycare centre will be operating throughout the period of construction unless notified otherwise by the Owner.
  - 2.2. Perform the work in this area **and shut down of utility services** within times scheduled by the Owner or after 6:00pm or weekends.
3. Coordinate with the Owner all construction activities, including disruption of utility services prior to commencing such activities and disruptions.
4. Preparation of Construction Schedule must address sequencing as stated in this paragraph.

**1.7  
CONTRACTOR'S  
USE OF PREMISES**

1. Before commencement of the Work, the Owner, Contractor and Consultant will agree on a mutually satisfactory access to the site and acceptable locations for the construction office, trailers, material storage area, toilet accommodation and the like.
2. Confine access and construction operations to this agreed area and restore to its original condition following completion of the Work.
3. Owner's existing parking lots and roadways may be used for parking construction Workers' vehicles, but only as directed by the Owner.

**1.8  
OWNER  
REQUIREMENTS**

1. Construction employees shall not use any facilities within existing buildings, unless they are instructed to do so as part of construction of alteration Work or unless otherwise indicated within the Contract Documents.
2. At no time shall any of the Work or operations preceding any Work interfere with the Owner's day-to-day activities, unless approved by the Owner.
3. Service of electrical power, light, heat, water, gas, telephone, etc., must be maintained, except temporary shut-downs may be made after arrangements have been made with the Owner. Note that some temporary service shut-downs may require scheduling of Work outside of normal working hours at Owner's cost, but with Owner's prior approval.

Time is of the essence of this Contract.

**1.9  
TIME OF THE  
ESSENCE**

Not Used

**PART 2 - PRODUCTS**

Not Used

**PART 3 - EXECUTION**

**END OF SECTION**

<u>References:</u>	<u>PART 1 - GENERAL</u>	1.1 RELATED SECTIONS
1. Canadian Construction Documents Committee (CCDC)		
1.1. CCDC2-2020 Stipulated Price Contract		
2. Supplementary conditions. Section 00 80 00		
1. <b><u>Cash Allowances:</u></b> Refer to CCDC 2 GC 4.1		1.2 ALLOWANCES
1.1. Include in the Contract Price, cash allowances stated within the Tender Documents.		
1.2. Cash allowances, unless otherwise specified, cover the net cost to the Contractor, Sub-Contractor, of services, products, construction machinery and equipment, freight, handling, unloading, storage, installation, and other authorized expenses incurred in performing the Work.		
1.3. The Contract Price, and not the cash allowance, includes the Contractor's overhead and profit in connection with such cash allowance.		
1.4. Where costs under a cash allowance exceed the amount of the allowance, unexpended amounts from other cash allowances shall be reallocated at the Consultant's direction to cover the shortfall.		
1.5. Progress payments on accounts of work authorized under cash allowances will be included in the Consultant's monthly certificate for payment.		
2. The Cash Allowance amount of Seventy Thousand Dollars (\$70,000) is to be used for Work specified:		
2.1. <u>Firestopping</u> : To repair openings in existing rated walls which are in general concealed above suspended ceilings.		
2.2. <u>Testing and Inspections (Inc. But Not Limited To: Soil, Concrete, Roofing, Mortar, Structural Steel)</u> : as an inspection fund to cover the cost of the following inspections by outside Consultants at the direction of the Consultant:		
2.2.1. Soils Inspection and Compaction		
2.2.2. Re-bar placement		
2.2.3. Concrete Testing		
2.2.4. Structural Steel, Shop and Field Inspection		
2.2.5. Masonry Mortar and Grout		
2.2.6. Roofing and Metal Work		
2.2.7. Fire-proofing		
2.2.8. Membrane waterproofing		
2.2.9. Designated hazardous substance removal		
2.2.10. Cavity wall vapour barrier and insulation		
2.3. <u>Communications</u> : for the following:		
2.3.1. PA, Data and Voice system extension. Supply and installation by:		
2.3.2. CCTV System Equipment		
2.3.3. Telephone System		
2.4. Exterior and Interior Signage		

2.5. Air and Water Balancing

2.6. Security System Installation and Wiring: for supply and installation by:

***Fire Monitoring of Canada Inc.***

Contact: Kevin Jarrett

Client Services Representative

235 Martindale Rd., St. Catharines ON L2W 1A5

T: 905-688-0600

C: 289-668-0291

Email: kjarrett@fire-monitoring.com

2.7. Keying

2.8. Landscaping: material only

2.9. Fire Safety Plan

2.10. Work Related to Unforeseen Municipal Requirements

Not Used

**PART 2 - PRODUCTS**

Not Used

**PART 3 - EXECUTION**

**END OF SECTION**

**PART 1 – GENERAL**

**1.1  
FIELD OFFICES AND  
SHEDS**

1. **Construction Office/Trailer:**

- 1.1. Provide and maintain in clean condition during progress of the Work. Adequately lighted heated and ventilated Contractor's office with space for filing and layout of contract documents.
- 1.2. Keep one bound set of drawings and specifications, change orders, colour schedule, construction schedule, shop drawings, meeting diaries, and hardware lists in the office at all times.
- 1.3. Sub-contractors may provide their own offices as necessary.
- 1.4. Provide adequate first aid facilities.

2. **Storage Sheds:**

- 2.1. Provide secure, weather tight sheds for storing materials requiring protection.
- 2.2. Raise floors a minimum of 300mm above grade.
- 2.3. Include lighting in all sheds and heat in those sheds containing materials requiring heated storage.

1. Provide telephone, WiFi and laptop plus printer.

2. Maintain throughout the course of the Work.

3. Fit the telephone with a suitable answering system during construction hours.

**1.2  
COMMUNICATION**

1. **Existing Services:**

- 1.1. Take appropriate precautions when working near existing above and below ground services.
- 1.2. Notify the various utilities and arrange for proper stakeouts.
- 1.3. Making good damage of any nature to utilities shall be the responsibility of the Contractor.

**1.3  
UTILITIES**

2. **Temporary Heat:**

- 2.1. Provide temporary heating required during the construction period, including attendance, maintenance and fuel.
- 2.2. Vent to exterior all construction heaters used inside building or enclosures or use flameless type. Solid fuel salamanders are not permitted.
- 2.3. Maintain temperatures of minimum 12°C (55°F) degrees in areas where construction is in progress, unless indicated otherwise in specifications.
- 2.4. Ventilate heated areas, keep building free of exhaust or combustion gases.
- 2.5. Permanent heating system of building, or portions thereof, may be used when available. Be responsible for damage thereto.

- 2.6. On completion of Work for which permanent heating system is used, replace filters. Clean air handling equipment, ducts and air chambers. **1.3 UTILITIES**
- 2.7. Date of Substantial Performance and Warranties for heating system do not commence until the entire system is in as near original condition as possible and is so certified by Consultant.
- 2.8. Pay costs for maintaining temporary heat when using permanent heating system.
- 2.9. Be responsible for damage to Work due to failure in providing adequate heat and protection during construction.
- 2.10. Ensure that the building is tight when heating system is used for temporary heating. Failure to do this will leave the Contractor liable to share the cost of the fuel.

3. **Ventilation:**

- 3.1. Provide adequate ventilation to meet health regulations for safe working environment.
- 3.2. Prevent accumulations of dust, fumes, mists, vapours or gases in areas occupied during construction.
- 3.3. Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas.
- 3.4. Dispose of exhaust materials in manner that will not result in harmful exposure to persons.
- 3.5. Ventilate storage spaces containing hazardous or volatile materials.
- 3.6. Ventilate temporary sanitary facilities.
- 3.7. Continue operation of ventilation and exhaust system for time after cessation of work process to assure removal of harmful contaminants.

4. **Water:**

- 4.1. Provide a continuous supply of potable water for construction use. Arrange for connection with appropriate utility.
- 4.2. Make a connection to the Owner's existing water supply and run all temporary lines required. Owner will pay.
- 4.2.1.1. Maintain all connections in serviceable condition.
- 4.2.1.2. Promptly repair or replace defective couplings.

5. **Power and Light:**

- 5.1. Provide and pay for temporary power during construction for temporary lighting and operating of power tools.
- 5.2. Power supply to be adequate to operate all sub-trades' equipment. Bring temporary power to within 50'-0" (15 M) of Sub-contractor's equipment.



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6. **Sanitary Facilities:** **1.3  
UTILITIES**
- 6.1. Provide sufficient sanitary facilities for workers in accordance with local Health Regulations.
1. **Weather Enclosures:** **1.4  
BUILDING  
ENCLOSURE**
- 1.1. Provide weather tight closures to unfinished door and window openings, tops of shafts and other openings in floors and roofs.
- 1.2. Supply temporary doors at all appropriate openings complete with hinges, locks and hasps to protect the Work from theft and weather.
- 1.3. Close off floor areas where walls are not finished; seal off other openings; enclose building interior Work area for temporary heat.
2. **Dust Tight Screens:**
- 2.1. Provide dust-tight partitions and screens to localize dust-generating activities and for the protection of workers, finished areas of Work and the public.
- 2.2. Fabricate partitions using .92mm x .55mm studs @ 410mm with .62mm Type "X" drywall on both sides. Include doors where necessary. Insulate partitions between heated and unheated areas or where sound control is required.
- 2.3. Maintain and relocate protection until such Work is complete.
3. **Protection of Building Finishes and Equipment:**
- 3.1. Provide protection for finished and partially finished building finishes and equipment during performance of Work.
- 3.2. Be responsible for damage incurred due to lack of or improper protection.
- 3.3. Provide and pay for responsible security of site and contents of site after working hours and during holidays.
1. **Construction Near Trees:** **1.5  
BARRIERS AND  
PROTECTION**
- 1.1. Where not otherwise noted:
- 1.1.1. Take adequate precautions to protect all trees on the work site from damage.
- 1.1.2. Do not store materials or place equipment over root system.
- 1.1.3. Install protective fencing under the limits of the tree crowns or if this is not practical protect trunks with purpose made tree guards.
2. **Roofing Protection:**
- 2.1. Maintain adequate protection on new and/or existing roofing adjacent to all on-going construction work
- 2.2. Provide protection of sufficient thickness to prevent damage to water-proofing qualities of the membrane – secure protection positively.

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- |   |  |
|---|--|
| <ol style="list-style-type: none"><li>1. Prevent nuisance to adjacent properties near the works from dust raising and mud deposits, by taking appropriate anti-dust and mud measures, at such times as found necessary, and as directed by the Consultant, or at any other times complaints of dust or mud are received from the public by either the Contractor, the Consultant, or the Municipality.</li><li>2. Keep walkways free of snow and ice, both on and adjacent to site. Replace grass and landscaping damaged by use of rock salt.</li><li>3. Remove mud deposits from all pavement.</li></ol>  | <p><b>1.6<br/>DUST NUISANCE,<br/>MUD, SNOW AND ICE<br/>REMOVAL</b></p> |
| <ol style="list-style-type: none"><li>1. <b><u>Roads and Walks:</u></b><ol style="list-style-type: none"><li>1.1. Only use the haul roads allowed in the Contract for access to the Work site.</li><li>1.2. Include all temporary roads and walks required for construction purposes. Remove them when no longer required, or at project completion. Completely restore all surfaces disturbed by temporary roads and walks.</li><li>1.3. The granular base to receive permanent pavements may be used for temporary roads. Re-grade and re-compact base before installation of finished surfaces.</li><li>1.4. Provide adequate temporary crossings over water mains, sewers, heating lines, telephone and electrical conduits, and any other buried services.</li><li>1.5. Include temporary culverts and ditches to provide adequate site drainage within the site, and to maintain existing drainage without the site.</li><li>1.6. Provide for access of emergency vehicles to premises at all times.</li></ol></li><li>2. <b><u>Drainage Ditches and Storm/Sanitary Sewers:</u></b><ol style="list-style-type: none"><li>2.1. Maintain the flow, at all times, during construction of any and all ditches, drainage channels and/or storm/sanitary sewer systems.</li><li>2.2. Make allowance for any conditions, which may be encountered as a result of ditch or storm/sanitary flows diver or pump as may be required.</li></ol></li></ol> | <p><b>1.7<br/>CONSTRUCTION<br/>AIDS</b></p>                            |
| <ol style="list-style-type: none"><li>1. Erect signs provided by Owner and Consultant within three (3) weeks of signing contract, in a location designated by the Consultant.</li><li>2. Maintain sign in clean condition.</li><li>3. No other signs or advertisements, other than warning signs are permitted on site.</li><li>4. Obtain and pay for Permit for project sign.</li></ol>  | <p><b>1.8<br/>PROJECT<br/>SIGN</b></p>                                 |
| <ol style="list-style-type: none"><li>1. <b><u>Temporary Closures:</u></b><ol style="list-style-type: none"><li>1.1. Provide all necessary temporary closures, hoardings, fences, gates, guardrails, hoists, stairs, ladders, scaffolding, staffing, runways, night lights, and barriers as necessary for the work and for the safety of all persons (workers and non-workers alike) onsite.</li></ol></li></ol>  | <p><b>1.9<br/>SAFEGUARDS</b></p>                                       |

- 1.2. Conform to all such requirements of the Labour Laws and other Provincial or local labour safety laws, applicable thereto.
- 1.3. Be responsible for all scaffolding, formwork, or other temporary supports used during the work. Support all scaffolding independently of the building's finished surfaces. Include covered walkways at protected exits.
- 1.4. Use temporary fire standpipes and hose, or other approved fire extinguishing equipment in the building(s) until the permanent fire protection system in the building(s) is available.
- 1.5. Should work be stopped for any cause, provide protection for the work and all necessary temporary cold weather heating during all such periods of work stoppages.
- 1.6. Keep all portions of the work properly and efficiently drained during construction and until completion.

2. **Fire Safety:**

- 2.1. Provide fire prevention and protection measures to existing building as required by all authorities having jurisdiction.
- 2.2. Maintain exits, including stairways and exterior doors to the outside. Provide acceptable alternative exits where an existing exit is blocked off or deleted due to construction activities.
- 2.3. Where access to an exit through construction area is absolutely necessary, clearly define, protect and separate access from the construction area by a smoke tight fire separation equivalent to minimum ¾ hr fire resistance rating.
- 2.4. Reactivate all deactivated Life Safety systems at the end of each day.

Parking will be permitted on site provided it does not disrupt the performance of work and Owners operations.

**1.10  
CONSTRUCTION  
PARKING**

1. When no longer required remove completely from site.
2. Make good any damaged or disturbed areas or surfaces i.e. sod, paving, or walks

**1.11  
REMOVAL OF  
TEMPORARY  
FACILITIES**

Where temporary hoarding is installed for safety reasons or material storage, mow the existing grass as required during the grass growing seasons.

**REMINDER:  
FENCED GRASS  
AREAS**

NOT USED.

**PART 2 - PRODUCTS**

NOT USED.

**PART 3 - EXECUTION**

**END OF SECTION**

**PART 1 - GENERAL**

Comply with requirements of Division 1 and supplementary conditions.

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|---|--|
| 1. Perform demolition Work in accordance with requirements of the Occupational Health and Safety Act Ont. Reg. 213/91.  | <b>1.1<br/>REQUIREMENTS<br/>OF REGULATORY<br/>AGENCIES</b> |
| 2. Ministry of the Environmental and Energy "Waste Audits and Waste Reduction Work Plans O.R. 102/94".  |  |
| 3. Asbestos on construction projects - OHSA Ont. Reg. 838/90 as amended by 510/92 and pipe duct insulation Ont. Reg 837/90 as amended by 385/00.  |  |
| 1. Protect existing surfaces.   | <b>1.2<br/>PROTECTION</b>                                  |
| 2. Provide for complete and safe access at all times to areas and building adjacent to demolition Work.   |  |
| 1. Asbestos is not anticipated within work areas as it was constructed in 2012. If asbestos is encountered, notify Consultant immediately. See report provided by Conseil scolaire Catholique MonAvenir for more details. | <b>1.3<br/>EXISTING<br/>CONDITIONS</b>                     |
| 2. Remove, protect and store salvaged items as directed by the Consultant.  |  |

Not Applicable.

**PART 2 - PRODUCTS**

**PART 3 - EXECUTION**

- |  |                                |
|--|--------------------------------|
| Disconnect and cap mechanical services.  | <b>3.1<br/>PREPARATION</b>     |
| Do demolition Work in accordance with the Occupational Health and Safety Act.  | <b>3.2<br/>SAFETY<br/>CODE</b> |
| 1. Remove existing equipment, services and obstacles where required for refinishing or making good of existing surfaces and replace as Work progresses.  | <b>3.3<br/>DEMOLITON</b>       |
| 2. Cut all floor slabs, concrete and terrazzo for new under floor services with a carborundum tipped saw blade.  |                                |
| 3. At end of each day's Work, leave Work in safe and stable condition. Protect interiors of parts not to be demolished from exterior elements at all times.  |                                |
| 4. Remove and dispose of demolished materials from site except where noted otherwise and in accordance with authorities having jurisdiction. Submit weigh bills from disposal site when requested. |                                |
| 5. Perform the Work with a competent foreman present at all times.   |                                |
| 6. Remove flammable and contaminated materials and refuse from building before demolition commences.   |                                |
| 7. Confine Work only to the area where demolition is required.   |                                |

**END OF SECTION**

**PART 1 - GENERAL**

Comply with requirements of Division 1 and Supplementary Conditions

Sewerage and Drainage	Section 02 60 00	<b>1.1 RELATED WORK</b>
Asphalt Paving	Section 02 74 20	
Concrete Walks and Curbs	Section 02 77 00	
Sodding	Section 02 93 20	
1. ASTM D698-91, Test Method for Laboratory Compaction Characteristics of Soil using standard effort (12,400 ft-lbf/ft <sup>3</sup> ) (600 kn-m/m <sup>3</sup> ).		<b>1.2 REFERENCES</b>
2. CAN/CSA-A23.1, Concrete Materials and Methods of Concrete Construction		
1. Soil investigation of the existing site was carried out for the Owner for guidance in design and construction. A report and bore hole log on this investigation were prepared and copies are included in the bid documents.		<b>1.3 SOIL REPORT</b>
2. Unless specified or detailed otherwise the work of this Contract includes the Earthwork recommendations identified or reasonably inferred from the soil report. No responsibility is assumed by the Owner or Consultant for the scope or accuracy of the soil investigation report or the Contractor's interpretation of the soil report.		
3. The Contractor shall include for Earthwork which is identified in the soils report or is reasonably inferred from the soils report.		
1. Shore and brace excavations, protect slopes and banks and perform all Work in accordance with Provincial and Municipal regulations whichever is more stringent.		<b>1.4 REGULATIONS</b>
2. Comply with Explosives Act of Canada R.S., C.E-15, S.1. Perform blasting in accordance with Provincial and Municipal regulations. Repair damage to approval of Consultant. No blasting will be permitted within 3 m of any building and where damage would result		
1. Testing of materials and compaction of backfill and fill, unshrinkable fill will be carried out by testing laboratory designated by Consultant.		<b>1.5 TESTS AND INSPECTIONS</b>
2. Not later than one week before backfilling or filling, provide to designated testing agency, 23 kg. sample of backfill for fill, unshrinkable fill, material proposed for use.		
3. Do not begin backfilling or filling operations until material has been approved for use by Consultant.		
4. Not later than 48 hours before backfilling or filling with approved material, notify Consultant so that compaction tests can be carried out by designated testing agency.		
5. Before commencing Work, conduct, with Consultant, condition survey of existing structures, trees and other plants, lawns, fencing, service poles, wires, rail tracks and paving, survey bench marks and monuments which may be affected by Work.		
1. Before commencing Work establish the location of all buried services on and adjacent to the site.		<b>1.6 BURIED UTILITIES</b>
2. Arrange with appropriate authority for relocation or removal of buried utilities that interfere with execution of Work. Pay costs of relocating services.		

3. Remove obsolete buried utilities within 2 m of foundations. Cap cut-offs.
1. Protect excavations from freezing.
2. Keep excavations clean, free of standing water, and loose soil.
3. Where soil is subject to significant volume change due to change in moisture content, cover and protect to Consultant's approval. Review Geotechnical Report.
4. Protect natural and man-made features required to remain undisturbed. Unless otherwise indicated or located in an area to be occupied by new construction, protect existing trees from damage.
5. Protect buried utilities that are required to remain undisturbed.
6. Accurately record actual locations of utilities, which remain, by horizontal dimensions, elevations or inverts, and gradient's slope.
7. Do not disturb soil within branch spread of trees or shrubs that are to remain. If excavating through roots, excavate by hand and cut roots with sharp ax or saw.
8. Ensure that adjacent property is not damaged in any way by any excavation or grading work.

**1.7  
PROTECTION**

**PART 2 - PRODUCTS**

**2.1  
MATERIALS**

1. **Fill 'A'**: Either clear, crushed, quarried limestone ( $\frac{3}{4}$ " [19 mm] maximum) or clear, screened stone, or gravel ( $\frac{3}{4}$ " [19 mm] down to  $\frac{1}{4}$ " [6 mm]): to MTO material specifications for aggregates, OPSS 1010 - minimum compaction density: 100% standard proctor.
2. **Fill 'B'**: Imported, granular, non-organic fill or pit run sand and gravel or, crushed limestone to: to MTO material specifications for aggregates, OPSS 1010 - minimum compaction density: 100% standard proctor.
3. **Fill 'C'**: Free-draining excavated material, that is, clean and completely free of debris, boulders, roots, and the like may be used where specified if it is broken into lumps not larger than  $2\frac{1}{2}$ " (63 mm) either before or after placing. See Geotechnical Investigation Report for stock piling recommendations.
4. **All Material**: free from clay lumps, cementation organic frozen and deleterious material.
  - 4.1. Gradation: to ASTM C136 and ASTM C117
  - 4.2. Sieve Sizes: to CAN/CGSB-81
5. **Unshrinkable Fill**: proportioned and mixed to provide:
  - 5.1. Minimum compressive strength of 0.4 MPA at 28 days.
  - 5.2. Minimum Portland cement content of 25 kg/m<sup>3</sup>;
  - 5.3. Minimum strength of 0.07, MPA at 24 H.
  - 5.4. Concrete aggregates: to CAN/CSA-A23.1.
  - 5.5. Portland cement, type 10.

5.6. Slump: 160 to 200 mm

### **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:
  - 1.1. Methods and means available for material handling, disposal, storage and transportation.
  - 1.2. Physical conditions of site, including ground water table and drainage courses.
  - 1.3. Conformation and condition of ground surfaces.
  - 1.4. Character, quality, and quantity of surface materials.
2. Do not disturb benchmarks, stakes and other survey reference points. If accidentally displaced employ a certified Ontario Land surveyor for their reinstatement.

#### **3.2 EXCAVATION**

1. Strip topsoil over areas to be covered by new construction, over areas where grade changes are required, and so that excavated material may be stockpiled without covering topsoil. Stockpile topsoil on site for later use.
2. Excavate to lines, grades, elevations and dimensions as shown. Do not disturb soil or rock below bearing surfaces. Notify Consultant when excavations are complete. If bearings are unsatisfactory, additional excavation will be authorized in writing and paid for as additional Work. Excavation taken below depths shown without Consultant's written authorization to be filled with concrete of same strength as for footings at Contractor's expense.
3. Excavate trenches to provide uniform continuous bearing and support for 150 mm thickness of pipe bedding material on solid and undisturbed ground. Trench widths below point 150 mm above pipe not to exceed diameter of pipe plus 600 mm.
4. Do not excavate more than 30m of trench in advance of installation operations. Do not leave open more than 15m at end of day's operation.
5. Excavate for slabs and paving to sub-grade levels. In addition, remove all topsoil, organic matter, debris and other loose and harmful matter encountered at sub-grade level.
6. Hand trim, make firm and remove loose material and debris from excavations. Where material at bottom of excavation is disturbed, compact foundation soil to density at least equal to undisturbed soil. Clean out rock seams and fill with concrete mortar or grout to approval of Consultant.

#### **3.3 DEWATERING**

1. Keep excavations free of water while work is in progress.
2. Protect open excavations against flooding and damage due to surface run-off.
3. Dispose of water in a manner not detrimental to public and private property, or any portion of work completed or under construction.
4. Submit for Owner/Consultant's review details or proposed dewatering methods, such as dikes or well points.

1. **Examination:** do not commence backfilling until fill material and spaces scheduled for backfill have been reviewed by Consultant
2. Remove snow, ice, construction debris, organic soil and standing water from spaces scheduled to be backfilled.
3. **Lateral Support:** maintain even levels of backfill around structures as Work progresses, to equalize earth pressures.
4. **Placing:**
  - 4.1. Place backfill, fill and base course material in 200mm (8") lifts. Add water as required to achieve specified density.
  - 4.2. Place unshrinkable fill in areas as indicated. Consolidate and level unshrinkable fill with internal vibrators.
5. **Compaction of Sub-grade:** compact existing sub-grade under walks, paving, and slabs on grade, to same compaction as specified for fill. Fill excavated areas with selected sub-grade material, gravel and sand compacted as specified for fill.
6. **Compaction:** Compact each layer of material to the following proctor densities for each material:
  - 6.1. To underside of base course 95%.
  - 6.2. Base courses: 100%
  - 6.3. Elsewhere 90%
7. **Under Slabs on Grade and Paving:**
  - 7.1. Use type B up to the underside of the base course.
  - 7.2. Use type A for base course.
  - 7.3. Proof-roll existing sub-grade prior to commencing buildup of grade.
  - 7.4. Compact using double roller vibratory compactors, or vibratory plate compactors on smaller areas.
8. **Interior Trenches and Interior and Exterior Faces of All Foundation Walls and Free-Standing Piers:**
  - 8.1. As for under slabs and paving.
  - 8.2. Use Rainnier or Jumping Jack type of compactor
9. **Excavation, Bedding and Backfill for Underground Services:**
  - 9.1. Execute the work in connection with installation of underground services interior and exterior to the building in accordance with the applicable parts of this Article, the Geotechnical Report and Site Servicing Plans whether or not the work is done under this or other sections.
  - 9.2. Trench excavation: limit to dimensions shown on "Bedding Diagram" shown on 'D' Sheet. Minimum trench width – 600mm.

**3.4  
BACKFILLING**



- 9.3. Bottom of trenches to be undisturbed soil and level.
- 9.4. Class "B" bedding: Provide a layer of granular bedding material. Extend bedding up sides pipes to provide positive support.
- 9.5. Backfill around sides and over pipes with the same granular bedding material as shown on diagrams. Provide 300mm cover over piping crowns.
- 9.6. After installation of pipes and compaction of backfill surrounding them to a depth of 300mm over their crowns. Place backfill in the full width of trenches as follows:
- 9.6.1. In all trenches within the building and exterior to the building under paved areas with Fill 'B' for the depth of the trench from the top of bedding material.
- 9.6.2. In all trenches exterior to the building not under paved areas, and which are not specified otherwise, with Fill 'C' for the full depth of trench from the top of bedding material to the subgrade level.
- 9.6.3. Place and compact sand fill between top electrical conduit concrete encasements and underside of slabs.
- 9.7. Backfill the width of trench areas between pipe crossings with fine granular material consisting of sand or gravel with no particle larger than 12mm diameter.
- 9.8. Place all backfilling in pipe trenches in layers of 150mm maximum.
- 9.9. Simultaneously compact backfilling at sides of pipes.
- 9.10. Compaction requirements are specified in this Section under "Materials".
10. **Under Sodded Areas:** Use excavated material type III to the underside of top soil except in trenches and within 600 mm (2'-0") of foundations.
- Grade so that water will drain away from buildings, walls and paved areas, to catch basins and other disposal areas approved by the Consultant. Grade to be gradual between finished spot elevations shown on drawings
1. **Spreading:**
- 1.1. Grade sub-grade, eliminating uneven areas and low spots, ensuring positive drainage. Remove debris, roots, branches, stones in excess of 50 mm diameter and other deleterious materials. Remove topsoil that has been contaminated with oil, gasoline, or calcium chloride. Dispose of removed materials as directed.
- 1.2. Cultivate the entire area, which is to receive topsoil to depth of 100 mm. Repeat cultivation in those areas where equipment used for hauling and spreading had compacted sub-grade.
- 1.3. Spread topsoil in dry weather over a dry, unfrozen sub-grade. Do not perform operations during heavy rain conditions.

**3.4  
BACKFILLING  
(Cont'd)**

**3.6  
GRADING**

**3.7  
TOPSOIL**

2. **Finish Grading:**

- 2.1. Fine grade the topsoil surface to eliminate rough and low areas and so as to ensure positive surface drainage.
- 2.2. Fine grade surface of topsoil to a smooth, even, loose-textured surface suitable for sodding and/or seeding.
- 2.3. Roll topsoil with 59Kg roller, minimum 900 mm wide, to compact and retain surface.
- 2.4. Maintain compaction of 85% Standard Proctor Density on all topsoil areas.

**3.7  
TOPSOIL  
(Cont'd)**

1. Supply all necessary fill to meet backfilling and grading requirements.

**3.8  
SHORTAGE AND  
SURPLUS**

2. Dispose of surplus and unsuitable material offsite.

1. Where settlement occurs within one-year warranty period, remove finishes such as top soil, planting or paving and add and compact additional fill. Replace finish materials to conform to specifications.

**3.9  
SETTLEMENT**

**END OF SECTION**

**PART 1 - GENERAL**

Comply with requirements of Division 1 and Supplementary Conditions.

Earthwork and Related Work Section 02 30 00  
Concrete Walks and Curbs Section 02 77 00

**1.1  
RELATED  
WORK**

Products, mixing, delivery and placement to O.P.S.S. 310 and Regional Niagara "Standards".

**1.2  
REFERENCE  
STANDARD**

1. Carefully protect all adjacent construction including sidewalks and curbs. Lay sufficient wood planking for movement of machinery to avoid damaging existing walks, paving, or other material. "Make good" all construction so damaged.

**1.3  
PROTECTION**

2. Provide barricades as required to keep traffic from paving until ready for use

The Contractor's guarantee shall extend to the "making good" of all settlement occurring within the guarantee period.

**1.4  
GUARANTEE**

1. Paving work performed by a Subcontractor with an accredited experience of at least 10 years, and having skilled workmen, experienced foremen and suitable machinery.

**1.5  
QUALITY  
ASSURANCE**

1. **Environmental Temperature:**

**1.6  
JOB  
CONDITIONS**

1.1. Commence laying of asphalt binder courses only when base surfaces are at least 1°C and the temperature is rising.

1.2. Commence laying of asphalt surface courses only when binder course surfaces are completely dry, at least 7°C, and the temperature is rising.

1.3. Suspend paving operations if temperature drops below specified minimums.

**PART 2 - PRODUCTS**

**2.1  
MATERIALS**

1. **Asphaltic Concrete Paving:** conforming to OPSS 1050 and consisting of a base course and a surface course, in "HL" types as specified herein.

1.1. Asphalt Cement: conforming to OPSS 1050.

1.2. Asphalt Primer: OPSS 1103 Grade SS-1, liquid asphalt emulsion, slow drying for spray or brush application.

2. **Granular Base and Sub-base Courses:** Conforming to OPSS Form 1010.

**PART 3 – EXECUTION**

**3.1  
PREPARATION AND  
INSTALLATION**

1. **Sub-grade Surface Preparation:**

1.1. Verify grades of sub-grade drains and other items set in paving area for conformity with elevations and sections before placing granular base and sub-base material.

1.2. Consultant to review prior to placement of granular sub-base and base.

2. **Granular and Sub-base Placement:**

- 2.1. Place granular base and sub-base material on clean unfrozen surface, free from snow and ice.
- 2.2. Place granular base and sub-base to compacted thicknesses as indicated. Do not place frozen material.
- 2.3. Place in layers not exceeding 150 mm compacted thickness. Compact to density not less than 98% corrected maximum dry density, maximum dry density in accordance with ASTM D698

3. **Equipment:**

- 3.1. **Rollers:** sufficient number of rollers of type and weight to obtain specified density of compacted mix.
- 3.2. **Vibratory Rollers for Parking Lots and Driveways:**
  - 3.2.1. Minimum Drum Diameter: 750 mm.
  - 3.2.2. Maximum Amplitude of Vibration (Machine Setting): 0.5 mm for lifts less than 40 mm thick
- 3.3. **Haul Trucks:** of sufficient number and of adequate size, speed and condition to ensure orderly and continuous operation and as follows:
  - 3.3.1. Boxes with tight metal bottoms.
  - 3.3.2. Covers of sufficient size and weight to completely cover and protect asphalt mix when truck fully loaded.
  - 3.3.3. In cool weather or for long hauls, insulate entire contact area of each truck box.
- 3.4. Suitable hand tools.

4. **Asphalt Concrete Paving:**

- 4.1. Place asphalt mix only when base or previous course is dry and air temperature is above 5°C.
- 4.2. Place asphalt concrete in compacted layers not exceeding 50 mm, one lift.
- 4.3. Minimum 135°C mix temperature required when spreading.
- 4.4. Maximum 160°C mix temperature permitted at any time.
- 4.5. Compact each course with roller as soon as it can support roller weight without undue cracking or displacement.
- 4.6. Compact parking lot and driveway asphalt to requirements of OPSS form 310 to not less than 97% Marshall density. Roll until roller marks are eliminated.
- 4.7. Keep roller speed slow enough to avoid mix displacement. Do not stop roller on fresh pavement.
- 4.8. Moisten roller wheels with water to prevent pick up of material.
- 4.9. Compact mix with hot tampers or other equipment approved by Consultant, in areas inaccessible to roller.
- 4.10. Finish surface to be within 10 mm of design elevation and with no irregularities greater than 10 mm in 4.5 m.

3.1  
**PREPARATION AND  
INSTALLATION  
(Cont'd)**

5. **Joints:**

- 5.1. Remove surplus material from surface of previously laid strip. Do not deposit on surface of previously laid strip. Do not deposit on surface of freshly laid strip.
- 5.2. Paint contact surfaces of existing structures such as manholes, curbs or gutters with bituminous material prior to placing adjacent pavement.
- 5.3. For cold joints, cut back to full depth vertical face and tack face with hot asphalt.
- 5.4. For longitudinal joints, overlap previously laid strip with spreader by 25 to 50 mm
- 5.5. Where new asphalt abuts existing – neatly cut existing to provide clean crisp joint.

**3.1  
PREPARATION AND  
INSTALLATION  
(Cont'd)**

6. **Asphalt Types:**

- 6.1. For asphalt Types refer to notes on Civil Drawing C0.0

7. **Pavement Markings:** See Section 02 76 10 and include in this Section

1. An independent testing and inspection firm will carry out testing and inspection to verify conformance of work to the specifications. The testing and inspection firm will be chosen by the Consultant and paid from the Cash Allowance in Section 01 02 00.
2. Notify the testing company when it is ready for tests. The testing and inspection firm will be responsible for all tests taken and will ensure that paving meets with its approval.
1. Keep vehicular traffic off newly paved areas until paving surface temperature has cooled below 38°C. Do not permit stationary loads on pavement until 24 hours after placement.
2. Provide access to buildings as required. Arrange paving schedule so as not to interfere with normal use of premises.

**3.2  
FIELD QUALITY  
CONTROL**

**3.3  
PROTECTION**

**END OF SECTION**

**PART 1 - GENERAL**

Comply with requirements of Division 1 and Supplementary Conditions.

Earthwork and Related Work	Section 02 30 00	1.1
Asphalt Concrete Pavement for Building Sites	Section 02 74 20	RELATED
Cast-in-Place Concrete	Section 03 30 00	SECTIONS

1. Canadian Standards Association (CSA).  
CSA-A23.1, Concrete Materials and Methods of Concrete Construction. 1.2  
REFERENCES

1. When concrete is placed while temperatures are lower than 4°C, or are likely to go below 4°C, protect the freshly place concrete from freezing by adequate coverings (i.e. tarpaulins) and the addition of heat. 1.3  
ENVIRONMENTAL  
CONDITIONS
2. Assure a temperature for concrete of not less than 21°C for the first three days, or 10°C for five days. Concrete temperature at no time shall exceed 37°C. No calcium chloride will be allowed in the mix.

Protect freshly laid concrete from damage by rain. Provide impermeable covering material to protect surface in case of rain. Extend protective coverings over edges of concrete and arrange so as not to bear on unprotected edges. 1.4  
PROTECTION

**PART 2 - PRODUCTS**

2.1  
MATERIALS

1. **Concrete mixes and materials**: to Section 03 30 00 - Cast-in-Place Concrete, Exposure Class – C.2. 32MPa.
2. **Reinforcing Steel**: to Section 03 20 00 – Concrete Reinforcement.
3. **Joint Filler Curing Compound**: to Section 03 30 00 - Cast-in-Place Concrete.
4. **Granular base**: to Section 02 30 00 - Earthwork and Related Work.
5. **Form Release Agent**: Non-staining mineral type to Section 03 30 00.
6. **Air Entrainment and Water Reducing Agent**: by BASF, SIKA or Construction Chemicals.

**PART 3 - EXECUTION**

3.1  
GRANULAR  
BASE

1. Review sub-grade with Consultant before placing granular base.
2. Grade and crown granular base to lines, widths, and depths as indicated.
3. Compact granular base to at least 95% of maximum density to ASTM D698.

1. Review granular base and reinforcing steel with Consultant prior to placing concrete. 3.2  
CONCRETE

2. Do concrete Work in accordance with Section 03 30 00 - Cast-in-Place Concrete.
3. Add water-reducing agent and air entrainment admixture to provide 5% to 8% air in accordance with manufacturer's instruction.
4. Immediately after floating, give sidewalk surface uniform broom finish to produce regular corrugations not exceeding 2 mm deep, by drawing broom in direction normal to center line.

5. Provide edging as indicated with 10 mm radius edging tool.

Finish surfaces to within 3 mm in 3 m as measured with 3 m straightedge placed on surface.

**3.3  
TOLERANCES**

1. Install tooled transverse contraction joints after floating, when concrete is still, but still plastic, at intervals of 1.5 m. (5'-0")
2. Install expansion joints as indicated at intervals of 6 m. (20'-0")
3. Install joint filler in expansion joints in accordance with Section 03 30 00 - Cast-in-Place Concrete as indicated.

**3.4  
EXPANSION AND  
CONTRACTION  
JOINTS**

1. Unless otherwise detailed construct 6" (150 mm) x 24" (600 mm) with formed sides only.
2. Form radii using metal or masonite forming.
3. Trowel-finish top surface - finish top edge with pencil round.
4. Saw-cut curbs midway between expansion joints or @ 8'-OC (2400 mm).
5. Adjacent to walks cast curbs integrally and only form outside face.
6. Adjacent to grass area: extrude curbs to OSPD 600-11.

**3.5  
CURBS**

Apply curing compound evenly to form continuous film in accordance with manufacturer's latest printed requirements.

**3.6  
CURING**

1. Allow concrete to cure for seven (7) days prior to backfilling.
2. Backfill to designated elevations with material approved by consultant. Compact and shape to required contours as indicated.

**3.7  
BACKFILL**

1. Inspection and testing of concrete and Concrete materials will be carried out by a Testing Laboratory designated by consultant, in accordance with CAN3-A23.1-M90.
2. Payment for inspection and testing will be made from a cash allowance. See Section 01 02 00 Cash Allowances.
3. Testing Laboratory representative will take additional test cylinders during cold weather concreting. Cure cylinders on job site under same conditions as concrete, which they represent.
4. Payment for re-testing and re-inspection of Work replacing that found defective under the contract Work, or at variance with the design specifications, will be the responsibility of the Contractor.
5. The inspection and testing company will notify the Consultant immediately, of any materials, tests, or methods that vary from the design specification.

**3.8  
FIELD QUALITY  
CONTROL**

**END OF SECTION**

**PART 1 - GENERAL**

Comply with requirements of Division 1 and Supplementary Conditions.

Cast-in-place Concrete

Section 03 30 00

**1.1  
RELATED  
WORK**

Install chain link fence in accordance with CAN/CGSB-138.3, unless otherwise specified.

**1.2  
REFERENCE  
STANDARDS**

**Shop Drawings:** submit drawings in accordance with Section 01 30 00 indicating sizes, materials, connection details, and anchorage.

**1.3  
SUBMITTALS**

**PART 2 - PRODUCTS**

1. **Fencing:**

**2.1  
MATERIALS**

1.1. Chain-link fence fabric to CAN/CGSB-138.1-2-3-4, type 1, class A, style 2, Height of wire: 6'-0" (1.8 m) to match existing and or 5'-0" (7.5m) where noted. Refer to finishes below.

2. **Concrete Mixes:** To Section 03 30 00 Cast-in-Place Concrete, CAN3-A23.1, CAN3-A23.1S1, CAN3-A23.1S2.

3. **Posts and Rails:** To CAN/CGSB-138.2 +Amdt-June-82, galvanized steel pipe. Refer to finishes below.

4. **Bottom Tension Wire:** Single strand, galvanized steel wire, 5 mm diameter.

5. **Tie Wire Fastener:** Single strand, galvanized steel wire conforming to requirements of fence fabric, 5 mm diameter.

6. **Tension Bar:** 5 x 20 mm minimum galvanized steel.

7. **Tension Bar Bands:** 3 x 20 mm minimum galvanized steel, or 5 x 20 mm minimum aluminum.

8. **Gate Frames and Fabric:**

8.1. To ASTM A120-84, galvanized steel pipe, standard weight 45 mm outside diameter pipe for outside frame, 35 mm outside diameter pipe for interior bracing.

8.2. Fabricate gates as indicated with electrically welded joints and painted with zinc pigmented paint after welding. For sizes see drawings.

8.3. Fasten fence fabric to gate with twisted selvage at top.

8.4. Furnish gates with galvanized malleable iron hinges, latch and latch catch with provision for padlock, which can be attached and operated from either side of installed gate.

8.5. At oversized leaves include 3" diameter (75 mm) galvanized wheel at leading edge of gate.



9. **Fittings and Hardware:**

- 9.1. Cast aluminum alloy, galvanized steel, or malleable or ductile cast iron.
- 9.2. Post caps to provide waterproof fit, to fasten securely over posts and to carry top rail.
- 9.3. Overhang tops to provide waterproof fit, to hold top rails and an inward projection to hold barbed wire overhang.
- 9.4. Provide projection with clips or recesses to hold 3 strands of barbed wire spaced 100 mm apart.
- 9.5. Projection of approximately 300 mm long to extend from fence at 45° above horizontal.  
Turnbuckles to be drop forged.

2.1  
**MATERIALS**  
**(Cont'd)**

10. **Zinc Pigmented Paint:** To CGSB 1-GP-178Ma.

11. **Finishes (Coloured):**

- 11.1. For Chain Link Fabric: to ASTM F668 Class 1, spectra polyvinyl chloride extruded over 9 GA zinc-coated steel wire.
- 11.2. For Pipe: to ASTM F 1043, Group 1C.
- 11.3. For Other Fittings: Polymer coating 6 mils over hot-dipped galvanized steel.
- 11.4. Colour: Black to match existing fencing.

**PART 3 - EXECUTION**

3.1  
**GRADING**

Remove debris and correct ground undulations along fence line to obtain smooth uniform gradient between posts. Provide clearance between bottom of fence and ground surface neither less than 1-1/4" (30 mm), nor more than 2" (50 mm).

1. **Posts:**

- 1.1. Erect fence along lines indicated in accordance with CAN/CGSB-138.3.
- 1.2. Excavate post holes to dimensions indicated by methods approved by consultant. Bulb bottom of holes for corner, end and gate posts and for intermediate posts at every 200' (60 m) along fence line.
- 1.3. Space line posts 10' (3 m) apart, measured parallel to ground surface.
- 1.4. Install corner post where change in alignment exceeds 10°.
- 1.5. Install end posts at end of fence and at buildings. Install gate posts on both sides of gate openings.
- 1.6. Place concrete in post holes then embed posts into concrete to minimum 4'-0" (1200 mm) depth. Extend concrete 2" (50 mm) above ground level and slope to drain away from posts. Brace to hold posts in plumb position and true to alignment and elevation until concrete has set.

3.2  
**FENCE**  
**ERECTION**

2. **Fabric:**

- 2.1. Do not install fence fabric until concrete has cured a minimum of 5 days.
- 2.2. Install brace between end and gate posts and nearest line post, placed in centre of panel and parallel to ground surface. Install braces on both sides of corner and straining posts in similar manner.
- 2.3. Install overhang tops and caps.
- 2.4. Install top rail between posts and fasten securely to terminal posts and secure waterproof caps and overhang tops.
- 2.5. Install bottom tension wire, stretch tightly and fasten securely to end, corner, gate and straining posts with turnbuckles and tension bar bands.
- 2.6. Lay out fence fabric. Stretch tightly to tension recommended by manufacturer and fasten to end, corner, gate and straining posts with tension bar secured to post with tension bar bands spaced at 12" (300 mm) intervals. Knuckled selvedge at bottom. Twisted selvedge at top.
- 2.7. Secure fabric to top rails, line posts and bottom tension wire with tie wires at 18" (450 mm) intervals. Give tie wires minimum two twists.
- 2.8. Install barbed wire strands and clip securely to lugs of each bracket.

**3.2  
FENCE  
ERECTION  
(cont'd)**

3. **Gates:**

- 3.1. Install gates in locations indicated.
- 3.2. Set gate bottom approximately 1-1/2" (40 mm) above ground surface.
- 3.3. Install gate stops where indicated.

Clean damaged surfaces with wire brush removing loose and cracked coatings. Apply two coats of approved zinc pigmented paint to damaged areas in accordance with Section 09 90 00, Painting.

**3.3  
TOUCH UP**

Clean and trim areas disturbed by operations. Dispose of surplus excavated material off site.

**3.4  
CLEANING**

**END OF SECTION**

**PART 1 - GENERAL**

Comply with requirements of Division 1 and Supplementary Conditions.

Earthwork and Related Work.  
Asphalt Paving and Base  
Concrete Walks and Curbs

Section 02 30 00  
Section 02 74 20  
Section 02 77 00

**1.1  
RELATED  
WORK**

1. Schedule deliveries in order to keep storage at job site without causing delays.
2. Deliver unload and store sod on pallets.
3. Deliver sod to site within 24 hours of being lifted and lay sod within 36 hours of being lifted.
4. Do not deliver small, irregular or broken pieces of sod.
5. During wet weather allow sod to dry sufficiently to prevent tearing during lifting and handling.
6. During dry weather protect sod from drying and water sod as required to ensure its vitality and prevent droppings of sod in handling. Dry sod will be rejected.

**1.2  
DELIVERY AND  
STORAGE**

1. Schedule sod laying to coincide with preparation of soil surface.
2. Schedule sod installation after frost has left ground and before June 15<sup>th</sup> or between August 15<sup>th</sup> and September 30<sup>th</sup>.

**1.3  
SCHEDULING**

**PART 2 - PRODUCTS**

1. **Number One Turfgrass Nursery Sod:** Sod that has been especially sown and cultivated in nursery fields as turfgrass crop.

**2.1  
MATERIALS**

1.1. Turfgrass Nursery Sod types.

1.2. Number One Kentucky Bluegrass Sod - Fescue Sod: Nursery sod grown solely from seed mixture of cultivars of Kentucky Bluegrass and Chewing Fescue of Creeping Red Fescue, containing not less than 40% Kentucky Bluegrass cultivars and 30% Chewing Fescue or Creeping Red Fescue cultivars.

2. **Water:**

2.1. Supplied by Owner at designated source.

2.2. Potable, free of impurities.

3. **Fertilizer:**

3.1. To Canada "Fertilizers Act" and "Fertilizers Regulations".

3.2. Complete, synthetic, slow release with 65% of nitrogen content in water-insoluble form.

1. Obtain approval from Consultant of sod at source.
2. When proposed source of sod is approved, use no other source without written authorization.

**2.2  
SOURCE QUALITY  
CONTROL**

**PART 3 - EXECUTION**

**3.1  
PREPARATION**

1. Verify that grades are correct and prepared as detailed. If discrepancies occur, notify Consultant. Do not commence Work until instructed by Consultant.
2. Do not perform Work under adverse, field conditions such as frozen soil, excessively wet or dry soil or soil covered with snow, ice or standing water.
3. Fine grade surface free of humps and hollows to smooth, (d") even grade to contours and elevations indicated to tolerance of plus or minus 8 mm, for Turfgrass Nursery Sod. Surface to drain naturally.
4. Remove and dispose of weeds; debris, stones 50 mm (2") in diameter and larger; soil contaminated by oil, gasoline and other deleterious materials, off site.
5. Cultivate fine grade approved by Consultant to 25 (1") mm depth immediately prior to sodding.

**3.2  
SOD  
PLACEMENT**

1. Lay sod within 36 h of being lifted.
2. Lay sod sections in rows, longitudinally, along contours of slopes, joints staggered. Butt sections closely without overlapping or leaving gaps between sections. Cut out irregular or thin sections with sharp implements.
3. Roll sod as directed by Consultant. Provide close contact between sod and soil by light rolling. Use of heavy roller to correct irregularities in grade is not permitted.
4. Water immediately after sod laying to obtain moisture penetration through sod into top 100mm of top soil.

**3.3  
MAINTENANCE  
DURING  
ESTABLISHMENT  
PERIOD**

1. Perform following operations from time of installation until acceptance:
  - 1.1. Water sodded areas in sufficient quantities and at frequency required to maintain optimum soil moisture condition to depth of 75 to 100 mm. (3").
  - 1.2. Cut grass to 40 mm (1<sup>5</sup>/<sub>8</sub>") when it reaches height of 60 mm (2<sup>1</sup>/<sub>2</sub>"). Remove clippings which will smother grassed areas.
  - 1.3. Maintain sodded areas weed free.
  - 1.4. Fertilize areas in accordance with fertilizing program. Spread half of required amount of fertilizer in one direction and remainder at right angles and water in well.

**3.4  
ACCEPTANCE**

1. Turfgrass Nursery Sod areas will be accepted by Consultant provided that:
  - 1.1. Sodded areas are properly established.
  - 1.2. Sod is free of bare and dead spots and without weeds.
  - 1.3. No surface soil is visible from height of 500 mm when grass has been cut to height of 40 mm (1<sup>1</sup>/<sub>2</sub>").
  - 1.4. Sodded areas have been cut minimum 2 times, and within 24 hours prior to acceptance.

- 1.5. Fertilizing in accordance with fertilizer program has been carried out at least once.
2. Areas sodded in Fall will be accepted in following Spring one month after start of growing season provided acceptance conditions are fulfilled.

**3.4  
ACCEPTANCE  
(Cont'd)**

**END OF SECTION**

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	<b><u>PART 1 – GENERAL</u></b>	<b>1.1 RELATED WORK</b>
Floor Finishes	Section 09 30 00	

Execute formwork and reinforcing in accordance with CAN3-A23.1 and supplements S1 and S2.

- |  |                                 |                          |
|--|---------------------------------|--------------------------|
|  | <b><u>PART 2 - PRODUCTS</u></b> | <b>2.1<br/>MATERIALS</b> |
|--|---------------------------------|--------------------------|
1. **Concrete:** Proportion, mix and deliver in accordance with Specification CAN3-A23.1-M77. Strength to be 20 MPA at 28 days (2900 psi at 28 days).
  2. **“Plastocrete”:** Water reducing agent as manufactured by SIKA Chemicals Admixtures, or equal. Use in accordance with manufacturer’s latest recommendations.
  3. **Reinforcing Steel:** Deformed bars in accordance with CSA Specifications G30 to G30.8, clean and free of mill scale and rust (fy-414 MPA) (fy-60,000 psi). Bend cold. Splices to be 30-bar diameters. Use steel chairs, spacers and wire ties.
  4. **Wire Mesh:** To be in accordance with CSA Specifications G30.5-M 1983. Use 150 x 150 x 1.7/W1.7 mm (6 x 6/9 x 9) unless otherwise noted.
  5. **Expansion Strip:** Install ¼” Flexel expansion strip at perimeter of concrete floors and where shown on drawings.
  6. **Curing/Sealing Compound:** To CAN3-A23.1 M94. Acceptable material Sika “Florseal”, Master Builders “Masterseal”, WR Meadows “Sealtite 1100 Clear”.

- |  |                                  |                             |
|--|----------------------------------|-----------------------------|
|  | <b><u>PART 3 - EXECUTION</u></b> | <b>3.1<br/>INSTALLATION</b> |
|--|----------------------------------|-----------------------------|
1. **Concrete Mix Design:**
    - 1.1. Base mix design on CAN3-A23.1-M90, alternative 1 and supplements S1 and S2, 1986 with concrete supplier responsible for mix proportioning
    - 1.2. To 2900 psi (20 MPA) at 28 days, unless noted otherwise.
    - 1.3. **Slumps of Plain Mix Design Concrete:**
      - 1.3.1. Slabs on compacted fill and toppings -- 2" to 3" (51 to 76 mm)
  2. Compact granular base to a minimum 95% modified proctor density.
  3. Ensure reinforcement and inserts are not disturbed during concrete placement.
  4. In locations where new concrete is dowelled to existing Work, drill holes in existing concrete. Place steel dowels and pack solidly with non-shrink grout to positively position and anchor dowels.
  5. Install 10M steel dowels @ 300mm o.c., staggered on opposite sides of cut concrete, at locations of concrete patching greater than 600mm in any direction.
  6. Check locations and sizes of sleeves and openings with architectural, mechanical and electrical drawings.

7. Install concrete to depths and thicknesses to match existing conditions.
8. **Interior Slabs:** Rake concrete into place and compact with mechanical vibrator. Fill all voids. Float to true level surface. Bring to smooth level finish with mechanical steel float.
9. **Curing and Sealing:** Apply sealer/cure by means of low pressure spray.

3.1  
INSTALLATION  
(cont'd)

END OF SECTION

**PART 1 - GENERAL**

Comply with requirements of Division 1 and Supplementary Conditions.

Testing of masonry products, concrete, grout and mortar, see Cash Allowances	Section 01 02 00	<b>1.1 RELATED WORK</b>	
Temporary Work	Section 01 65 00		
The supply of reinforcing steel for reinforced concrete lintels and seismic reinforcing	Section 03 30 00		
Type and mix design of concrete for lintels and seismic reinforcing	Section 03 30 00		
Sprayed Foam Insulation	Section 07 21 00		
Cavity Wall Air/Vapour Barrier and Rigid Insulation	Section 07 27 00		
Sealants	Section 07 90 00		
Hollow Metal Frames	Section 08 11 00		
1. CSA-A23.1-04/A23.2-04.	Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete		<b>1.2 REFERENCE STANDARDS</b>
2. CAN/CSA – A82.1-M	Burned Clay Brick (Solid Masonry Units Made from Clay or Shale)		
3. CAN/CSA-A82.2-M	Methods of Sampling and Testing Brick		
4. CAN/CSA-A165.1-04	CSA Standards on Concrete Masonry Units		
5. CAN/CSA A179	Mortar and Grout for Unit Masonry		
6. CSA-S304.14	Masonry Design for Buildings (Limit States Design)		
7. CSA-A370-14	Connectors for Masonry		
8. CAN/CSA-A371	Masonry Construction for Buildings		
9. ASTM C270-05a	Standard Specification for Mortar for Unit Masonry		
10. <b><u>Standard of Work and Tolerances:</u></b>			
10.1. Conform to CSA-S304 “Masonry Design for Buildings”. Lay masonry to CAN/CSA-A371 including Appendix ‘H’.			
Submit laboratory test reports certifying compliance of masonry units with specification requirements when requested.		<b>1.3 SOURCE QUALITY CONTROL</b>	
1. <b><u>Sample Strap:</u></b> See Section 01 30 00 for procedure		<b>1.4 SUBMITTALS</b>	
1.1. Submit a strap consisting of a minimum of 4 units of face brick to illustrate colour, texture, and extremes of colour range.			
2. <b><u>Sample Panel:</u></b>			
2.1. On request, construct a 2'-0" (600 mm) high x 4'-0" (1200 mm) long mock-up panel of the exterior wall showing masonry colours and textures, wall cavity and insulation, use of reinforcement, ties, through wall flashing, weep holes, jointing, coursing, mortar and workmanship.			



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- |   |  |
|---|--|
| <p>1 Deliver materials to job site in dry condition.</p> <p>2 Keep materials dry until use, except where wetting of blocks is specified.</p> <p>3 Store under waterproof cover on pallets or plant platforms held off ground by means of plank or timber skids.</p> <p>Cooperate fully with the testing company and provide materials as directed and required for testing purposes.</p> <p>1. <b><u>Cold Weather Masonry:</u></b></p> <p>1.1. Air temperature (0°C to 4°C) (32°F to 39°F)</p> <p>1.1.1. Protect masonry from rain and snow for 24 hours minimum.</p> <p>1.1.2. Heat sand mixing water to 20°C (68°F) max 70°C (158°F).</p> <p>1.2. Air temperature (-4°C to 0°C) (25°F to 32°F)</p> <p>1.2.1. Heat sand and water as noted in 1.1.2 above.</p> <p>1.2.2. Cover masonry for 24 hours minimum after completion of portion of work.</p> <p>1.3. Air temperature (-7°C to -4°C) (19°F to 25°F)</p> <p>1.3.1. Heat sand and water as noted in 1.1.2 above.</p> <p>1.3.2. Provide heat on both sides of wall when wind exceeds 25KM/hr (15mph).</p> <p>1.3.3. Cover masonry with insulating blanket for 24 hour minimum after completion of the work.</p> <p>1.4. Air Temperature is less than -7°C (19°F).</p> <p>1.4.1. Heat sand and water as noted in 1.1.2 above.</p> <p>1.4.2. Completely enclose the work and maintain air enclosed temperature above 0°C (32°F) for 24 hours minimum.</p> <p>1.4.3. Cover masonry with insulating blanket for 24 hours minimum after completion of the work.</p> <p>1.5. In all cases ensure brick temperature when units are laid is not less than 7°C (45°F). Do not wet masonry units during cold weather.</p> <p>1.6. Increase the protection periods form 24 to 48 hours unless type 30 high early strength Portland cement and Type 'S' hydrated lime are used in the mortar.</p> <p>2. <b><u>Hot Weather Masonry:</u></b></p> <p>2.1. Air temperature is 38°C (100°F) or greater or 32°C (90°F) with wind velocity greater than 13km/hr (8mph).</p> <p>2.1.1. Pre-wet clay brick units.</p> <p>2.1.2. Limit spread of mortar beds to 1.2m (4') in length.</p> <p>2.1.3. Ensure bricks are set within one minute of spreading mortar.</p> <p>2.1.4. Use mortar within one and half hours of batching.</p> <p>2.1.5. Protect newly laid masonry from drying too rapidly with non-staining covers.</p> | <p><b>1.5<br/>PRODUCT<br/>DELIVERY,<br/>STORAGE AND<br/>HANDLING</b></p> <p><b>1.6<br/>TEST<br/>REPORTS</b></p> <p><b>1.7<br/>ENVIRONMENTAL<br/>REQUIREMENTS</b></p> |
|---|--|

1. Keep masonry dry using waterproof, non-staining coverings that extend over walls, down sides sufficient to protect walls from wind-driven rain, until masonry Work is completed and protected by flashings or other permanent construction. **1.8 PROTECTION**
2. Protect masonry and other Work from marking and other damage. Protect completed Work from mortar droppings. Use non-staining coverings. At completion of days Work cover top of wall with weighted wood planks
1. Provide adequate temporary bracing of masonry walls until joists, floor and roof decks are installed and are able to develop adequate diaphragm to brace walls. **1.9 TEMPORARY BRACING**
2. Protect masonry corners from damage. Erect 2"x 6" buffers, 4' - 0" A.F.F. - brace securely.
3. Protect wall bases from rain splashed mud and mortar spatter. Use straw, sand, or sawdust extending 3'-4' (0.9-1.2m) from wall.
1. Examine site conditions and other work upon which work of this Section depends. **1.10 EXAMINATION**
2. Do not apply work of this Section until work, which is to receive it, and site conditions, are satisfactory. Advise consultant in writing of unsatisfactory preparatory work. Commencement of work implies acceptance of surfaces as satisfactory.

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS**

1. **Concrete Block:** to CAN/CSA – A165.1 latest revision; hollow, normal weight for wall, below grade, H/15/A/M; lightweight for walls above grade where noted provide fire resistance H/15/C/M. Acceptable Products: Niagara Block, Permacon, Day & Campbell, and Boehmers.
2. **Burned Clay Brick:** to CAN/CSA A82.1, ASTM C216, Type FBS, Grade SW.
  - 2.1. Size: metric modular, colour and texture to match existing.
  - 2.2. Brick Allowance \$900 (M). This allowance includes purchase and delivery of face brick, as well as installation, mortar, labour and reinforcing.
  - 2.3. Allow for 2 colours: field and trim band (soldier course)
3. **Architectural Masonry Units:** to CAN/CSA A165.2, 100% solid units.
  - 3.1. Maximum water absorption: 8%.
  - 3.2. Compressive strength: 4000 psi.
  - 3.3. Mortar for installation: Type N.
  - 3.4. Material equal to:
    - 3.4.1. Tapestry, by Shouldice Stone.
    - 3.4.2. Size, colour and texture: to match existing
    - 3.4.3. Provide precast concrete window sills, with drip edge, smooth texture; colour to match architectural masonry units.

- 2.1  
MATERIALS  
(Cont'd)**
4. **Portland Cement:** to CAN3-A5, latest revision  
Acceptable Material: Lake Ontario Portland Cement Company, Canada Cement, LaFarge Canada Inc.
  5. **Masonry Cement:** to CSA A179 – premixed, chloride free.  
Acceptable Material: Lake Ontario Portland Cement Company, Canada Cement, LaFarge Canada Inc.  
St. Lawrence Cement, St. Mary Cement.
  6. **Hydrated Lime:** to ASTM C207 Types/CSA A82,43, latest revision.
  7. **Aggregate:** to CSA A82.56, latest revision. Washed, clean, sharp granular masonry sand free from deleterious substance. Fineness modulus between 1.2 and 2.0
  8. **Water:** clean and free of deleterious amounts of acids, alkalis, or organic materials - potable or from non-potable approved supply.
  9. **Masonry Reinforcing:** to ASTM A82 and CSA G30-3, galvanized truss design, (heavy duty) (extra heavy duty).  
Acceptable material: Dur-O-Wal Truss or equal by Blok-Lok  
  
Interior Application: Mill galvanized .10oz/sf  
Exterior Application: Hot-dipped galvanized 1.50oz/sf after fabrication  
  
Include: Purpose-made corners and intersection pieces.  
Special with tripod Dur-O-Wal at extra wide walls.
  10. **Reinforcing Bars:** to CSA G30.12 latest revision grade 400, deformed.
  11. **Masonry Flashing and/or Dampproofing Course:** SBS modified bitumen self-adhering sheet membrane thickness: 1 mm (40 mils) minimum.  
  
Acceptable material: Bakor "Blueskin TWF" or equal, Mel-Rol "Peel and Stick" also Mel-Rol LM Single Component water-based polymer modified cold-applied water-proofing membrane.
  12. **Joint Filler:** premolded joint filler composed of non-extruding resilient cellular cane or other suitable fibres securely bound together and uniformly saturated with bituminous binder.
  13. **Mortar:** At block backup mix mortar to CSA-A179 Type (S) (N).
    - 13.1. Type 'S' based on proportion specifications for bearing walls. Compressive strength @ 28 days = 8.5MPa
    - 13.2. Type 'N' Portland cement-lime mix at face brick and non-bearing block and veneer walls.  
Compressive strength @ 28 days = 5.0MPa
    - 13.3. **Coloured Mortars at Veneer Masonry:** Tint the mortar to specific colour and unit being laid.  
Acceptable material: Elementis Co. Ltd. "F" series or equal by Interstar pigment.
    - 13.4. **A Manufactured Stone:** Portland Cement, masonry lime and sand mortar proportion by volume 1:1:6 (Portland cement, lime, and sand).

14. **Veneer Anchors:**

2.1  
MATERIALS  
(Cont'd)

- 14.1. At Insulated Cavity Wall: veneer construction block shear connector by Fero Corporation
  - 14.1.1. 16 GA (1.61mm) thick sheet metal plate to ASTM A570 – length appropriate to wall thickness
  - 14.1.2. V-tie 0.19" (4.76mm)  $\Phi$  wire conforming to CSA G30-5
  - 14.1.3. All components hot dipped galvanized after fabrication to CSA A370-14 and ASTM A123
  - 14.1.4. Include insulation retainer clip  
Acceptable Material: Fero plastic insulation support.
- 14.2. At Insulated Cavity Wall: Composite construction
  - 14.2.1. Block shear connector – similar as at veneer construction  
Acceptable Material: Fero Block Shear connector
- 14.3. At drywall back-up.
  - 14.3.1. Acceptable Material: Fero side mounting rap tie.
- 14.4. **At Steel Columns:** Veneer anchor; Acceptable material by Fero Heavy Duty RAP.
- 14.5. Building more than 13m in height and/or with natural stone cladding any height – use type 304/316 stainless steel ties in accordance with ASTM A580, ASTM A666, and ASTM A240

15. **Control Joints:**

- 15.1. Rubber/neoprene rapid control joint with edge of flange to extend within 1" (25 mm) of wall face.
- 15.2. Install mortar dropping control screen at base of cavity.
- 15.3. Rapid soft-joint and rapid expansion joint where indicated and/or required.  
Acceptable material: Dur-O-Wal, Blok-Lok.

16. **Brick Vents:** Purpose-made plastic cells  $\frac{3}{4}$ " (10 mm) x 2-1/4" (56 mm) high equal to Dur-O-Wal Cell Vent.

17. **Mortar Dropping Control:** equal to Dur-O-Wal "Mor-Control".

18. **Reinforcing and Ties:** To CSA A370-14, coating spec to CAN3.5-304 M.

19. **Parging:**

- 19.1. **On Concrete:** SIKA Top 122 Plus polymer modified cementitious, 2 component trowel-grade mortar.
- 19.2. Sealer: SIKA "Florseal" W.B.

20. **Cleaning Agent:** "Sure Clean 600" detergent by CPD, Concord, Ontario

**PART 3 - EXECUTION**

**3.1  
INSTALLATION**

1. Do masonry Work in accordance with CSA A371-14 unless otherwise specified.
2. Build masonry plumb, level and true to line, with vertical joints in proper alignment in both running and stack bond.
3. Layout coursing and bond to achieve correct coursing heights, and continuity of bond above and below openings with minimum of cutting.
4. Provide heat during winter conditions to perform work. Refer also to Section 01 65 00 Temporary Work.

**3.2  
CONSTRUCTION**

1. **Exposed Masonry:**

- 1.1. Remove chipped, cracked, and otherwise damaged units in exposed masonry and replace with undamaged units.
- 1.2. Exposed External Corners at Block: rub with a Carborundum stone to produce a 3/16" (5 mm) radius.
- 1.3. Unless noted otherwise, extend block partitions to underside of roof deck. Provide deflection space at non-bearing partitions.
- 1.4. Use solid block; where block provides bearing, at exposed sills and at top of partitions not meeting ceiling or roof structure.
- 1.5. Coursing: concrete block 1 unit + 1 joint=200 mm (7 7/8") stack bond (running bond) Brick: 3 units + 3 joints, 200 mm (7 7/8").

2. **Jointing:**

- 2.1. Concave joints, allow joints to set just enough to remove excess water, then tool with round jointer to provide smooth, compressed, uniformly concave joints.
- 2.2. Where joints are concealed in walls and where walls are to receive drywall, tile, insulation or other applied material except paint or similar thin finish coating, strike flush.
- 2.3. Fill solid with mortar all course joints and cross joints. Use full shell bedding for all block Work except non-bearing partitions.
- 2.4. Lay solid masonry units in full bed of mortar with full heat joints. joint uniformly with adjacent work.

3. **Cutting:**

- 3.1. Cut out neatly for electrical switches, outlet boxes, and other recessed or built-in objects.
- 3.2. Make cuts straight, clean and free from uneven edges. Use masonry, carborundum or diamond tipped saw at all exposed locations.

- 3.3. At exposed corners do not lay with cut face exposed.
4. **Building-In:**
- 4.1. As work progresses install built-in anchor bolts, bearing plates, shelf angles, elevator rail supports and the like.
- 4.2. Prevent displacement of built-in items during construction. Check for plumbness, alignment and correctness of position, as Work progresses.
- 4.3. At Steel Columns: Position column masonry anchors in course joints and bed in mortar. Completely fill voids at four sides of column.
5. **Frames:**
- 5.1. Set frames plumb, square, level, and at correct elevation, maintaining uniform width and height.
- 5.2. Anchor frames to walls and partitions using anchors supplied with frames.
- 5.3. Brace frames rigidly in position while being built in.
- 5.4. Make allowance for deflection to ensure structural loads are not transmitted to frames
- 5.5. Fill spaces occurring between masonry and backs of steel frames with mortar. Grout frames fully as walls are laid up around the frame. Constantly check plumb and square and twist in the jamb as the wall progresses. Rake and tool joints between metal frames and masonry.
6. **Support Loads:**
- 6.1. Except where drawing requirements are more stringent, comply with CAN3-S304-M84.
- 6.2. Where concrete fill is used in lieu of solid units, use 20 MPA concrete to Section 03 30 00.
- 6.3. Install building paper below voids to be filled with concrete; keep paper 1" back from faces of units.
7. **Provision for Movement:**
- 7.1. Leave 1/8" (3 mm) space below shelf angles.
- 7.2. Leave 3/8" space between tops of non-load bearing walls and partitions and structural elements. Do not use wedges. Pack with loose batt insulation.
- 7.3. Build masonry to tie in with stabilizers, with provision for vertical movement.
- 7.4.

3.2  
CONSTRUCTION  
(Cont'd)

8. **Provision for Movement:**

- 8.1. Leave 1/8" (3 mm) space below shelf angles.
- 8.2. Leave 3/8" space between tops of non-load bearing walls and partitions and structural elements. Do not use wedges. Pack with loose batt insulation.
- 8.3. Build masonry to tie in with stabilizers, with provision for vertical movement.

9. **Loose Steel Lintels:** Install loose steel lintels. Centre over opening width.

10. **Joining of Work:**

- 10.1. Where necessary to temporarily stop horizontal runs of masonry, and in building corners, step-back masonry diagonally to lowest course previously laid.
- 10.2. Do not "tooth" new masonry
- 10.3. Fill in adjacent course before heights of stepped masonry reach 4 ft.

11. **Control Joints:** Control joints required at maximum of 9,000 mm oc (30 ft) in continuous walls having no openings, intersections, or column locations. At doorway and window locations use one side of doorway beyond lintel. That end of lintel to be unbonded. Use jamb blocks to form key. Complete vertical separation; full height and thickness of wall are required.

12. **Wall Reinforcing:**

- 12.1. **Horizontal:** Supply and install horizontal wall reinforcing to spacing, as shown on drawings. Install vertical reinforcing to size and spacing as shown on drawings. Fill void with 20 MPA concrete.
- 12.2. **Vertical:** At walls where rod reinforcing is shown – ensure that rods are accurately located as indicated on structure details. Grout-fill block voids around rods with 20Mpa concrete.
- 12.3. Place masonry joint reinforcement in first (and second) horizontal joints above and below openings. Extend minimum 400mm (16") each side of opening.

3.2  
CONSTRUCTION  
(Cont'd)

13. **Veneer Anchors:** Install 400mm oc vertically and 800mm oc horizontally or as noted on drawings. Align vertically. Place 300mm maximum from edge of opening.
14. **Masonry Flashing and Dampproofing Course:**
- 14.1. Install flashings in masonry in accordance with manufacturer's latest printed instructions and as follows:
- 14.1.1. Install flashings under exterior masonry bearing on foundation across entire width.
- 14.1.2. Install flashings under weep hole courses and as indicated.
- 14.1.3. End dam flashing membrane as required.
- 14.1.4. Lap joints, seal with adhesive
- 14.2. Consultant reserves the right to request the removal of base masonry at random locations for inspection.
15. **Cavity Wall:**
- 15.1. Construct with mortar joints struck flush at both faces of cavity. Maintain width of cavity as noted on drawings. Prevent mortar from encroaching on cavity.
- 15.2. Install mortar dropping control screen at base of cavity.
- 15.3. Maintain cavity free of mortar droppings, particularly at base.
16. **Cavity Wall Weep and Vent Holes:**
- 16.1. Omit mortar for full height of joint @ 24" o.c. (600 mm) at top of wall, at base course of masonry, at shelf angles and wherever masonry rests on dampproofing course.
- 16.2. Install 3/8" (10 mm) cell vents to exterior at 24" (600 mm) o.c. at top of wall. Vents to slope up from exterior wall face to shed water. Install vents to effectively vent cavity.
17. **Brick Colour Range:** To maintain an acceptable colour range draw on a minimum of three brick cubes simultaneously.
18. **Mortar Mixes:**
- 18.1. Grout: mix to semi-fluid consistency.
- 18.2. Coloured Mortar: Incorporate colour into mixes in accordance with manufacturer's instructions. Use clean mixer.
19. **Tolerances:**
- 19.1. Maximum Variation from Alignment of (columns) (pilasters): 6mm (1/4").
- 19.2. Maximum Variation from Unit to adjacent unit: 1.6mm (1/16").
- 19.3. Maximum Variation from Plane of Wall: 6mm/3m (1/4") per story non-cumulative, 13mm/6m (1/2") in 20 feet or more.

3.2  
CONSTRUCTION  
(Cont'd)



19.4. Maximum Variation from Plumb: 6mm ( $\frac{1}{4}$ " ) per story non-cumulative, 13mm/6m ( $\frac{1}{2}$ " ) in 2 stories or more.

19.5. Maximum Variation from Level Coursing: 3mm ( $\frac{1}{8}$ " in 3') and 6mm/3m ( $\frac{1}{4}$ " in 10'), 13mm/9.1m ( $\frac{1}{2}$ " in 30').

19.6. Maximum Variation of Joint Thickness: 3mm/m ( $\frac{1}{8}$ " in 3').

19.7. Maximum Variation from Cross Sectional Thickness of Walls: 6mm ( $\frac{1}{4}$ " ).

**3.2  
CONSTRUCTION  
(Cont'd)**

20. **Parging:**

20.1. Where indicated, over foundation, apply to  $\frac{1}{8}$ " (6mm) thickness.

20.2. **Application:**

20.2.1. Dampen surface with clean water.

20.2.2. Mix mortar components as recommended by Manufacturer.

20.2.3. Thoroughly scrub mortar into the prepared surfaces to provide a bond.

20.2.4. Apply repair mortar before bond coat sets – then screed.

20.2.5. Following initial set finish with sponge or wood float – to provide a texture.

20.2.6. Cure mortar with a concrete seal and protect from direct sun, rain or frost.

21. **Vertical Baffles at Brick Veneer or Cavity Wall Construction:** install rigid insulation (see drawings for airspace width) at corners and at 10m (33') vertical intervals.

22. **Mortar Dropping Control Devices:** install to manufacturer's latest printed instructions.

23. **Service Penetrations:**

23.1. At non-rated walls fill gaps with mortar and caulking.

23.2. At rated walls – fire stop by Section 07 80 00

23.3. At top of non-rated walls drywall pack with compressed Roxul insulation (review structural drawings).

24. **Existing Work:**

24.1. "Make good" existing masonry as noted.

24.2. Use material to match existing in all respects.

25. **Adjustment and Cleaning:**

25.1. Patch masonry that has been rejected as defected or damaged.

25.2. Cut out defective mortar joints and repoint.

25.3. Wash down and brush (not wire) brick walls to remove mortar and stains. Within two weeks of wall completion use a 5% solution of muriatic acid but only when preceded and followed by a complete drenching of clean water. Use the acid only when detergents and other methods have failed. Review with Consultant.

- |  |  |
|--|--|
| 25.4. Ensure that all efflorescence and mortar deposits are removed from surfaces to receive paint, special wall coatings or silicone type dampproofing. | <b>3.2<br/>CONSTRUCTION<br/>(Cont'd)</b> |
| 25.5. Protect adjacent materials from damage while cleaning  |  |
| 1. Inspection and testing will be carried out by a testing lab designated by the Consultant.   | <b>3.3<br/>FIELD QUALITY<br/>CONTROL</b> |
| 2. Cost of testing will be paid from cash allowances specified in Section 01 02 00.  |  |

**END OF SECTION**

**PART 1 - GENERAL**

Comply with requirements of Division 1 and Supplementary Conditions.

Installation of anchors, bolts, inserts, and the like in formwork	Section 03 30 00	<b>1.1 RELATED WORK</b>
Installation of loose lintels, anchors, and the like in unit masonry	Section 04 20 00	
Structural Steel	Section 05 12 00	
Steel Joists	Section 05 21 00	
Steel Roof Deck	Section 05 31 10	
Finish Painting	Section 09 90 00	

1. ASTM A53-(90b), Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless. **1.2  
REFERENCES**
2. ASTM A269-(92), Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
3. ASTM A307-(92a), Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile.
4. CAN/CGSB-1.40-(M89), Primer, Structural Steel, Oil Alkyd Type.
5. CAN/CGSB-1,181-(92), Ready-Mixed, Organic Zinc-Rich Coating.
6. CAN/CSA – G164-M92, Hot Dip galvanizing of irregularly shaped articles

1. **Shop Drawings**: submit in accordance with Section 01 30 00. **1.3  
SUBMITTALS**
  - 1.1. Indicate materials, core thickness, finishes, connections, joints, methods of anchorage, number of anchors, supports, reinforcement, details, and accessories.
  - 1.2. Include seal of a Registered Professional Engineer (Civil-Ontario) for Work which resists horizontal and vertical loadings such as stairs, railings, balustrades, lintels and similar framing and supports designed to the requirements of the Ontario Building Code.

1. Label or tag materials supplied for installation by others to indicate its function, location in building and shop drawing designation. **1.4  
DELIVERY,  
STORAGE,  
HANDLING**
2. Deliver materials to location designated and to meet requirements of construction schedule.
3. Carefully protect all materials and finishes from damage during delivery, storage and handling and from the time of installation until final finishes are applied or to final cleanup.

**PART 2 - PRODUCTS**

1. **Steel**: **2.1  
MATERIALS**
  - 1.1. Sheet: cold rolled carbon structural quality steel to ASTM A1008/A1008M.
  - 1.2. Bars, Rolled Shapes and Plates: low carbon structural quality steel to CAN/CSA-G40.21, Grade 300W.
  - 1.3. HSS hollow structural sections for steel handrails and posts to CSA-G40.21, Grade 350W, Class H.

- 
2. **Steel Pipe:** to ASTM A53 standard weight (black) (galvanized) finish. **2.1**
3. **Welding Materials:** to CSA W59. **MATERIALS**
4. **Welding Electrodes:** to CSA W48 Series. **(Cont'd)**
5. **Bolts and Anchor Bolts:** to ASTM A307M.
6. **High Strength Bolts:** to ASTM A325M.
7. **Grout:** non-shrink, non-metallic, flowable, 24h, Mpa 15, pull-out strength 7.9 Mpa. "V-3" by W.R. Meadows Canada Ltd or U.set by U.S.E. Hickson Products Ltd.
8. **Fasteners:**
- 8.1. **Drilled Concrete Anchors:**  
Acceptable products and manufacturers – Kwik-Bolt by Hilti (Canada) Ltd. or Wedge Anchor by Ucan Fastening products.
- 8.2. **Drilled Masonry Anchors:**  
Acceptable products and manufacturers – SVA Sleeve Anchor by Hilti (Canada) Ltd. or SLE Sleeve Anchor by Ucan Fastening products.
1. Fabricate Work square, true, straight and accurate to required size, with joints closely fitted and properly secured. **2.2**
2. Use self-tapping shake-proof oval headed screws on items requiring assembly by screws or as indicated. **FABRICATION**
3. Where possible, fit and shop assemble, ready for erection.
4. Ensure exposed welds are continuous for length of each joint. File or grind exposed welds smooth and flush.
5. Use concealed fastenings at exposed locations unless otherwise indicated.
6. Ensure that finished Work is free of warping, buckling, open seams, weld splatter and loose fittings.
1. **Galvanizing:** hot dipped galvanizing with zinc coating (600) g/m<sup>2</sup> to CAN/CSA-G164. **2.3**
2. **Shop Coat Primer:** to CAN/CGSB-1.40 Quick drying Red oxide **FINISHES**
3. **Zinc Primer:** zinc rich, ready mix to CAN/CGSB-1.181.
4. **Bituminous Paint:** to CAN/CGSB-1.108.
5. **Powder Coating:**
- 5.1. Tiger Drylac Series 38 for exterior use.
- 5.2. Series 49 for interior application.

5.3. Colour to be selected by Consultant from standard range.

1. Isolate aluminum from following components, by means of bituminous paint:

**2.4  
ISOLATION  
COATING**

1.1. Dissimilar metals except stainless steel, zinc, or white bronze of small area.

1.2. Concrete, mortar and masonry.

1.3. Wood.

1. Apply one shop coat of primer to metal items, with exception of galvanized or concrete encased items. Apply two coats to surfaces that are inaccessible to finish field painting.

**2.5  
SHOP  
PAINTING**

2. Use primer unadulterated, as prepared by manufacturer. Paint on dry surfaces, free from rust, scale, grease. Do not paint when temperature is lower than 7°C.

3. Clean surfaces to be field welded; do not paint.

1. Construct to shapes, sizes and details shown on the plans.

**2.6  
PIPE  
RAILINGS**

2. **Pipe:** 1-1/4" (32 mm) I.D. unless indicated otherwise.

3. **Bends and Junctions:** fabricate with standard black malleable fittings or with mitred joints.

4. **Railings:** all projections, fittings and corners ground smooth. All welds: continuous, flush and ground smooth. Include bends and junctions. Note the wall mounted rail. Close exposed ends of railings.

5. **Finish:** exterior galvanize, interior prime

Equal to Zurn ZANB-199

**2.7  
DOWNSPOUT  
DISCHARGE**

1. Steel angles, prime painted, or stainless steel where noted to sizes indicated for openings.

**2.8  
LINTELS AND  
MISCELLANEOUS  
ANGLES**

2. Provide 6" (150 mm) bearing at ends. U/N otherwise, refer also to structural specifications and notes.

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

4. **Finish:**

4.1. **Interior:** shop paint

4.2. **Exterior:** galvanize after fabrication.

1. Fabricate steel angle supports as detailed for supporting wall benches or shelf.

**2.9  
WALL  
BRACKETS**

2. Provide holes for wood by others.

3. Grind 1" (25 mm) radius on front corners of angle iron.

4. Omit prime paint from section encased in masonry.

1. Fabricate stairs with closed riser steel pan construction to details shown.
2. Form treads, risers, landings and platforms of 12 GA (3 mm) steel plate secured to channel stringers with continuous angle supports concealed in the 2" (50 mm) thick latex concrete fill or as shown.
3. Support steel plates at landings and platforms on structural members with maximum spacing of 16" (400 mm).
4. Extend wall and open channel stringers continuously around landings to form steel base.
5. Close ends of stringers where exposed.
6. For tread and landing reinforcement, weld on 1/4" (6.4 mm) bars at 12" (300 mm) on centres (two bars per tread) set 1/4" (6.4 mm) above surface of plate. To bars, weld 2" (50 mm) X 2" (50 mm) X 14 GA (2 mm) steel mesh at 12" (300 mm) on centre.
7. At lower run secure stringers to floor with concealed fastenings.

**2.10  
STEEL PAN  
STAIRS**

1. **Pipe Handrail:**

**2.11  
HANDRAILS**

- 1.1. **Balusters:** 5/8" (16 mm) o.d bars
- 1.2. **Top Rail:** 1 1/2" (38mm) o.d pipe
- 1.3. **Bottom Rail:** 3/8" (8mm) x 1 1/4" (25mm) flat bar.
- 1.4. Weld balusters to top and bottom rails in shop – in transportable sections.
- 1.5. Assemble on site using concealed fasteners except screw bottom plate to top of channel flange.
- 1.6. **Finish:** (powder coating) Shop finish entire assembly following assembly.
  - 1.6.1. Pre-treat all surfaces including concealed with iron phosphate corrosion inhibitor.
  - 1.6.2. Finish the surfaces with an electro-statically applied powder coating.
  - 1.6.3. Touch up all nicks and scratches following installation.

1. **Exposed Rainwater Leaders:** To NFPA # 13 – sprinkler pipe

**2.12  
EXPOSED  
RAINWATER  
LEADERS**

- 1.1. Weld joints at direction change, grind smooth.
- 1.2. Galvanized after fabrication.
- 1.3. Size: 3" Ø, 4" Ø
- 1.4. Supply to Section 07 62 00 for building in.

**Downspout Nozzle:** To Zurn 190 c/w Zurn Z199 DC-VP cover

**2.13  
DOWNSPOUT  
NOZZLE**

**PART 3 - EXECUTION**

**3.1  
ERECTION**

1. Take site measurements to ensure that Work is fabricated to fit surrounding construction and in accordance with drawings.
2. Erect metal Work square, level, plumb, straight and true, accurately fitted, with tight joints and intersections.
3. Provide suitable means of anchorage acceptable to Consultant such as dowels, anchor clips, straps, anchor bolts, bar anchors, expansion bolts and shields and toggles.
4. Except where otherwise indicated or required, use welded connections wherever possible to provide a rigid structure.
5. Insulate between dissimilar metals; or between metal and masonry or concrete with bituminous paint or other approved method to prevent electrolysis.
6. Deliver to appropriate trades those items to be cast into concrete or built into masonry together with setting templates.
7. On completion, all surfaces shall be cleaned of dirt that result from delivery, storage or installation.
8. After erection, touch up primed surfaces that are burned, scratched, or otherwise damaged with prime paint.
9. Unless shown or specified otherwise, include to install all fabricated items listed in Part 2 – Products
10. Grout metal posts and the like with epoxy grout into metal sleeves cast into concrete. Sleeves to be 6" (150 mm) minimum depth.

Supply to mason for building in.

**3.2  
ANGLE LINTELS**

1. Construct of flat plate and pipe as detailed.
2. Fabricated in sections
3. Pre-treat all surfaces, including concealed, with an iron phosphate corrosion inhibitor.
4. Finish surface with an electro-statically applied powder coating.
5. Deliver to site and install as detailed using concealed screws to assemble sections.
6. Coordinate with floor finishing trade.
7. Touch up nicks and scratches.

**3.3  
STAIR RAIL**

1. At stairs: Core concrete treads to receive posts.
2. Grout posts with expanding grout.
3. Protect posts from grout splatter.
4. At walls: CRL concealed surface mounted brackets

**3.4  
PIPE RAILINGS**

Review mechanical drawings for location and number.

**3.5  
MISCELLANEOUS  
MECHANICAL  
OPENINGS**

Supply to Section 04 20 00 for building in.

**3.6  
DOWNSPOUT  
NOZZLE**

**END OF SECTION**



**PART 1 - GENERAL**

Comply with requirements of Division 1 and Supplementary Conditions.

Formwork	Section 03 30 00	<b>1.1</b>
Batt Insulation	Section 07 20 00	<b>RELATED</b>
Fibreboard Cants	Section 07 51 00	<b>WORK</b>
1. CSA B111, ASTM F1667-05 Wire Nails, Spikes and Staples.		<b>1.2</b>
4. CAN/CSA-G164-M Hot Dip Galvanizing of Irregularly Shaped Articles.		<b>REFERENCES</b>
5. CSA 0121-M Douglas Fir Plywood.		
6. CAN/CSA-0141 Softwood Lumber.		
7. CSA 0151 Canadian Softwood Plywood.		
8. NLGA 2010 - National Lumber Grades Authority Standard Grading Rules for Canadian Lumber.		
1. <b><u>Lumber Identification</u></b> : By grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.		<b>1.3</b>
2. <b><u>Plywood Identification</u></b> : By grade, mark in accordance with applicable CSA Standards.		<b>QUALITY</b>
3. Mark each piece of wood which is rated non-combustible by fire retardant pressure treatment with ULC fire hazard classification label.		<b>ASSURANCE</b>

**PART 2 - PRODUCTS**

1. <b><u>Soft Wood Lumber</u></b> : Unless specified otherwise, Spruce or Jackpine, S4S, moisture content 19% or less in accordance with following standards:		<b>2.1</b>
1.1. CSA-0141.		<b>LUMBER</b>
1.2. Standard Grading Rules for Canadian Lumber to NLGA 2010.		<b>MATERIALS</b>
1.3. <b><u>Identification</u></b> : by grade stamp of an agency certified by the Canadian Lumber Standards accreditation.		
1.4. Pressure treated materials to be used at exposed exterior installations. Include temporary stair.		
2. <b><u>Furring, blocking, nailing strips, grounds, rough bucks, cants, curbs, fascia backing and sleepers</u></b> :		
2.1. S2S is acceptable.		
2.2. <b><u>Board Sizes</u></b> : "Standard" or better grade.		
2.3. <b><u>Dimension Sizes</u></b> : "Standard" light framing or better grade.		
2.4. <b><u>Post and Timber</u></b> : "Standard" or better grade.		

1. **Douglas Fir Plywood (DFP)**: To CSA 0121 standard construction, formaldehyde free. **2.2**
2. **Canadian Softwood Plywood (CSP)**: To CSA 0151, standard construction, formaldehyde free. **PANEL**
3. **Poplar Plywood (PP)**: To CSA 0153-M. **MATERIALS**

1. **Wire Nails, Spikes and Staples**: To CSA B111/ASTM F1667-05. **2.3**
2. **Bolts**: 12.5mm ½" Φ diameter unless indicated otherwise, complete with nuts and washers. **ACCESSORIES**
3. **Proprietary Fasteners**: Toggle bolts, expansion shields and lag bolts, screws and lead or inorganic fibre plugs, explosive actuated fastening devices, recommended for purpose by manufacturer.
4. **Galvanizing**: To CAN/CSA-G164-M92, use galvanized fasteners for exterior Work, interior highly humid areas and pressure-preservative treated lumber.
5. **Pressure Applied Wood Preservative**: Pressure applied CCA preservative with 6.5kg/m<sup>3</sup> average retention for roof woodwork and wood in contact with floor slabs or walls in areas to be waterproofed, and 4 kg/m<sup>3</sup> elsewhere; "Outdoor Wood" by Hickson Building Products or "Green Pentox" by Osmose Wood Preserving Company or "C50" by Timber Specialties Limited. Apply preservative in accordance with CAN/CSA-080 Series-08.
6. **Surface Applied Wood Preservative**: copper naphthenate of 10% pentachlorophenol solution, water repellent preservative.
7. **Fire Retardant Treatment**: "Dricon" by J. A. Biewer or equivalent, conforming to CAN2-080.20 and CAN2-080.27 to provide a flame spread rating of 25 or less, in accordance with ULC test method CAN4/ULC-S102.

### **PART 3 - EXECUTION**

1. Treat surfaces of material with wood preservative, before installation.
2. Apply preservative by dipping, or by brush to completely saturate and maintain wet film on surface for minimum 3-minute soak on lumber and one minute soak on plywood.
3. Re-treat surfaces exposed by cutting, trimming or boring with liberal brush application of preservative before installation.
4. Treat material as follows: Wood cants, fascia backing, curbs, nailers, sleepers on roof deck.

### **3.1 PREPARATION**

1. Comply with requirements of NBC, supplemented by the following paragraphs.

### **3.2 INSTALLATION**

2. **Millwork**:
  - 2.1. Install furring and blocking as required to space-out and support casework, cabinets, wall and ceiling finishes, facings, fascia, soffit, siding and other Work as required.
  - 2.2. Align and plumb faces of furring and blocking to tolerance of [1:600].
  - 2.3. Install rough bucks, nailers and linings to rough openings as required to provide backing for frames and other Work.

3. **Roofing:**

- 3.1. Install wood cants, fascia backing, nailers, curbs and other wood supports as in maximum lengths required and secure using galvanized fasteners.
- 3.2. Install wood backing, dressed, tapered and recessed slightly below top surface of roof insulation for roof hopper.
- 3.3. See mechanical drawings for curbs required for roof-mounted mechanical equipment. Unless detailed otherwise, install continuous wood curbings for roof mounted compressors, condensers, or other items of mechanical equipment with feet or runners. Curbs to consist of 6" x 6" (150 mm x 150 mm) or 8" x 8" (200 mm x 200 mm) secured to deck with ½" (12 mm) galvanized bolts at 2'-8" (800 mm) on centres.
- 3.4. Unless detailed otherwise, wood curbings for fans, skylights, and the like will consist of pairs of 2" x 12" (50 mm x 300 mm). Secure with 3" (75 mm) x 3" (75 mm) x ¼" (6 mm) x 4" (100 mm) long angle clips spaced at about 2'-8" (800 mm) on centres.

**3.2  
INSTALLATION  
(cont'd)**

1. Provide backboards for mounting electrical equipment (see electrical drawings).
2. Use ¾" (19mm) plywood on 2" x 4" (38 x 92mm) furring at perimeter @ 12" (300mm) intermediate spacing.
3. Apply fire retardant treatment.

**3.3  
ELECTRICAL  
EQUIPMENT  
BACKBOARD**

1. Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.
2. Install builder's hardware including nails, screws, bolts, washers, brackets, joist hangers and all fastening devices.
3. Countersink bolts where necessary to provide clearance for other Work.

**3.3  
ERECTION**

**END OF SECTION**

**PART 1 - GENERAL**

Comply with requirements of Division 1 and Supplementary Conditions.

Supply and Building in of Metal Brackets	Section 04 20 00, 05 50 00	<b>1.1</b>
Rough Carpentry	Section 06 10 00	<b>RELATED</b>
Sealants	Section 07 90 00	<b>WORK</b>
Supply of Hollow Metal Doors and Frames	Section 08 10 00	
Supply of Wood Doors	Section 08 20 00	
Glass and Glazing	Section 08 80 00	
Plumbing Fixtures	Section 23 00 00	
1. Do millwork to the quality standards of the Architectural Woodwork Institute (AWI)/Architectural Woodwork Manufacturer's Association of Canada (AWMAC) latest edition, except where indicated otherwise.		<b>1.2</b> <b>QUALITY</b> <b>ASSURANCE</b>
2. Execute work by fully-equipped expert craftsman highly skilled in fabrication and installation of work in this section.		
Do not store or install materials in areas where relative humidity is less than 25% or greater than 55% at 22°C.		<b>1.3</b> <b>ENVIRONMENTAL</b> <b>REQUIREMENTS</b>
Protect materials and fabricated items from damage during handling, delivery, storage, installation, and after installation.		<b>1.4</b> <b>PRODUCT</b> <b>HANDLING</b>
1. <b><u>Shop Drawings:</u></b>		<b>1.5</b> <b>SUBMITTALS</b>
1.1. See Section 01 30 00 for shop drawings and product data.		
1.2. Provide data sheets with shop drawings attesting to the formaldehyde free manufacture of all plywood, particleboard and the like.		
2. <b><u>Samples:</u></b>		
2.1. Provide samples of plastic laminate finish colours and textures.		
2.2. Provide a sample of the shop-applied finish.		
Millwork fabricator to supply and shop install all cupboard hardware prior to field installing all units. Hardware to include hinges, snaps, catches, cupboard locks, door and drawer pulls, adjustable pilaster and the like.		<b>1.6</b> <b>MILLWORK</b> <b>HARDWARE</b>
	<b><u>PART 2 - PRODUCTS</u></b>	<b>2.1</b> <b>MATERIALS</b>
1. <b><u>General:</u></b>		
1.1. Include all rough hardware required for its execution. Use non-corrosive hardware at exterior locations.		
1.2. <b><u>Interior Woodwork:</u></b> To CSA 0141-5 Type		
1.2.1. Premium grade, selected, plain sawn with no cross grain permitted and in accordance with AWI/AWMAC.		

2.1  
MATERIALS  
(cont'd)

- 1.2.2. **Wood Species:** Select white maple unless indicated otherwise. Moisture content: 4% to 8%
- 1.3. **Particle Board:** To ANSI A204.1 2009. manufactured with formaldehyde free glue.
- 1.4. **Plywood:**
- 1.4.1. **Hardwood Plywood:** To CSA 0115 to thickness indicated, plywood core rift-sliced face veneer. Select veneers to provide book match. Face Veneer Species: Select white maple.
- 1.4.1.1. Sanded grade, good two sides where both sides are exposed to view and good one side where only one side is exposed to view.
- 1.4.1.2. All plywood manufactured with formaldehyde free glue.
- 1.4.2. **Douglas Fir:** CSA Standard 0121-08, sanded, good two sides where each side is exposed to view and good/solid where one side is exposed to view; Spruce
- 1.5. **Plastic Laminates:**
- 1.5.1. To CAN3-A172M high pressure paper base laminated plastic sheet as follows:
- 1.5.1.1. **Horizontal and Vertical Flatwork:** Grade GP, Type S, minimum thickness 1.5mm.
- 1.5.1.2. **Post Formed Work:** Grade pf Type S, minimum thickness 1.5mm.
- 1.5.1.3. **Backing Sheet:** Grade BK not less than 0.5mm thick sanded one side by same manufacturer as facing sheet.
- 1.5.1.4. **Adhesive:** waterproof
- 1.5.1.5. Colour and texture to Consultant's selection from the following manufacturers Arborite, Formica, and Wilsonart – Standard and Premium collections, and Wilsonart Virtual Design Library.
- 1.5.2. **Cores at Plastic Laminate or Hardware Veneer Finish:**
- 1.5.2.1. Cupboard bodies and shelves plywood.
- 1.5.2.2. Doors, drawer fronts, and countertops particleboard.
- 1.6. **Solid Surfacing:** to ANSI – Z124.3 with flammability to CAN/ULC S120 – ½" (13mm) thick solid acrylic polymer. Homogenous sheet composed of natural minerals and 100% acrylic resin.
- 1.6.1. Edge treatment as noted.
- 1.6.2. **Colour:** allow Consultant selection from Manufacturer's full range
- 1.6.3. **Finish:** Semi-gloss range 20-50 (matte polished)
- 1.6.4. Acceptable Products: Formica Everform, Wilsonart Solid Surfacing or approved equal.
- 1.6.5. **Solid Surfacing Adhesive:**
- Bonding solid surfacing
  - 2-Component "Staron" joint adhesive.
  - Bonding to other products single component silicone to ASTM C920
- 1.7. **Sealer:** Water-resistant sealer or glue acceptable to laminate manufacturer.
- 1.8. **Sealant:** In accordance with Section 07 90 00, colour selected by Consultant.
- 1.9. **Draw Bolts:** Mechanical devices of approved manufacture, which can be recessed into the substrate of plastic laminate faced panels and used to draw two parts together for permanently tight joints.
- 1.10. **Grommets:** impact resistant plastic circular grommets complete with three-prong vinyl twist lock caps.

- 1.11. **Fixed Clips** - Shall be at least 1.6 mm 16 US Gauge steel, prime painted.
- 1.12. **Shop Sprayed Finish** - Equal to Magnalac satin pre-catalyzed lacquer by ML Campbell with low VOC and formaldehyde content.
- 1.13. **Cupboard Hardware:**
  - 1.13.1. Blum concealed cabinet hinges – Blumotion (soft close).
  - 1.13.2. Accuride full extension drawer slides.
  - 1.13.3. Standard wire pulls brushed chrome finish.
  - 1.13.4.  $\frac{5}{8}$ " pilaster and clips for adjustable shelves.
  - 1.13.5. Child-proof latches at base cabinets.
  - 1.13.6. Provide lockable hardware at all cabinets.
  - 1.13.7. Coat Hooks: breakaway type, Richelieu Safety hook-HD, colour to be chosen from standard options.

**2.1  
MATERIALS  
(cont'd)**

**PART 3 - EXECUTION**

**3.1  
FABRICATION**

1. Prior to commencing fabrication, take site measurements of construction to which Work of this section must conform and through which access is available.
2. **All Interior Woodwork and Cabinet Work:**
  - 2.1. To conform to Custom Grade requirements of AWI/AWIMAC standards latest edition unless otherwise noted.
  - 2.2. Fabricate for transparent stained finish unless noted otherwise.
3. **Cabinet Work:**
  - 3.1. **General:** all to be flush overlay.
  - 3.2. Construct doors and drawers as detailed of  $\frac{3}{4}$ " particleboard core.
  - 3.3. Construct gables, shelves, boxes and the like of  $\frac{3}{4}$ " plywood as detailed.
  - 3.4. Assemble work in shop in sections as large as practical consistent with site access.
  - 3.5. Make necessary drillings, cutouts and the like to template information provided by Divisions 23 and 26.
  - 3.6. Plywood Edges: face 4 edges with matching wood grain 3mm PVC edge.
  - 3.7. All Shelving: adjustable – furnish recess to accept a pilaster strip.
  - 3.8. Fit all drawers with drawer guides. If metal boxes are used size boxes appropriately for draw depth. Alternate construction:  $\frac{1}{2}$ " Russian plywood sides with  $\frac{1}{4}$ " bottom.
4. **Cubbies:**
  - 4.1. Construct as detailed.
  - 4.2. Finish: exposed bench edges with  $\frac{1}{4}$ " (6mm) radius.

4.3. Note post-formed plastic laminate at leading edge of cubby benches.

5. **Shop Finish:**

**3.1  
FABRICATION  
(cont'd)**

- 5.1. Shop finish hardwood veneer scheduled to receive stained finish to match approved control sample light to medium, medium to dark. Apply finish in accordance with manufacturer's approved methods using approved equipment. Finish all faces, edges and interiors of doors, unless otherwise noted.
- 5.2. Acceptable finishing process as follows, colour to match sample at Consultant's Office. Submit colour sample.
  - 5.2.1. Sand wood member smooth with #150 grit sand paper.
  - 5.2.2. Apply selected NDR alcohol stain to wood member.
  - 5.2.3. Spray and wipe off excess body stain with rag.
  - 5.2.4. Apply a first coat of pre-catalyzed lacquer sealer.
  - 5.2.5. Sand wood upon finish is dry.
  - 5.2.6. Apply a second coat of pre-catalyzed lacquer sealer.
  - 5.2.7. Sand wood upon finish is dry.
  - 5.2.8. Apply a final coat of pre-catalyzed lacquer sealer.

5.3. Luster: gloss, (semi-gloss), (satin), (flat)

1. **Hollow Metal Frames:**

**3.2  
INSTALLATION**

- 1.1. Set, secure and brace hollow metal frames supplied under Section 08 10 00.
- 1.2. Remove spreaders at floor following anchorage of frames.
- 1.3. Install all hardware.

2. **Hollow Metal Doors:** Install hollow metal doors supplied under Section 08 10 00.

3. **Wood Doors:**

- 3.1. Install pre-finished, pre-fitted doors supplied under Section 08 20 00. Following finishing of adjacent walls and ceiling.
- 3.2. Install all hardware.
- 3.3. Assure door clearances: 3/32" (3mm) at jambs and head and 3/8" (9.5mm) over finish flooring.
- 3.4. Re-adjust doors and hardware for correct function, prior to inspection.
- 3.5. Touch-up pre-finished edges – if disturbed during installation

4. **Cabinet Work:**

- 4.1. Install all units at locations shown and in conformance to approved shop drawings. Position accurately, level, plumb, and straight.
- 4.2. Scribe and cut as required to fit abutting walls. Fit properly into recesses and to accommodate piping, columns, other fixtures, outlets or other projecting, intersecting or penetrating objects.

**3.2  
INSTALLATION  
(Cont'd)**

- 4.3. Fasten and anchor all components securely to floors and walls. Provide heavy duty fixture attachments for wall mounted cabinets.
- 4.4. Apply [water resistant building paper] [bituminous coating] over wood framing members in contact with masonry or cementitious construction.
- 4.5. Use draw bolts in countertop joints.
- 4.6. Apply neatly a small bead of sealant at junction of plastic laminate counter, back splash and adjacent wall surfaces.
- 4.7. Clean millwork and cabinet work, inside cupboards and drawers, and outside surfaces.
- 4.8. Protect millwork and cabinet work from damage until final inspection.
5. **Hardware:**
  - 5.1. Install accurately all finish door hardware in accordance with manufacturer's latest printed instructions.
  - 5.2. Shop install all finish hardware for the proper function of all millwork doors, drawers and the like
  - 5.3. Safeguard Keys: tag them with opening number and deliver to person designated by Consultant at final inspection.
6. **Solid Surfacing:**
  - 6.1. Exposed edges of splash backs and nosing round off to  $\frac{1}{8}$ " (3mm) radius.
  - 6.2. Install sill sections in maximum lengths, plumb, level, and rigid.
  - 6.3. Scribe as required to adjacent finishes.
  - 6.4. Form hairline field joints using manufacturer's adhesive.
  - 6.5. Anchor securely to supporting surface to manufacturer's printed instructions.
  - 6.6. Apply a fine, straight bead of clear caulking to joints at dissimilar materials.
7. **Millwork and Trim**
  - 7.1. Examine previous construction to ensure adequacy of grounds, blocking, strapping, framing and other surfaces before finish Work begins, and make deficiencies good. Verify by site measurements that access for shop fabricated Work is assured.
  - 7.2. Include finish wood Work and installation of items specified in this Section and as otherwise indicated on drawings.
  - 7.3. "Exposed to view" means: surfaces which can be seen from all vantage points, from both within and without the building, and including faces and edges of opened doors, bottom surfaces and cupboards that are higher than 1,220 mm above floors, and top surfaces lower than 1,980 mm above floor.



- 7.4. Cooperate to ensure that fastenings set by Others are provided and located, that Work supplied by Others is installed to their specification, and that those responsible for back priming are notified in sufficient time to schedule their Work.
- 7.5. Brace Work where required and remove when no longer needed.
- 7.6. Cut and fit Work with clean, sharp profiles, and closely fitted joints. Cope trim and mouldings at interior corners and returns, and mitre at external corners. Scribe and joint accurately at junctions, and finish flat, true and smooth at joints. Install trim or filler panels to close gaps.
- 7.7. Fasten Work to blind nailing wherever possible. Set nails where they occur on surfaces exposed to view or weather for filling under Work of Section 09 90 00. Glue and block built-up Work. Use screws where strain, usage or excessive shrinkage is anticipated, and where indicated on drawings.
- 7.8. Clean hardware as recommended by supplier.
- 7.9. Wood Preservative Treatment: give two coats of preservative to wood installed at exterior of building. Give end grain of treated members two soaking coats after cutting to length.
- 7.10. Dampproof Membrane: Install membrane between wood member concrete slabs and masonry against earth.

**3.2  
INSTALLATION  
(Cont'd)**

**END OF SECTION**

**PART 1 - GENERAL**

Comply with requirements of Division 1 and Supplementary Conditions.

Masonry Cavity Wall Insulation	Section 04 20 00	1.1
Sprayed Foam Insulation	Section 07 21 00	RELATED
Roof Insulation	Section 07 50 00	WORK
Partition Insulation	Section 09 20 00	
Mechanical Work - Insulation	Section 23 00 00	
Electrical Work - Insulation	Section 26 00 00	

1. CAN/ULC S702, Type 1 thermal mineral fibre insulation. 1.2
2. CAN/ULC S701, Type 4 thermal extruded polystyrene insulation. REFERENCES
3. CCSB/71 GP-24 M flexible adhesive for polystyrene insulation.
1. Package and label insulation materials to designate manufacturer, type, density and insulation value and reference standard specification number, if applicable. 1.3
2. Store insulation materials in a dry area, protected from wetting, damage and traffic. DELIVERY,  
STORAGE  
AND  
HANDLING
3. Packages of fire rated materials to bear fire underwriter's labels.
4. Observe manufacturer's requirements for delivery, storage, and handling.

**PART 2 - PRODUCTS**

2.1  
GENERAL

Provide insulation to thicknesses and/or insulation values shown on the drawings unless specified otherwise.

1. **Foundation Perimeter and Under Floor Slabs Insulation:** Expanded, extruded polystyrene XPS to: 2.2  
CAN/ULC S701, Type 4 MATERIALS
  - 1.1. Acceptable material: Dow Styrofoam "Perimate" SM, Owens Corning "Formular 300"
  - 1.2. Adhesive to meet CGSB 71-GP-24M: Type II, Bakor 230.21.
2. **Batt Thermal Insulation:** To CAN/ULC S702.
  - 2.1. Acceptable material: Owens Corning "Ecotouch Pink" fiberglass or "Thermafiber Ultra Batt" or Roxul "Comfort Batt"
3. **Sheet Vapour Retarder:** To CAN2-51.34-M, 6 mil (0.152 mm) thick polyethylene film - black.
4. **Vertical Baffles at Cavity Walls:**
  - 4.1. Equal to: Dow Styrofoam "Cavitymate" SM or Owens Corning "Formular 300"
5. **Metal Deck Flute Filler:**
  - 5.1. Acceptable Material: to ASTM 726, CAN/ULC-S702 Mineral Fibreboard Thermal insulation by Modular TS. Provide two profiles.

**PART 3 - EXECUTION**

**3.1  
GENERAL**

1. Verify that substrate is flat, sound, clean, and free of oil, grease, objectionable air surface voids, materials or substances that may impeded adhesive bond.
2. Install insulation and other materials in accordance with manufacturer's specifications, except where indicated, or specified otherwise.
3. Install insulation after building substrate materials are dry.
4. Install insulation to maintain continuity of thermal protection to building elements and spaces.
5. Fit insulation closely around electric boxes, plumbing and heating pipes and ducts, around exterior doors and windows and other protrusions.
6. Use largest possible dimensions of insulation to reduce number of joints.
7. Cut and trim insulation neatly to fit spaces. Butt joints tightly, offset vertical joints.
8. Offset both vertical and horizontal joints in multiple layer applications.
9. Do not enclose insulation until it has been reviewed by Consultant and authorities having jurisdiction.

1. **Foundation – Perimeter and Under Floor Slabs:**

**3.2  
INSTALLATION**

1.1. Perimeter Insulation:

- 1.1.1. Install insulation following review of substrate surface by the Consultant.
- 1.1.2. Apply insulation only when surface and air temperature is above 4°C.
- 1.1.3. Assure that surfaces to receive insulation are dry and free of dew, frost, voids, loose material, oil, grease and other material detrimental to bond.
- 1.1.4. Cut out back of insulation as required to fit over projecting anchors or fastenings. Cut and fit insulation neatly with tight joints around pipes, ducts, obstructions, openings, and corners.
- 1.1.5. Install insulation in location and to depth shown on drawing. If depth is not shown, install to a minimum depth of 24" (600 mm) below slab on grade or at heated below grade space extend from grade to top of footing.
- 1.1.6. Secure insulation with adhesive or as recommended by manufacturer.
- 1.1.7. Apply adhesive in continuous 6 mm beads in a grid pattern to prevent potential air movement behind the insulation boards. Apply adhesive fully around protrusions.
- 1.1.8. Ensure that subsequent construction operations do not dislodge or damage insulation.

1.2. Below Slab Insulation:

- 1.2.1. Place insulation under slabs on grade after base for slab is complete. Lay boards on compacted (level) fill.
- 1.2.2. Extend boards under entire area of slabs.
- 1.2.3. Cut and fit insulation tight to protrusions or interruptions to insulation plane.
- 1.2.4. Prevent insulation from being displaced or damaged while (placing vapour retarder and) placing slab.

2. **Rigid Insulation:**

- 2.1. Install insulation where indicated on drawings.

- 2.2. Where a mastic adhesive type vapour barrier is employed, embed the insulation panels over a full  $\frac{1}{8}$ " (3 mm) thick adhesive base and apply adhesive continuously at edges of boards and at elements that penetrate boards. Temporarily shore insulation in place until adhesive has set.
- 2.3. Seal all joints, tears and penetrations at insulating exterior sheathing board with an approved sheathing tape to maintain a continuous vapour permeable air retarder.

**3.2  
INSTALLATION  
(Cont'd)**

3. **Batt Insulation:**

- 3.1. Install insulation where indicated on drawings.
- 3.2. Fit insulation snugly and without compression into every void to ensure full thickness for full length of construction.
- 3.3. Install insulation tightly against interior finish construction except that when piping or ductwork occurs within wall construction, install it between exterior finish construction and the piping or ductwork.
- 3.4. Where batts are installed with integral vapour barrier, install vapour barrier to face warm side of building. Lap all joints of membrane over framing members and secure in position with approved mechanical fastenings.

4. **Metal Deck Flute Filler:**

- 4.1. Apply purpose made sections of filler at top of exterior walls where deck spans from interior to exterior and/or where indicated.
- 4.2. Seal gap completely. Review drawings for deck depth.

**END OF SECTION**

**PART 1 – GENERAL**

Comply with requirements of Division 1 and the Supplementary Conditions.

Unit Masonry	Section 04 20 00	<b>1.1 RELATED WORK</b>
Rough Carpentry	Section 06 10 00	
Insulation	Section 07 20 00	
Roofing	Section 07 50 00	
Door Frames	Section 08 10 00	
Window Frames	Section 08 50 00	
1. CAN/ULC – S705.1-01, Spray-applied Rigid Polyurethane Cellular Plastic Thermal Insulation.		<b>1.2 REFERENCE</b>
2. CAN/ULC - S705.2-05, Spray Application of Rigid Polyurethane Cellular Plastic Thermal Insulation for Building Construction.		
1. Submit test reports, verifying qualities of insulation meet or exceed requirements of this specification, in accordance with Section 01 30 00 to requirements of ULC S705.1.		<b>1.3 SUBMITTALS</b>
2. Submit test reports in accordance with CAN/ULC-S101 for fire endurance and CAN/ULC-S102 for surface burning characteristics.		
1. Application of insulation system only by applicators trained and certified by CUFCA/NECA (Canadian Urethane Foam Contractors Association/National Energy Conservation Association). Provide proof of certification upon request.		<b>1.4 QUALITY ASSURANCE</b>
2. Maintain one copy of installation manual on site.		
3. Conduct tests daily on both core density and cohesion/adhesion to the substrate, following procedures established by CUFCA/NECA. Enter test results in the daily report forms provided by CUFCA/NECA.		
4. Submit a copy of all completed forms to Consultant prior to making application for payment.		
5. Permit access to the jobsite by any BASF or CUFCA/NECA representatives for the purpose of technical assistance, verification of operator certification or the confirmation of the quality of the polyurethane foam application.		
1. Construct mock-up 1m minimum, of spray in place urethane foam insulation including one inside corner and one outside corner. Mock-up may be part of finished Work in accordance with section.		<b>1.5 MOCK-UP</b>
2. Allow 24 hours for inspection of mock-up by Consultant before proceeding with spraying Work.		
1. Ventilate area in accordance with Section 01 65 00 Temporary Facilities.		<b>1.6 PROTECTION</b>
2. Ventilate area to receive insulation by introducing fresh air and exhausting air continuously during and 24 hours after application to maintain non-toxic, unpolluted, safe working conditions.		
3. Provide temporary enclosures to prevent spray and noxious vapours from contaminating air beyond application area.		
4. Protect workers as recommended by insulation manufacturer.		

- |   |   |
|---|---|
| 5. Protect adjacent surfaces and equipment from damage by overspray, fall-out and dusting of insulation materials.  | <b>1.6<br/>PROTECTION<br/>(cont'd)</b>                |
| 6. Dispose of waste foam daily in location approved by Consultant and decontaminate empty drums in accordance with foam manufacturer's instructions.  |   |
| 1. Apply insulation only when surfaces and ambient temperatures are within manufacturer's prescribed limits, i.e. -10°C to +35°C (+14°F to -95°F).  | <b>1.7<br/>ENVIRONMENTAL<br/>REQUIREMENTS</b>         |
| 2. Comply with requirements of the Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labeling and provision of material safety data sheets acceptable to Labour Canada. |   |
| 1. Deliver material in undamaged packaging indicating the name of the manufacturer and product.   | <b>1.8<br/>DELIVERY,<br/>STORAGE AND<br/>HANDLING</b> |
| 2. Store material in original packaging.  |   |
| 3. During cold weather store raw materials in heated storage.   |   |
| Coordinate the Work of this section with all sections referencing this section.   | <b>1.9<br/>COORDINATION</b>                           |
| 1. Warrant the Work against defects in workmanship or material for a minimum period of two years from date of Substantial Performance.  | <b>1.10<br/>WARRANTY</b>                              |
| 2. Promptly correct, at Contractor's expense, defects or deficiencies, which become apparent within the warranty period.  |   |
| 3. All work to be covered by the third part warranty program as set forth by the CUFCA Quality Assurance Program.   |   |
| 4. Total warranty 3 years.  |   |

**PART 2 - PRODUCTS**

**2.1  
MATERIALS**

1. **Sprayed Polyurethane Foam:** Closed cell meeting CAN/ULC S705.1-01, listed by CCMC as an insulation/air barrier with a minimum core density of 28.34 kg/m<sup>3</sup> to ASTM D1622. Product must be compatible with Torch Grade AVB for wall assemblies. "Walltite Eco" by BASF the Chemical Company, "Heatlock Soya" by Demilec, MD -C-200V2 by Icynene, or "Faom-lok" by Lapolla.
2. Design RSI value as indicated in test report; minimum RSI/25mm min: 1.05 (R6/inch).
3. **Primer:** as per manufacturers requirements and recommendations for surface conditons.
  - 3.1. 'Aquaprime' by Bakor Inc., 'Elastocol 700' by Soprema, or 'Mel-Prime Water base' by W.R. Meadows
4. **Transition Membrane:**
  - 4.1. 1.0mm thick, single ply, self-adhering, self-sealing, rubberized asphalt, bonded to a cross-laminated high density polyethylene film.

- 4.2. 'Blueskin SA' by Bakor Inc., 'Soprasedal Stick 1100' by Soprema, or 'Air-shield' by W.R. Meadows. **2.1**
- 4.3. **Mastic:** 'Elasto-Seal LM' by Bakor Inc., 'Sopramastic' by Soprema, or 'Sealtight Pointing Mastic' by W.R. Meadows. **MATERIALS**
- 4.4. **Fastening Bar:** Continuous 25mm wide x 3mm thick aluminum bar, predrilled for mechanical attachment. **(cont'd)**
- 4.5. **Fasteners:** as specified herein or manufacturer's recommended fastener for attaching to Substrate.
5. **Spray Equipment:** to ULC S705.2 and manufacturer's recommendations for product used.
- 5.1. Each proportioner to supply only one spray-gun.

### **PART 3 - EXECUTION**

#### **3.1 EXAMINATION**

1. Verify that surfaces and conditions are ready to accept the Work. Application of this section shall be deemed acceptance of the substrate and existing conditions. Report in writing defects in substrates, which may adversely affect the performance of the foam insulation.
2. Examine joints before sealing to ensure configuration, surfaces and widths are suitable for foam sealant. Report in writing the locations of joints which are deemed unacceptable for the application of joint sealant.

#### **3.2 PREPARATION**

1. Assure that surfaces to receive foam insulation are free of frost, loose or foreign matter, which might impair adhesion of materials.
2. Prepare surface by brushing, scrubbing, scraping or grinding to remove loose mortar, dust, oil, grease, oxidation, mill scale and other contaminants which will affect adhesion and integrity of the foam insulation system. Wipe down metal surfaces to remove release agents or other non-compatible with the foam insulation. Ensure surfaces are dry before proceeding.
3. Prepare joints to receive foam air barrier sealant by brushing, scrubbing, wiping, scraping or grinding to remove loose mortar, dust, oil, grease, solvents, oxidation, mill scale and other contaminants which will affect adhesion and integrity of foam sealant.
4. Install transition membrane at all openings and as noted on drawings

#### **3.3 APPLICATION**

1. Prior to application of insulation install clips, hangers, support sleeves and other attachments required to penetrate the insulation.
2. Apply foam insulation in strict accordance with manufacturer's written instructions, specifications or recommendations. For thickness and location see drawings.
3. Spray foam insulation only when surfaces and ambient temperatures are within limits prescribed by the material manufacturer.
4. Fill joints with foam sealant making allowances for post expansion of foam.
5. Assure that finish joints are free from air pockets and imbedded foreign materials. Cut back excess foam sealant after cutting flush with surrounding surfaces unless otherwise directed and/or detailed.

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6. Apply foam insulation to within the following tolerances: +6.4 mm (1/4"); -0 mm of thicknesses indicated on drawings. **3.3 APPLICATION (cont'd)**
7. Assure finished sprayed foam insulation is free of voids and imbedded foreign matters.
8. Do not allow foam insulation to cover or mark adjacent surfaces. Use masking materials if necessary.
9. Remove over-spray and masking materials immediately after foam has cured to hard surface film.
10. Clean and make good surfaces soiled or damaged by the Work of this section. Consult with section of soiled before cleaning to ensure methods used will not damage their Work.
11. Do not permit adjacent Work to damage the Work of this section. Damage to the Work of this section caused by other section shall be made good by this section at the expense of the section which caused the damage.
12. At hollow columns fill void with foam insulation through purpose-made openings at top and bottom of column. Replace access plates at openings.
1. Inspection and testing of sprayed-in-place materials will be carried out by a Testing Laboratory designated by Consultant, in accordance with CAN3-A23.1-M90. **3.4 FIELD QUALITY CONTROL**
2. Payment for inspection and testing will be made from a cash allowance. See Section 01 02 00 Cash Allowances.
3. Payment for re-testing and re-inspection of Work replacing that found defective, or at variance with the design specifications, will be the responsibility of the Contractor.
4. The inspection and testing company will notify the Consultant immediately, of any materials, tests or methods that vary from the design specification.

**END OF SECTION**



**PART 1 - GENERAL**

Comply with requirements of Division 1 and Supplementary Conditions.

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|---|--|
| 1. Membranes must meet or exceed requirements of CGSB 37.56–M (9 <sup>th</sup> Draft), <i>Modified bituminous membranes, prefabricated, and reinforced for roofing system.</i>  | <b>1.1<br/>REFERENCE<br/>STANDARD(S)</b> |
| 2. Membranes must meet or exceed requirements of ASTM D 6162, Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fiber Reinforcements. |  |
| 3. Membranes must meet or exceed requirements of ASTM D 6163, Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Glass Fiber Reinforcements.                                |  |
| 4. Membranes must meet or exceed requirements of ASTM D 6164, Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Polyester Reinforcements.                                  |  |
| 5. Roofing system must meet or exceeds requirements of CAN/ULC-S107-10, Methods of Fire Tests of Roof Coverings, class [A]  |  |

All waterproofing materials will be provided by the same manufacturer

**1.2  
COMPATABILITY**

Submit two (2) copies of the most current technical data sheets. These documents must describe the materials' physical properties [, and explanations about product installation, including, restrictions, limitations, and other manufacturer recommendations].

**1.3  
TECHNICAL  
DOCUMENTS**

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|--|---|
| 1. The manufacturer of elastomeric bitumen products will provide proof of ISO 9001 and ISO 14001 Certifications. | <b>1.4<br/>QUALITY<br/>ASSURANCE AND<br/>ENVIRONMENTAL<br/>MANAGEMENT</b> |
| 2. Project to be inspected by Jocelyn Roof Consultants Group Inc.  |   |
| 3. Manufacturer to provide inspections deemed necessary to provide required warranties.                          |   |

Roofing contractors and sub-contractors must also be registered with manufacturer as qualified and trained installer. Contractor to provide the consultant proof of certification before beginning any roofing work

**1.5  
CONTRACTOR  
QUALIFICATION**

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| 1. All materials will be delivered and stored in their original packaging, in conformance with manufacturer requirements.  | <b>1.6<br/>STORAGE AND<br/>DELIVERY</b> |
| 2. At all times, materials will be adequately protected and stored in a dry and properly ventilated area, away from any welding flame or spark and sheltered from the elements or any harmful substance. |   |
| 3. Store adhesives and emulsion-based waterproofing mastics at a minimum 5°C (41°F).   |   |
| 4. Store adhesives and solvent-based mastics at sufficient temperatures to ensure ease of application.   |   |
| 5. Materials delivered in rolls will be carefully stored upright; flashing will be stored to avoid creasing, buckling, scratches or any other possible damage.   |   |
| 6. Avoid material overloads which may affect the structural integrity of specific roof areas   |   |

1. Prior to the start of work, conduct a site inspection to make sure that all procedures and proposed changes are approved to minimize the risk of fires.
2. Respect safety measures described by the local association recommendations.
3. At the end of each workday, use a heat detector gun to spot any smoldering or concealed fire. Job planning must be organized to ensure workers are still on location at least one hour after torch application.
4. Never apply the torch directly to old and wood surfaces.
5. Throughout roofing installation, maintain a clean site and have one approved ABC fire extinguisher within 6 m (20 ft) of each roofing torch. Respect all safety measures described in technical data sheets. Torches must never be placed near combustible or flammable products. Torches should never be used where the flame is not visible or cannot be easily controlled

**1.7  
FIRE PROTECTION**

1. The membrane manufacturer will issue a written document in the owner's name, valid for a 20-year period, saying that it will repair any leaks in the roofing membrane to restore the roofing system to a dry and watertight condition, to the extent that membrane manufacturing or installation defects caused water infiltration. The warranty must cover for the entire cost of the repair(s) during the entire warranty period. The contractor will issue a written and signed document in the owner's name, certifying that the work executed will remain in place and free of any workmanship defect for a period of 20 years, starting from the date of acceptance. The warranty certificate must reflect these requirements.
2. The contractor will provide a written and signed document to the owner certifying that the work executed will remain in place and free of waterproofing defect for a period of 2 years from the date of acceptance.

**1.8  
WARRANTIES**

1. Materials satisfying the description and performance criteria of the specified materials will be considered equal alternatives.
2. Acceptable manufacturers include Soprema, IKO, Lexcor, Henry and Siplast. Other manufacturers may be considered based on review of materials.

**1.9  
SUBSTITUTIONS**

**PART 2 - PRODUCTS**

**2.1  
MEMBRANES**

1. **High-Density Polyisocyanurate Board and Base Sheet Membrane:**
  - 1.1. Description: Board composed of SBS modified bitumen membrane with a polyester reinforcement, factory-laminated on a HD polyisocyanurate insulation board. The board measures 0.91 m x 2.44 m (3 ft x 8 ft). The surface is covered with thermofusible plastic film. The membrane side lap is part self-adhesive and part thermofusible.
  - 1.2. Thickness: [12.7 mm (1/2 in)]
  - 1.3. In conformance with: CGSB 37.56-M
  - 1.4. Standard of Acceptance: 3-1 SOPRASMART ISO HD by SOPREMA

2. **Flashing Base Sheet Membrane.**

- 2.1. Description: Membrane composed of SBS modified bitumen and non-woven polyester reinforcement. The upper and lower surfaces are covered with a thermofusible plastic film.
- 2.2. In conformance with: CGSB 37.56-M).  
Specified product: SOPRAPLY FLAM STICK 180 by SOPREMA

2.1  
MEMBRANES  
(Cont'd)

3. **Roofing Cap Sheet Membrane for Field Surfaces**

- 3.1. Description: Roofing membrane composed of SBS modified bitumen with a composite reinforcement and elastomeric bitumen. The surface is protected by coloured granules. The underface is covered with a thermofusible plastic film.
- 3.2. In conformance with ASTM D6162.
- 3.3. Specified Product: SOPRAPLY TRAFFIC CAP 560 by SOPREMA
- 3.4. For field surfaces colour: GREY.

4. **Roofing Cap Sheet Membrane for Flashings and Parapets**

- 4.1. Description: Roofing membrane composed of SBS modified bitumen with a composite reinforcement and elastomeric bitumen. The surface is protected by coloured granules. The underface is covered with a thermofusible plastic film.
- 4.2. In conformance with ASTM D6162.  
Specified Product: SOPRAPLY TRAFFIC CAP 560 by SOPREMA

1. **Cover Strip:**

- 1.1. Description: Membrane strip [330 mm (13 in)] made of SBS modified bitumen and composite reinforcement. Both faces are covered with a plastic thermofusible film. The strip ensures watertightness in the end laps.
- 1.2. In conformance with ASTM D6162.
- 1.3. Specified product: SOPRALAP STICK by SOPREMA.

2.2  
ACCESSORY  
MEMBRANES

2. **Flame-stop membrane:**

- 2.1. Description: Self-adhesive membrane composed of a reinforced glass mat and SBS modified bitumen designed to prevent flames from penetrating into empty spaces and openings while installing heat-welded membranes.
- 2.2. Standard of Acceptance: SOPRAGUARD tape by SOPREMA

3. **Vapour Barrier:**

- 3.1. Self adhesive SBS modified membrane
- 3.2. ELASTOPHENE SP by SOPREMA

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| <p>4. <b><u>Walkway Roofing Cap Sheet Membrane:</u></b></p> <p>4.1. Description: Roofing membrane composed of SBS modified bitumen with a composite reinforcement and elastomeric bitumen. The surface is protected by coloured granules. The underface is covered with a thermofusible plastic film.</p> <p>4.2. In conformance with ASTM D6162.<br/>Specified Product: SOPRAPLY TRAFFIC CAP 560 by SOPREMA</p> <p>4.3. Colour: Green</p> | <p><b>2.2</b><br/><b>ACCESSORY</b><br/><b>MEMBRANES</b><br/><b>(Cont'd)</b></p> |
| <p>1. <b><u>Vapour Barrier Support Panels:</u></b> (for use on metal deck)</p> <p>1.1. Description: Gypsum-Fiber Roof Board, [12.5 mm thick].</p> <p>1.2. In conformance with ASTM E 84 and ASTM C 1177</p> <p>1.3. Specified product: DENS DECK PRIME</p>   | <p><b>2.3</b><br/><b>SHEATHING</b><br/><b>BOARD</b></p>                         |
| <p>1. <b><u>Vapour Barrier Support Panels:</u></b></p> <p>1.1. Description: pre-assembled fasteners with #14 drill point self-tapping screws, with 75mm (3") diameter galvalume plate in diameter.</p> <p>1.2. In conformance with FM 4470 Approvals standard.</p> <p>1.3. Specified products: #14 HD Roofing Fasteners</p>  | <p><b>2.4</b><br/><b>FASTENERS</b></p>  |
| <p>1. <b><u>Primer for heat welded membranes:</u></b></p> <p>1.1. Description: Made of bitumen, volatile solvents and adhesive enhancing additives. Used as primer to enhance the adhesion of torch-applied waterproofing membranes.</p> <p>1.2. Specified product: ELASTOCOL 500 by SOPREMA</p>   | <p><b>2.5</b><br/><b>PRIMER</b></p>   |
| <p>2. <b><u>Primer for self-adhesive membranes:</u></b></p> <p>2.1. [Description: Composed of SBS synthetic rubber, volatile solvents, adhesive enhancing resins and volatile solvent. Used as primer to enhance the adhesion of self-adhesive membranes.]</p> <p>2.2. Specified product: ELASTOCOL STICK by SOPREMA</p>   |   |
| <p>1. <b><u>Insulation adhesive:</u></b></p> <p>1.1. Description: A highly elastomeric, two components foamable adhesive that can be applied at any temperature and sets in minutes.</p> <p>1.2. Specified product: DUOTACK by SOPREMA</p>   | <p><b>2.6</b><br/><b>ADHESIVES</b></p>  |
| <p>1. Poly-iso cyanurate board insulation.</p> <p>2. Closed-cell polyisocyanurate foam insulation board laminated on both sides to CAN /ULC –S704</p>  | <p><b>2.7</b><br/><b>INSULATION</b></p>   |

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|---|---|
| <p>3. Insulation boards 1200mmx1200mm (4'x4') for adhesive application.</p> <p>4. Insulation thickness – (2")</p> <p>5. <u>Tapered Insulation:</u></p> <p>5.1. Poly-iso cyanurate board insulation.</p> <p>5.2. Closed-cell polyisocyanurate foam insulation board laminated on both sides to CAN /ULC –S704</p> <p>5.3. Designed to create slopes as shown on roof plans.</p>  | <p><b>2.7</b><br/><b>INSULATION</b><br/><b>(Cont'd)</b></p>                             |
| <p>1. <u>Waterproofing mastic:</u></p> <p>1.1. Description: Multi-purpose solvent-based mastic, containing SBS modified bitumen fibres with aluminum pigments and mineral fillers.</p> <p>1.2. Specified product: SOPRAMASTIC ALU by SOPREMA.</p> <p>2. <u>Pitch pockets</u></p> <p>2.1. Description: Polyurethane prefabricated pitch pocket system, in various size, with compounds that bond together, with solventless mastic and with one component elastomeric sealant.</p> <p>2.2. Polyether-based, single-component, water-reactive elastomeric sealant and adhesive used to bond precast blocks to substrate. -SOPRAMASTIC SP2</p> <p>2.3. Polyether-based, single-component, water-reactive elastomeric sealing mastic – SOPRAMASTIC PF</p> <p>2.4. Standard of Acceptance: SOPRAMASTIC BLOCKS</p> <p>3. <u>Sealing product</u></p> <p>3.1. Description: Bitumen/polyurethane waterproofing mono-component resin and polyester reinforcements.</p> <p>3.2. Standard of Acceptance: ALSAN FLASHING and FLASHING REINFORCEMENT by SOPREMA</p> | <p><b>2.9</b><br/><b>COMPLEMENTARY</b><br/><b>WATERPROOFING</b><br/><b>PRODUCTS</b></p> |
| <p>1. Asphalt based metallic colour metal coating</p> <p>2. Bakor 810-18</p>  | <p><b>2.10</b><br/><b>METAL</b><br/><b>COATING</b></p>                                  |
| <p>1. Roof Drain: consists of a vandal proof cast aluminum dome with cleaning provision, cast aluminum stabilizer ring, aluminum mounting bolts, recessed aluminum drain body and straight outlet.</p> <p>2. Aluminum Retrofit deck drain Copper Roof Drain by Platinum.</p> <p>3. Include retrofit drain inserts U-Flow for connection</p>   | <p><b>2.11</b><br/><b>ROOF</b><br/><b>DRAINS</b></p>                                    |

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| 1. Mechanical/Electrical Flashing: AMS model MEFA, 12" (305 mm) high c/w Gooseneck Assembly with multiple wire sleeves   | 2.12<br>MECHANICAL<br>ELECTRICAL<br>FLASHING |
| 2. Use for all electrical and mechanical penetrations through the roof membrane  |  |
| 1. Monolithic expansion joint made of EPDM-based synthetic rubber consisting of two (2) flanges coated on the surface and underface with a woven oxidized and stabilized polyacrylonitrile, with an expandable core.   | 2.13<br>EXPANSION<br>JOINT                   |
| 2. Expansion joint allows movement in the three (3) axis (horizontal, vertical and shear) at the same time   |  |
| 3. SOPRAJOINT PLUS by SOPREMA  |  |
| 1. <b><u>Vent Stack Flashings:</u></b>   | 2.14<br>VENT STACK<br>FLASHINGS              |
| 1.1. Insulated spun aluminum sleeve and base flange.   |  |
| 1.2. Removable self-sealing cap.   |  |
| 1.3. Thaler SJ 26/27 or equivalent   |  |
| 1.4. Oversized cast vent stacks will require tall cone with storm collar   |  |
| 2. <b><u>Tall Cone Flashing:</u></b>   |  |
| 2.1. Spun aluminum tall cones sized to fit penetration   |  |
| 2.2. Rain skirt - adjustable aluminum rain skirt   |  |
| 2.3. Reference Platinum spun aluminum storm collar   |  |
|  | <b><u>PART 3 – EXECUTION</u></b>             |
| 1. <b><u>Surface Examination and Preparation:</u></b>  | 3.1<br>EXECUTION                             |
| 1.1. Surface examination and preparation must be completed in conformance with manufacturer's instructions and recommendations.  |  |
| 1.2. Before roofing work begins, OPG's Representative and roofing foreman will inspect and approve deck conditions (including slopes and wood blocking) as well as upstands and parapets, construction joints, roof drains, plumbing vents, ventilation outlets and others. If necessary, a non-conformity notice will be issued to the Contractor so that required corrections can be made. |  |
| 1.3. Do not begin any work before surfaces are smooth, dry, and free of ice and debris. Use of calcium or salt is forbidden for ice or snow removal.   |  |
| 1.4. No materials will be installed during rain or snowfall.   |  |

1. **Method of Installation:**

- 1.1. Roofing work must be completed in a continuous fashion as surfaces are prepared and weather conditions permit.
- 1.2. Seal all seams that are not covered by a cap sheet membrane in the same day. The cap sheet cannot be installed if any moisture is present at/in the base sheet seams.
- 1.3. Ensure waterproofing conditions for roofs at all times, including protection during installation work by other trades and progressive protection as work is completed (e.g., vents, drains, etc.).
- 1.4. Ensure no fume kettles and use of tar during school operation.

2. **Installation of Flame-Stop Membranes:** (where needed)

- 2.1. Adhere the membrane directly onto an approved substrate by peeling back the silicone release film. Tape is designed to prevent flames from penetrating into empty spaces and openings while installing heat-welded membranes.
- 2.2. Unroll the flame-stop membrane onto the insulation without adhering, being careful to overlap adjacent strips to ensure that the flame will not come in contact with the insulation.

3. **Installation of Boards and Factory-Laminated Base Sheet:**

- 3.1. Adhere base sheet board using adhesive applied in continuous strips
- 3.2. Adhesive ribbons spaced 6" on the field surface, 4" on the perimeter, and 4" on corners.
- 3.3. All boards must be in perfect connection, without any significant variances in level, and must be completely adhered to the surface.
- 3.4. Adhere the first part of the self-adhesive side laps using a membrane roller, then heat-weld the last part, heat-welded side laps).
- 3.5. Seal end laps by welding a 330-mm (13-in) wide protection strip centered on the joint.
- 3.6. Avoid the formation of wrinkles, swellings or fishmouths.

4. **Base Sheet Flashing Installation:**

- 4.1. Install base sheet flashing same day as base sheet membrane.
- 4.2. Base sheet flashing to installed in full roll width sections.
- 4.3. Apply base sheet flashing only after primer coat is dry.
- 4.4. Cut off corners at end laps to be covered by the next roll.
- 4.5. Overlap side laps by 75 mm (3"). Flashing to extend onto the field of the roof minimum 8" Stagger end joints by a minimum of 300 mm (12 in).
- 4.6. This base sheet membrane must be adhered directly to the prepared surface.

3.2  
INSTALLATION

- 4.7. Use membrane roller to provide good contact between membrane and substrate proceeding from top to bottom.
- 4.8. Using a propane torch butter all laps and seams.
- 4.9. Avoid the formation of wrinkles, voids or fishmouths.
- 4.10. Base membrane to extend over parapet and down outside face 100mm (4")
5. **Installation of Reinforced Gussets:**
- 5.1. Install a reinforcing gusset in all inside and outside corners.
- 5.2. Heat-weld the gussets in place after installing base sheet membrane.
6. **Installation of Heat-Welded Reinforcements:**
- 6.1. Install reinforcements specified for various roof surfaces according to the following instructions and illustrations of membrane manufacturer.
7. **Roofing Cap Sheet Installation (Torch-Applied Membrane):**
- 7.1. Begin with double-selvage starter roll. If starter roll is not used, side laps covered in granules must be degranulated by embedding side laps in torch-heated bitumen over a 75 mm (3 in) width.
- 7.2. Starting at drain, Unroll the cap sheet membrane on the base sheet without adhering, taking care to align the first strip parallel to the edge of the roof.
- 7.3. Cut off corners at end laps to be covered by the next roll.
- 7.4. Overlap side laps by along lines provided for this purpose and overlap end laps by 150 mm (6 in) Stagger end joints by a minimum of 300 mm (12 in).
- 7.5. Cap sheet to extend to outer edge of parapet horizontal surface.
- 7.6. During installation, be careful not to overheat the membrane.
- 7.7. Avoid the formation of wrinkles, voids or fishmouths.
- 7.8. Conserve membrane's appearance. Avoid walking over finished surfaces; use protective walkways as needed.
8. **Installation of Heat-Welded Cap Sheets on Upstands and Parapets:**
- 8.1. This cap sheet must be installed in one-metre-wide strips.
- 8.2. Overlap side laps y along lines provided for this purpose and overlap end laps by 150 mm (6 in). The side joints must overlap and must be staggered by at least 100 mm (4 in) with respect to the joints of the cap sheet on the field surface, to avoid areas of excessive membrane thickness.



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8.3. Cut off corners at end laps to be covered by the next roll.	
8.4. Use a chalk line to draw a straight line on the field surface 150 mm (6 in) from the upstands and parapets.	<b>3.2 INSTALLATION (Cont'd)</b>
8.5. Use a propane torch and round-nose trowel to embed the surface granules in the layer of hot bitumen starting from the chalk line on the field surface to the bottom edge of the upstand or parapet as well as on the granulated vertical surfaces that are to be overlapped.	
8.6. This cap sheet will be heat-welded directly to the base sheet membrane, proceeding from bottom to top.	
8.7. Avoid the formation of wrinkles, voids or fishmouths.	
8.8. During installation, be careful not to overheat the membrane.	
Protect finished work to avoid damage during roof installation and material transportation. Install protective boardwalks over installed roofing materials to enable passage of people and products. Assume full responsibility for any damage	<b>3.3 SITE PROTECTION</b>
Protect finished work to avoid damage during roof installation and material transportation. Install protective boardwalks over installed roofing materials to enable passage of people and products. Assume full responsibility for any damage	<b>3.4 REMOVAL AND DISPOSAL</b>
Concrete deck to be smooth and clean before commencing roof installation.	<b>3.5 PREPARATION WORK - CONCRETE DECK</b>
Roofing substrates of wood, metal, concrete, masonry, or gypsum board surfaces will receive a coat of asphalt primer at a rate of .15 to .25 L/sq.m. All surfaces to be primed must be free of rust, dust or any residue that may hinder adherence. Cover primed surfaces with roofing membrane as soon as possible (same day coverage for self-adhesive membranes).	<b>3.5 APPLICATION PRIMER</b>
1. Drain installation will need mechanical retrofit connection i.e., U – Flow	<b>3.6 ROOF DRAINS</b>
2. Insulation and coverboard to be neatly cut around drains and plumbing stacks etc.	
3. Roof drains are to be set in a layer of plastic cement on the base sheet and reinforced with an additional layer of base sheet.	
4. Flanges of the roof drains are to be primed with bitumastic paint and allowed to dry before installing.	
1. Install waterproofing membranes in conformance with various roofing details illustrated in the manufacturer's manual instructions and recommendations.	<b>3.7 WATERPROOFING FOR VARIOUS DETAILS</b>
2. Where penetration flashing cannot accommodate gooseneck style flashing, interclip flashing pitch pans will be considered.	
1. Apply sealant to all reglets upon complete of flashing, at the junction of the metal flashing return and adjacent building members.	<b>3.8 SEALING</b>

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2. Apply sealant where shown or required by common Good Roofing Practice.
  
  1. Install torch applied Walkway Roofing Cap Sheet Membrane as protection for travelled areas.
  2. Prime cap sheet for traffic cap application.
  3. Install walkway in full three foot widths.
  4. Install walkway where noted on the roof plan and at access points, doors, base and top of stairs and ladders

**3.9  
WALKWAY**

**END OF SECTION**

**PART 1 - GENERAL**

Comply with requirements of Division 1 and Supplementary Conditions.

Wood Nailers and Blocking	Section 06 10 00	1.1
Roofing and Roof Insulation	Section 07 51 00	RELATED
Caulking other than Sheet Metal	Section 07 90 00	WORK
Flashings Specified for Mechanical Work	Section 23 00 00	
Ductwork	Section 23 31 00	

1. Generally, observe the flashing principles and sheet metal Work as described and illustrated in the Canadian Roofing Contractors Association (CRCA) manual. 1.2 REFERENCE STANDARDS
2. Shop and field Work to be in accordance with good sheet metal practice, by skilled tradesman under competent supervision.

Include the Work of this section in the Inspection of Roofing, Section 07 51 0 0. 1.3 INSPECTION AND TESTING

1. **Samples:** 1.4 SUBMITTALS
  - 1.1. Provide samples of sheet metal materials, colour, finish, design, finished profiles, joints and the like as requested in accordance with Section 01 30 00.

1. Protect sheet metal during delivery, storage and handling to prevent rusting, staining, abrasion of finish coatings, bending and denting. 1.5 DELIVERY, STORAGE AND HANDLING
2. Protect surfaces of pre-coated metal to prevent scratching.

The Work of this section is to form a part of the warranty on Roofing, Section 07 51 00 but for a period of one (1) year from date of Substantial Performance. 1.6 WARRANTY

**PART 2 - PRODUCTS**

1. **Metal Flashings:** 2.1 MATERIALS
  - 1.1. Galvanized steel 0.457 (24GA) core nominal
  - 1.2. Thickness conforming to ASTM A528, Z275 zinc coated galvanized to G-90 by Hot-dip process.
2. **Finish:**
  - 2.1. Stelco series "8000" OR
  - 2.2. Valspar "Weather-XL
  - 2.3. Colour: selected by Consultant from Manufacturer's Standard Range to match existing.
3. **Isolation Coating:** Alkali resistant bituminous paint.
4. **Plastic Cement:** To CGSB 37-GP-5M.

5. **Underlay for Metal Flashings:** Equal to Bakor Blueskin PE 200 Ht: self-seal, self-adhering membrane. **2.1**
6. **Solder:** To ASTM B32-76, 50% tin and 50% lead. **MATERIALS**
7. **Flux:** Resin, cut hydrochloric acid, or commercial preparation suitable for materials to be soldered. **(cont'd)**
8. **Fasteners:**
- 8.1. To CSA B111-1974.
- 8.2. **Material:** Of same material and finish as the metal being fastened.
- 8.3. **Size:** Of length and thickness suitable for particular application.
9. **Touch-Up Paint:** As recommended by metal flashing and trim manufacturer.
10. **Caulking:** Equal to Dow Corning 790. Single component silicone base building sealant to CAN/CGSB 19-13-87M.
11. **Cleats:**
- 11.1. **Materials:** Same as material being fastened.
- 11.2. **Thickness:** Same as material being fastened.
- 11.3. **Size:** Minimum width 1-1/2" (38 mm) and long enough to make at least a 2" (13 mm) interlock with sheet metal and to fold over nail heads.
12. **Exposed Rainwater Leaders:** Supplied under Section 05 50 00

1. **General:** **2.2**
- 1.1. Fabricate all possible Work in shop by brake forming, bench cutting, drilling and shaping. To CRCA details and as indicated. **FABRICATION**
- 1.2. Provide all accessories required for installation of Work of this section. Accessories to match in all respects Work with which they are to be incorporated.
- 1.3. Double back exposed metal edges on underside 1/2" (13 mm).
- 1.4. Form pieces in 8'-0" (2400 mm) maximum lengths; pre-coated steel to be formed in 12'-0" (3600 mm) maximum lengths.
- 1.5. Form sections square, true and accurate to size, to profiles indicated and free from distortion and other defects detrimental to appearance or performance. Mitre all corners.
- 1.6. Apply isolation coating to metal surfaces to be embedded in concrete or mortar.
- 1.7. Slope coping cap flashings a minimum 1:50 to drain water to roof.

Install sheet metal work in accordance with CRCA recommendations.

**PART 3 - EXECUTION**

**3.1**  
**GENERAL**

1. Arrange sheet metal Work to provide adequately for thermal expansion and contraction.
2. Install sheet metal Work to prevent entry of water under service and all weather conditions.
3. Do not form open joints or pockets that fail to drain water.
4. Back paint with bituminous paint sheet metal coming in contact with another kind of metal, masonry or concrete.
5. Use concealed fastenings except where approved otherwise before installation.
6. Install concealed cleats at 12" (300 mm) o.c. where required to fasten sheet metal. Secure each cleat to backing with two nails. Turn cleats back to cover nail heads and lock them into folded edge of metal being fastened.
7. Join sheet metal by slip lock seams to permit thermal movement. Space joints evenly where exposed. Lock seam and solder or caulk internal corners.
8. Caulk junctions of metal within the Work of this Section and where metal flashings are let into abutting materials provided under other Sections.
9. Form all metal flashings for building into masonry to profiles indicated or required for proper completion of the Work and delivered to site for building in by mason.
10. Lay sheet metal installed over and which would otherwise be in contact with concrete, stucco, masonry or insulation board over an approved underlay paper which has been secured in place with joints lapped 4" (100 mm).
11. **Downspouts:** Form with slip joint and include scuppers at top and shoes at discharge end.
12. **Exposed Rainwater Leaders:** see elevations for configurations. Weld joints at changes in direction – cut welded edges and grind smooth.

**3.2  
INSTALLATION**

1. Inspection of flashing application will be carried out by testing laboratory designated by Consultant for the roof membrane.
2. Costs of the inspection will be paid under cash allowance by Owner.

**3.3  
FIELD QUALITY  
CONTROL**

**END OF SECTION**

**PART 1 - GENERAL**

Comply with requirements of Division 1 and Supplementary Conditions.

Masonry Work	Section 04 20 00	<b>1.1 RELATED WORK</b>
Sealants	Section 07 90 00	
Gypsum Drywall Systems	Section 09 25 00	
Basic Mechanical Materials and Methods	Section 23 00 00	
Plumbing	Section 23 06 00	
Mechanical Insulation	Section 23 07 00	
Basic Electrical Materials and Methods	Section 26 00 00	
1. Underwriters' Laboratories of Canada (ULC).		<b>1.2 REFERENCES</b>
2. CAN/ULC-S101-04: Standard Methods of Fire Endurance Tests of Building Construction and Materials.		
3. CAN/ULC-S115-05: Standard Methods of Fire Tests for Firestop Materials.		
4. ULC List of Equipment and Materials		
1. <b><u>Samples:</u></b>		<b>1.3 SUBMITTALS</b>
1.1. Submit samples in accordance with Section 01 30 00.		
1.2. Submit duplicate 300 x 300 mm samples showing actual firestop material proposed for project.		
2. <b><u>Shop Drawings:</u></b>		<b>1.4 QUALITY ASSURANCE</b>
2.1. Submit shop drawings and product data in accordance with Section 01 30 00.		
2.2. Submit shop drawings to show proposed material, reinforcement, anchorage, fastenings and method of installation. Construction details should accurately reflect actual job conditions.		
2.3. Submit manufacturer's product data for materials and prefabricated devices, providing descriptions are sufficient for identification at job site. Include manufacturer's printed instructions for installation.		
1. Engage an experienced installer who is certified, licensed, trained by the firestopping manufacturer as having the necessary experience, staff and training to install manufacturer's products per specified requirements.		
2. Confer with manufacturer's direct representative on site during initial installation.		
1. Deliver materials undamaged in manufacturer's clearly labelled, unopened containers identified with brand, type and ULC or cUL label where applicable.		<b>1.5 DELIVERY, STORAGE AND HANDLING</b>
2. Coordinate delivery of materials with scheduled installation date to allow minimum storage time at job-site.		
3. Store materials in compliance with manufacturer's requirements, including temperature restrictions.		

1. Do not use materials that contain flammable solvents.
2. Schedule installation of firestopping after completion of penetrating item installation but prior to covering or concealing of openings.
3. Verify existing conditions and substrates before starting work. Correct unsatisfactory conditions before proceeding.
4. Weather conditions: Do not proceed with installation of firestop materials when temperatures exceed the manufacturer's recommended limitation for installation printed on product label and product data sheet.
5. During installation, provide masking and drop cloths to prevent firestopping materials from contaminating any adjacent surfaces.

1.6  
PROJECT  
CONDITIONS

**PART 2 - PRODUCTS**

1. 3M Building and Commercial Services Division
2. A/D Fire Protection Systems Inc.
3. Dow Corning Canada Inc.
4. Firestop Systems Inc. distributed by Multi-Glass Insulation Ltd.
5. Hilti (Canada) Corporation.
6. Tremco Ltd.

2.1  
ACCEPTABLE  
MANUFACTURERS

1. **Firestopping and Smoke Seal Systems**: in accordance with CAN/ULC-S115-11, CAN/ULC- S101-07, ASTM E119, and ASTM E-814.
  - 1.1. Asbestos free materials and systems capable of maintaining an effective barrier against flame, smoke and gases in compliance with requirements of CAN/ULC-S115-11 and not to exceed opening sizes for which they are intended.
  - 1.2. Tests shall be performed by an accredited testing agency acceptable to local Jurisdictional Authority.
2. **Service Penetration Assemblies**: Certified by ULC in accordance with CAN/ULC-S115-11 and listed in ULC Guide No. 40 U19.
3. **Service Penetration Firestop Components**: Certified by ULC in accordance with CAN/ULC-S115-11 and listed in ULC Guide No. 40 U19.13 and ULC Guide No. 40 U19.15 under the Label Service of ULC.
4. **Fire Resistance Rating of Installed Firestopping Assembly**: not to be less than the fire resistance rating of surrounding floor and wall assembly as indicated.
5. **For Firestopping and Smoke Seals at Openings Intended for Ease of Re-entry**: such as cables, use elastomeric seal; do not use cementitious or rigid seal at such locations.
6. **For Firestopping and Smoke Seals at Openings Around Penetrations**: for pipes, ductwork and other mechanical items requiring sound and vibration control use elastomeric seal; do not use a cementitious or rigid seal at such locations.
7. **Primers**: to Manufacturer's recommendation for specific material, substrate, and end use.
8. **Water (If Applicable)**: Potable, clean and free from injurious amounts of deleterious substances.

2.2  
MATERIALS

9. **Damming and Backup Materials, Supports and Anchoring Devices**: to Manufacturer's recommendations, and in accordance with tested assembly being installed as acceptable to authorities having jurisdiction. **2.3 MATERIALS (Cont'd)**
10. **Sealants for Vertical Joints**: Non-sagging.
11. **Rock Wool**: Roxul "Safe"

**PART 3 - EXECUTION**

**3.1 PREPARATION**

1. Examine sizes and conditions of voids to be filled to establish correct thicknesses and installation of materials. Ensure that substrates and surfaces are clean, dry and frost free.
2. Prepare surfaces in contact with fire stopping materials and smoke seals to manufacturer's instructions.
3. Maintain insulation around pipes and ducts penetrating fire separation.
4. Mask where necessary to avoid spillage and over coating onto adjoining surfaces; remove stains on adjacent surfaces.

**3.2 INSTALLATION**

1. Install firestopping and smoke seal material and components in accordance with ULC certification and manufacturer's instructions.
2. Seal holes or voids made by through penetrations, poke-through termination devices and unpenetrated openings or joints to ensure continuity and integrity of fire separation are maintained.
3. Provide temporary forming as required and remove forming only after materials have gained sufficient strength and after initial curing.
4. Tool or trowel exposed surfaces to a neat finish.
5. Remove excess compound promptly as work progresses and upon completion

Notify Consultant when ready for inspection and prior to concealing or enclosing firestopping materials and service penetration assemblies.

**3.3 INSPECTION**

1. Work of firestopping and smoke seals shall include but not limited to the following:

**3.4 LOCATION**

- 1.1. Penetrations through fire resistance rated masonry, concrete, and gypsum board work including where rated construction is reduced by installation of item such as elevator control buttons and similar devices.
- 1.2. Top of fire resistance rated masonry and gypsum board work.
- 1.3. Intersection of fire resistance rated masonry and gypsum board work.
- 1.4. Control joints in fire resistant rated masonry and gypsum board work.
- 1.5. At edge of floor slabs at juncture with wall envelope.
- 1.6. Penetrations through fire resistant rated floor slabs, ceilings and similar members.



- 1.7. Openings and sleeves installed for future use through fire resistant rated separations.
- 1.8. For '0' hour fire rated separations (to prevent smoke movement) pack void space at all service penetrations and other openings with either tightly packed Roxul insulation, or sealant, or a combination of both. The sealant need not be rated.
- 1.9. Mechanical and Electrical through penetrations including formed, sleeved, or cored openings in smoke and fire-rated concrete block walls, concrete walls and gypsum board partitions structural floors and ceilings.
- 1.10. For penetrations through a Fire Separation wall provide a firestop system with a "F" rating as determined by ULC or cJUL as indicated below:

Fire Resistance Rating of Separation	Required ULC or cJUL "F" Rating of Firestopping Assembly
30 minutes	20 minutes
45 minutes	45 minutes
1 hour	45 minutes
1.5 hours	1 hour
2 hours	1.5 hours
3 hours	2 hours
4 hours	3 hours

For combustible pipe penetrations through a Fire Separation provide a firestop system with a "FT" Rating as determined by ULC or cJUL which is equal to the fire resistance rating of the construction being penetrated.

- 1.11. For penetrations through a Fire Wall or horizontal Fire Separation provide a firestop system with a "F" Rating as determined by ULC or cJUL which is equal to the fire resistance rating of the construction being penetrated.
- 1.12. For joints provide a firestop system with an Assembly Rating as determined by CAM4-S115-M, ULC-S115-M or UL 2079 which is equal to the fire resistance rating of the construction being penetrated.

1. Remove excess materials and debris and clean adjacent surfaces immediately.
2. Remove temporary dams after initial set of firestopping and smoke seal materials.
3. Remove firestopping from materials and surfaces not specifically required to be sealed.

1. Inspection of firestopping application will be carried out by testing laboratory designated by the Consultant.
2. Costs of tests will be paid under Cash Allowance. Section 01 02 00.
3. Advise inspection company 48 hours prior to the commencement of waterproofing.

**3.4  
 LOCATION  
 (Cont'd)**

**3.5  
 CLEAN UP**

**3.6  
 FIELD QUALITY  
 CONTROL**

**END OF SECTION**

**PART 1 - GENERAL**

Comply with requirements of Division 1 and Supplementary Conditions.

Caulking Related to Millwork	Section 06 24 00	<b>1.1 RELATED WORK</b>
Caulking Related to Roofing	Sections 07 50 00 and 07 60 00	
Caulking at Windows and Aluminum Entrances	Sections 08 40 00 and 08 50 00	
Caulking at Gypsum Drywall	Section 09 20 00	
HVAC	Section 23 00 00	

Installation by a recognized specialized applicator with at least 5 years experience employing skilled mechanics trained and competent in all phases of sealant application. **1.2  
QUALIFICATIONS**

1. **American Society for Testing and Materials (ASTM):** **1.3  
REFERENCES**

- 1.1. ASTM C679 – Standard Test Method for Tack-Free Time of Elastomeric Sealants.
- 1.2. ASTM C719 – Standard Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cyclic Movement (Hockman Cycle).
- 1.3. ASTM C794 - Standard Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants.
- 1.4. ASTM C920 – Elastomeric Joint Sealants.
- 1.5. ASTM C1135 – Standard Test Method for Determining Tensile Adhesion Properties of Structural Sealants.
- 1.6. ASTM C1193 – Standard Guide for Use of Joint Sealants.
- 1.7. ASTM C1248 - Standard Test Method for Staining Porous Substrate by Joint Sealants.
- 1.8. ASTM C1330 – Cylindrical Sealant Backing for Use with Cold Liquid Applied Sealants.
- 1.9. ASTM D412 – Standard Test Method for Vulcanized Rubber and Thermoplastic Rubbers and Thermoplastic Elastomers - Tension.
- 1.10. ASTM D2202 - Standard Test Method for Slump of Sealants

1. Provide in accordance with Section 01 33 00 - Submittal Procedures: **1.4  
SUBMITTALS**

- 1.1. Product data for silicone sealant and joint backing. Include material safety data sheets (MSDSs) and certifications showing compliance with specified standards.
- 1.2. Shop drawings detailing sealant joints and indicating joint dimensions, materials, sealant profile, and size limitations.
- 1.3. Manufacturer's color chart for selection by the consultant.
- 1.4. Manufacturer's instructions for installation and field quality control testing.

Deliver and store materials in original wrappings and containers with Manufacturers' seals and labels intact. Protect from freezing, moisture, water and contact with ground or floor. **1.5  
DELIVERY,  
STORAGE, AND  
HANDLING**

1. Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labeling and provision of material safety data sheets acceptable to Labour Canada.
2. Do not install silicone sealant during inclement weather or when such conditions are expected. Allow wet surfaces to dry.
3. Do not install sealant when temperature is less than [-29°C].

**1.6  
ENVIRONMENTAL  
AND SAFETY  
REQUIREMENTS**

1. Best & Better Choice Sealant – 20 year Non Stain Warranty (DC 790, 795, 756 SMS)
2. Good Choice Sealant - 5 year Weatherseal Warranty (DC CWS or CCS)
3. **From date of Substantial Performance. Provide sealant validation by the Sealant Waterproofing and Restoration Institute.**

**1.7  
WARRANTY**

**PART 2 – PRODUCTS**

**2.1  
MATERIALS**

1. **Sealant:** Non-bleeding and capable of supporting their own weight except for the self-leveling type sealant for horizontal surfaces. Allow for special colours as selected by the Consultant.
2. **Joint Backing Material:**
  - 2.1. **Vertical Surfaces:** equal to Soft Rod and extruded polyolefin foam by Tremco Ltd.
  - 2.2. **Horizontal Surfaces:** equal to Standard Backer Rod closed cell polyethylene foam by Tremco Ltd.
3. **Bond Breaker:** pressure sensitive plastic tape, which will not bond to the sealant 3M #226 of #481 or Valley Industries #40 [;ace at the back of the joint.
4. **Masking, Primers, and Cleaning Solvents:**
  - 4.1. Provide products compatible with each other, designed to suit the specific job conditions and as recommended by the sealant manufacturer.
5. **Void Filler:** Loose glass fibre.
6. **Sealants:** (types and applications)
  - 6.1. **Single Component Silicone:** Equal to ASTM C920, Type S, Class 40, use G, A, M, NT. Dow Corning Contractors Weatherproofing Sealant (CWS).
    - 6.1.1. **Typical Locations:**
      - Exterior hollow metal steel door frames and screens, both sides
      - Between existing masonry and adjacent new materials
      - Around new opening through exterior envelope
  - 6.2. **Medium Modulus, Moisture Curing, One Part Silicone Sealant:** to ASTM C920, Classification MCG-2-25-A-L equal to Dow Corning 795, Dow Corning CWS, or Spectrem 2 by Tremco Ltd. Use in glass-to-glass, glass to metal, and metal-to-metal curtain wall joints.

- 6.3. Mildew resistant, one component silicone sealant: to ASTM C920, CAN/CGSB 19.22M equal to Dow Corning "786" Tub, Tile, and Ceramic or Tremsil 200 White and Clear by Tremco Ltd. Use on fixtures, bathtubs and vanity tops.
- 6.3.1. Typical Locations:
- Underside of rims of sinks between sink rims and counters
  - Around pipes and conduits passing through walls and ceilings in washrooms. Conceal sealant with escutcheons.
  - Joints in ceramic tile walls where joints occur over control and expansion joints in back-up walls
  - Joints between counters/vanities and walls in washrooms
  - Joints between urinals and walls in washrooms
  - Joints between water closets and walls and floors in washrooms
- 6.4. One component, non-skinning, non-hardening acoustical sealant: to CAN/CGSB-19.21-M equal to Acoustical Sealant by Tremco Ltd.
- 6.4.1. Typical Locations:
- Vapour barrier joints
  - Openings in drywall systems as shown on the drawings or specified.
- 6.5. One Component, Paintable Acrylic Latex Sealant: to CGSB-19-GP-17M equal to Tremflex 834 by Tremco Ltd.
- 6.5.1. Typical Locations Scheduled for Paint:
- Door and window frame perimeters
- 6.6. Ultra Low Modulus, One Component, Moisture Curing Silicone Sealant: Dow Corning 790, Dow Corning CCS, Spectrum 1, ASTM C920.
- 6.6.1. Typical Locations:
- High joint movement applications
- 6.7. Air/Weather Barrier Sealant – Single Component Silicone: ASTM C920, Type S, Class 25
- 6.7.1. Dow Corning® 758 Weather barrier Sealant
- 6.7.2. Dow Corning® 756 SMS Silicone Building Sealant
- 6.8. Air Barrier Materials: Transition from glazing system air barrier and tying into building envelope air barrier system.
- 6.8.1. Dow Corning® Silicone Transition System (STS)
- 6.8.2. Dow Corning® 123 Silicone Seal
- 6.8.3. Dow Corning® 778 Silicone Liquid Flashing Sealant
- 6.9. Equivalent products by GE, Tremco and Degussa are acceptable. Indicate the manufacturer and proposed product.
7. Colour selection from Manufacturer's standard range.
8. Cleaning material for surfaces to receive sealant as recommended by the manufacturer of sealant

2.1  
MATERIALS  
(cont'd)

**PART 3 – EXECUTION**

3.1  
EXAMINATION

1. For unusual or complicated caulking conditions meet at the site with sealant manufacturer's representative to discuss procedures before commencing the Work.
2. Before commencing Work, verify at the site that joint configuration and surfaces have been provided as specified under Work of other sections to meet intent of sealant specification.

Protect installed Work of other trades from staining or contamination.

**3.2  
PROTECTION**

1. Examine joint sizes and conditions to establish correct depth to width relationship for installation of backup materials and sealants.
2. Clean bonding joint surfaces of harmful matter substances including dust, rust, oil grease, and other matter, which may impair Work.
3. Do not apply sealants to joint surfaces treated with sealer, curing compound, water repellent, or other coatings unless tests have been performed to ensure compatibility of materials. Remove coatings as required.
4. Ensure joint surfaces are dry and frost free.
5. Prepare surfaces in accordance with manufacturer's directions.

**3.3  
PREPARATION  
OF JOINT  
SURFACES**

1. Where necessary to prevent staining, mask adjacent surfaces prior to priming and caulking.
2. Prime sides of joints in accordance with sealant manufacturer's instructions immediately prior to caulking.

**3.4  
PRIMING**

1. Apply bond breaker tape where required to manufacturer's instructions.
2. Install joint filler to achieve correct joint depth and shape, with approx. 30% compression.

**3.5  
BACKUP  
MATERIAL**

Mix materials in strict accordance with sealant manufacturer's instructions.

**3.6  
MIXING**

1. **Sealant:**

**3.7  
APPLICATION**

- 1.1. Apply sealant in accordance with manufacturer's written instructions.
- 1.2. Mask edges of joint where irregular surface or sensitive joint border exists to provide neat joint.
- 1.3. Apply sealant in continuous beads.
- 1.4. Apply sealant using gun with proper size nozzle.
- 1.5. Use sufficient pressure to fill voids and joints solid
- 1.6. Form surface of sealant with bull bead, smooth, free from ridges, wrinkles, sags, air pockets, embedded impurities.
- 1.7. Tool exposed surfaces before skinning begins to give slightly concave shape.
- 1.8. Remove excess compound promptly as Work progresses and upon completion.

2. **Caulk but do not restrict to the following:**

- 2.1. Exterior and interior hollow metal steel door frames: interior screens both sides of frames including base of frames to finished floor.
- 2.2. Exposed control joints in masonry walls; masonry wall corners; masonry-to-column junctures; joints in front of steel lintels bearing on exterior masonry jambs.
- 2.3. Raked joints in junction of walls running at different angles, and at junction of walls to columns.
- 2.4. Joints between millwork, counters, urinals, and adjacent surfaces (use sanitary caulking).
- 2.5. Wall to floor junctions and joints in floor.
- 2.6. Joints between masonry and concrete surfaces.
- 2.7. Joints between new work and existing.
- 2.8. Joints between gypsum board and masonry, or other materials.
- 2.9. Penetrations through roofs, floors and walls other than firestopping.
- 2.10. At locations shown on drawings.

3. **Curing:**

- 3.1. Cure sealants in accordance with sealant manufacturer's instructions.
- 3.2. Do not cover up sealants until proper curing has taken place.

4. **Cleanup:**

- 4.1. Clean adjacent surfaces immediately and leave Work neat and clean.
- 4.2. Remove excess and droppings, using recommended cleaners as Work progresses.
- 4.3. Remove masking tape after initial set of sealant.

3.7  
APPLICATION  
(Cont'd)

**END OF SECTION**

**PART 1 - GENERAL**

Comply with requirements of Division 1 and Supplementary Conditions.

Installation of Frames, Doors and Hardware	Section 06 20 00	<b>1.1</b>
Exterior Frame Insulation	Section 07 20 00	<b>RELATED</b>
Sealants	Section 07 90 00	<b>WORK</b>
Hardware Supply	Section 08 70 00	
Glass and Glazing	Section 08 80 00	
Finish Painting	Section 09 90 00	
<b>1. <u>Doors, Frames and Transom Assemblies:</u></b> Construct to Canadian Steel Door Manufacturer's Association, "Canadian Manufacturing Specifications for Steel Doors and Frames" - latest edition, except where specified otherwise.		<b>1.2</b>
<b>2. <u>Doors and Frames Indicated as Fire Rated:</u></b>		<b>REFERENCE</b>
2.1. Construct and install to NFPA 80-2007 current edition and attach ULC labels.		<b>STANDARDS</b>
2.2. Door Test to: CAN/ULC S104-10.		
2.3. Frame Test to: CAN/ULC 105-09.		
3. Ensure that hardware and installation meet requirements of NFPA 80-2007 current edition, standard for fire doors and windows as adopted by I.A.O. when applicable.		
4. Installation to meet: HMMA "Installation Guide for Commercial Steel Doors and Frames".		
Daybar Industries, Fleming Baron or Daley Doors.		<b>1.3</b>
		<b>APPROVED</b>
		<b>MANUFACTURERS</b>
<b>1. <u>Shop Drawings:</u></b>		<b>1.4</b>
1.1. Submit shop drawings in accordance with Section 01 30 00, for Consultant's review before fabrication.		<b>SUBMITTALS</b>
1.2. Include a schedule identifying each unit with door marks and numbers as well as borrowed light frames relating to drawings and specifications.		
1.3. Prior to finalizing shop drawings coordinate all hardware with list supplied by hardware supplier.		
1. Brace frame units to prevent distortion in shipment and protect finished surfaces by sturdy protective wrappings.		<b>1.5</b>
2. Store doors in protective wrappings in a secure dry location, to ensure that they are not damaged until hung. Install them only when Work has progressed to a stage when no damage will occur to them in place.		<b>PRODUCT</b>
		<b>DELIVERY</b>
		<b>AND STORAGE</b>
Provided by Manufacturer for materials and workmanship in accordance with CSDFMA standard warranty for doors and frames.		<b>1.6</b>
		<b>WARRANTY</b>

**PART 2 - PRODUCTS**

**2.1  
MATERIALS**

1. **Steel:**

- 1.1. 1.6mm (0.060") tension leveler steel to ASTM A924, galvanized to ASTM A653, Commercial Steel (CS), Type B, coating designation A40 (ZF120), know commercially as paintable Galvanneal.
- 1.2. Exterior and Wet Areas: Galvanized steel conforming to ASTM A653 commercial steel (CS), Type B, coating designation G90 (Z275) for steel doors and frames.
- 1.3. To be free of scale, pitting, coil breaks, surface blemishes, buckles, waves or any other defects.

2. **Door Cores:**

- 2.1. Standard Interiors: honeycomb – structural small cell 1" (25mm) maximum kraft paper weight 80lb (3.63Kg) per ream minimum, density 1.03 pcf (16.5Kgm<sup>2</sup>) sanded to the required thickness.
- 2.2. Insulated Exterior: Polyisocyanurate – rigid foam, closed cell, faced board thermal value 212.3 (RS12.17) min. to meet ASTM C1289.
- 2.3. Steel Stiffeners: Continuous vertical formed .032" (min) steel sections @ 6" oc welded to each face @ 6"oc. Fill voids between stiffeners with 1.5 pcf (24Kg/m<sup>2</sup>) fiberglass insulation to ASTM C66A.

3. **Adhesives:**

- 3.1. Heat resistant, single component, polyurethane reactive (water) hot melt thermoset UL/WH approved.
- 3.2. Interlocking Edge Seams: resin reinforced polychloroprene (RRPC) fire resistant, high viscosity seal/adhesives or UL/WH approved.

4. **Primers:** Rust inhibitive touch-up only. Formulated for direct-to-metal (DTM) application.

5. **Anchors:**

- 5.1. Frames in Masonry: 18 GA adjustable steel "T" type anchors – 2" (50mm) x 10" (254mm) corrugated or perforated.
- 5.2. Frames in Gypsum Board Partitions: 20 GA steel snap-in or welded in Zed-type stud anchors – min. 3 per opening.
- 5.3. Frames in Existing Concrete or Masonry: punch and dimple to accept .25" (6.4mm) machine bolt anchors.
- 5.4. Anchorage to Floor: Minimum 3 mm thick clip angles with 2 holes for expansion bolting to floor.
- 5.5. Labeled Frames: To conform to ULC requirements.



6. **Miscellaneous:**

2.1  
MATERIALS  
(cont'd)

- 6.1. Door Silencers: Single stud neoprene/rubber type.
- 6.2. Exterior Topcaps: To CGSB41-GP19M rigid polyvinylchloride (PVC) extrusion.
- 6.3. Glass Stops:
  - 6.3.1. Fabricate of minimum 1.2mm steel
  - 6.3.2. Secure with countersunk Phillips screws – symmetrically placed
- 6.4. Fire Labels: Metal rivetted.

1. **General:**

2.2  
FRAME  
FABRICATION

- 1.1. Exterior Frames: 16 gauge welded construction (thermally broken).  
  
Interior Frames: 16 gauge welded construction (18 GA for moderate usage – offices including borrowed lights). Equal to Fleming Baron “F” series setup and welded construction unless otherwise noted.
- 1.2. Blank, reinforce, drill and tap for mortised, templated hardware.
- 1.3. Protect mortised cutouts with steel guard boxes. Delete at drywall applications.
- 1.4. Reinforce frames where required, for surface mounted hardware. Drilling and tapping is by others, on site, at time of installation.
- 1.5. Provide for appropriate anchorage to floor and wall construction. Locate each wall anchor immediately above or below each hinge reinforcement on the hinge jamb and directly opposite on the strike jamb. For rebate opening heights up to and including 1520mm (60") provide two (2) anchors, and an additional anchor for each additional 760mm (30") of height except as indicated below. Provide frames in previously placed concrete, masonry or structural steel with anchors located not more than 150mm (6") from the top and bottom of each jamb, and intermediate anchors at 660mm (26") on centre maximum. Fasteners for such anchors: Provided by others.
- 1.6. Prepare each door opening for single stud rubber door silencers, three (3) for single door openings, two (2) for double door openings.
- 1.7. Provide factory-applied touch up primer at areas where zinc coating has been removed during fabrication.

2. **Welded Type:**

- 2.1. Accurately mitred or mechanically jointed, securely welded on the inside of the profile.
- 2.2. Cope butt joints of mullions, transom bars, centre rails and sill accurately and weld securely.
- 2.3. Welding: To CSA W59-M.
- 2.4. Grind welded joints to a smooth, uniform finish.
- 2.5. Attach floor anchors securely to the inside of each jamb profile.

- 
- 2.6. Weld in two (2) temporary jamb spreaders per frame to maintain proper alignment during shipment.
- 2.7. Glazing stops: Formed channel, minimum 16mm (5/8") height, accurately fitted, butted at corners and fastened to frame sections with counter-sunk oval head sheet metal screws.
- 2.8. When required due to site access, as specified on Construction drawings, or due to shipping limitations, fabricate frame product for large openings in sections, with splice joints for field assembly by others.
- 2.9. Fabricate frames scheduled for previously constructed openings to receive counter sunk bolts at same centres as for loose jamb anchors. Reinforce frame at fastening location to prevent indentation by fastening device. Fill countersunk dimples with auto body filler and grind smooth.
- 2.10. Transom bars for Side lites and Glazing: fixed type of same profile as frame.
- 2.11. Reinforce frames wider than 1200mm (48") with roll-formed steel channels fitted tightly into frame head.
- 2.12. Modify frames at exterior doors to accept 1" thick insulating glass.
1. **General:**
- 1.1. Fabricate door faces without visible seams, free of scale, pitting, coil breaks, buckles and waves.
- 1.2. Swing type, flush, with provision for glass and/or louvre openings as indicated on schedules.
- 1.3. Form edges true and straight with minimum radius.
- 1.4. Blank, reinforce, drill and tap for mortised, templated hardware. At interior prepare for 1½ pair butt hinges, at exterior 2 pair.
- 1.5. Holes 12.7mm (.5") diameter and larger factory prepared in shop.
- 1.6. Reinforce where required, for surface mounted hardware. Drilling and tapping is by others, on site, at time of installation.
- 1.7. Fit top and bottom of doors with 16 GA inverted, recessed, channels spot welded to each face sheet @ 2" (50mm) oc.
- 1.8. Provide factory-applied touch up primer at areas where zinc coating has been removed during fabrication.
- 1.9. Include fire labeled doors where scheduled.
2. **Standard Exterior Doors:**
- 2.1. Form each face from 16 GA steel. Reinforce for all hardware – 2 pair butt hinges.
- 2.2. Reinforce with vertical stiffeners, fully welded to each face sheet at 150 mm (6") oc.
- 2.3. Fill all voids between stiffeners with loose batt fiberglass insulation.

2.2  
FRAME  
FABRICATION  
(cont'd)

2.3  
DOOR  
FABRICATION

- 2.4. Continuously weld longitudinal edges for full height of door, fill, grind smooth with no visible edge seams.
- 2.5. Modify openings at exterior glazed doors to accept 3/4" thick insulating glass
- 2.6. Fit with flush pvc top cap.
- 2.7. Bottom Lite Fixed Panels: stop-in 1 3/4" insulated panel to match door construction.

2.3  
DOOR  
FABRICATION  
(cont'd)

3. **Standard Interior Doors:**

- 3.1. Form each face from 18 GA steel. Reinforce for all hardware – 1 1/2" pair butt hinges.
- 3.2. Weld longitudinal edges continuously to a flat plane and grind smooth with no visible edges or mechanically interlock.
- 3.3. Electrical Connections: at electrical hardware locations shop install 19mm EMT conduit and 8, 12, 15 pin Elynx cables. Protect pin connectors during shipment and prior to installation.

**PART 3 - EXECUTION**

3.1  
INSTALLATION

1. Install labeled steel fire rated doors and frames to NFPA 80 except where specified otherwise.
2. Install doors and frames to CSDFMA Installation Guide.

1. Set frames plumb, square, level and at correct elevation.
2. Brace frames rigidly in position while building-in. Install temporary horizontal wood spreader at third points of door opening to maintain frame width. Provide vertical support at centre of head for openings over 1200 mm wide. Remove temporary spreaders after frames are built-in.
3. Secure anchorages and connections to adjacent construction at previously constructed openings in concrete or masonry use anchor bolts and expansion shield anchors.
4. Where exterior and interior steel frames will be installed prior to construction of the adjacent wall, provide each jamb with 1.6mm steel floor anchors. Provide each anchor with two (2) holes for mounting to the floor and securely weld to the inside of the jamb profile. Weld entire perimeter of anchor to frame. Spot welding is not acceptable.

3.2  
FRAME  
INSTALLATION

Where interior steel frames will be installed in steel stud and gypsum board partitions provide each jamb with 0.9mm steel snap-in or A-type stud type anchors.

5. At previously constructed openings in concrete or concrete block walls, punch and dimple jambs to accept 6.4mm Ø machine bolt anchors, located not more than 150mm from the top and bottom of each jamb. Locate anchor preparations and guides immediately above or below the intermediate hinge reinforcing and directly opposite on the strike jamb. Provide each preparation with 1.6mm steel anchor bolt guides.

Anchor bolts and expansion shell anchors to be provide by the Subcontractor responsible for installation.

6. Make allowances for deflection of structure to ensure structural loads are not transmitted to frames.

7. Caulk perimeter of frames between frame and adjacent material.
8. Maintain continuity of air barrier, and vapour retarder at exterior frames.
1. Install doors and hardware in accordance with hardware templates and manufacturer's instructions.
2. Provide even margins between doors and jambs and doors and finished floor [and thresholds] as follows:
  - 2.1. Hinge Side: 1.0 mm.
  - 2.2. Latch Side and Head: 1.5 mm.
  - 2.3. Finished Floor, Top of Carpet [Noncombustible Sill] [And Thresholds]: 13 mm.
3. Adjust operable parts for correct function.
4. Coordinate installation with electric strike.

**3.3  
DOOR  
INSTALLATION**

1. Touch up with primer finishes damaged during installation.
2. Fill exposed frame anchors and surfaces with imperfections with metallic paste filler and sand to a uniform smooth finish.

**3.4  
FINISH  
REPAIRS**

Install glazing for doors, frames and borrowed lites in Section 08 80 00 - Glazing.

**3.5  
GLAZING**

**END OF SECTION**

**PART 1 - GENERAL**

Comply with requirements of Division 1 and Supplementary Conditions.

Installation of Wood Doors	Section 06 20 00	1.1
Supply of Hollow Metal Frames and Screens	Section 08 11 00	<b>RELATED</b>
Finish Hardware Supply and Installation	Section 08 71 00	<b>WORK</b>
Glazing	Section 08 80 00	
1. CSA 0115-M82 Hardwood and decorative plywood.		1.2
2. CAN/CSA 0132.3 Wood flush doors.		<b>REFERENCES</b>
1. Submit in accordance with Section 01 30 00.		1.3
2. <b>Shop Drawings:</b> to indicate door types, sizes, transom panels, openings, fire ratings, hardware blocking, and pre-finishing system.		<b>SUBMITTALS</b>
3. <b>Data:</b> to include		
3.1. Construction and fabrication details, glue types used.		
3.2. Trim for glass openings and louver details.		
4. <b>Samples:</b> 8" x 11" - factory finish on specified veneer with detail of edge condition.		
1. <b>Manufacturer:</b> a member of good standing of the Architectural Woodwork Manufacturers Association of Canada.		1.4
1.1. Specializing in manufacturing the specified products with a minimum of 5 years of documented experience.		<b>QUALITY</b>
1.2. Able to provide all specified doors.		<b>ASSURANCE</b>
1. Submit in accordance with GC-12.3		1.5
2. In addition, provide manufacturer's signed warranty agreeing to replace at no cost any manufacturing and/or material defects for the life of the original installation, including repair, replacement, machining details, defects to include de-lamination, warping, cupping or twisting. Warranty starts at Substantial Performance.		<b>WARRANTY</b>
1. Install doors only in dry areas and where no further installation of damp materials will be made.		1.6
2. Moisture readings of building surfaces at storage and installation locations shall not exceed 15%.		<b>ENVIRONMENTAL</b>
1. Store and protect doors as follows:		1.7
1.1. Maintain HVAC systems operational and balanced providing a temperature range of 10-25°C and relative humidity between 30-50%.		<b>DELIVERY,</b>
1.2. Store doors 3½" min off the floor on a flat level surface, in a dry well ventilated building. Do not store on end. Protect from dirt, water and abuse.		<b>STORAGE AND</b>
		<b>HANDLING</b>

1.3. Lift and carry doors. Do not drag across other doors or surfaces.

1.4. Handle with clean hands or clean gloves.

1.7  
DELIVERY,  
STORAGE AND  
HANDLING (Cont'd)

**PART 2 - PRODUCTS**

1. Acceptable Manufacturers:

- 1.1. Bailargeon, St.Éphrem de Beauce, QC
- 1.2. Lambton Doors, Lambton, QC
- 1.3. Door-Lam
- 1.4. Boccam, St. George Beauce, QC

2.1  
GENERAL

1. Construct to AWI/AWMAC (premium grade) custom grade standards:

- 1.1. AWI / AWMAC - Quality Standards of the Architectural Woodwork Institute (AWI) and the Architectural Woodwork Manufacturers Association of Canada (AWMAC) latest edition.
- 1.2. CAN / CSA-0132.2.2. series 90 General Requirements for wood flush doors.
- 1.3. NFPA 80 - Standard Methods for Fire Door Installations.
- 1.4. NFPA 252 - Standard Methods of Fire Tests for Door Assemblies.
- 1.5. Underwriters' Laboratories - UL 10B (neutral pressure) and UL 10C (positive pressure) - Fire Tests of Door Assemblies.
- 1.6. ITS (Warnock Hersey) - Certification Listings for Fire Doors.
- 1.7. FSC - Forest Stewardship Council guidelines for environmentally certified wood doors.

2.2  
DOOR  
CONSTRUCTION

2. **Core Materials:**

- 2.1. **Particleboard Core:** (PC-5/7) to ANSI Standard A208.1 LD-2, density of 30-35 lbs. per cubic foot.
- 2.2. **Structural Composite Lumber Core:** (SCLC-5/7) engineered hardwood composite, density of 38 lbs per cubic foot.
- 2.3. **Mineral Core:** (FD-5/7) Non-combustible mineral composite material to meet listed fireproof ratings.
- 2.4. **Hollow Core:** (HC-5/7) a pre-manufactured cardboard honeycomb with cells not less than 1" in width.

3. **Cross bands:** wood-based composites with a maximum thickness of 1/16" having properties with an internal bond of 100 psi and a density of 50 lbs. Per cubic foot.

4. **Stiles (Vertical Edges):** ME – matching edge 5/8" hardwood laminated to 3/4" structural composite lumber.

- 4.1. Type: Matching No. 2 Edge

- 
5. **Rails (Horizontal Edges):** 1 3/8" structural composite lumber for 5 ply doors. 1 3/8" FJ Pine allowed for 7 ply doors. Fire doors: to manufacturers specifications for specified rating. **2.2  
DOOR  
CONSTRUCTION  
(cont'd)**
6. **Hardware Blocking** – When blocking is required for hardware applications, structural composite lumber on non-rated doors. Top, bottom and centre rails mim 5", lock block min 5" x 18". Fire doors use a mineral product to specified rating.
7. **Face Panels:**
- 7.1. Veneer Grades: A - Good 1/50" (0.05mm) thick – 12% moisture content cut
- 7.2. Veneer Species: White maple, sliced book match, for stain match.
- 7.3. Hard Board: medium density overlay (MDO) for opaque finish.
- 7.4. Adhesives: Type 1 PVA (polyvinyl acetate) urea formaldehyde free.
8. **Door Pairs:** pair matched.
9. **Transom Panels:** continuous or end matching.
10. **Factory Finish:** 100% polyurethane solids free of volatile organic compounds (VOC's). Satin sheen from 20-25°
1. Factory machine doors for finish hardware in accordance with Hardware requirements and dimension. Do not machine for surface hardware. Use templates to ensure that hardware preps are neat and square. (Provide solid blocking for through bolted hardware). **2.3  
DOOR  
FABRICATION**
2. Tolerances:
- 2.1. Bevels: 1/4" in width + 0"/- 1/32" tolerance
- 2.2. Top prefit: 1/8" + 1/16" /- 0"
- 2.3. Undercut: as required for floor finish
3. At Rated Doors: comply with NFPA 80 for light openings and louvres.
4. Securely bond stiles and rails to core using radio frequency methodology
1. Factory Finishing: **2.4  
FINISHING**
- 1.1. All wood doors to receive stained finish (light to medium) (medium to dark) to match approved control sample at Consultant's office. Spray apply finish in accordance with manufacturer's approved methods using approved equipment. Finish all faces, 4 edges as well as cutouts unless otherwise noted.
- 1.2. Acceptable finishing process as follows:
- 1.2.1. Sand wood member smooth with # 150 grit sandpaper.
- 1.2.2. Apply selected NDR alcohol stain to wood member.
- 1.2.3. Spray and wipe off excess body stain with rag.
- 1.2.4. Apply a first coat of UV cured catalyzed urethane.
- 1.2.5. Sand wood upon finish dry.

- 1.2.6. Apply a second coat of UV cured catalyzed urethane.
- 1.2.7. Sand wood upon finish dry.
- 1.2.8. Apply a final coat of UV cured catalyzed urethane.
- 1.2.9. Individually protect finished doors with poly wrap.

### **PART 3 - EXECUTION**

#### **3.1 EXAMINATION**

1. Confirm that frames comply with type, size, location and swing. Verify that they are installed plumb and square.
2. Unwrap doors and inspect for any damage, manufacturing defects or pre-finished inconsistencies.

#### **3.2 INSTALLATION**

1. Include installation under Section 06 20 00 to the following standards:
  - 1.1. Confirm that the work of finishing trades is complete.
  - 1.2. Fitting:
    - 1.2.1. Width: trim equally from both sides
    - 1.2.2. Height: do not trim top or bottom edge more than  $\frac{3}{4}$ " (19mm) unless additional blocking is provided)
    - 1.2.3. Shop Finished Doors: reseal all 4 edges immediately following trimming (if required)
  - 1.3. Install doors and hardware in accordance with manufacturer's printed instructions.
  - 1.4. Adjust hardware for correct function.
  - 1.5. Secure transom and side panels with (stops) (concealed fasteners or countersunk screws concealed by means of wood plugs – matching panel in grain and colour).

#### **3.3 ADJUSTMENT**

1. Ensure that doors swing freely and that hardware functions properly at Substantial Performance.
2. Protect doors after installation.

**END OF SECTION**



**PART 1 - GENERAL**

Comply with requirements of Division 1 and Supplementary Conditions.

Joining of air, vapour and waterproof membranes to window frames.  
Caulking of joints between frames and other building components.  
Glazing

Section 07 16 00  
Section 07 90 00  
Section 08 80 00

**1.1  
RELATED  
WORK**

1. CAN/CSA-A440-(M90) Windows.
2. CAN/CSA-G164-(M92) Hot Dip Galvanizing of Irregularly Shaped Articles.
3. CAN/CGSB-79.1-(M91) Insect Screens.

**1.2  
REFERENCE**

1. **Samples:**

**1.3  
SUBMITTALS**

1.1. Submit in accordance with Section 01 30 00.

1.2. Include frame, sash, sill, glazing and weatherproofing method, insect screens, surface finish and hardware. Show location of manufacturer's nameplates.

1.3. Include 150 mm long samples of head, jamb, sill, meeting rail, mullions to indicate profile.

2. **Shop Drawings:**

2.1. Submit drawings in accordance with Section 01 30 00.

2.2. Indicate materials and details in scale full size for head, jamb and sill, profiles of components, interior and exterior trim, junction between combination units, elevations of unit, anchorage details, location of isolation coating, description of related components and exposed finishes, fasteners, and caulking. Indicate location of manufacturer's nameplates.

3. **Test Reports:**

3.1. Submit test reports from approved independent testing laboratories, certifying compliance with specifications, for:

3.1.1. Windows, classifications.

3.1.2. Anodized.

3.1.3. Insect screens.

3.1.4. Air tightness. To: A3 Fixed A3 Sliders

3.1.5. Water tightness. B7 B7

3.1.6. Wind load resistance. C5 C5

3.1.7. Condensation resistance. I=57 I=56

3.1.8. Block operation - sliding windows only.

3.1.9. Ease of operation - windows with operable lights.

Provide operation and maintenance data for windows for incorporation into manual specified in Section 01 25 00.

**1.4  
MAINTENANCE  
DATA**

Submit Manufacturer's written product warrantee against leakage, defects and malfunction under normal usage in accordance with GC12.3 but for two (2) years commencing from the date of Substantial Completion.

**1.5  
WARRANTY**

1. Package or crate units for shipment and storage before installation.
2. Protect finish surfaces by sturdy protective wrappings.
3. Provide methods for erecting units without causing damage

1.6  
DELIVERY,  
STORAGE,  
AND HANDLING

**PART 2 – PRODUCTS**

1. **Horizontal Sliding Windows and Fixed Framing:**

2.1  
MATERIALS

- 1.1. Base Specification: Oldcastle Fulton 1200 7AR series (fixed) and 1250 7AR Horizontal Sliders – all sliders are moveable and mounted in 130mm (5") frame section.

Acceptable Alternates: units manufactured meeting or exceeding the base specification will be considered.

- 1.2. Sash, Frame and Screen Members: CSA HA Series extruded aluminum alloy 6063-T5, minimum 1.6 mm (.062") thick, with clear and anodized finish.
- 1.3. Thermal Break: Extruded virgin polyvinyl chloride thermal separator, durometer hardness Shore A45 to 55. Machine rolled to maintain uniform strength and bonding inner and outer frame members.
- 1.4. Sealant: To CAN-A440; 1 part polysulphide; PRC 2000 or polyurethane; Vulkem, Tremco Dymonic or approved equal at exterior. 1 part silicone; CGE 1200 or approved equal at interior. Colour: from manufacturer's standard range.
- 1.5. Interior Sills: Solid surfacing supplied and installed under Section 06 20 00.
- 1.6. Air/Vapour Barrier Transition Material: 26 GA Galvanized Metal.
- 1.7. Fasteners: Stain and corrosion resistant stainless steel to ASTM E-149, or aluminum. Where aluminum fasteners are to be used, certify adequacy for shear and tensile forces.
- 1.8. Insect Screens: Fly screens meeting CGSB 79-GP-1m and CAN-A440-M90 rating heavy duty; extruded aluminum frame minimum wall thickness 1.9mm, finish to match windows. Screen cloth: 18 x 14 aluminum mesh. Locate screens between interior and exterior sash. Exposed fasteners or rivets bridging thermal barrier prohibited.
- 1.9. Exterior Sills: Pre-cast concrete – See Section 04 20 00.
- 1.10. Insulating Foam Air Barrier: One component urethane foam. Enerfoam manufactured by Abisko Manufacturing Inc. or approved alternative.
- 1.11. Glazing Sealed Units: See Section 08 80 00.
- 1.12. Security Lock: Include on operable storm sash.
- 1.13. Finishes: Comply with Aluminum Association Designation System for finishes. Clear anodic to AA-M12C22A, Class 1.

1. **General:**

2.2  
FABRICATION

1.1. Fabricate windows using two separate frames connected with thermal break and as follows:

- 1.1.1. Butt join all joints in main frame neatly in weathertight manner; secure by means of screws anchored into integral screw ports so as to provide neat, flush, hairline joint.
- 1.1.2. Provide tubular sections for all horizontal and vertical screen frame and sill frame.
- 1.1.3. Provide outside main frame sill with device extending beyond plane of operating tracks preventing the removal or accidental loss of exterior screen to exterior.
- 1.1.4. Provide sill members with minimum 5 degree slope.
- 1.1.5. Provide sill weep system which will facilitate drainage of water accumulating in sill area while preventing passage of air, dirt and insects to interior.
- 1.1.6. Fabricate and anchor both inner and outer frames using specified screw fasteners without violating the thermal barrier.
- 1.1.7. Exposed fasteners or the use of pop rivets are not acceptable.
- 1.1.8. All fasteners - non-magnetic stainless steel.
- 1.1.9. Fabricate entire window in a manner that will allow easy replacement of any defective, damaged or worn components. Mitred corners are not acceptable.

2. **Thermal Barrier:** Provide complete metal to metal separation between the two main frame members. Do not use connecting screws, clips or other devices, which would tend to bridge the two frame members or restrict in any manner the expansion and contraction of the individual separate frame members. Factory seal between thermal barrier and frame around perimeter to ensure weathertight assembly.

3. **Glazing:** Factory glaze all sections.

4. **Screens:** Mechanically reinforce corners of extruded frames. Fully tension screen fabric during installation. Screens shall slide easily to permit operation of exterior sash.

5. **Window Assembly Performance Requirements:** To CAN 3 A440-M

5.1. Air Infiltration (A3) - Maximum 0.55 cu.m/hr/m (0.10 cu. ft./m/ft) of sash crack (operable windows) and maximum 0.25 cu.m/hr/m (0.05 cu.ft./m/t) of sash crack (fixed windows) when tested to ASTM E283-73.

5.2. Water Resistance (B7) - No evidence of water on interior face of frame when tested to 700 PA to ASTM E547.

5.3. Thermal Resistance (I-59) when tested as outlined in CAN3-A440-M-90.

5.4. Wind Load Resistance (C5) - No permanent deformation when tested to 5KPA to ASTM E330

**PART 3 - EXECUTION**

3.1  
PREPARATION

1. Protect exposed pre-finished aluminum finishes with strippable coating. Adhesive papers or sprayed coatings, which bond when exposed to sunlight or weather are unacceptable. Units damaged prior to or during installation will be rejected.

1. **Window Installation:**

- 1.1. Install plumb and level in accordance with shop drawings and CAN/CSA A440.
- 1.2. Provide for thermal movement to take place between units and between units and adjacent construction.
- 1.3. Secure units with non-corrosive and inorganic anchorage materials.
- 1.4. Install all reinforcing and supporting members required and not shown as supplied under other sections.
- 1.5. Closed cell spray foam insulation -25% expansion.
- 1.6. On completion, adjust window vents to fit tightly and operate smoothly and effortlessly with the window hardware.
- 1.7. At vents provide stops to restrict the opening in accordance with OBC requirements.

2. **Caulking:**

- 2.1. Seal joints between windows and window sills with sealant. Bed sill expansion joint cover plates and drip deflectors in bedding compound. Caulk between sill upstand and window-frame. Caulk butt joints in continuous sills.
- 2.2. Apply sealant in accordance with Section 07 90 00 - Sealants. Conceal sealant within window units.
- 2.3. Caulk continuously where sill abutts adjacent construction except under front drip.

1. Repair any damage to other existing surfaces caused directly by window removal and installation.
2. Clean all windows inside and out with an approved solution, wipe clean all frames and remove all fillings, etc.
3. Provide window repair kit with all required hardware. Provide parts list containing hardware and extrusion part numbers and manufacturers.

**3.2  
INSTALLATION**

**3.3  
PATCHING,  
CLEAN-UP  
AND  
MAINTENANCE**

**END OF SECTION**

**PART 1 - GENERAL**

Comply with requirements of Division 1 and Supplementary Conditions.

Hollow Metal Doors and Frames	Section 08 10 00	<b>1.1 RELATED WORK</b>
Wood Doors	Section 08 21 00	
Automatic Operators	Section 08 45 00	
Electrical	Section 26 00 00	

- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1. Accept delivery of doors and finish hardware.</li> <li>2. Inspect doors for damage, upon delivery to the site. Hollow metal doors, which cannot be readily corrected by sanding, should be promptly returned to the manufacturer for replacement.</li> <li>3. Store doors in a dry and clean location. Store in a temperature and humidity-controlled area. Stack 150mm off the floor.</li> <li>4. Be responsible for any damage to doors and hardware from time of delivery until accepted by Owner after installation.</li> </ol> | <b>1.2<br/>PRODUCT<br/>DELIVERY,<br/>STORAGE AND<br/>HANDLING</b> |
|---|---|

- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1. Provide locked room for storage of hardware at the job and a person responsible for the control and distribution of hardware.</li> <li>2. It is the intent of this section to establish a single, competent source to be responsible for the installation of finish hardware, which is listed in Section 08 71 00. Faulty installation of electronic hardware shall therefore be traced back to this section, not to division 26</li> </ol> | <b>1.3<br/>JOBSITE CONTROL<br/>AND DISTRIBUTION<br/>OF HARDWARE</b> |
|---|---|

Not Used

**PART 2 - PRODUCTS**

**PART 3 – EXECUTION**

**3.1  
EXAMINATION**

Examine substrate surfaces to receive the Work of this Section and ensure that Work done as part of the Work of other Sections is complete and that there are no conditions which will adversely affect the performance of the Work. Notify the Contractor of any unsatisfactory conditions. Do not proceed with this Work until unsatisfactory conditions have been corrected. Commencement of Work implies acceptance of surfaces and conditions.

- |  |                             |
|--|-----------------------------|
| <ol style="list-style-type: none"> <li>1. <b><u>Finish Hardware:</u></b> <ol style="list-style-type: none"> <li>1.1. <u>Handling, Storage, and Installation:</u> to ANSI/DH1 A115.1G.94 – for finishing hardware, doors and frames.</li> <li>1.2. Other trades installing hardware must follow all manufacturer’s instructions including door closer adjustment, handing of locksets as required, and degree of door swing. Advise the Consultants if door frames are not square and plumb and prevent proper door installation.</li> <li>1.3. Mount hardware to suit door elevations. Unless otherwise directed by the Consultant, install hardware heights indicated in finish hardware list.</li> <li>1.4. When requested, the hardware supplier will instruct the installer regarding the installation of unfamiliar items.</li> </ol> </li> </ol> | <b>3.2<br/>INSTALLATION</b> |
|--|-----------------------------|

- 1.5. Set, fit and adjust hardware according to manufacturer's directions. For trouble-free operation. After installation, adjust door closers for closing and latching speed and panic devices for proper latching. Protect installation from damage and paint spotting.
- 1.6. Upon completion of project, install Medeco cylinders provided by Owners.
- 1.7. Predrill kickplates and doors before attachment of plates. Apply with water resistant adhesive and countersunk steel screws.
- 1.8. Locate hardware in accordance with requirements specified in Section 08 71 00.
- 1.9. Thresholds: site measure openings before cutting. Set thresholds on two continuous beads of caulking conforming to Section 07 90 00. To seal against undersill air and water infiltration.
- 1.10. Door Closers and Holders: Install door closers so that door opening is unaffected, and to allow maximum swing.
- 1.11. Weatherstripping of Doors:
  - 1.11.1. Install weatherstripping so that the entire perimeter of doors is tightly sealed. Secure in place with non-ferrous screws, in accurate alignment.
  - 1.11.2. Maintain integrity of weatherseal at head of doors fitted with closers. Adapt weatherstripping as required to achieve specified performance and provide any necessary accessories.

## 2. Electronic Devices:

- 2.1. Install all electric swing operator components, security components including door status switches, card readers, processors, transformers, and other electronic devices.
- 2.2. All Wiring: supplied and installed by Electrical Division 26 including conduit, boxes and other electrical appurtenances, including connections and terminations. Be responsible for ensuring that all wiring work is done in accordance with the suppliers wiring diagrams and directions.
- 2.3. Arrange for testing and commissioning of system by the distributor of the system. Submit a copy of reports to the Consultant.
- 2.4. Note: When installing electric strikes, it is imperative that doors are perfectly aligned to enable the bolt to close properly. Also ensure that rubber silencers do not impair the proper strike action required. Adjust or remove silencers as necessary.

## 3. Wood Doors:

- 3.1. Prepare doors for installation with the required bevels, clearances and mortises for hardware. Install all applicable hardware, including hinges.
- 3.2. Hanging of doors. Leave 2mm shy (recessed) from rebate, even after bumpers are installed. If trimmed in the field, ensure that the painter seals top and bottom edges of doors under Section 09 90 00, Painting and Finishing.
- 3.3. Provide hardwood stops for grilles or glass lites.
- 3.4. Provide 2mm clearance at head and jambs, 3mm clearance between pairs of doors, or panels and

## 3.2 INSTALLATION (Cont'd)

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no more than 10 mm at floor. Provide clearance for specified finished flooring.

4. **Hollow Metal Doors:**

4.1. Hang doors to swing easily and freely on their hinges, to remain stationary in any position, and to close tightly and evenly on frames without binding.

4.2. Provide 2mm clearance at head and jambs, 3mm clearance between pairs of doors, or panels and no more than 10 mm at floor. Provide clearance for specified finished flooring.

5. **Safeguard Keys:** Tag with opening number and deliver to Consultant at Substantial Performance.

6. **Locksets and Latches:** Mortise type (cylindrical) hardware.

1. Check and adjust each operating hardware item to ensure proper operation and function of unit.

2. Lubricate moving parts as recommended by hardware manufacturer. Use graphite type lubricant if no other is recommended.

3. Repair or replace defective materials and units which cannot be adjusted and lubricated to operate freely and smoothly. Re-install items found improperly installed.

4. Prior to date of Substantial Performance, re-adjust and re-lubricate as necessary.

5. Instruct Owner's designated personnel in the proper adjustment and maintenance of hardware and finishes at time of final hardware adjustment.

3.2  
INSTALLATION  
(Cont'd)

3.3  
ADJUSTING, AND  
CLEANING OF  
FINISH HARDWARE

**END OF SECTION**

**FINISHING HARDWARE SPECIFICATION**

FOR  
ECOLE ELEMENTAIRE CATHOLIQUE  
SAINT-MARGUERITE-BOURGEOYS  
60 CLENCH AVE  
BRANTFORD, ON

ARCHITECT: MZE ARCHITECTURE + DESIGN  
96 CHURCH ST.  
ST. CATHARINES, ON L2R 3C8

CONTRACTOR:

SUPPLIER:



**GROUP 87**

**ARCHITECTURAL HARDWARE INC.**

UNIT #1 – 3245 HARVESTER RD,  
BURLINGTON, ON. L7N-3T7

PH# 905-639-4676

FAX# 905-639-7561

E-MAIL: [glen@group87.ca](mailto:glen@group87.ca)

WEB: [www.group87.ca](http://www.group87.ca)

CONSULTANT: **GLEN C. WIKKERINK**

DATE: March 1, 2024

REVISION: April 4, 2024

January 15, 2025

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## **PART 1 - GENERAL**

### **1.01 SUMMARY**

A. Section Includes:

1. Supply of finishing hardware as listed in the hardware schedule, 3.06
2. Supply of bolts, screws, expansion shields and special fastening devices required to properly install finishing hardware.

B. Related Sections:

1. Installation of finishing hardware.
2. Metal doors and frames.
3. Wood doors.
4. Roll-up doors and fire shutters.
5. Aluminum door hardware.
6. Toilet partition hardware.
7. Miscellaneous specialties.
8. Power connection to automatic door operators. Provision of conduit between operators and activators, power connection to electric hold open devices, section 16000.

### **1.02 REFERENCES**

1. Hardware for Labeled Fire Doors.
2. N.F.P.A. 80. Fire Doors and Windows.
3. N.F.P.A. 101. Life Safety Code.
4. N.F.P.A. 105. Installation of Smoke Control Door Assemblies.
5. Ontario Building Code.

### **1.03 SUBMITTAL**

1. Make submittal in accordance with section 01340.
2. Prepare a detailed finishing hardware schedule itemizing each opening. List all doors by number including size, hand, swing and any and all relevant details effecting the application of finishing hardware.
3. Submit catalogue cuts of all proposed hardware.
4. Submit samples for approval as required.
5. Submit template information to the General Contractor for preparation of product in related sections' and installation of finishing hardware.
6. Prepare for review a detailed key schedule.
7. Submit wiring diagrams and a description of operation for electrified hardware systems specified.
8. Upon job completion, submit to the owners two 'Owners Operation and Maintenance Manuals' containing the following information:
  1. Maintenance instructions for each item of hardware.
  2. Final Hardware Schedule.
  3. Final Keying Schedule.

**1.04 QUALITY ASSURANCE**

1. Proposed substitutions must be approved by the Architect prior to submission of tender.
2. The hardware supplier must be regularly involved in supplying and expediting contract hardware for projects of this nature. The supplier must employ a certified **"Architectural Hardware Consultant"** to co-ordinate and oversee scheduling, ordering and the supplying of finishing hardware.

**1.05 DELIVERY, STORAGE AND HANDLING**

1. Hardware is to be delivered to the site in the Manufacturers original packaging. Each item of hardware to be clearly marked with the door number and item number corresponding to the approved hardware schedule. The General Contractor shall receive, check and be responsible for all items of hardware delivered to the jobsite.
2. Hardware supplier to co-ordinate delivery of hardware to the site or to the appropriate parties as noted in section 1.01.B "Related Sections" for installation.
3. Prior to delivery to the jobsite, a dry, secure room is to be provided for storage of the finishing hardware.

**1.06 WARRANTY**

1. Provide a minimum one year warranty for finishing hardware.
2. Provide a minimum ten year warranty for door closers.
3. Warranty to commence from date of Substantial Completion.

**1.07 MAINTENANCE**

1. Provide three wrenches for door closer adjustment.

**PART 2 - PRODUCTS**

**2.01 MANUFACTURERS**

- |                              |                  |
|------------------------------|------------------|
| 1. Hinges                    | Ives             |
| 2. Exit Devices              | Von Duprin       |
| 3. Locksets                  | Schlage Lock Co. |
| 4. Cylinders                 | Schlage Lock Co. |
| 5. Door Pulls                | Standard Metal   |
| 6. Door Closers              | LCN Closers      |
| 7. Overhead Stops            | Glynn-Johnson    |
| 8. Push, Kick, Armor Plates  | Standard Metal   |
| 9. Floor, Wall Stops         | Standard Metal   |
| 10. Thresholds, Weatherstrip | KN Crowder       |
| 11. Auto Door Operators      | Horton           |

GROUP 87 ARCHITECTURAL HARDWARE INC.

**2.02 MATERIALS**

1. All hardware shall be supplied complete with the necessary screw, bolts and other fasteners so as to anchor in position all finishing hardware to the Consultants approval. Exposed fasteners to be finished to match hardware. When a door pull is utilized on one side of the door and a push plate on the other, the plate is to be applied so as to conceal the door pull fasteners.
  
2. Hinges:  
Specified: Five knuckle 5BB1 series by Ives  
Acceptable Substitute:
  
3. Continuous Hinges  
Specified:  
Acceptable Substitute:
  
3. Locksets:  
Specified: L series mortise lock Schlage  
Acceptable Substitute:
  
4. Exit Devices:  
Specified: 98 series by Von Duprin  
Acceptable Substitute:
  
5. Door Closers:  
  
Specified: LCN  
Acceptable Substitute:  
  
Specified: 4040XP LCN  
Acceptable Substitute:
  
6. Overhead Stops:  
Specified: GJ90 series by Glynn Johnson  
Acceptable Substitute:

**2.03 FINISHES**

- |    |          |                       |
|----|----------|-----------------------|
| 1. | 15/652   | SATIN NICKEL          |
|    | 28       | ANODIZED ALUMINUM     |
|    | 26D/ 626 | SATIN CHROME          |
|    | 32D/630  | SATIN STAINLESS STEEL |
|    | 689      | ALUMINUM PAINTED      |
|    | AL       | ALUMINUM              |
|    | PT       | PRIMED FOR PAINT      |

**2.04 KEYING**

1. All locks to be supplied with factory construction keying.
- 2.
- 3.

## **PART 3 - EXECUTION**

### **3.01 EXAMINATION**

1. Size and condition of opening shall be verified as to door frames being plumb and of correct tolerance to receive doors and hardware. [General Contractor]

### **3.02 INSTALLATION**

1. Review proper mounting heights with the Architect and/or Owner.
2. Standard mounting heights [unless otherwise noted]
  - A. Locks/Latches 40-5/16" to centre line of strike from finished floor.
  - B. Deadlocks 48" to centre line of strike from finished floor.
  - C. Exit Devices 40-5/16" to centre line of strike from finished floor.
  - D. Door Pulls 42" to centre line of pull from finished floor.
  - E. Push Plate 45" to centre line of Push Plate from finished floor.

The above noted mounting heights are a recommended standard and may vary under special applications and conditions.

### **3.03 FIELD QUALITY CONTROL**

1. After installation of hardware, inspect the installation and certify that the hardware is correctly installed and in accordance with the Manufacturers recommendations.

### **3.04 ADJUSTING AND CLEANING**

1. Upon final completion the hardware is to be left clean and free from defect. Hardware found defective is to be repaired or replaced.
2. All door closers are to be inspected for proper installation and adjustment. Provide a written report from the Manufacturers Representative confirming proper door closer installation and submit the report to the Architect.

### **3.05 PROTECTION**

1. Contractor shall provide proper protection of hardware until turned over to the Owner.

### **3.06 HARDWARE SCHEDULE**

1. Provide hardware in accordance with the schedule as follows:

GROUP 87 ARCHITECTURAL HARDWARE INC.

**LEGEND**

AL	ALUMINUM
CLSR	CLOSER
DR	DOOR
DS	DEAD STOP
HLDR	HOLDER
HM	HOLLOW METAL
HW	HEAVY WEIGHT
LBR	LESS BOTTOM ROD
MNT	MOUNT
MTG	MOUNTING
NRP	NON REMOVABLE PIN
P.A.	PARALLEL ARM
WD	WOOD

**FINISHES**

15/652	SATIN NICKEL
28	ANODIZED ALUMINUM
26D/ 626	SATIN CHROME
32D/630	SATIN STAINLESS STEEL
689	ALUMINUM PAINTED
AL	ALUMINUM
PT	PRIMED FOR PAINT

**MANUFACTURERS**

HINGES	IVES
LOCKSETS	SCHLAGE
EXIT DEVICES	VON DUPRIN
DOOR CLOSERS	LCN
OVERHEAD STOPS	GLYNN-JOHNSON
FLATWARE	STANDARD METAL
DOOR PULLS	STANDARD METAL
FLOOR/ WALL STOPS	STANDARD METAL
THRESHOLDS	K.N. CROWDER
WEATHERSTRIP	K.N. CROWDER
AUTO OPERATORS	HORTON

## Door Index

<u>Door No</u>	<u>Hdg</u>	<u>Door No</u>	<u>Hdg</u>	<u>Door No</u>	<u>Hdg</u>
118XA	09				
135A	01				
135AA	02				
135AXA	03				
135AXB	04				
135B	05				
135BA	06				
135C	05				
136A	07				
136XA	08				
218XA	09				

Project : Sainte Marguerite Bourgeoys Daycare	Control # : 2268	Print Date : 01/15/2025	Project No:
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**Heading 01 (HwSet )**

1 SGL DOOR(S) 135A CORRIDOR 126A TO DAYCARE 135  
3'2" x 7'0" x 1-3/4" x HMD x HMF x 45MIN

Hand Degree  
LH Act InAct  
90

Totals Each Assembly to have:

( 4)	4	EA	HINGE	5BB1 5 X 4.5	652	IVE
( 1)	1	EA	CLASSROOM SEC LOCK	ND75JD SPA	626	SCH
( 1)	1	EA	CONSTRUCTION CORE	23-030-ICA	622	SCH
( 1)	1	EA	SURFACE CLOSER	1461.RWPA	689	LCN
( 1)	1	EA	KICKPLATE	K10A 7" X 36.5" TAPE MTD	32D	SMH
( 1)	1	EA	FINGER GUARD	MK1A 84" (PUSH SIDE)	WHT	FIN
( 1)	1	EA	FINGER GUARD	MK1B 84" (PULL SIDE)	WHT	FIN
( 1)	1	EA	CV WALL STOP	S121	32D	SMH

**Heading 02 (HwSet )**

1 SGL DOOR(S) 135AA VESTIBULE 135A FROM DAYCARE 135  
3'2" x 7'0" x 1-3/4" x WD x HMF x NON-RTD

Hand Degree  
RHR Act InAct  
90

Totals Each Assembly to have:

( 4)	4	EA	HINGE	5BB1 4.5 X 4	652	IVE
( 1)	1	EA	OFFSET PULL	3012-2	626	SMH
( 1)	1	EA	DUMMY TOUCH BAR	350	626	VON
( 1)	1	EA	AUTO. OPERATOR	7100	CL	HOR
( 1)	1	EA	KICKPLATE	K10A 7" X 36.5" TAPE MTD	32D	SMH
( 1)	1	EA	FINGER GUARD	MK1A 84" (PUSH SIDE)	WHT	FIN
( 1)	1	EA	FINGER GUARD	MK1B 84" (PULL SIDE)	WHT	FIN
( 2)	2	EA	MOUNTING BOX SQR.	CM-43CBLA		CAM
( 2)	2	EA	ACTUATOR	CM-45/2	32D	CAM
( 1)	1	EA	INSTALLATION	AUTO OPERATOR		G87
( 1)	1	EA		WIRING DIAGRAMS		G87

120V, LOW VOLTAGE WIRE, CONDUIT AND BACK BOXES BY ELECTRICAL CONTRACTOR

**Heading 03 (HwSet )**

1 SGL DOOR(S) 135AXA EXTERIOR FROM VESTIBULE 135A  
3'2" x 7'0" x 1-3/4" x HMD x HMF x NON-RTD

Hand Degree  
LHR Act InAct  
90

Totals Each Assembly to have:

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**Heading 03 (HwSet) Continued.....**

						Hand	Degree Act InAct
( 4)	4	EA	HINGE	5BB1HW 5 X 4.5 NRP	630	IVE	
( 1)	1	EA	PANIC HARDWARE	98EO 4'	626	VON	
( 1)	1	EA	ELECTRIC STRIKE	6300	630	VON	
( 1)	1	EA	OFFSET PULL	3012-2	626	SMH	
( 1)	1	EA	SURFACE CLOSER	4040XP.CUSH	689	LCN	
( 1)	1	EA	KICKPLATE	K10A 7" X 36" TAPE MTD	32D	SMH	
( 1)	1	SET	WEATHERSTRIP	W-17N 1/38", 2/84"	628	KNC	
( 1)	1	EA	DOOR SWEEP	W-24S 38"	628	KNC	
( 1)	1	EA	THRESHOLD	CT-45 38"	627	KNC	
( 1)	1	EA	CARD READER	BY OTHERS			

**Heading 04 (HwSet)**

1 SGL DOOR(S) 135AXB EXTERIOR FROM VESTIBULE 135A  
3'2" x 7'0" x 1-3/4" x HMD x HMF x NON-RTD

Hand  
LHR

Degree  
Act InAct  
90

Totals Each Assembly to have:

( 4)	4	EA	HINGE	5BB1HW 5 X 4.5 NRP	630	IVE	
( 1)	1	EA	PANIC HARDWARE	98NL-OP 4'	626	VON	
( 1)	1	EA	RIM CYLINDER	20-057-ICA	626	SCH	
( 1)	1	EA	PERMANENT CORE	BY OWNER			
( 1)	1	EA	ELECTRIC STRIKE	6300	630	VON	
( 1)	1	EA	OFFSET PULL	3012-2	626	SMH	
( 1)	1	EA	AUTO. OPERATOR	7900	CL	HOR	
( 1)	1	EA	KICKPLATE	K10A 7" X 36" TAPE MTD	32D	SMH	
( 1)	1	SET	WEATHERSTRIP	W-17N 1/38", 2/84"	628	KNC	
( 1)	1	EA	DOOR SWEEP	W-24S 38"	628	KNC	
( 1)	1	EA	THRESHOLD	CT-45 38"	627	KNC	
( 1)	1	EA	INTEGRATION BOX	TA2902G3 E-CR-AO		KMT	
( 2)	2	EA	MOUNTING BOX SQR.	CM-43CBLA		CAM	
( 2)	2	EA	ACTUATOR	CM-45/2	32D	CAM	
( 1)	1	EA	INSTALLATION	AUTO OPERATOR		G87	
( 1)	1	EA		WIRING DIAGRAMS		G87	
( 1)	1	EA	CARD READER	BY OTHERS			
( 1)	1	EA	INTERCOM	BY OTHERS			

120V, LOW VOLTAGE WIRE, CONDUIT AND BACK BOXES BY ELECTRICAL CONTRACTOR

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**Heading 04 (HwSet) Continued.....**

Hand Degree  
Act InAct

**Heading 05 (HwSet)**

1 PR DOOR(S) 135B DAYCARE 135 FROM CLOSETS 135B

Hand Degree  
Act InAct

1 PR DOOR(S) 135C DAYCARE 135 FROM CLOSETS 135C

LHR 90 90  
LHR 90 90

2/3'2" x 7'0" x 1-3/4" x WD x HMF x NON-RTD

Opening Remark: PAIR OF DOORS- BOTH ACTIVE

Totals Each Assembly to have:

Act InAct

( 12)	6	EA	HINGE	5BB1 5 X 4.5	652	IVE	3	3
( 4)	2	EA	DUMMY TRIM	ALX170 SPA	626	SCH	1	1
( 4)	2	EA	ROLLER LATCH	RL38	630	IVE	1	1
( 4)	2	EA	FINGER GUARD	MK1B 84" (PULL SIDE)	WHT	FIN	1	1

**Heading 06 (HwSet)**

1 PD DOOR(S) 135BA DAYCARE 135 TO WASHROOM 135B

Hand Degree  
Act InAct

3'2" x 7'0" x 1-3/4" x WD x WDF x NON-RTD

Opening Remark: POCKET DOOR

90

Totals Each Assembly to have:

( 1)	1	EA	POCKET DOOR KIT	CC-1W CATCH 'N' CLOSE		KNC		
( 2)	2	EA	FLUSH PULL	H406	32D	SMH		

**Heading 07 (HwSet)**

1 PR DOOR(S) 136A STAIR 136 FROM CORRIDOR 126A

Hand Degree  
Act InAct

2/3'2" x 7'0" x 1-3/4" x HMD x HMF x 45MIN

Opening Remark: PAIR OF DOORS

LHR 90 90

Totals Each Assembly to have:

Act InAct

( 8)	8	EA	HINGE	5BB1HW 5 X 4.5	652	IVE	4	4
( 1)	1	EA	FIXED MULLION	BY HM FRAME PROVIDER		UNK	1	1
( 2)	2	EA	FIRE EXIT HARDWARE	98L-F 996L-17 4'	626	VON	1	1
( 2)	2	EA	RIM CYLINDER	20-057-ICA	626	SCH	1	1
( 2)	2	EA	PERMANENT CORE	BY OWNER			1	1
( 1)	1	EA	ELECTRIC STRIKE	6300	630	VON	1	
( 1)	1	EA	SURFACE CLOSER	4040XP.RWPA	689	LCN		1
( 1)	1	EA	AUTO. OPERATOR	7900	CL	HOR	1	
( 2)	2	EA	KICKPLATE	K10A 7" X 36.5" TAPE MTD	32D	SMH	1	1
( 2)	2	EA	FINGER GUARD	MK1A 84" (PUSH SIDE)	WHT	FIN	1	1
( 2)	2	EA	FINGER GUARD	MK1B 84" (PULL SIDE)	WHT	FIN	1	1
( 2)	2	EA	CV WALL STOP	S121	32D	SMH	1	1

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**Heading 07 (HwSet) Continued.....**

					Hand	Degree	
						Act	InAct
( 2)	2	EA	MOUNTING BOX SQR.	CM-43CBLA	CAM	2	
( 2)	2	EA	ACTUATOR	CM-45/2	32D CAM	2	
( 1)	1	EA	INSTALLATION	AUTO OPERATOR	G87	1	
( 1)	1	EA		WIRING DIAGRAMS	G87	1	

120V, LOW VOLTAGE WIRE, CONDUIT AND BACK BOXES BY ELECTRICAL CONTRACTOR

**Heading 08 (HwSet)**

1 PR DOOR(S) 136XA EXTERIOR FROM STAIR 136  
 2/3'2" x 7'0" x 1-3/4" x HMD x HMF x NON-RTD  
 Opening Remark: PAIR OF DOORS

					Hand	Degree	
						Act	InAct
					LHR	90	90
Totals	Each Assembly to have:					Act	InAct
( 8)	8	EA	HINGE	5BB1HW 5 X 4.5 NRP	630 IVE	4	4
( 1)	1	EA	FIXED MULLION	BY HM FRAME PROVIDER	UNK	1	1
( 1)	1	EA	PANIC HARDWARE	98EO 4'	626 VON		1
( 1)	1	EA	PANIC HARDWARE	98NL-OP 4'	626 VON	1	
( 1)	1	EA	RIM CYLINDER	20-057-ICA	626 SCH	1	
( 1)	1	EA	PERMANENT CORE	BY OWNER		1	
( 1)	1	EA	ELECTRIC STRIKE	6300	630 VON	1	
( 2)	2	EA	OFFSET PULL	3012-2	626 SMH	1	1
( 1)	1	EA	SURFACE CLOSER	4040XP.CUSH	689 LCN		1
( 1)	1	EA	AUTO. OPERATOR	7900	CL HOR	1	
( 2)	2	EA	KICKPLATE	K10A 7" X 36" TAPE MTD	32D SMH	1	1
( 2)	2	EA	WEATHERSTRIP	6216 1/8" X 3/8" X 84"	BLK KNC	1	1
( 1)	1	SET	WEATHERSTRIP	W-17N 1/76", 2/84"	628 KNC		
( 2)	2	EA	DOOR SWEEP	W-24S 38"	628 KNC	1	1
( 1)	1	EA	THRESHOLD	CT-45 76"	627 KNC		
( 1)	1	EA	INTEGRATION BOX	TA2902G3 E-CR-AO	KMT	1	
( 2)	2	EA	MOUNTING BOX SQR.	CM-43CBLA	CAM	2	
( 2)	2	EA	ACTUATOR	CM-45/2	32D CAM	2	
( 1)	1	EA	INSTALLATION	AUTO OPERATOR	G87	1	
( 1)	1	EA		WIRING DIAGRAMS	G87		
( 1)	1	EA	CARD READER	BY OTHERS			
( 1)	1	EA	INTERCOM	BY OTHERS			

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**Heading 09 (HwSet )**

1 SGL DOOR(S) 118XA EXTERIOR FROM CLASSROOM 118  
 1 SGL DOOR(S) 218XA EXTERIOR FROM CLASSROOM 218  
 3'2" x 7'0" x 1-3/4" x HMD x HMF x 45MIN  
 Opening Remark: CONFIRM DOOR SIZE

Hand	Degree	
	Act	InAct
RHR	90	
RHR	90	

Totals Each Assembly to have:

( 6)	3	EA	HINGE	5BB1 5 X 4.5 NRP	630	IVE
( 2)	1	EA	FIRE EXIT HARDWARE	98EO-F 4'	626	VON
( 2)	1	EA	SURFACE CLOSER	4040XP.CUSH	689	LCN
( 2)	1	EA	KICKPLATE	K10A 7" X 36" TAPE MTD	32D	SMH
( 2)	1	SET	WEATHERSTRIP	W-17N 1/38", 2/84"	628	KNC
( 2)	1	EA	DOOR SWEEP	W-24S 38"	628	KNC
( 2)	1	EA	THRESHOLD	CT-45 38"	627	KNC

TEMPORARY EXIT DOOR

**End of Schedule**

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**PART 1 - GENERAL**

Comply with requirements of Division 1 and Supplementary Conditions.

Steel Doors and Frames  
Aluminum Windows

Section 08 10 00  
Section 08 52 10

**1.1  
RELATED  
WORK**

1. **Shop Drawings**: Submit drawings in accordance with Section 01 30 00.

**1.2  
SUBMITTALS**

2. **Samples**: Submit, upon request, 4 - 12" x 26" samples of both vision and spandrel units for review.

Sealed unit manufacturer to maintain in stock for the full duration of the warranty period, sufficient sheet stock for prompt replacement of defective or broken units.

**1.3  
REPLACEMENT  
UNITS**

1. Include with the sealed insulating glass units a written warranty provided jointly by Unit manufacturer and glazing contractor as follows:

**1.4  
WARRANTY**

- 1.1. Insulated glass units           5 years
- 1.2. Mirrors                            10 years
- 1.3. Structural silicone adhesive   20 years
- 1.4. Labour                             2 years

2. Manufacturer's warranty to include labour and material as well as repair or replacement at manufacturer's expense to extent required.

3. Deficiencies and defects include:

- 3.1. Glass breakage
- 3.2. Fogging of sealed units
- 3.3. Silvering fading from mirrors
- 3.4. Roll Wave: to meet ASTM C1048 requirements

Install compound, sealants or tapes only when glazing surfaces are at temperatures over 4°C and when no moisture is accumulating on them from rain, mist or condensation.

**1.5  
ENVIRONMENTAL  
REQUIREMENTS**

1. Manufacturers of sealed insulating glass units: IGMAC (Insulated Glass Manufacturers Association of Canada) Certified.

**1.6  
QUALIFICATIONS**

2. Install insulated glass units in accordance with IGMAC glazing recommendations.

**PART 2 - PRODUCTS**

**2.1  
MATERIALS**

**General:** label each piece of glass and each container of glazing compound or sealant to identify manufacturer, type and quality. Maintain glass labels in place until final cleaning.

1. **Tempered or Laminated Glass**: To CAN/CGSB 12.1-M.

2. **Flat Clear Sheet**: to CAN/CGSB 12.2-M.

3. **Flat Clear Float**: To CAN/CGSB 12.3-M, float minimum thickness 6mm.

4. **Mirrors, Silver Edged**: To CAN/CGSB 12.5-M.
  - 4.1. **Type 1A**: float for normal use
  - 4.2. **Type 2A**: tempered - typical unless noted otherwise.
5. **Insulating Glass Units**: To CAN/CGSB 12.8 consisting of 2 6mm lites separated by a 12.7mm space (25mm thick) filled with argon gas and hermetically factory sealed and Low 'E' coating as noted. Include the following:
  - 5.1. Dual – seal design with white warm edge spacer.
  - 5.2. Soft Low 'E' coating of tempered clear inner lite on surface 2 at south and west facing windows and on surface 3 at north and east facing windows.
  - 5.3. Include tempered tint gray outer lite and clear inner lites.
  - 5.4. Tempered – clear float both lites at all exterior doors and screens.
  - 5.5. Approved manufacturers LOF,AFG, Truelite, Prelco, PPG
6. **Laminated Glass**: Type 1, Class B, Category II, 6mm, clear laminate with min. 0.060 PVB film between lites.
7. **Tempered Laminated Glass**: Two lites of 3 mm fully tempered safety glass Type 2, Class B, Category II laminated together with clear 0.060 PVB film between lites.
8. **Glazing Tape**: Equal to Tremco “440” 100% premolded polyisobutylene, cross link butyl.
9. **Sealants**: Equal to Tremco “Spectrum 2” or Dow Corning “795”.

2.1  
MATERIALS  
(Cont'd)

**PART 3 - EXECUTION**

3.1  
GENERAL

1. Install materials in accordance with manufacturer's specifications and ensure that each material in a glazing system is compatible with the other.
2. Before commencing glazing, carefully review the existing condition to ensure that it is satisfactory to receive the Work of this section. Failure to report an unsatisfactory or questionable condition will leave this Contractor responsible for the possible removal and reinstallation or replacement of this work.
3. Remove stops and store during glazing to avoid damage to them.
4. Remove excess glazing compounds or sealants from adjacent surfaces, including glass, during working life of material, and by methods not harmful to the surfaces.
5. Collect broken glass and cuttings in boxes and remove from site.
6. Do not set any glass without glazing beds or gaskets.

1. **Glass:**

- 1.1. Cut glass to fit openings and to allow clearances which will ensure that glass is held firmly in place and is not subjected to stresses.
- 1.2. Glass edges shall be clean cut, not nipped or seamed.
- 1.3. Do not cut or nip tempered glass to fit: replace oversize or glazed lights with entirely new units of proper dimensions.

2. **Glazing Preparation and Methods:**

- 2.1. Clean glazing rebate surfaces if all traces of dirt, dust, or other contaminants.
- 2.2. Use glazing sealants without addition of thinners.
- 2.3. Prime all glass rebates except for aluminum, unless specified otherwise.
- 2.4. Ensure that glazing tapes are in full contact with glazing surfaces.

3. **Positioning Glass:**

- 3.1. Support glass, in lights of over 1270 united millimetres, by two setting blocks, one at each quarter point of each light but no less than 150mm in from insulated glass unit corners.
- 3.2. Centre glass in rebates. Use spacer shims in lights of over 1270 united millimetres. Set shims on all four sides of lights at a maximum of 300mm from the ends and 600mm oc in between.

4. **Bedding at Fixed Stops:** Cut tapes accurately to length on a work table and provided for full depth of stop. Set sill and head tapes first at full length of rebated opening. Butt jamb tapes into sill and head tapes tightly to weld them together. Remove protective paper backing only when glass is ready for setting and ensure that butted joints of tape are filled with applied sealant.

5. **Bedding at Stop Beads:** Apply tape to removable stops as specified for fixed stops.

1. **Exterior Glazing:** Windows

- 1.1. Structural shop glaze as described in Section 08 52 10.

2. **Exterior Glazing:** Steel Doors

- 2.1. Bed glass continuously on both faces to ensure a solid, rattle free installation.
- 2.2. Remove and replace screw-on stops where applicable.

3. **Exterior Glazing:**

- 3.1. Size glass units to accurately fit openings with a  $\frac{5}{8}$ " (3mm) edge clearance.
  - 3.1.1. Windows: 1" (25 mm) sealed units type 1 & 2 with laminated outer lite.
  - 3.1.2. Doors and Screens: 1" (25 mm) sealed unit with clear, laminated outer lite
- 3.2. Solvent clean contact surfaces, apply primer sealer.

3.2  
PREPARATION

3.3  
INSTALLATION

- 3.3. Apply glazing tape to face of stop.
- 3.4. Install glass on setting blocks to centre in opening and maintain clearance; ensure full contact and adhesion with tape at perimeter.
- 3.5. Use butyl tape, reinforced butyl tape or spacer blocks to maintain glass in centre of rebate in accordance with glazing systems manufacturer's specifications.
- 3.6. Apply continuous heel bead (air seal); one-part polyurethane.
- 3.7. Apply cap bead at exterior perimeter of glass; one-part silicone.
- 3.8. Cap beads to be sloped to shed water away from face of glass.
- 3.9. Install materials to ensure vent holes in frame remain clear.
4. **Interior Glazing:**
- 4.1. Remove and replace screw-on stops where applicable.
- 4.2. Bed glass continuously on both faces in tape to ensure a solid, rattle free installation.
- 4.3. **Doors and Screens:** 1/4" (6mm) tempered or as indicated in the Door Schedule.
5. **Mirrors:**
- 5.1. Edge with a stainless steel trim c/w mitre corners – back galvanized steel.
- 5.2. Verify size, location and height of mirrors before mounting.
- 5.3. **Wall fastenings:** tamper-proof completely concealed and securely attached to wall.
- 5.4. Mount mirrors absolutely plumb and in true planes.
6. **Finishing:**
- 6.1. Remove labels after Work is completed.
- 6.2. Immediately remove stains, deposits, marks or blemishes caused by the Work of this Section.
- 6.3. Replace scratched, etched or defective glazing.

**3.3  
INSTALLATION  
(cont'd)**

**END OF SECTION**



**PART 1 - GENERAL**

Comply with requirements of Division 1 and Supplementary Conditions.

Wood Furring, Blocking and Setting Door Frames	Section 06 10 00	<b>1.1 RELATED WORK</b>
Sprayed Foam Insulation	Section 07 21 00	
Acoustical	Section 09 50 00	
Painting	Section 09 90 00	

1. Install materials in areas maintained at 50° to 70° F (10° to 21° C) before, during and for 96 hours after installation. **1.2  
ENVIRONMENTAL  
REQUIREMENTS**

2. Apply board and joint treatment to dry, frost-free surfaces.

1. Deliver, store and handle materials according to manufacturer's recommendations. **1.3  
DELIVERY,  
STORAGE, AND  
HANDLING**

2. Maintain materials in dry condition at all times.

Gypsum Board: CAN/CSA A82.27, ASTM C1396 **1.4  
REFERENCE  
STANDARDS**  
 Application of Gypsum Board CSA. A82-31-M.  
 Finishing of Gypsum Board ASTM C840  
 Fire Endurance Tests: CAN/ULC S101  
 Steel Stud Framing: CAN/CBSB -7.1, ASTM C754

1. Approved manufacturers for the drywall products: CGC Inc. Certain Teed, Continental Building Products, Georgia Pacific. **1.5  
QUALIFICATIONS**

2. Approved manufacturers for metal stud, metal furrings and accessories: Bailey Metal Products or Insulock Systems.

**PART 2 - PRODUCTS**

**2.1  
MATERIALS**

1. **Gypsum Board:** to CAN/CSA A82.27 and ASTM C1396/ASTM 1396M 5/8" thick unless indicated otherwise and to 4'-0" wide x maximum practical length.

1.1. Fire rated: with tapered edges. Type "X" board bearing a U.L.C. label at partitions designated as 1 hour rated.

1.2. Abuse Resistant Fibre Panels: Equal to Georgia Pacific "Toughrock" abuse resistant board or equal by USG or CertainTeed.

2. **Metal Studs:** To ASTM C645 and ASTM C955.  
 Acceptable manufacturer's: CertainTeed Gypsum Canada, Bailey Metal Products, Dietrick Metal Framing Canada

2.1. Non-load Bearing Channel Stud Framing: Rolled from hot dipped galvanized sheet steel for screw attachment of gypsum board, size: 3<sup>5</sup>/<sub>8</sub>" x 25GA (92mm x 0.55m) thickness. Knock-out service holes at 406mm oc (16"). Use 20 GA studs at abuse-resistant GWB.

- 2.2. **Floor and Ceiling Tracks:** 25 gauge hot dipped galvanized to suit width of studs, bridging, metal channel bridging, angles, channels, and the like to form a rigid framing capable of supporting the drywall and other indicated and related loads.
3. **Accessories:** To ASTM C1047 or as noted.
  - 3.1. Galvanized corner bead, 1-1/4" (32mm) perforated flanges.
  - 3.2. Galvanized Type "L" casing bead with single perforated flange for joint filling.
  - 3.3. Galvanized channel casing with single perforated flange for joint filling.
  - 3.4. **Screws:** Self-drilling, self-tapping, case hardened Phillips head drywall screws with corrosion resistant finish to CAN/CSA-A82.31.
  - 3.5. **Bracing Channels:** ASTM C645, for partitions, 19 x 9.5 x 1.2mm cold-rolled, galvanized steel.
  - 3.6. **Furring Channels:** ASTM C645, #25 galvanized, nominal size of 22mm deep by 32mm face, hat type with knurled face.
  - 3.7. **Revoe Clips:** Extruded aluminum designed to attach gypsum board/demount DBL partitions to the t-bar ceiling without damaging ceiling components
4. **Reinforcing Tape:** 2" (50mm) wide Kraft paper perforated joint tape with feathered edges to ASTM C475
5. **Joint Filler and Topping Compound:** To CAN/CSA-A82.31 asbestos-free. Specific to each type of gypsum board.
6. **Vapour Retarder Film:** To CAN/CGSB 51.3-M, Type 2, polyethelene, 6 mil thick (black).
7. **Thermal Insulation:** Owens Corning R24 Pink fibreglass AFB by Roxul or Fibrex SAFB, CertainTeed Fibre Glass – see drawing for "R" value. To CAN/ULC-S70 – Type 1.
8. **Sound Insulation:** Ecotouch quiet Zone Pink fibreglass CertainTeed Noise Reducer Mineral glass fibre unfaced blanket. To CAN/ULC-S702 – Type 1.
9. **Acoustical Sealant:** To CGSB 10-GP-21M.
10. **Ceiling Suspension:** CSA A82.30.
  - 10.1. **Runner Channels:** 1/2" x 3/4" x 16GA - 2m coated.
  - 10.2. **Furring Channels:** 3/4" x 3/8" x 16GA - 2m coated.
  - 10.3. **Wire Hangers:** 12 GA Galvanized Annealed Steel.
  - 10.4. **Tile Wires:** 18 GA Galvanized Annealed Steel
11. **Insulating Strip:** Rubberized, moisture resistant 3mm thick foam strip, 12mm wide with self-sticking adhesive on one side.
12. **Stud Adhesive:** To CAN/CGSB-71.25
13. **Laminating Compound:** As recommended by manufacturer asbestos free.

**2.1  
MATERIALS  
(Cont'd)**

**PART 3 – EXECUTION**

**3.1  
ERECTION**

1. **Steel Studs:**

- 1.1. Erect in accordance with CSA A82.31 and ASTM C754 unless noted otherwise.
- 1.2. Execute under competent supervision by mechanics skilled in this trade.
- 1.3. Install all materials in accordance with manufacturer's specifications except where indicated otherwise.
- 1.4. Align partition tracks at floor and ceiling and secure at (600) mm o.c. maximum.
- 1.5. Install dampproof course under stud shoe tracks of partitions on slabs on grade.
- 1.6. Place studs vertically at (600) mm oc and not more than (50) mm from abutting walls, and at each side of openings and corners. Position studs in tracks at floor and ceiling. Cross brace steel studs are required to provide rigid installation to manufacturer's instructions.
- 1.7. Erect metal studding to tolerance of 1:1000.
- 1.8. Attach studs to bottom ceiling track using screws.
- 1.9. Coordinate simultaneous erection of studs with installation of service lines. When erecting studs ensure web openings are aligned.
- 1.10. Coordinate erection of studs with installation of door/window frames and special supports or anchorage for specified in other Sections.
- 1.11. Double studs at all door jambs. At each jamb of doors exceeding either 900mm width or 60mm in thickness or both, install a structural channel reinforcing extending from floor structure to structure above, and adequately anchored at each end.
- 1.12. Brace studs with stiffeners over doors in partitions of greater height than 3000mm spaced as preceding, and above and below window type openings spaced not more than 150mm from the top and bottom of openings. Stiffeners shall be 19mm bracing channels, wire tied or welded to each stud, and extending horizontally across entire length of each braced partition and across two full stud spaces at each side of door and window openings.
- 1.13. Splice studs only when unavoidable by nesting with 200mm minimum lap, and fastened with one screw in each flange.
- 1.14. Erect track at head of door/window openings and sills of sidelight/window openings to accommodate intermediate studs. Secure track to studs at each end, in accordance with manufacturer's instructions. Install intermediate studs above and below openings in same manner and spacing as wall studs.
- 1.15. Frame openings and around built-in equipment, cabinets, access panels, on four sides. Extend framing into reveals. Check clearances with equipment suppliers.
- 1.16. Provide 40 mm stud or furring channel secured between studs for attachment of fixtures behind lavatory basins, toilet and bathroom accessories, and other fixtures including grab bars and towel rails, attached to steel stud partitions

- 1.17. Install steel studs or furring channel between studs for attaching electrical and other boxes.
- 1.18. Extend partitions to ceiling height except where noted otherwise on drawings (extend to underside of structure).
- 1.19. Maintain clearance under beams and structural slabs to avoid transmission of structural loads to studs. Use 50mm leg ceiling tracks. Use double track slip joint (as indicated) or slotted top track.
- 1.20. Install continuous insulating strips to isolate studs from uninsulated surfaces.
- 1.21. Install two continuous beads of acoustical sealant insulating strip under studs and tracks around perimeter of sound control partitions.

**3.1  
ERECTION  
(Cont'd)**

2. **Ceiling Suspension:**

- 2.1. Attach wire hangers to joists and beams not to steel deck.
- 2.2. Install runners level to tolerance of 3mm over 3.5m. Provide runners at interruptions of continuity and change in direction.
- 2.3. Frame with furring channels, perimeter of openings to accommodate access panels, light fixtures, diffusers, grilles, and the like.
- 2.4. Furr for vertical bulkheads within or at termination of ceilings.
- 2.5. Furr above suspended ceilings for fire and sound stops and to form plenum areas indicated.
- 2.6. Brace suspension for exterior soffits and entrance vestibule ceilings to prevent upward movements due to wind pressure.
- 2.7. Provide galvanized drips continuously along edges of exterior soffits.
- 2.8. Provide clearance under beams and structural slabs to prevent transmission of structural loads to vertical furring.
- 2.9. Leave finished work rigid, secure, square, level, plumb, (curved to detailed radius) and erected to maintain finish line dimensions and contours. Drywall allowance for thermal movement.
- 2.10. Use galvanize supports, members, angles and metal lathing in wet areas, exterior walls and exterior soffits.
- 2.11. Attach suspension to:
  - 2.11.1. Steel deck with screw eyes.
- 2.12. Secure grid members at perimeter of ceiling to wall mould with concealed fastenings.
- 2.13. Install grid assemblies true, rigid, and level within a tolerance not exceeding 1:1000.

3. **Gypsum Board:**

3.1  
ERECTION  
(Cont'd)

- 3.1. Erect In accordance with CAN/CSA-A82.31 gypsum board application. All partitions – abuse resistant board except at fire-rated locations, and where indicated otherwise.
- 3.2. Apply board only after anchors, blocking and the like have been installed, the electrical and mechanical are approved and all batt insulation is in place.
- 3.3. Install board to minimize end joints; apply with long dimension parallel to framing members and with edge joints over bearing.
- 3.4. Locate all end joints over bearing.
- 3.5. Space screws as follows:
  - 3.5.1. **All Board:** Walls and ceilings - 8" (200mm) at edges.
  - 3.5.2. **Fire Rated Board:** Walls - 12" (300mm) at field; ceiling 8" (200mm) at field.
  - 3.5.3. **Non-rated Board:** Walls and ceilings - 12" (300mm) at field.
- 3.6. Install perimeter screws at not less than 3/8" (10mm) nor more than 2" (13mm) from edges and ends and shall be opposite the screws on adjacent boards.
- 3.7. Apply corner beads, Type "L" casing beads and channel casing beads (no J mould permitted).
- 3.8. Install control joints of back-to-back casing beads at no greater spacing than 30 feet (9m) in each direction or as indicated. Line up control joints with joints in other construction or with centre lines of columns, piers, mullions or similar building elements.
- 3.9. Caulk between casing beads and other construction where junctions are exposed to view in accordance with the requirements of Section 07 90 00.

4. **Taping and Filling:**

- 4.1. Finish face panel joints and internal angles with joint system consisting of joint compound, joint tape and taping compound installed according to manufacturer's directions and feathered out onto panel faces.
- 4.2. Finish corner beads, control joints and trim as required with two coats of joint compound and one coat of taping compound, feathered out onto panel faces.
- 4.3. Fill screw head depressions with joint and taping compounds to bring flush with adjacent surface of gypsum board so as to be invisible after surface finish is completed.
- 4.4. Sand lightly to remove burred edges and other imperfections. Avoid sanding adjacent surface of board.
- 4.5. Completed installation to be smooth, level or plumb, free from waves and other defects and ready for surface finish.
- 4.6. Finish joints above finished ceiling – with tape and first coat of joint compound.

5. **Access Doors:**

- 5.1. Install access doors supplied by others at locations of mechanical and electrical equipment.
- 5.2. Rigidly secure frames to furring or framing system. Seal perimeter of frame.

3.1  
ERECTION  
(Cont'd)

6. **Sound Insulation:** Install friction fit insulation to fill stud space for full height of studs. Pack all voids.

7. **Vapour Retarder Film:** Install vapour retarder film over all framing as indicated. Lap all joints on bearings. Seal wall vapour retarder to roof vapour retarder to effect continuous seal.

1. Make GWB good at cut-outs for services and other projections; fill in defective joints, holes and other depressions with joint compound.

2. Clean off beads, casings and other trim. Make good all defective work and ensure that surfaces are smooth, evenly textured and within specific tolerances and left ready to receive specified finishes.

3. **Patching and Making Good:** Where existing partitions are scheduled for removal, (see demolition drawings) and the remaining disturbed areas at walls and ceilings are scheduled for filling in and to be made good, the new GWB will match and be aligned with the adjacent GWB or plaster surface.

3.2  
ADJUSTMENT  
AND CLEANING

END OF SECTION

**PART 1 - GENERAL**

Comply with requirements of Division 1 and Supplementary Conditions.

For suspension systems for drywall and plaster  
 For diffuser and grille design  
 For light fixture types

Section 09 20 00  
 Division 23  
 Division 26

**1.1  
 RELATED  
 WORK**

1. Fire-resistance rated floor/ceiling and roof/ceiling assembly: certified by a Canadian certification. Organization accredited by the Standards Council of Canada.

**1.2  
 REGULATORY  
 REQUIREMENT**

2. System designed to requirements of ASTM C635.

1. **Samples:**

**1.3  
 SUBMITTALS**

1.1. Submit in accordance with Section 01 30 00.

1.2. On request submit samples of acoustic material and suspension systems for approval.

1. Permit wet Work to dry before commencement of installation.

**1.4  
 ENVIRONMENTAL  
 REQUIREMENTS**

2. Maintain uniform minimum temperature of 15°C and humidity of 20 - 40% before and during installation.

3. Store materials in Work area 48 hours prior to installation.

1. Deliver materials in original un- delivery and opened packages, clearly labeled storage with manufacturer's name, item description, part number, type and class.

**1.5  
 DELIVERY  
 AND STORAGE**

2. Store in a manner that will prevent warpage, scratches, or damage of any kind.

3. Handle in such a manner as to ensure against wracking, distortion, or physical damage of any kind.

1. Provide acoustical units amounting to 2% of gross ceiling area for each pattern and type required for project.

**1.6  
 MAINTENANCE  
 MATERIALS**

2. Extra materials to be from same production run as installed materials.

3. Clearly identify each type of acoustic unit, including colour and texture.

4. Deliver to work place prior to Substantial Performance.

5. Store where directed by Owner.

**PART 2 - PRODUCTS**

**2.1  
 GENERAL**

1. **Suspension System:**

1.1. Intermediate duty main beam classification to ASTM C635.

1.2. **Basic Materials:**

1.2.1. Commercial quality cold rolled steel with G-30 hot dipped galvanized.

1.2.2. Exposed surfaces chemically cleansed capping prefinished in white baked polyester.

- 1.3. Non-fire Rated:
    - 1.3.1. 2 directional exposed tee-bar grid 24" x 24" (60 x 60 m) 24" x 48" (610 x 1200 mm).
    - 1.3.2. Acceptable material: Armstrong "Prelude ML" 15/16" exposed tee system, Donn DX class A standard grid Certain-Teed "Classic Stab" design exposed grid, Chicago metallic "Snap grid" 200 or Armstrong "Suprafine" XL 9/16" and equal by Certain-Teed, Donn, Chicago Metallics.
  - 1.4. Fire-rated:
    - 1.4.1. 2 directional exposed tee-bar grid (24"x24") 610 x 1200 mm), 24" x 48" (610 x 1200 mm)
    - 1.4.2. Similar to non-fire rated, but all fire-rated cross trees are 1½" high with fire-rated end joinery designed to expand through the main tee slot.
    - 1.4.3. Acceptable material: Armstrong "Prelude XL" fireguard or equal by Certain-Teed, Donn and Chicago Metallic.
  - 1.5. Accessories: provide all necessary clips, splicers, connectors, screws, or other special accessories in galvanized of such strength and design compatible with the system to be installed.
  - 1.6. Hangers: No. 12 GA. galvanized annealed steel wire.
  - 1.7. Tie Wire: No. 18 GA. galvanized annealed steel wire.
  - 1.8. Hold-Down Clips: purpose made to secure acoustic panels to suspension; approved for use in fire rated systems. (Only when they weigh less than 1 lb/sqft, 4.5 kg/m5).
  - 1.9. Wall Moulding: ¾ x ¾
  - 1.10. Stepped Shadow Mould: - ¾ - ½" - ¾
2. Acoustical Panels: to CAN/CGSB-92.1. ASTM 1268  
Acceptable Products: Armstrong, CGC, CertainTeed.
    - 2.1. Standard, Type: Lay-in.
      - 2.1.1. Size: 24" x 48" (610 x 1220mm).
      - 2.1.2. Type: Armstrong "Cortega" Fireguard "823" medium texture, non-directional "White".

2.1  
**GENERAL**  
**(Cont'd)**

**PART 3 - EXECUTION**

3.1  
**INSPECTION**

1. Examine area to receive ceiling panels for conditions that will adversely affect the installation. Provide written report of discrepancies.
2. Do not commence until defects are corrected.
3. Verify that all installations in the ceiling space have received a final review by all Consultants before closing in with acoustic panels. The Contractor may with the Consultant's approval proceed with perimeter panels and those panels at ceiling fixtures, detectors, diffusers and the like.
4. Beginning of installation signifies acceptance of conditions of areas scheduled for ceiling panels.
5. Fire rating requirements - see room finish schedule by the Consultant.



- 
1. Verify field dimensions prior to commencement. **3.2  
PREPARATION**
  2. Verify that layout of hangers will not interfere with other work.
  1. Install all materials in accordance with the manufacturer's latest installation recommendations. **3.3  
INSTALLATION**
  2. Install ceilings to layout shown and/or as approved by the Consultant. Note location of electrical fixtures, detectors, diffusers, grilles, and the like installed under Division 15 and 16.
  3. Terminate ceilings at walls, bulkheads, or other ceilings with the perimeter detail indicated on the plans and/or spec sheets. Use longest practical perimeter trim. Mitre corners.
  4. Ensure that all surface or recessed ceiling-mounted electrical fixtures and/or other electrical and mechanical equipment is fully supported (by others) independent of the grid.
  5. Unless specified otherwise install all hangers at 4'-0" o.c. (1200 mm) in each direction from building structure over. Where hanger locations conflict with ductwork, piping, or other equipment, introduce the necessary intermediate steel framing to ensure that hangers are supported from building structure.
  6. Attach suspension to:
    - 6.1. Precast concrete deck by ramset, cinch anchors, or dropping hanger wires through slab joints prior to grouting.
  7. Hangers must be installed prior to the application of sprayed fireproofing.
  8. Secure grid members at perimeter of ceiling to wall mould with concealed fastenings.
  9. Wrap the free end of all hangers and tie wires in a triple pigtail.
  10. Install grid assemblies true, rigid, and level within a tolerance not exceeding 1:1000.
  11. Fit lay-in panels in areas subject to uplift drafts (i.e. vestibules) with approved hold-down clips.
  12. Identify in a manner acceptable to the Consultant those tiles providing access to mechanical and/or electrical equipment.
  13. Cut tile must be large enough to lap all edges of grid by 1/4" regardless of the position of the tile within the panels.
  14. Wherever possible insure that no row of tile shows less than 50 percent of its normal face.
- "Make good" all ceilings as noted in room finish schedule. Remove and re-install ceilings as required by the Work of Divisions 23 and 26. **3.4  
EXISTING  
CEILINGS**
- Protect Work of this section and adjacent Work from damage. "Make good" all damaged Work to the satisfaction of the Consultant. **3.5  
PROTECTION**

1. Clean soiled or discoloured surfaces of Work on completion.
2. Replace components, which are visibly damaged, marred, or unable to be cleaned.

**3.6  
ADJUSTMENT  
AND CLEANING**

**END OF SECTION**

**PART 1 - GENERAL**

Comply with requirements of Division 1 and Supplementary Conditions.

Final cleaning  
Concrete Floor  
Floor access covers

Division 1  
Section 03 30 00  
Sections 23 00 00, 26 00 00

**1.1  
RELATED  
WORK**

1. **Samples:**

**1.2  
SUBMITTALS**

- 1.1. On request submit duplicate samples to sizes requested of resilient flooring materials, base, and accessories.

Submit flooring maintenance information for incorporation into the project data book.

**1.3  
CLOSE-OUT  
SUBMITTALS**

On completion leave with the Owner's two (2) percent of the gross floor area of each material, size, colour and/or pattern used. Store where directed and identify contents.

**1.4  
EXTRA  
MATERIALS**

Maintain air temperature and structural base temperature at flooring installation area above 20°C for 48 hours before, during, and for 48 hours after installation. Arrange for controlled ventilation to avoid high humidity and cold drafts.

**1.5  
ENVIRONMENTAL  
REQUIREMENTS**

Store all resilient flooring materials on site in manufacturer's cartons in a temperature of 18°C or over for 48 hours immediately before installation.

**1.6  
DELIVERY  
AND STORAGE**

**PART 2 - PRODUCTS**

**2.1  
MATERIALS**

1. **Vinyl Composition Tile (V.C.T.):**

- 1.1. VCT 1 and 2: To ASTM F1066 1/8" (3.2 mm) x 12" (300 mm) x 12" (300 mm) in Armstrong "Excelon" standard colour and pattern as selected by the Consultant. Allow for 2 colours.

Acceptable material: Mannington (Amtico) Flextile homogeneous non-directional with through colour & pattern

Adhesive: Mapei Ultraboard Eco 6111

2. **Integrated Rubber Tread and Riser:**

- 2.1. Stair Treads/Risers: Equal to raised round rubber tread/riser model no.VIRTR-RD complete with visually impaired "safety first" luminescent insert and grit tape in contrasting colour at nosings by Johnsonite.  
2.1.1. Alternate approved manufacturers: Benguard, Amtico, Canada Base.  
2.1.2. Colour selection by Consultant from Manufacturer's Standard Range

- 2.2. **Rubber tile:** 24" x 24" raised round rubber pattern by Johnsonite. Install at stair landings.
3. **Primer:** As recommended by manufacturer of each material for each sub-floor condition or equal to Mapei U.P.
4. **Sealers and Wax:** As recommended by manufacturer of flooring.
5. **Floor Protection:** Heavy Kraft paper laminated to both sides of glass fibre reinforcing mesh.
6. **Rubber Base:** To CAM/CSA-A12 6.5 Type 3 2" (63.5 mm), 4" (100 mm), 6" (152 mm) top set and coved except at carpeted areas which are to be toeless. Include pre-moulded external corners. The colours and the manufacturer will be selected by the Consultant. Approved material: Johnsonite, Bengard, Amtico Canada Base. (Rubber base: at drywall "Tightlock" by Johnsonite).
7. **Resilient Thresholds:** To be equal to Johnsonite Rubber or Bengard, Canada Base in a colour to be selected by the Consultant.
8. **Patching Compound:** Equal to Mapei "Plani Patch".

**2.1  
MATERIALS  
(Cont'd)**

**PART 3 - EXECUTION**

1. Unless specified or indicated otherwise, the Work of this section will be done after all other Trades including paint finishes, are completed.
  2. Before proceeding with the laying of any flooring, test the substrate at all areas to ensure that moisture level and acid alkali balance is within the limits recommended by the adhesive and resilient flooring manufacturer.
  3. Examine substrate to ensure it is satisfactory to receive the Work of this section. Report any unsatisfactory or questionable conditions to the Consultant in writing. Defective Work resulting from a failure to advise will be the responsibility of this section.
1. Remove sub-floor ridges and bumps. Fill low spots, cracks, joints, holes, and other defects with patching compound. Allow to dry and cure before proceeding.
  2. Thoroughly clean surfaces to receive flooring products of soil, dirt, dust, oil, grease, or any deposit that mght affect the bond or the appearance of the finished Work.
  - 3.
  4. At existing floor surfaces that are to receive new resilient finishes, make suitable allowance for the proper preparation of these surfaces to ensure a completely satisfactory flooring installation. These measures may include but not be confined to the grinding of existing concrete surfaces, power sanding of existing wood or resilient flooring, and the patching with approved compound. Include new plywood sub-floor when none of the above measures produce the required result (see Section 06 10 00 for sub-floor material).
  5. Prime or seal sub-floor as required by and in accordance with adhesive and flooring manufacturer's specifications.
  6. Include new plywood sub-floor when none of the above measures produce the required result (See Section 06100 for sub-floor material).

**3.1  
EXAMINATION**

**3.2  
SUBFLOOR  
TREATMENT**

1. **General:**

3.3  
APPLICATION

- 1.1. Install each material in accordance with manufacturer's printed instructions.
- 1.2. Before installing the resilient flooring materials, ensure that variations in shade or pattern of production runs are grouped to avoid variations apparent within any one area.
- 1.3. Unless indicated otherwise flooring in closets to be the same as the room off which they open.
- 1.4. Carry floor patterns uninterrupted under movable-type partitions.
- 1.5. Install floorings to pattern shown with feature strips and floor markings where indicated.
- 1.6. All resilient floors whether tile or sheet goods to be rolled in two directions with 100 lb. (45 kg) three-section roller.
- 1.7. Remove and replace any adhesive that may have been left longer than its working time.

2. **Resilient Tile:**

- 2.1. Install tile joints parallel to room axes.
- 2.2. Install tile with all grain running parallel to long axis of room. Joints parallel to grain are to be staggered  $\frac{1}{2}$  tile. No tile to be less than half size except where room irregularities make it impossible.
- 2.3. Place true, level, and even with tightly aligned joints, and scribed, cut, fitted carefully to walls, doorways, and around all permanent cabinets and fixtures (or extend tile under all casework).

3. **Rubber Base:**

- 3.1. Install base to minimize number of end joints.
- 3.2. Apply adhesive to base and bed firmly to wall using 6 lb. (3 kg) hand roller.
- 3.3. At rooms where base is scheduled, install at walls, toe space of counters, and around freestanding columns.
- 3.4. Install pre-moulded external corners; mitre internal corners.
- 3.5. Install a matching rubber base in closets off rooms scheduled for resilient flooring.
- 3.6. At rooms scheduled for carpet, install a toeless base prior to installation of carpet.

4. **Resilient Thresholds:** Install at all locations where resilient flooring abuts another flooring material except carpet.

5. **Steel Stairways:** Include a lightweight latex concrete underlay at stairs and landings. Trowel to a smooth even surface allowing for thickness of flooring material. Install integrated rubber tread and riser.

On completion thoroughly clean all surfaces. Apply one coat of sealer followed by one coat of liquid wax.

**3.4  
CLEANING,  
SEALING, AND  
WAXING**

Prohibit traffic on flooring for 48 hours after installation.

**3.5  
PROTECTION**

**END OF SECTION**

**PART 1 - GENERAL**

Comply with requirements of Division 1 and Supplementary Conditions.

Line Markings	Section 02 54 00	<b>1.1 RELATED WORK</b>
Priming Structural Steel	Section 05 12 00	
Priming Steel Joists	Section 05 21 00	
Priming Steel Deck	Section 05 31 00	
Priming Miscellaneous Metals	Section 05 50 00	
Wood Preservative	Section 06 10 00	
Priming Hollow Metal Work	Section 08 11 00	
Piping Identification	Section 23 00 00	

1. **Samples:**

**1.2  
SUBMITTALS**

1.1. Submit 2 200 x 2500 brush outs of every colour required in accordance with Section 01 30 00. Include a complete list of paint and finish materials to be used, showing the name of the manufacturer, the catalogue number, grade and quality of the materials proposed for use. Provide brush outs a minimum of 30 calendar days prior to commencing.

1.2. Colours to match those specified in the Material and Colour Schedule.

1.2.1. Apply samples of finishes in a testing area in the building in the presence of the Consultant. Apply samples with the correct material, number of coats, colour, texture and degree of gloss required. Refinish if required, until approval of the Consultant is obtained. Location of testing area to be approved of by the Consultant.

1.2.2. Leave test areas undisturbed until completion of the work. Approved work in the test area to serve as a standard for similar work throughout the project. Work which does not match the approved finishes are to be corrected and refinished at no expense to the Owner.

2. **List of Materials:** Submit a list of materials proposed for use on the work, for review at least thirty (30) days before the materials are required. Include the manufacturer's official certification that the materials listed thereon are the best quality made by the company.

3. **Extra Materials:** Supply Owner with one clearly identified sealed 3.78 litre can of each colour and type of paint, stain, and varnish for this work for future maintenance. Take such materials to designated storage area of building.

1. Prior to proceeding with paint application prepare finished quality control panel area scheduled for paint. Sample areas on walls and ceilings, concrete block and gypsum board size: 2400 x 3000mm. Include a hollow door and frame in sample area. Alter and refinish until work is acceptable to Consultant.

**1.3  
QUALITY  
ASSURANCE**

2. **Standard of Acceptance:**

2.1. **Walls:** No defects visible from a distance of 1000 mm at 90° to surface.

2.2. **Ceilings:** No defects visible from floor at 45° to surface when viewed using final lighting source.

2.3. Final coat to exhibit uniformity of sheen across full surface area.

1. Deliver and store material in original containers, sealed with labels intact.
2. **Indicate on containers or wrappings:**
  - 2.1. Manufacturer's name and address.
  - 2.2. Type of paint.
  - 2.3. Compliance with applicable standard.
  - 2.4. Colour number in accordance with established colour schedule.
3. Remove damaged, opened and rejected materials from site.
4. Provide and maintain dry, temperature controlled, secure storage.
5. Observe manufacturer's recommendations for storage and handling.
6. Store materials and supplies away from heat generating devices.
7. Store materials and equipment in a well-ventilated area with a temperature range of 7° to 30°C.
8. Store temperature-sensitive products above minimum temperature as recommended by manufacturer
9. Keep areas used for storage, cleaning and preparation, clean and orderly to approval of Consultant.  
After completion of operations, return areas to clean condition to approval of Consultant.
10. Remove only in quantities required for same day use.
11. **Fire Safety Requirements:**
  - 11.1. Provide minimum one 9 kg. Type ABC dry chemical fire extinguisher adjacent to storage area.
  - 11.2. Store oily rags, waste products, empty containers and materials subject to spontaneous combustion in ULC approved, sealed containers and remove from site on a daily basis.
  - 11.3. Handle, store use and dispose of flammable and combustible materials in accordance with the National Fire Code of Canada.

**1.4  
DELIVERY,  
STORAGE AND  
HANDLING**

1. **Safety:** Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling storage, and disposal of hazardous materials.
2. **Ventilation:**
  - 2.1. Consultant will arrange for ventilation system to be operated during application of paint. Ventilate area of Work as directed by Consultant by use of approved portable supply and exhaust fans.
  - 2.2. Provide continuous ventilation during and after application of paint. Run ventilation system 24 hours per day during installation; provide continuous ventilation for seven days after completion of application of paint.
3. **Job Conditions:**
  - 3.1. Apply paint finishes only when temperature at location of installation can be satisfactorily maintained within manufacturer's recommendations.

**1.5  
ENVIRONMENTAL  
REQUIREMENTS**



- 
- |   |   |
|---|---|
| <p>3.2. Substrate and ambient temperature must be within limits prescribed and by manufacturer to approval of Consultant.</p> <p>3.3. Maintain minimum substrate and ambient air temperature of 5°C for Alkyd and 7°C for latex paints. Maximum relative humidity 85%. Maintain supplemental heating until paint has cured sufficiently.</p> <p>3.4. Provide temporary heating where permanent facilities are not available to maintain minimum recommended temperatures?</p> <p>3.5. Apply paint finish only in areas where dust is no longer being generated by related construction operations such that airborne particles will not affect the quality of the finished surface.</p> <p>3.6. Apply paint only when surface to be painted is dry, properly cured and adequately prepared.</p> <p>3.7. Painting in occupied facilities to be carried out during silent hours only. Schedule operations to approval of Consultant such that painted surfaces will have dried and cured sufficiently before occupants are affected.</p> <p>3.8. Provide minimum 270 lx on surfaces to be painted.</p>  | <p><b>1.5<br/>ENVIRONMENTAL<br/>REQUIREMENTS<br/>(Cont'd)</b></p> |
| <p>1. Submit Work schedule for various stages of painting to Consultant for approval. Submit schedule minimum of 48 hours in advance of proposed operations.</p> <p>2. Schedule painting operations to prevent disruption of occupants in and about the building.</p>   | <p><b>1.6<br/>SCHEDULING</b></p>                                  |
| <p>1. Place materials defined as hazardous or toxic waste, including used sealant and adhesive tubes and containers, in containers or areas designated for hazardous waste.</p> <p>2. Return solvent and oil soaked rags for contaminant recovery and laundering or for proper disposal.</p> <p>3. Set aside and protect the following surplus and uncontaminated waste finish materials: [___]. Deliver to or arrange collection by [employees], [individuals], [organizations] for verifiable re-use or re-manufacturing.</p> <p>4. Close and seal tightly all partly used sealant and adhesive containers and store protected in well ventilated fire-safe area at moderate temperature.</p> <p>5. Do not dispose of paints or solvents by pouring on the ground, Place in designated containers and ensure proper disposal.</p> <p>6. Solvent based paints, wood preservatives, stains and finishes, which cannot be reused, must be treated as hazardous waste and disposed of in an appropriate manner in accordance with hazardous waste regulations. Empty paint cans are to be dry prior to disposal or recycling (where available).</p> <p>7. Where paint recycling is available, collect all waste paint by type and provide for delivery to recycling or collection facility.</p> <p>8. Paints, stains, and finishes are regarded as hazardous products and are subject to regulations for disposal. Information on these controls can be obtained from the Provincial Ministries of Environment and Regional levels of Government.</p> | <p><b>1.7<br/>WASTE<br/>MANAGEMENT</b></p>                        |

**PART 2 - PRODUCTS**

**2.1  
MATERIALS**

1. **General:**

- 1.1. **Painting and Finishing Materials:** To CAN/CGSB – 85.100 for premium grade work.
  - 1.1.1. Use highest grade first line quality products of the manufacturer with “Low to 0” VOC’s.
  - 1.1.2. Provide data sheets prior to commencing on site.

2. **Manufacturers:**

- 2.1. **Paint:**
  - 2.1.1. ICI Paints Canada (including Glidden, Dulux, Devco, CIL).
  - 2.1.2. Sherwin Williams
  - 2.1.3. Pittsburg Paints
  - 2.1.4. Para Paints Canada
- 2.2. **Galvanized Metal Primer:** Alkyk/Calcium plamate equal to Para Paints Canada
- 2.3. **Natural and Coloured Stains:** Olympia, Sikkens, Sansin, X-pert Specialty Wood Finishes.
- 2.4. Apply Dry-Fall paint at finished and/or exposed concrete floor areas.
- 2.5. **Block Filler:** 100% acrylic water base by NPC.

1. Colour schedule will be based upon the selection of five base colours and three accent colours. No more than eight colours will be selected for the entire project and no more than three colours will be selected in each area.
2. Selection of colours will be from manufacturer’s full range of colours.
3. Where specific products are available in a restricted range of colours, selection will be based on the limited range.
4. Perform all colour tinting operations prior to delivery of paint to site. On-site tinting of painting materials allowed only with Consultant’s written permission.
5. Tint second coat in a three coat system slightly lighter colour than top coat to show visible difference between coats.

**2.2  
COLOURS**

**PART 3 - EXECUTION**

**3.1  
EXAMINATION**

1. Prior to application, inspect all surfaces requiring Painter’s materials. If surfaces cannot be prepared for correct material application by customary cleaning sanding or filling, notify Contractor in writing or assume responsibility for and rectify unsatisfactory Work.
2. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces is below the following maximums:
  - 2.1. **Plaster and Gypsum Wallboard:** 12 percent.
  - 2.2. **Masonry, Concrete, and Concrete Unit Masonry:** 12 percent.
  - 2.3. **Interior Wood:** 15 percent, measure in accordance with ASTM D2016.
  - 2.4. **Exterior Wood:** 15 percent, measure in accordance with ASTM D2016.

- 
1. Remove electrical cover plates, light fixtures, surface hardware on doors, door stops, bath accessories. Reinstall when painting is completed. **3.2  
PREPARATION**
2. As painting operations progress, place "WET PAINT" signs in occupied areas to approval of Consultant.
3. Cut out as required and fill depressions, scratches, cracks, abrasions, etc... flushing patches with adjoining surfaces and allowing to dry before sealing and priming.
4. Fill or remove drywall imperfections, which become visible after prime coat has been applied. Make flush with adjoining surfaces, and spot-primed.
5. Clean all paintable surfaces and floors of loose dirt, dust or grit prior to application of materials.
6. Solvent-clean metal surfaces to remove grease and oil.
7. Fill with wood paste filler nail holes, cracks, etc... in woodwork after first coat specified has been applied.
8. If applied prime coat does not dry to uniform sheen over entire surface, spot-prime areas indicating suction before applying finish.
9. Spot-prime coat with shop coat caused by cleaning, repairing, erection, etc...
10. Tint filler to match stain for stained woodwork.
11. Wash galvanized metal surfaces thoroughly with mineral spirits followed by one coat of purpose made etch type primer.
12. Ensure that humidity level and concrete floor cure are acceptable to permit application of Dry-Fall paint at exposed structure and steel deck areas.
13. Preparation of existing surfaces may include but not be confined to cleaning, filling, sanding, scraping, wire brushing, acid etching and sand blasting.
14. Acid-etch smooth concrete surfaces scheduled for paint with a commercial muriatic acid to three parts water not less than 5 days nor more than 20 days after concrete is poured. Flush clean with clear water. Painting to commence 28 days after placing concrete. Moisture not to exceed 16%.
1. Protect existing building surfaces not scheduled for paint from spatters, markings and other damage. If damaged, clean and restore surfaces as directed by Consultant. **3.3  
PROTECTION**
2. Cover or mask floors, windows and other ornamental hardware adjacent to areas being painted to prevent damage and to protect from paint drops and splatters. Use non-staining coverings.
3. Protect items that are permanently attached such as fire labels on doors and frames.
4. Protect factory finished products and equipment.
5. Protect passing pedestrians, building occupants and the general public in and about the building.

1. **General:**

3.4  
APPLICATION

- 1.1. Install each material in strict accordance with the manufacturer's printed instructions.
- 1.2. Workmanship to be of the very best; materials uniformly spread and flowed on without runs, sags or evidence of applicator marks.
- 1.3. Employ only skilled mechanics to do finish Work.
- 1.4. Unless otherwise indicated in the schedule, or in alteration Work where they have been previously painted, no painter's finishes are required on acoustic tile ceilings, concrete floors, exterior concrete, exterior brick, rubber base, ceramic tile, copper, bronze, chromium plate, nickel, stainless steel, anodized or lacquered aluminum monel metal, factory-finished metals, cork, pre-finished wood doors and pre-finished millwork and prefinished vinyl faced gypsum wallboard.
- 1.5. Finish tops of cabinets and projecting ledges both above and below sight lines as specified for surrounding surfaces.
- 1.6. Paint metal access and electrical panels with doors open and leave until dry.
- 1.7. Paint both sides and edges of plywood backboards for mechanical/electrical equipment before installation.
- 1.8. Fill all voids and pinholes before application of final coat(s).
- 1.9. Back paint all wood requiring paint.

2. **Finishing:**

- 2.1. Sand gloss enamel, varnish and undercoater, prior to applying succeeding coats. Sand lightly with 00 sandpaper between coats on wood and metal.
- 2.2. Tint undercoats of paint or enamel to approximate finish colour, allowing enough colour variation for guide coat. Allow coats to dry thoroughly before applying succeeding coats.
- 2.3. Four Door Edges: Finished similarly to door face after fitting.
- 2.4. Paint paintable surfaces reasonably visible through grilles and openings in ducts, convectors, walls, or ceilings, or through grilles and baffles.
- 2.5. Finish closets same as adjoining rooms unless otherwise specified.
- 2.6. Exposed wiring, piping, ductwork, and insulation; paint.
- 2.7. Prime caulking with oil paint before application of final finish.
- 2.8. Existing Painted Surfaces: Sand to remove gloss and apply one less coat than new.

3. **Gloss Values:**

- 3.1. Gloss value shall be in accordance with ASTM D523 tentative method of test for 60 Deg. Specular gloss.
- 3.2. Gloss values shall be as follows:
- |            |              |
|------------|--------------|
| Flat       | Less than 10 |
| Eggshell   | 10 to 35     |
| Semi-gloss | 35 to 60     |
| Gloss      | 60 to 80     |
| Hih Gloss  | 80 to 90     |

3.4  
**APPLICATION  
(Cont'd)**

1. **General:**

- 1.1. Paint the new addition and the new and previously painted adjacent surfaces of the existing building.
- 1.2. Paint exposed gas piping.
- 1.3. Paint roof (ground) mounted heating and ventilating units whether factory finished or not.

3.5  
**EXTERIOR  
FINISHES**

2. **Metal:**

- 2.1. One coat water-based rust inhibitive primer, Devoe, Deflex.
- 2.2. Two coats quick drying enamel, semi-gloss. ICI, Devoe, Devguard.

3. **Drywall:**

- 3.1. One coat sealer. ICI Devoe Mirrol
- 3.2. Two coats exterior latex low sheen – Sherwin Williams A-1000 exterior latex satin.

4. **Concrete Slab-on-Grade at Garbage Enclosure:** “Perm-crete Qua-pel” clear water repellent by PPG. Apply 2 wet coats “wet-on-wet”.

5. **Steel Doors and Frames:** Galvanized.

- 5.1. One coat galvanized metal primer.
- 5.2. 2 coats Decoe Devflex 4206Q0 quick drying water-borne semi-gloss enamel

1. **General:**

- 1.1. In general, paint the new addition and the new and previously painted surfaces of the existing building.
- 1.2. Note Room Schedule or Work Schedule for exemptions to 1.1. These are “Limited Painting”, “Patch Painting” or “No Painting Finishes”.
- 1.3. Where a room bears an identifying room number on the drawings but is not listed in the “Room Schedule” or “Work Schedule”, the Work will be confined to patch painting of any disturbed areas.

3.6  
**INTERIOR  
FINISHES**

2. **Steel:** **3.6**  
**INTERIOR**  
**FINISHES**  
**(Cont'd)**
- 2.1. One coat water-based, rust inhibitive primer: Devoe Deflex.
- 2.2. Two coats quick drying enamel, semi-gloss: ICI Devoe Devguard.
3. **Steel Doors and Frames (Galvanized):**
- 3.1. One coat galvanized metal primer.
- 3.2. 2 coats Dulux X-pert waterborne ALD4D 21010 Alky emulsion semi-gloss
4. **Concrete Block Walls:**
- 4.1. One coat tinted block filler. Spray applied, then rolled at package consistency.
- 4.2. 1 coat interior acrylic eggshell: Glidden ICI Dulux.
5. **Gypsum Board - Ceilings and Bulkheads:**
- 5.1. Prime metal corners.
- 5.2. One coat sealer. ICI Dulux interior latex flat
- 5.3. Two coats ICI Select interior acrylic velvet flat.
6. **Gypsum Board – Walls:**
- 6.1. Prime metal corners.
- 6.2. One coat latex sealer. ICI Dulux interior latex flat
- 6.3. 2 coats ICI Select interior acrylic eggshell.
7. **Prefinished Wood Doors:** Edges trimmed during installation – reseal and finish visible edges to match surfaces.
8. **Painting in Rooms with no Scheduled Ceiling:** All structure, pipes, ducts and the like, above the level of the lamps of the luminous ceiling shall receive one spray coat of flat (black) white acrylic latex paint. Portions between the lamps and the ceiling shall receive two coats of white (black) ICI Dulux – acrylic dryfall flat primer and finish

The term “Limited Painting” limits the amount of painting within a room. Particular walls, ceilings or concrete floors will be mentioned in the remarks column on the room finish schedule if they are to be painted. Otherwise painting is limited to new exposed: wood, metal, metal deck, metal structural members, electrical conduit, ducts, mechanical units, pipe and duct insulation.

**3.7**  
**“LIMITED PAINTING”**  
**DEFINED**

The term “Patch Painting” limits the amount of painting required in alteration projects to new surfaces and surfaces disturbed by the alteration Work. Patch painting requires the entire re-painting of surfaces between changes of plane.

**3.8**  
**“PATCH PAINTING”**  
**DEFINED**

The term "Make Good Disturbed Surfaces" as used in the room finish schedule refers to surface materials (i.e. repairing wall, ceiling or flooring surfaces when a partition is removed). In this case, existing surface materials are usually noted in the schedule. The term does not necessarily give direction to the painter. The painter is to refer to interior finishes general notes in this specification section.

**3.9  
"MAKE GOOD  
DISTURBED  
SURFACES"  
DEFINED**

On completion, touch up and refinish minor defective Work. Refinish entire surfaces where finish is damaged or not acceptable. Remove spills or spots from surfaces of others and be totally responsible for damage to same.

**3.10  
CLEANING**

**END OF SECTION**

**PART 1 - GENERAL**

Comply with requirements of Division 1 and Supplementary Conditions.

Floor Finish  
Plumbing

Section 09 70 00  
Section 23 00 00

**1.1  
RELATED  
WORK**

1. **Shop Drawings**: Indicate materials, plans, elevations, dimensions, details and anchorages. Fabrication to commence only on receipt of approved shop drawings.

**1.2  
SUBMITTALS**

2. **Operations and Maintenance Data**: At completion of the job, furnish to the Owner, through the Contractor, three (3) copies of an Owners Operations and Maintenance Manual. Include the following information:

2.1. Maintenance instructions

2.2. Catalogue pages for each product

2.3. Name/Address and phone number of the Manufacturer and their Sales Agent

2.4. Copy of the final shop drawings.

1. Deliver components to the job site in the manufacturer's original packages and marked to correspond with the approved shop drawings.

**1.3  
DELIVERY,  
STORAGE AND  
HANDLING**

2. Deliver in an amount of time deemed appropriated by the Consultant.

Manufacturer to guarantee all Toilet Partitions by written certification, for a period of one (1) year from the date of Substantial Performance of the project, against any defects in design, materials and workmanship. Any defects as described will be made good by the manufacturer at no additional cost to the Owner.

**1.4  
WARRANTY**

**PART 2 - PRODUCTS**

1. **Metal Toilet Partitions**: Acceptable material: "Emperor" by Hadrian, Burlington; "Epic" by GSS, London, ASI Group Canada. Custom modified for size and design – see drawing

**2.1  
MATERIALS  
AND  
FABRICATION**

2. **Design**: Floor mounted, wall-braced.

3. **Panels**: 1" (25 mm) thick, with cover sheets of zinc coated steel to ASTM A653 GR33 MM 22GA, core 1" cell - honeycomb bonded to inner surfaces.

4. **Pilasters**: 1¼ (32 mm) thick, x 20 GA (0.9 mm) constructed similar to panels and compartments and fitted with jack leveling screw at base for vertical adjustment. Reinforce tops with 20 GA channel. Finish pilasters at floor with 3" (76 mm) high die formed stainless steel pilaster shoe.

5. **Headrails**: None.

6. **Hardware and Fittings**: from partition manufacturer or as required to install.

7. **Sizes**: See drawings.



- 
8. **Finish:**
- 8.1. Thoroughly clean all sheet metal and treat with phosphate.
- 8.2. Apply a high performance powder coating. Oven cure electro-statically to provide a uniform smooth finish.  
Alternative: high performance polyurethane anti-graffiti powder coating electro-statically applied and oven cured.
9. **Colour:** Selected by Consultant from manufacturers' standard range.
- PART 3 – EXECUTION**
1. **Verify:**
- 1.1. The correct spacing of and between plumbing fixtures.
- 1.2. The correct location of built-in framing, anchorage, and bracing.
1. **General:**
- 1.1. Erect partitions in accordance with manufacturers' specifications.
- 1.2. Install partitions secure, rigid, plumb and level.
- 1.3. Observe:" (19 mm) maximum clearance between panels and pilasters;  $\frac{3}{16}$ " (4.8 mm) maximum at door edge to pilaster.
- 1.4. Use only fasteners that match material and finish of fastened Work where exposed to view.
- 1.5. Maintain 9 to 13mm ( $\frac{3}{8}$  to  $\frac{1}{2}$ " ) space between wall and panels and between wall and end pilasters.
- 1.6. Barrier-free compartments.  
1.6.1. Reinforce side panel to accept grab bar.
- 1.7. Refinish and/or replace any damaged or defective work as directed.
- 1.8. Remove from work any soil or dirt deposits resulting from fabrication and installation.
1. Following completion of installation carry out a site inspection to assure that all items have been supplied and installed to specified requirements.
2. Review all operations and adjustments.
1. Leave installation clean and free of disfigurement - make final adjustments.
2. Repair, and/or replace any defective work as directed.
3. Remove from work area any soil or dirt deposits resulting from this installation.

**END OF SECTION**

**PART 1 - GENERAL**

Comply with requirements of Division 1 and Supplementary Conditions.

Resilient Base

Section 09 65 00

**1.1  
RELATED  
WORK**

1. **Samples**: On request submit, along with the manufacturer's specification, duplicate samples to the size requested of each colour selected. Provide for approval samples of the trim sections, and the like.
2. **Shop Drawings**: On request submit a working layout for all protected areas showing pattern direction, seam locations, cross joints, and other details required to clarify the Work.

**1.2  
SUBMITTALS**

Submit maintenance information for incorporation into the project data book.

**1.3  
MAINTENANCE  
DATA**

1. **Label Packaged Materials**: deliver in unopened original factory packaging.
2. Store packaged materials in original containers or wrapping with manufacturer's seals and labels intact.
3. Store panels and accessories in location as directed by consultant.
4. Prevent damage to materials during handling and storage. Keep materials under cover and free from direct sunlight and store flat.
5. Maintain temperature of storeroom at 4°C to 38°C, for at least 24 hours immediately before the installation.

**1.4  
DELIVERY,  
STORAGE, AND  
HANDLING**

1. **Manufacturer's Qualifications**: a minimum 5 years experience in the production of the specified product.
2. **Installer Qualifications**: a minimum 3 years experience.

**1.5  
QUALITY  
ASSURANCE**

1. Panels to meet fire hazard classifications to CAN/ULC S102.2 – Class 1 characteristics:
  - 1.1. Flame spread: 25 or less
  - 1.2. Smoke developed: 450 or less

**1.6  
REGULATORY  
REQUIREMENTS**

1. Comply with the requirements of GC 12.3.
2. Manufacturer's Five (5) Year written Limited Warranty – materials shall be free of defects in materials and workmanship. A period of Five years from Substantial Completion should the installation fail, the manufacturer will repair or replace the defective work free of charge.

**1.7  
WARRANTY**

**PART 2 – PRODUCTS**

1. **Stainless Steel**: 16GA stainless steel adhered model CO-8 with 2"x2" x .090" legs x 4'-0" long.
2. **Acceptable Manufacturers**: Construction Specialties Inc., Korogard Wall Protection Systems or equal.

**2.1  
MATERIALS**

Fabricate wall covering to comply with requirements indicated for design, dimensions, detail, finish, and sizes.

**2.2  
FABRICATION**

Furnish wall coverings as a complete package system, containing all primers and adhesive. Use primer and adhesive materials that are water based and non-hazardous, low VOC. Include 90° outside corner moldings and wainscoting.

**2.3  
ACCESSORIES**

**PART 3 - EXECUTION**

Examine areas and conditions under which work is to be performed and identify conditions detrimental to proper or timely completion. Do not proceed until unsatisfactory conditions have been corrected.

**3.1  
EXAMINATION**

1. Prior to installation, clean substrate to remove dirt, debris and loose particles. Perform additional preparation procedures as required in Manufacturer's instructions.
2. Take all necessary steps to prevent damage to material during installation as required in Manufacturer's installation instructions.

**3.2  
PREPARATION**

1. In strict accordance with the manufacturer's recommendations, using approved adhesive.
2. Maintain temperature at the time of installation at 18-24°C (65-75°F) and for at least 48 hours after installation to allow for proper adhesive set up.
3. Relative Humidity: not to exceed 80%
4. Do not exposed wall coverings to direct sunlight during or after installation.

**3.3  
INSTALLATION**

1. Immediately upon completion of installation, clean wall covering and accessories in accordance with manufacturer's recommended cleaning methods.
2. Remove surplus materials, rubbish and debris resulting from installation as work progresses and upon completion of work.

**3.4  
CLEANING**

Protect installed materials to prevent damage by other trades. Use cleaning products that may be easily removed without leaving residue or permanent stains.

**3.5  
PROTECTION**

**END OF SECTION**

**PART 1 - GENERAL**

Comply with requirements of Division 1 and Supplementary Conditions.

Masonry Section 04 20 00 1.1  
Wood Blocking Section 06 10 00 RELATED  
WORK

1. **Shop Drawings:**

1.2  
SUBMITTALS

- 1.1. Submit drawings and/or fixture cuts, which clearly show the materials being supplied including dimensions, clearances, anchorages and attachments.
- 1.2. Include Manufacturer's installation instructions.

1. Package or crate and brace products to prevent distortion in shipment and handling.
2. Label packages and crates, and protect finish surfaces with sturdy wrappings.

1.3  
DELIVERY,  
STORAGE  
AND HANDLING

Provide for the removal of products, which fail to meet design criteria, replace with new products conforming to specifications and restore work damaged by removal and replacement including labour and installation costs.

1.4  
WARRANTY

**PART 2 - PRODUCTS**

1. **Washroom Accessories:**

2.1  
MATERIALS AND  
FABRICATION

- 1.1. General: Specified manufacturer's catalogue references establish minimum acceptable standards for Work of this section. Accessories listed below refer to the design, size, finish and basic quality of products manufactured by Bobrick.
- 1.2. Approved Alternate Manufacturers: ASI Watrous Inc., Twin-Cee Ltd., Frost Products Ltd., and Bradley Corporation.
- 1.3. Units Required and Installation:
  - 1.3.1. See attached Schedule for required number and locations.
  - 1.3.2. ***An asterisk (\*) denotes supply by Owner and installation by Contractor.***
- 1.4. Waste Receptacle: \*
- 1.5. Towel Dispenser: \*
- 1.6. Toilet Tissue Dispensers: \*
- 1.7. Surface-mounted Soap Dispenser: \*
- 1.8. Grab Bars:
  - 1.8.1. General: 18GA type-304 satin finish stainless steel with peened grip – series 5800 except as noted otherwise (review binder for lengths).
  - 1.8.2. Wall-mounted horizontal  
**Model:** B-5806 x 24"  
**Location:** See drawing.

- 1.8.3. Wall-mounted L-shaped unit (W)  
**Model:** 816722.99  
**Location:** See drawing.

2.1  
**MATERIALS AND  
FABRICATION  
(cont'd)**

- 1.8.4. **Mounting Devices:** Concealed stainless steel

### **PART 3 - EXECUTION**

#### 1. **Washroom Accessories:**

- 1.1. Prior to commencing installation, verify location and mounting heights of products with Consultant.
- 1.2. Attach accessories to walls with:
  - 1.2.1. 1½" (38 mm) long expansion shields in solid masonry or concrete.
  - 1.2.2. Toggle bolts in cells of hollow masonry units.
  - 1.2.3. Sheet metal screws into metal framing.
  - 1.2.4. Wood screws into wood framing.
- 1.3. Use only fasteners that match material and finish of fastened Work where exposed to view.
- 1.4. Install Work plumb, level, straight, tight and secure to mounting surfaces.
- 1.5. At wood or steel stud partitions, grab bar mounting fasteners to be secured to steel or wood reinforcing, purposely built into the partition.
- 1.6. Use tamper proof screws or bolts to fasteners.

**END OF SECTION**

**PART 1 – GENERAL**

Comply with requirements of Division 1 and Supplementary Conditions.

Aluminum Windows

Section 08 50 00

**1.1  
RELATED  
WORK**

**Roller Shades Mounting:** on the face of the window framing. In a metal pocket provided in this section.

**1.2  
SUMMARY**

1. All bidders submitting bids on the work of this section shall meet or exceed the quality of materials, components and assemblies specified herein Bidders who do not comply with these performance specifications shall refrain from submitting a bid.
2. Alternate Bids, Alternative Products shall be submitted to the Project Manager 10 days prior to tender closing. Alternative Bids can only be submitted as an alternate Bid to the specified base Bid Product. Manufacturers that meet the performance criteria and are approved, as an alternate by the Design Consultant shall be listed in an addendum.
3. All work specified under this section supplied and installed entirely by one Subcontractor using his own forces.
4. Manufacturer shall have a minimum of fifteen (15) years' experience in the manufacture of specified shading system.
5. Shades to be installed by a firm, with a minimum of ten (10) years' experience, specializing in the installation of shading systems.
6. Install one complete operating sample with accessories on site. Review the installation before proceeding with the remainder of the work. Adjust sample installation to gain acceptance. Accepted work may form part of the final installation.

**1.3  
QUALITY  
ASSURANCE**

1. **Shop Drawings:**

**1.4  
SUBMITTALS**

- 1.1. Submit fully detailed drawings prepared in AutoCAD 2002/2004 format showing all components, finishes and perimeter construction conditions, installation, and all applicable dimensions according to Section 01 30 00 - Submittals.

2. **Samples:**

- 2.1. Submit duplicate samples of the specified fabric / shade cloth of each color and texture minimum size 8.5" x 11" (215mm x 280mm) for review.
- 2.2. Submit duplicate samples of the specified sections of fascia, closure, pocket, housing, trim, roller tube, hembar, operating hardware, brackets, and side channel for review.
- 2.3. Submit duplicate copies of operating and maintenance instructions including, name and telephone number of local service company.

1. Verify that all blocking and framing necessary to carry shade assembly hardware is properly installed and secure. **1.5  
INSPECTION /  
PREPARATION**
2. Notify Owner in writing of any deficiencies in the work of other trades that would affect the window treatment system.
3. Make accurate measurements at the site before fabrication. Review layout of glazing framing sections, spans, and loading capabilities.
1. Deliver units to site only when areas to receive shades are completely finished, including walls and ceilings. **1.6  
DELIVERY,  
STORAGE AND  
HANDLING**
2. Deliver materials in original protective wrappings or containers, with manufacturers labels and seal intact.
3. Handle and store materials according to manufacturer's recommendations. Protect materials and finishes from damages, marring or soiling.
1. Provide a limited manufacturer's warranty from the Date of Substantial Completion, covering the following: **1.7  
WARRANTY**
  - 1.1. **Shade Hardware:** Ten (10) years
  - 1.2. **Fabrics / Shade Cloth:** Ten (10) Years
  - 1.3. **Aluminum and steel coatings:** Ten (10) Years
  - 1.4. **Chain:** Ten (10) Years
2. Provide a limited installation warranty from Date of Substantial Completion, covering a period of one (1) year.
3. Submit standard manufacturers maintenance contract for review by Owner.

## **PART 2 – PRODUCTS**

### **2.1 GENERAL**

This Specification is based on Nysam Shading System Ltd, Calgary. Nysam Superscreen, face-mounted with chain and remote motorized operation.

#### Accepted equals:

1. SunProject Model – Lite-Lift Cassette Roller System by SunProject of Canada. Concord, Ontario, Canada 905-660-3117.
2. Solarfective Model – Teleshade System by Solarfective Products Ltd. Toronto, Ontario, Canada. 416-421-3800
3. Shade-O-Matic by Shade-O-Matic 905-742-1524

#### **1. Shade Mounting Brackets:**

### **2.2 MATERIALS**

- 1.1. Manual Chain Operator: to include:
  - 1.1.1. Unitized premoulded construction, on 71.5 mm x 76 mm (2.875" x 3"), 12 gauge, L shaped, coated steel mounting brackets. All shop assembled.
  - 1.1.2. Operator assembly to provide a continuous front or back-roll fascia across multiple shades (to a maximum length of 6.1m (20ft.) without exposed fasteners.

**2.2**  
**MATERIALS**  
**(cont'd)**

- 1.1.3. A single manual chain operator: capable of operating a shade band up to 5.2m<sup>2</sup> (56 ft<sup>2</sup>) in total fabric area, 2.13m (7 ft) in width, or 2.44m (8 ft) in height, a precise inertia brake mechanism capable of locking the shade panel or band at any point of travel. Drive chain to be #10 stainless steel, tested strength of 41 kg (90lb.).
- 1.1.4. Left hand, right hand or dual left and right operating systems.
- 1.2. Mounting assembly: designed for continuous front or back-roll fascia across multiple shades without exposed fasteners.
- 1.3. Shade roller tube: removable from mounting assembly without hardware removal.
- 1.4. All non-metal components: self-lubricating.
- 1.5. System to provide for field adjustment or component replacement without removal of brackets, regardless of mounting location.
- 1.6. System to allow for a bottom-up or a sideways roller tube installation and removal without removing brackets.
2. **Roller Tube Assembly:**
- 2.1. Top: one piece extruded aluminium tube, with 10 micron thick clear anodised coating, with diameter and wall thickness designed for maximum allowable deflection of L/700; Mill finish tubes not acceptable.
- 2.2. Extruded tube: with provision made for mechanical engagement with the operator and drive assembly and various channels to accept fabric attachment spline. The spline and slot reinforce the tube and retain the fabric and operating system.
- 2.3. The Spline: extruded vinyl profile, welded to the fabric band or panel, to permit removal and re-installation of the fabric panels without removing the roller tube and hardware. Fabric panels must be site replaceable. No other attachment systems are acceptable.
3. **Hembars and Hembar Pockets:**
- 3.1. Custom shaped Flat steel profile, 37 mm (1.5") high, wall thickness designed for weight requirements, in welded hembar pocket with closed ends, to maintain bottom of shade fabric straight, and flat.
4. **Fasteners:** Non corrosive to manufacturer's recommendations.
5. **Fabric Schedule:**
- 5.1. Fabric: "Nysan Superscreen 300"
- |                                 |   |
|---------------------------------|---|
| Fabric weight                   | 12.7 oz/yd <sup>2</sup>                               |
| Fabric Thickness                | 21 mil  |
| Flame Res.:                     | 0.0 sec after flame                                   |
| Fuel contributed value:         | 0   |
| Average Openness:               | 0% (Blackout shades)                                  |
| Colorfastness to light:         | 7/8   |
| Composition:                    | PVC coated fiberglass yarns (Fiberglass 36%, PVC 64%) |
| Color:                          | From Manufacturer's Standard Range                    |
| Waterproof, washable, rot proof |   |



6. **Aluminum Fascia:**

2.2  
**MATERIALS**  
(cont'd)

6.1. Regular roll:

- 6.1.1. Extruded aluminium alloy 6063-T5, prefinished, 78 mm x 29 mm x 1.6 mm wall thickness (3.0625" x 1.77" x 0.063"), custom designed profile to fit onto remoulded end mounting brackets without exposed fasteners.
- 6.1.2. To allow for continuous placement across multiple shades (to a maximum length of 6.1m (20ft.)) without exposed fasteners.
- 6.1.3. To conceal the mounting hardware, power and control cables, drive mechanism, roller tube, and all fabric rolled on the tube

7. **Aluminum Finish:**

- 7.1. All exposed aluminium: Clear anodized to AA-M12C22A31.
- 7.2. Unexposed aluminium unless otherwise specified: mill finish.

**PART 3 – EXECUTION**

3.1  
**EXECUTION**

1. Finished assemblies shall be, square, true to size and free from distortion, twist, or other defects that could affect their strength, operation or appearance. Factory applied finish shall be uniform, smooth and without blemishes.
2. Cut fabric to eliminate glare and reflection from shining surfaces while maintaining exterior view. The top of the fabric is retained in recessed spline of the shade roller and the bottom of the fabric is retained by the selected hem.

1. Mount shades on the face of window framing.
2. By manufacturer's skilled tradesmen in strict accordance with manufacturers recommendations.
3. Install all items plumb, square, rigidly coupled and adequately anchored, maintain uniformed clearances, accurate alignment levels, parallel with the window plane. Fabric travel 3 mm (0.125") or less in either direction within channels after installation.

3.2  
**INSTALLATION**

1. Adjust shades and operating components to ensure smooth and trouble-free operation without binding.
2. Adjust shade and shade-cloth to hang flat without buckling or distortion.
3. Clean shades and exposed components.
4. Replace work, which cannot be satisfactorily repaired, adjusted, or cleaned.

3.3  
**ADJUSTING &  
CLEANING**

1. The base price to include window shades at Room 135.
2. Show the difference in price if the window shades are deleted.

3.4  
**ALTERNATE 'A'**

**END OF SECTION**

GENERAL NOTES TO ROOM FINISH SCHEDULE

B 1

1. Read these notes in conjunction with the drawings and the Room Finish Schedule.
2. The following notes exclude Mechanical and Electrical: see Mechanical and Electrical drawings for information on those trades.
3. A number is assigned to all rooms in which architectural work is to take place. Numbered rooms on plans are those where alterations, new work, making good, or all three are proposed. See Room Schedule for details.
4. Numbered rooms appearing on the Room Finish Schedule will receive significant work. Numbered rooms not appearing on the Room Schedule shall generally receive minor patching of existing surfaces, making good at openings filled, or created.
5. All paintable surfaces, including - but not limited to: exposed ducts, conduit, grills, louvres and the like, in all rooms indicated in this schedule to receive a finish. Paint, plastic coating, wall vinyl, or wallpaper, where specifically indicated unless otherwise noted.
6. Apply scheduled finishes to all applicable surfaces in the room in which they are indicated. Wall surfaces not shown in elevation are to receive scheduled finishes.
7. Where Room Finish Schedule calls for both existing and new materials, drawings indicate the extent of the new materials. Indication of a room finish on this schedule as "existing" does not preclude filling, patching, or "making good" of this surface. Every attempt has been made to indicate large patched and filled areas on drawings.
8. Closets: Apply same finishes as rooms from which they open.
9. All bases 4" high, unless otherwise indicated.
10. Install all new G.W.B. partitions to the underside of deck above. Drywall above ceiling line to have joints taped. No filling, sanding, or painting required. Install sound insulation to fill stud space.
11. Fire-rated bulkheads to be 2 layers 5/8" Type 'X' fire-rated gypsum wallboard on room side of steel stud framing.
12. Stud brace structure of non-rated walls and partitions up to the structure over, except where specifically indicated, at rated or sound-sensitive areas.
13. Where GWB finish is indicated on new or existing block partitions, apply 5/8" GWB over directly to block. Extend 8" above ceiling line. Block to continue to underside of slab or deck.
14. Use shadow mold trim detail at all ceiling-wall and ceiling-bulkhead intersections unless otherwise noted.
15. All glass transparent, unless otherwise noted.
16. All exposed block coursing 8" high running-bonded unless otherwise noted.
17. At all conditions where block partitions meet underside of joists over, provide two layers of 5/8" GWB on both sides of joist and caulk. At all conditions where block partitions meet underside of deck over, close openings with neoprene gaskets and/or caulk.
18. Carry walls and partitions indicated as rated separations up to the underside of deck above and seal to it with filler material approved for maintenance of the rating. GWB joints of stud partitions should be taped and filled, but not finished in ceiling spaces.

ROOM FINISH SCHEDULE

File No.: 21-42

Number	Name	Floor	Base	Ceiling			Walls			Remarks
				Mat'l	Size	Height	Mat'l	Finishes (other than paint)		
118	EXIST'G CLASSROOM	EX. V.C.T.	EX. R.B.	EX. SUSP. A.P.	610x1220	2800+/-	EX. G.W.B.		MAKE GOOD ALL DISTURBED FINISHES	
118A	EXIST'G CLASSROOM	EX. V.C.T.	EX. R.B.	EX. SUSP. A.P.	610x1220	2800+/-	EX. G.W.B.		MAKE GOOD ALL DISTURBED FINISHES	
126A	EXIST'G CORRIDOR	EX. TERR.	EX. TERR.	EX. SUSP. A.P.	610x1220	2400+/-	EX. F.R.R. G.W.B., EX. CONC. BLK		MAKE GOOD ALL DISTURBED FINISHES	
135	DAYCARE CLASSROOM	V.C.T.	R.B.	SUSP. A.P.	610x1220	2800	G.W.B. CONC. BLOCK			
135A	VESTIBULE	V.C.T.	R.B.	SUSP. G.W.B,	-	2784	CONC. BLOCK			
135B	WASHROOM	V.C.T.	R.B.	SUSP. A.P.	610x1220	2600	G.W.B., CONC. BLOCK	PL.C.		
136	STAIR	V.C.T.	R.B.	SUSP. G.W.B.	-	2600	CONC. BLOCK/ EXIST'G BRICK			
218	EXIST'G CLASSROOM	EX. V.C.T.	EX. R.B.	EX. SUSP. A.P.	610x1220	2800+/-	EX. G.W.B.		MAKE GOOD ALL DISTURBED FINISHES	
236	STAIR	V.C.T.	R.B.	EXPOSED MTL. DECK	-	3740+/-	CONC. BLOCK/ EXIST'G BRICK			

GENERAL NOTES TO DOOR SCHEDULE

C 1

1. Read these notes in conjunction with the drawings and the door and frame schedule.
2. Door openings numbered on plans are those where physical work (other than painting) is being done. This physical work may consist of repair, replacement, alterations, removal, or fitting of new hardware to either the door, or to the frame.
3. All glass in doors and sidelights and screens is transparent, tempered and unwired unless otherwise indicated.
4. Scheduled openings indicated as retaining existing door, or frame, may undergo complete, or partial, hardware replacement and related making good.
5. All doors 1 $\frac{3}{4}$ " unless otherwise indicated.
6. Doors fitted in unlabeled frames will still receive closers, or other hardware, appropriate to the rating.
7. If rated pairs of H.M. doors are scheduled, and no astragal is called for in the schedule, lock edge seams are to be tack welded on both seams.
8. All doors to be solid core unless otherwise noted.
9. 101XA Door numbers in rectangles are exterior doors.
10. Door types, frame profiles, and frame types not indicated on the door and frame schedule are not required as part of this project.
11. Install new doors and frames at existing or modified openings to suit opening.

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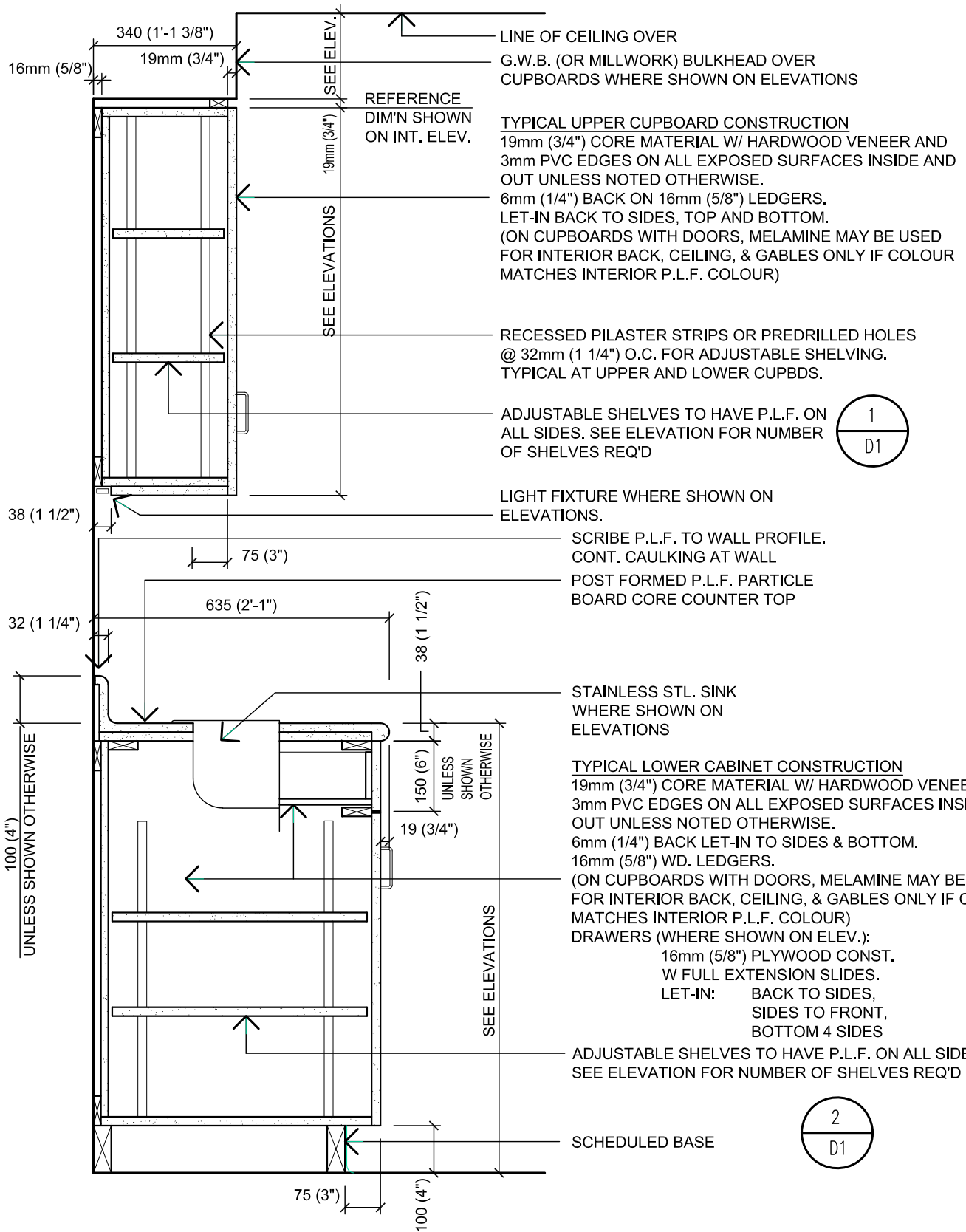


DOOR AND FRAME SCHEDULE

Number	Door Details			Frame Details			Remarks	Note:	
	Size	Mat'l	Type	Fire Label	Profile	Type			HT. To Top
118XA	3'-2" x 7'-0"	H.M.	F	3/4 HR	A	A	7'-2"	3/4 HR	TEMP DOOR AND FRAME, 1, 2
135A	3'-2" x 7'-0"	H.M.	G	3/4 HR	A	A	7'-2"	3/4 HR	
135AA	3'-2" x 7'-0"	WD.	FG	-	A	A	7'-2"	-	3,7, CLOSING DEVICE
135AXA	3'-2" x 7'-0"	H.M.	FG	-	A	C	7'-2"	-	1, 2, 4, 6, 7, CLOSING DEVICE
135AXB	3'-2" x 7'-0"	H.M.	FG	-	A	C	7'-2"	-	1, 2, 4, 6, 7, CLOSING DEVICE
135B	2-3'-2" x 7'-0"	WD.	M	-	A	D	7'-2"	-	
135C	2-3'-2" x 7'-0"	WD.	M	-	A	D	7'-2"	-	
135BA	3'-2" x 7'-0"	WD.	M	-	A	A	7'-2"	-	POCKET DOOR
136A	2-3'-2" x 7'-0"	H.M.	2G	3/4 HR	A	B	7'-2"	3/4 HR	5, 7, 8, CLOSING DEVICE
136XA	2-3'-2" x 7'-0"	H.M.	2G	-	A	B	7'-2"	-	1, 2, 4, 5, 6, 7, CLOSING DEVICE
2118XA	3'-2" x 7'-0"	H.M.	F	3/4 HR	A	A	7'-2"	3/4 HR	TEMP DOOR AND FRAME, 1, 2

NOTE: WOOD DOORS TO BE SOLID PARTICAL BOARD CORE MATERIAL UNLESS NOTED OTHERWISE

- 1. Insulated H.M. door with weatherstripping.
- 2. Aluminum threshold.
- 3. 6 mm laminated, tempered glass.
- 4. Double glazing - tempered, laminated.
- 5. Removable center mullion.
- 6. Card reader
- 7. Electric strike
- 8. Clear fire rated glass



LINE OF CEILING OVER  
 G.W.B. (OR MILLWORK) BULKHEAD OVER CUPBOARDS WHERE SHOWN ON ELEVATIONS

REFERENCE DIM'N SHOWN ON INT. ELEV.  
 TYPICAL UPPER CUPBOARD CONSTRUCTION  
 19mm (3/4") CORE MATERIAL W/ HARDWOOD VENEER AND 3mm PVC EDGES ON ALL EXPOSED SURFACES INSIDE AND OUT UNLESS NOTED OTHERWISE.  
 6mm (1/4") BACK ON 16mm (5/8") LEDGERS. LET-IN BACK TO SIDES, TOP AND BOTTOM. (ON CUPBOARDS WITH DOORS, MELAMINE MAY BE USED FOR INTERIOR BACK, CEILING, & GABLES ONLY IF COLOUR MATCHES INTERIOR P.L.F. COLOUR)

RECESSED PILASTER STRIPS OR PREDRILLED HOLES @ 32mm (1 1/4") O.C. FOR ADJUSTABLE SHELVING. TYPICAL AT UPPER AND LOWER CUPBDS.

ADJUSTABLE SHELVES TO HAVE P.L.F. ON ALL SIDES. SEE ELEVATION FOR NUMBER OF SHELVES REQ'D



LIGHT FIXTURE WHERE SHOWN ON ELEVATIONS.

SCRIBE P.L.F. TO WALL PROFILE. CONT. CAULKING AT WALL  
 POST FORMED P.L.F. PARTICLE BOARD CORE COUNTER TOP

STAINLESS STL. SINK WHERE SHOWN ON ELEVATIONS

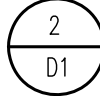
TYPICAL LOWER CABINET CONSTRUCTION  
 19mm (3/4") CORE MATERIAL W/ HARDWOOD VENEER AND 3mm PVC EDGES ON ALL EXPOSED SURFACES INSIDE AND OUT UNLESS NOTED OTHERWISE.  
 6mm (1/4") BACK LET-IN TO SIDES & BOTTOM. 16mm (5/8") WD. LEDGERS.

(ON CUPBOARDS WITH DOORS, MELAMINE MAY BE USED FOR INTERIOR BACK, CEILING, & GABLES ONLY IF COLOUR MATCHES INTERIOR P.L.F. COLOUR)

DRAWERS (WHERE SHOWN ON ELEV.):  
 16mm (5/8") PLYWOOD CONST. W FULL EXTENSION SLIDES.  
 LET-IN: BACK TO SIDES, SIDES TO FRONT, BOTTOM 4 SIDES

ADJUSTABLE SHELVES TO HAVE P.L.F. ON ALL SIDES. SEE ELEVATION FOR NUMBER OF SHELVES REQ'D

SCHEDULED BASE



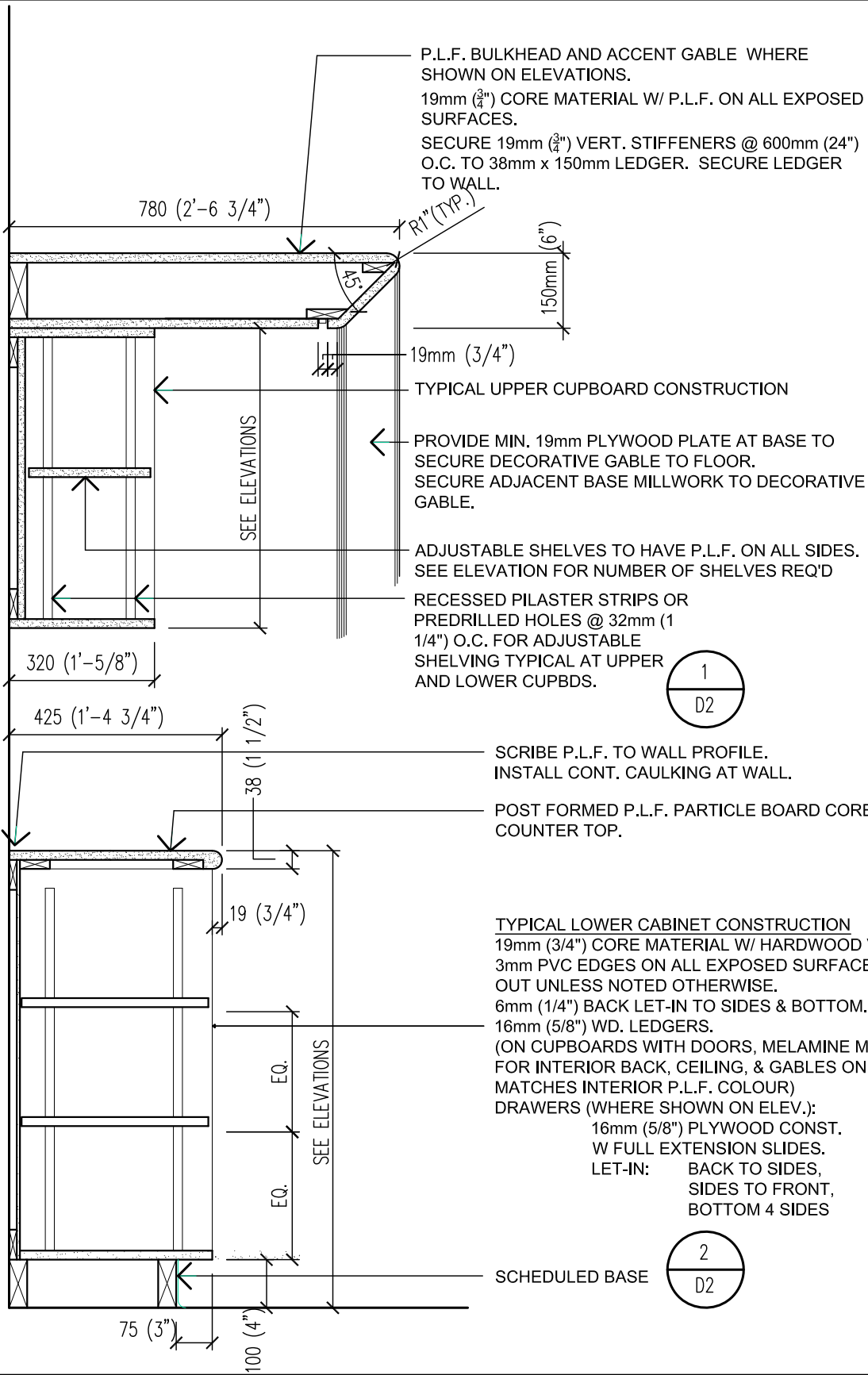
**D1**

**PRESCHOOL DAY CARE ADDITION**  
**Ecole elementaire catholique**  
**Saint-Marguerite-Bourgeois**  
 60 Clench Avenue, Brantford, Ontario N3T 1B9  
 Millwork Details

File No.: 21-42  
 Scale: As Shown  
 Drawn by: MZE  
 Plot Date: JAN. 15, 2025  
 Issue Date:



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**D2**

**PRESCHOOL DAY CARE ADDITION**  
**Ecole elementaire catholique**  
**Saint-Marguerite-Bourgeois**

60 Clench Avenue, Brantford, Ontario N3T 1B9

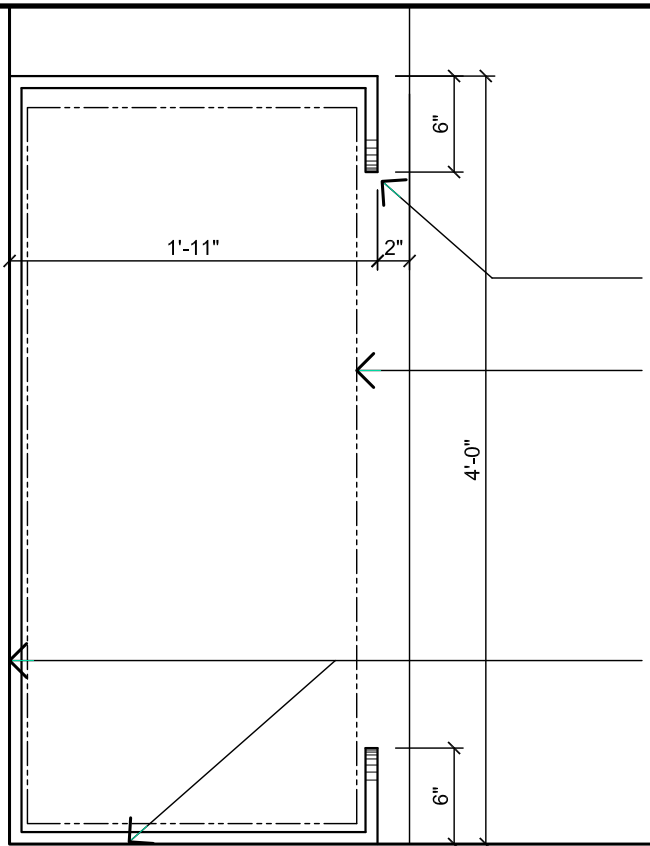
Millwork Details

File No.:	21-42
Scale:	As Shown
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Plot Date:	JAN. 15, 2025
Issue Date:	

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 96 Church St. / St.Catharines / Ontario / L2R 3C8 / 905.685.8467  
 info@mzearchitects.com / www.mzearchitects.com

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PROVIDE 50mm RADIUS AT BOTH SIDES OF RAIL OPENING.

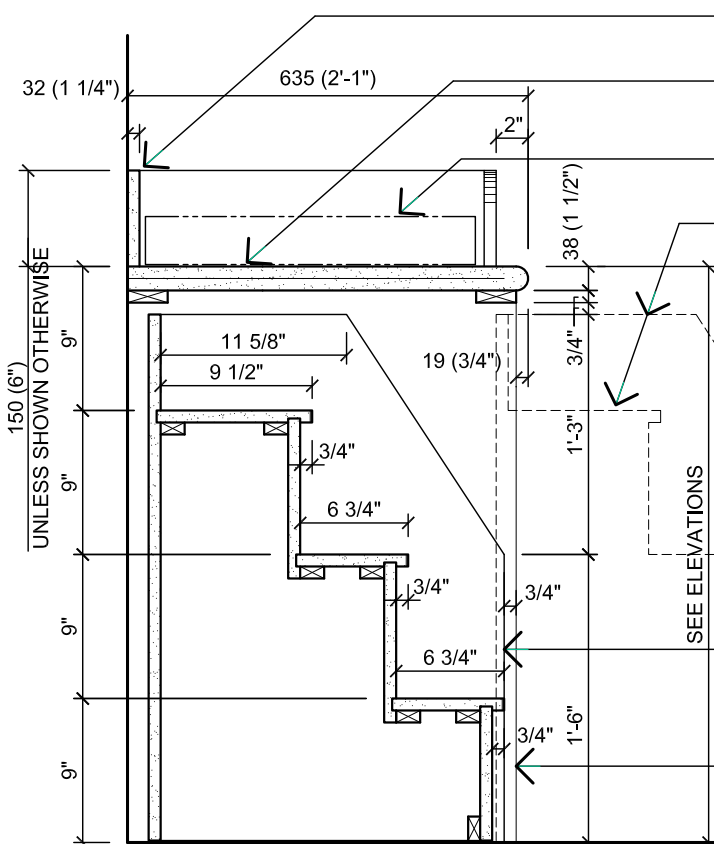
P.L.F. SURFACE CHANGE TABLE.  
75mm THICK UPHOLSTERED MATTRESS

**TYPICAL CONSTRUCTION**  
19mm (3/4") CORE MATERIAL W/ HARDWOOD VENEER AND 3mm P.V.C. EDGING ON ALL EXPOSED SURFACES.  
MITER ALL CORNERS.  
SECURE 6" (150mm) HIGH "RAILS" TO COUNTER SURFACE WITH CONCEALED FASTENERS.

LINE OF WALL.  
INSTALL CONT. CAULK.

**PLAN**

**TYPICAL CHANGE STATION**



INSTALL CONT. CAULKING AT WALL.  
TYPICAL.

POST FORMED P.L.F. PARTICLE BOARD CORE COUNTER TOP

P.L.F. SURFACE CHANGE TABLE.  
75mm THICK UPHOLSTERED MATTRESS

STEPS IN EXTENDED POSITION SHOWN DOTTED.

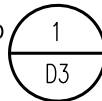
**TYPICAL PULL OUT STEP CONSTRUCTION**  
19mm (3/4") CORE MATERIAL W/ HARDWOOD VENEER AND 3mm P.V.C. EDGING ON ALL EXPOSED SURFACES.

LET-IN: TREADS TO GABLES AND RISERS,  
RISERS TO GABLES AND TREADS.

PROVIDE FULL EXTENSION HEAVY DUTY DRAWER GLIDES AND HARDWARE TO LOCK STEPS IN PLACE IN THE EXTENDED POSITION.  
LOCATE GLIDES AND PULL OUT STEP TO PROVIDE UNOBSTRUCTED OPERATION WHEN INSTALLED.

LINE OF STEP GABLE.

FACE OF MILLWORK BEYOND



**D3**

**PRESCHOOL DAY CARE ADDITION**  
**Ecole elementaire catholique**  
**Saint-Marguerite-Bourgeois**

60 Clench Avenue, Brantford, Ontario N3T 1B9

Millwork Details – Typical Change Str.

File No.: 21-42

Scale: As Shown

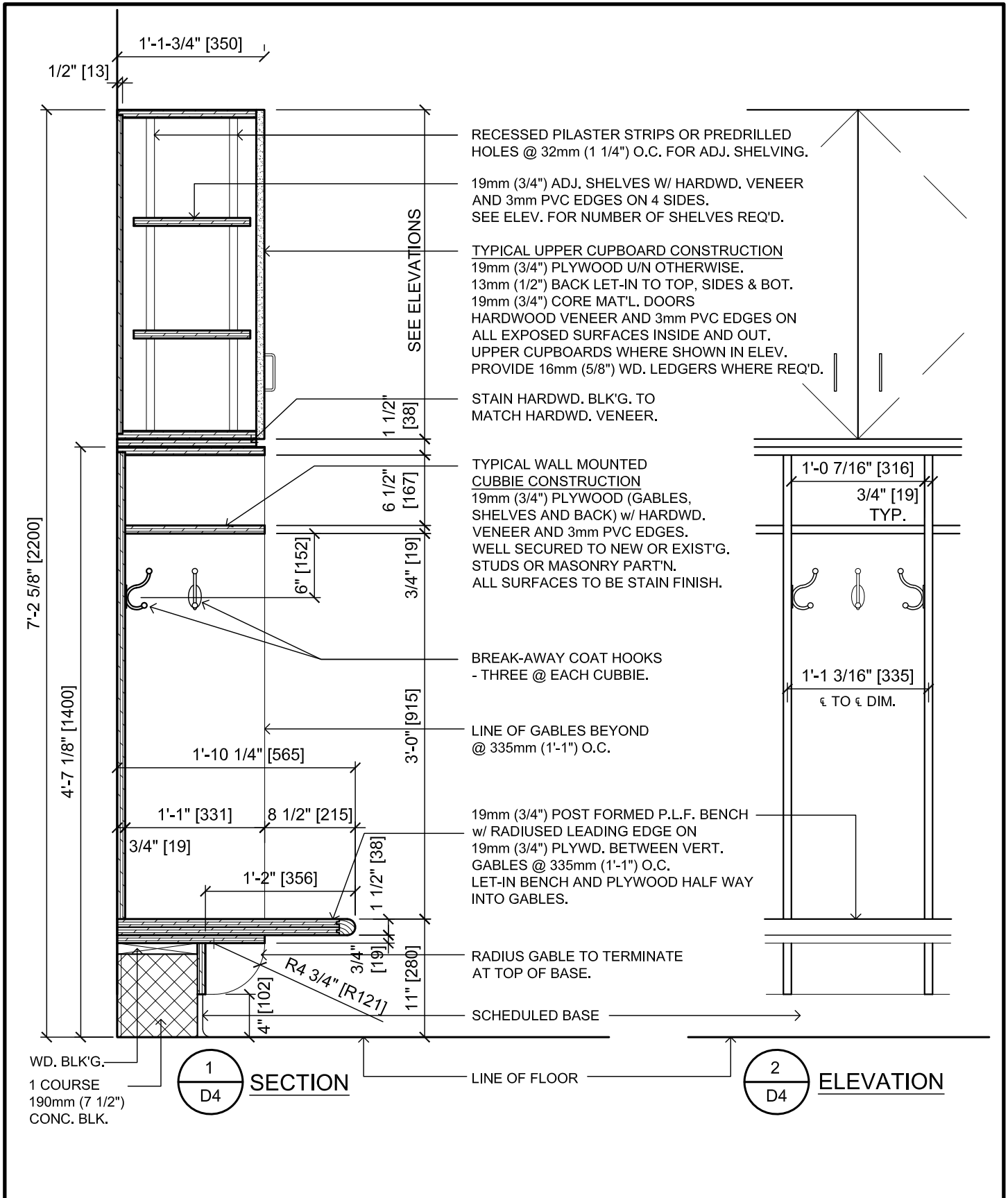
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Plot Date: JAN. 15, 2025

Issue Date:



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RECESSED PILASTER STRIPS OR PREDRILLED HOLES @ 32mm (1 1/4") O.C. FOR ADJ. SHELVING.

19mm (3/4") ADJ. SHELVES W/ HARDWD. VENEER AND 3mm PVC EDGES ON 4 SIDES. SEE ELEV. FOR NUMBER OF SHELVES REQ'D.

**TYPICAL UPPER CUPBOARD CONSTRUCTION**  
 19mm (3/4") PLYWOOD U/N OTHERWISE.  
 13mm (1/2") BACK LET-IN TO TOP, SIDES & BOT.  
 19mm (3/4") CORE MAT'L. DOORS  
 HARDWOOD VENEER AND 3mm PVC EDGES ON ALL EXPOSED SURFACES INSIDE AND OUT.  
 UPPER CUPBOARDS WHERE SHOWN IN ELEV. PROVIDE 16mm (5/8") WD. LEDGERS WHERE REQ'D.

STAIN HARDWD. BLK'G. TO MATCH HARDWD. VENEER.

**TYPICAL WALL MOUNTED CUBBIE CONSTRUCTION**  
 19mm (3/4") PLYWOOD (GABLES, SHELVES AND BACK) w/ HARDWD. VENEER AND 3mm PVC EDGES.  
 WELL SECURED TO NEW OR EXIST'G. STUDS OR MASONRY PART'N.  
 ALL SURFACES TO BE STAIN FINISH.

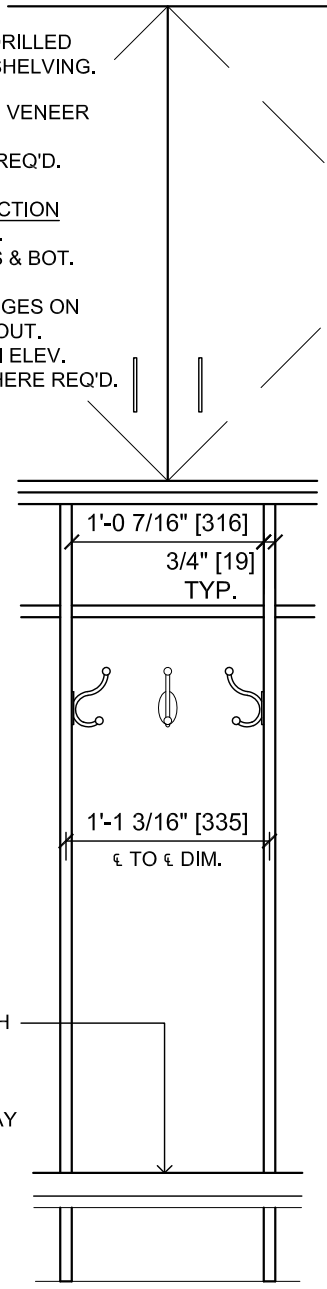
BREAK-AWAY COAT HOOKS - THREE @ EACH CUBBIE.

LINE OF GABLES BEYOND @ 335mm (1'-1") O.C.

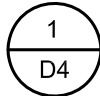
19mm (3/4") POST FORMED P.L.F. BENCH w/ RADIUSED LEADING EDGE ON 19mm (3/4") PLYWD. BETWEEN VERT. GABLES @ 335mm (1'-1") O.C. LET-IN BENCH AND PLYWOOD HALF WAY INTO GABLES.

RADIUS GABLE TO TERMINATE AT TOP OF BASE.

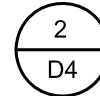
SCHEDULED BASE



WD. BLK'G.  
 1 COURSE  
 190mm (7 1/2")  
 CONC. BLK.



SECTION



ELEVATION

**D4**

**PRESCHOOL DAY CARE ADDITION**  
**Ecole elementaire catholique**  
**Saint-Marguerite-Bourgeois**

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WALL MNT'D. CUBBIE & UPPER CUPBD. DETAIL

File No.: 21-42

Scale: As Shown

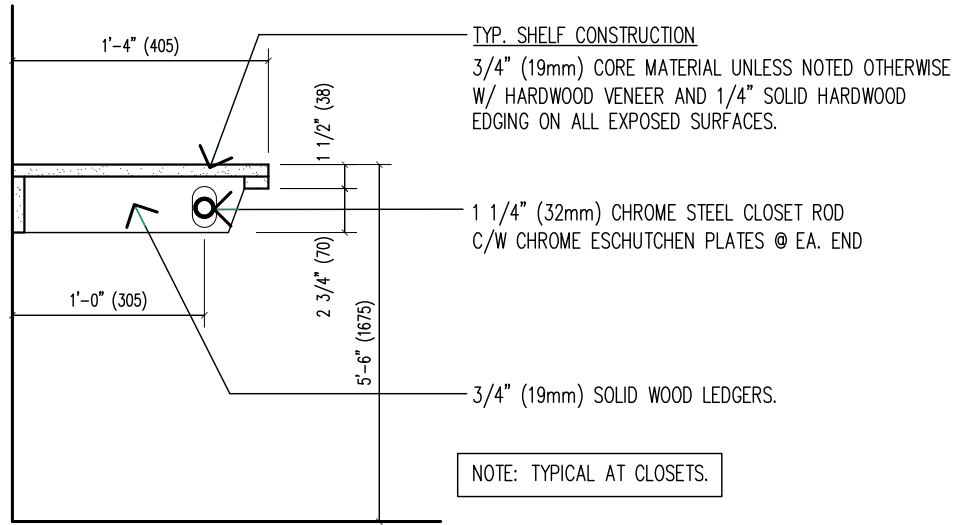
Drawn by: MZE

Plot Date: JAN. 15, 2025

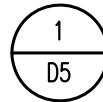
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TYPICAL CLOSET SHELF AND ROD



**D5**

**PRE-SCHOOL DAY CARE ADDITION**  
**Ecole elementaire catholique**  
**Saint-Marguerite-Bourgeois**

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TYPICAL CLOSET SHELF AND GABLE DETAILS

File No.: 21-42

Scale: As Shown

Drawn by: MZE

Plot Date: JAN. 15, 2025

Issue Date:



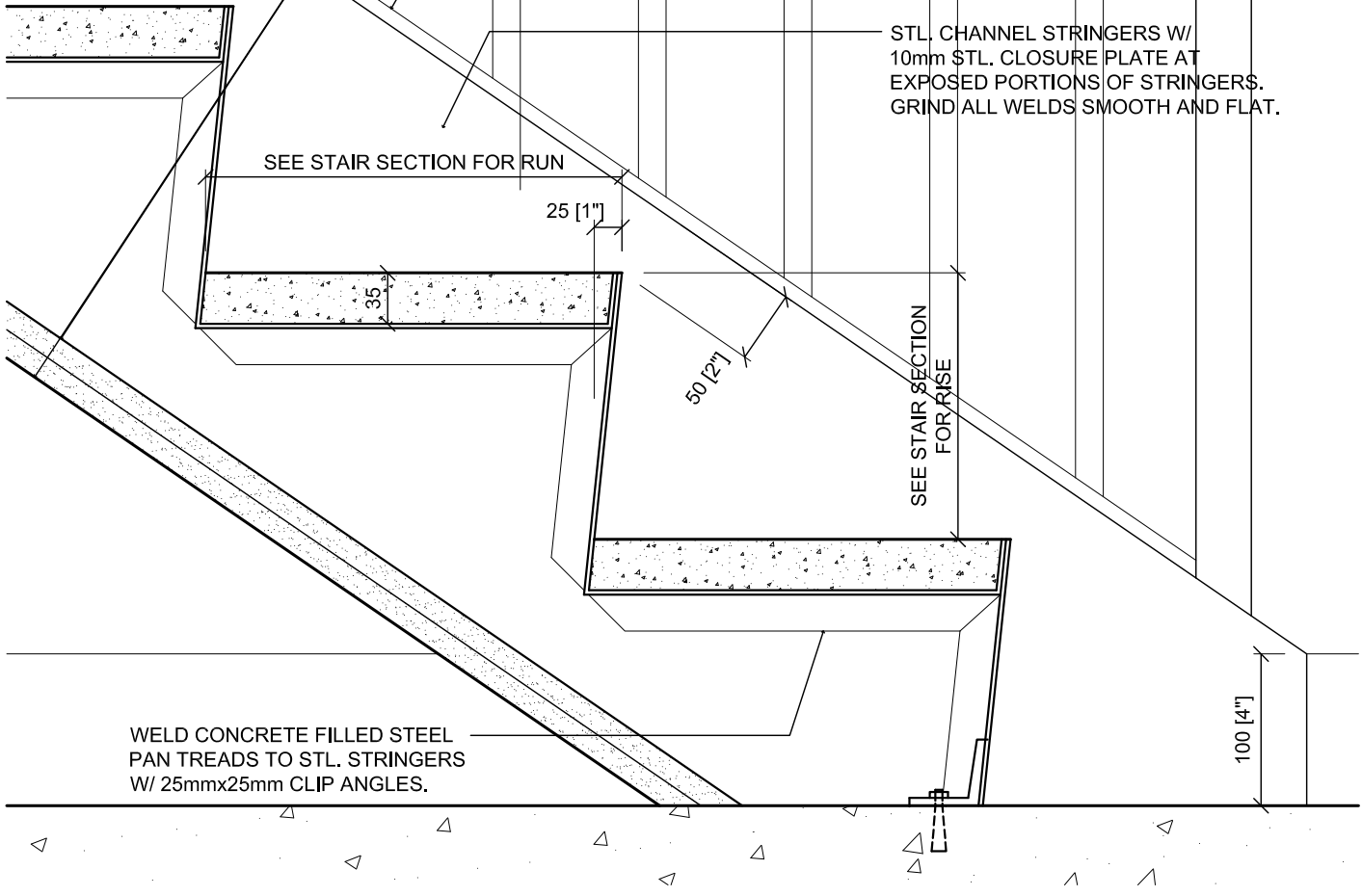
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NOTES:  
 PAINT ALL EXPOSED STAIR COMPONENTS.  
 SEE ALSO ROOM FIN. SCHEDULE FOR STAIR FINISH.  
 AT STAIRS WITH NO SCHEDULED FINISH - PROVIDE:  
 50mm [2"] VISUAL CONTRAST NOSING (HOR. AND VERT.),  
 3 NON-SLIP STRIPS FULL WIDTH OF TREADS.

INSTALL 2 LAYERS SUSPENDED  
 16mm TYPE X G.W.B. AT U/S STAIR.  
 INSTALL G.W.B. TRIMS TO SUIT AND  
 CAULK TO WALL(S) WITH CAULK  
 APPROPRIATE TO THE RATING.

STEEL BALUSTRADE:  
 38mm O.D. STL.PIPE TOP RAIL.  
 19mm DIA. STL BAR SPINDLES.  
 8mm x 25mm FLAT BOTTOM RAIL.  
 SECURE STEEL BALUSTRADE TO TOP  
 OF STRINGER.

STL. CHANNEL STRINGERS W/  
 10mm STL. CLOSURE PLATE AT  
 EXPOSED PORTIONS OF STRINGERS.  
 GRIND ALL WELDS SMOOTH AND FLAT.



WELD CONCRETE FILLED STEEL  
 PAN TREADS TO STL. STRINGERS  
 W/ 25mmx25mm CLIP ANGLES.

**D6**

**PRESCHOOL DAY CARE ADDITION**  
**Ecole elementaire catholique**  
**Saint-Marguerite-Bourgeoys**

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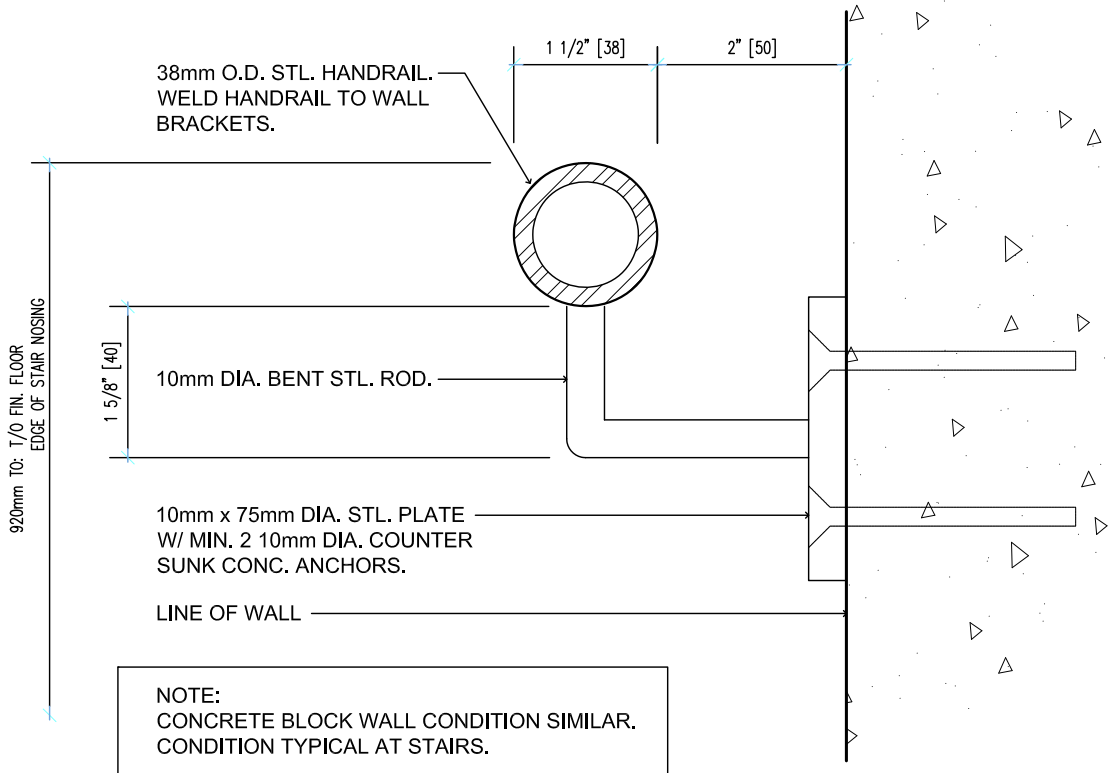
TYPICAL STEEL STAIR CONSTRUCTION

File No.:	21-42
Scale:	As Shown
Drawn by:	MZE
Plot Date:	JAN. 15, 2025
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**TYPICAL STEEL PIPE HANDRAIL**

**D7**

**PRESCHOOL DAY CARE ADDITION**  
**Ecole elementaire catholique**  
**Saint-Marguerite-Bourgeois**

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TYPICAL WALL MTD. HANDRAIL DETAIL

File No.: 21-42

Scale: As Shown

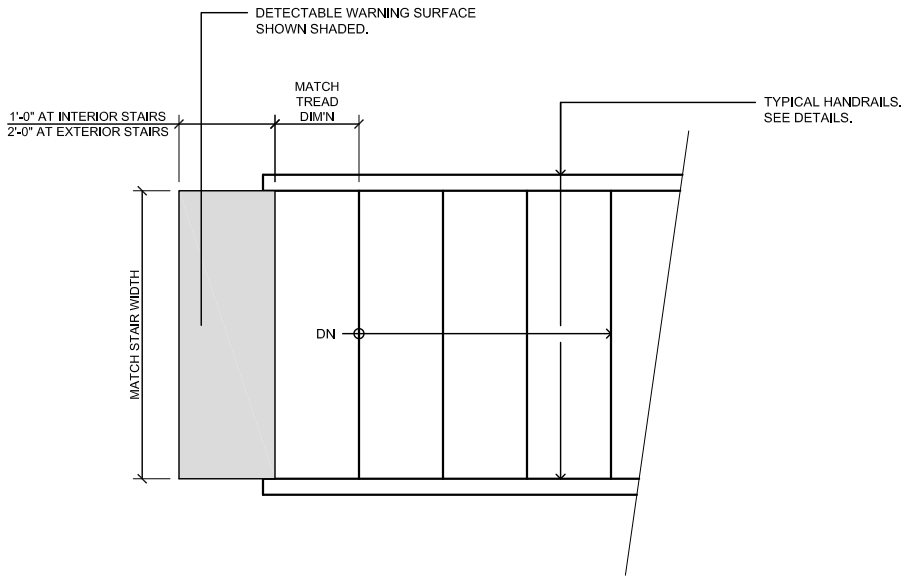
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TYPICAL STAIR CONDITION

NOTES:  
 - INSTALL A DETECTABLE WARNING SURFACE AT THE TOP OF INTERIOR STAIRS AT EACH FLOOR LEVEL.  
 - WARNING SURFACES TO BE OF CONTRASTING COLOUR TO THE ADJACENT FLOOR FINISH.  
 - SEE SPECIFICATION FOR TYPE OF WARNING SURFACES TO BE INSTALLED.

**D8**

**PRESCHOOL DAY CARE ADDITION  
 Ecole elementaire catholique  
 Saint-Marguerite-Bourgeoys**

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TYPICAL DETECTABLE WARNING SURFACE

File No.: 21-42

Scale: As Shown

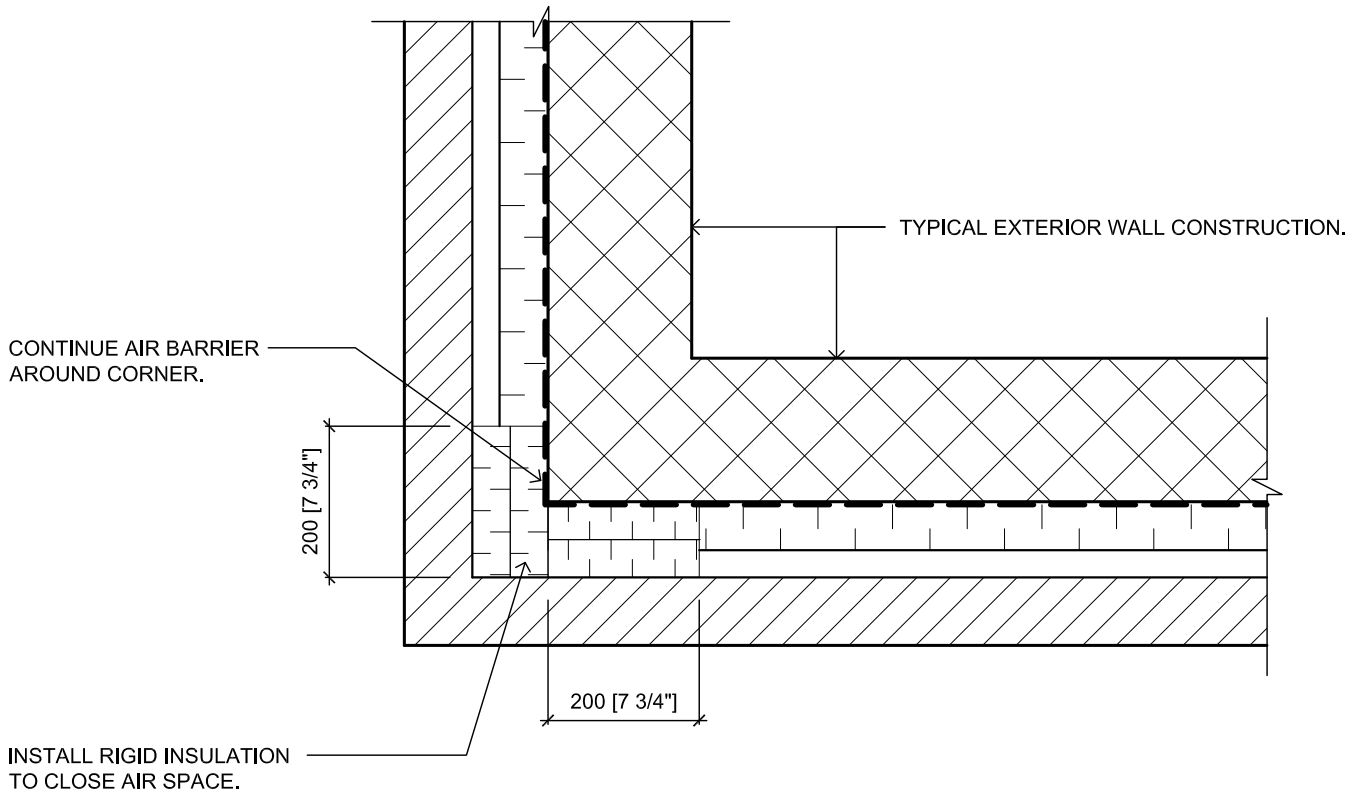
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- NOTES:**
- EXTERIOR CORNER CONDITION SHOWN.
  - INTERIOR CORNER CONDITION SIMILAR.
  - BRICK VENEER SHOWN.
  - SEE BUILDING ELEVATIONS FOR VENEER TYPE(S).
  - INSTALL RIGID INSULATION AT CORNERS OR AT FLAT WALL SURFACES TO PROVIDE COMPARTMENTS WITH A MAX. 10m HOR. DIMENSION.

**D9**

**PRESCHOOL DAY CARE ADDITION  
Ecole elementaire catholique  
Saint-Marguerite-Bourgeoys**

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TYPICAL WINDOW HEAD AND SILL DETAIL

File No.: 21-42

Scale: As Shown

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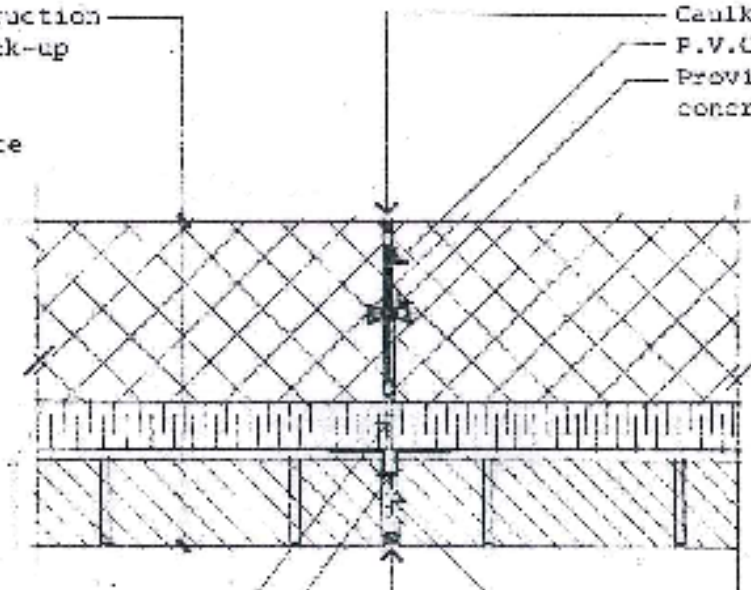


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Cavity wall construction  
 Concrete block back-up  
 Rigid Insulation  
 Air Space  
 Brick or Block Face

Caulking  
 P.V.C. waterstop  
 Provide saw cut in  
 concrete block back up



Cut insulation at control joint  
 P.V.C. expansion joint

Joint filler  
 Caulking

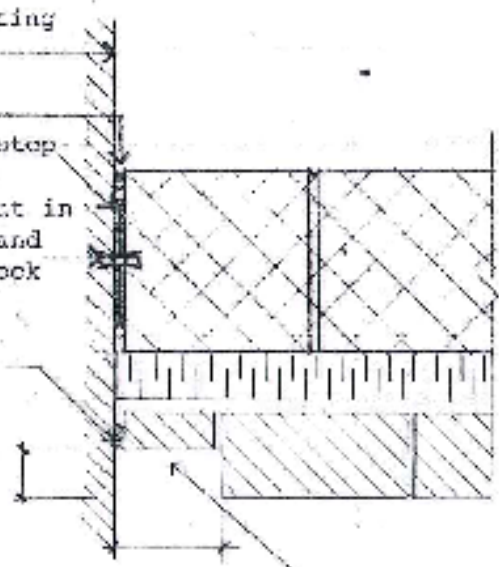
TYPICAL CAVITY WALL CONTROL JOINT

Line of Existing Wall

Caulking  
 P.V.C. waterstop

Provide sawcut in  
 exist. wall and  
 new conc. block

Joint filler  
 caulking



Provide reglet in  
 brick or block face

TYPICAL WALL CONNECTION DETAIL

**D10**

**PRESCHOOL DAY CARE ADDITION**  
**Ecole elementaire catholique**  
**Saint-Marguerite-Bourgeois**

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TYPICAL WALL CONDITION DETAILS

File No.: 21-42

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PREFIN. MTL. SCUPPER WITH  
SUMP SLOPED TO DRAIN.

PREFIN. MTL. FLASHING

200mm [8"]

SUIT PARAPET  
CONSTRUCTION

CONTINUE MEMBRANE  
FLASHING UP AND  
OVER PARAPET.

TYPICAL PARAPET  
CONSTRUCTION.

MEMBRANE FLASHING OVER  
MTL. SCUPPER.

TYPICAL CANT

ROOF MEMBRANE  
(BUILT-UP MEMBRANE SHOWN).

**NOTES:**

- DETAIL SHOWN WITH CONSTRUCTION CUT AWAY TO ILLUSTRATE INSTALLATION.
- PROVIDE TYPICAL ROOF AND PARAPET CONSTRUCTION.
- SEAL FLASHINGS TO SCUPPER.
- KEEP GRAVEL BALLAST (WHERE SPECIFIED) OUT OF SCUPPER. INSTALLATION OF GRAVEL STOP AT SCUPPER OPENING IN PARAPET OPTIONAL.
- SEE MECH. DRAWINGS FOR SIZE OF DRAIN AND R.W.L.

## SCUPPER DETAIL FOR LOW PARAPET

SCALE: N.T.S.

# D11

**PRESCHOOL DAY CARE ADDITION**  
**Ecole elementaire catholique**  
**Saint-Marguerite-Bourgeys**

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SCUPPER DETAIL

File No.: 21-42

Scale: As Shown

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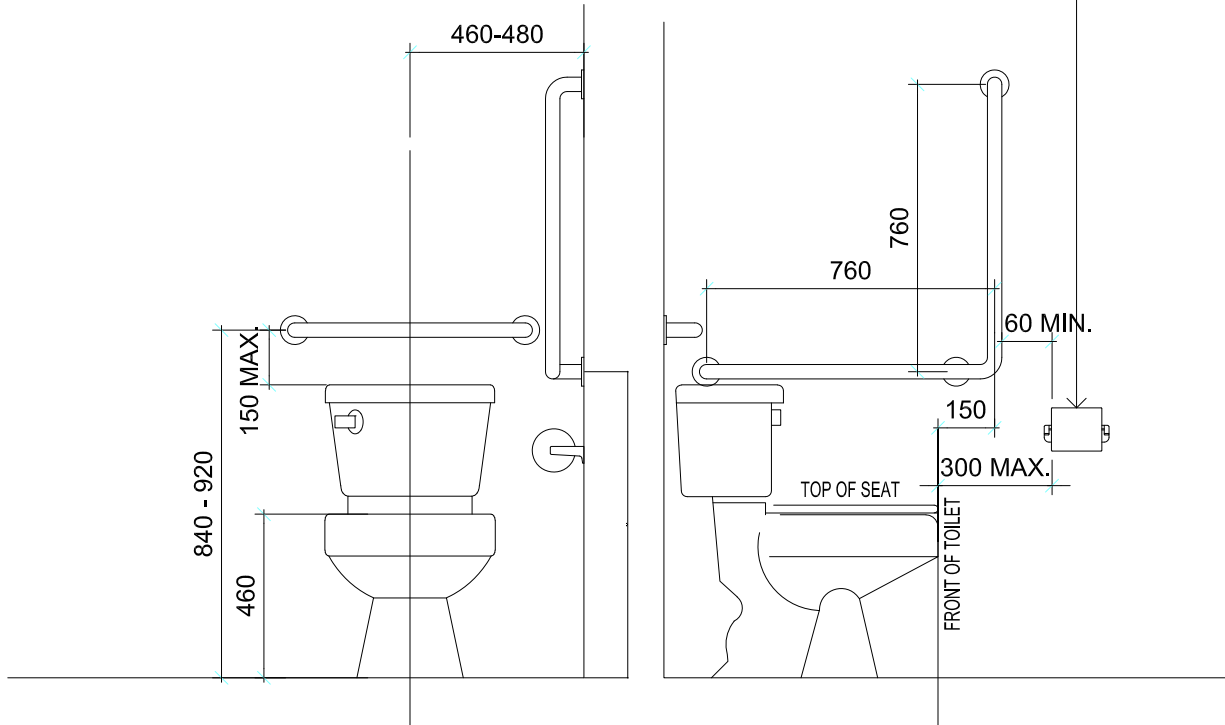


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GRAB BAR CONDITIONS SHOWN - SEE TYPICAL STUD WALL REINFORCEMENT DETAIL FOR ATTACHMENT TO METAL STUD WALLS.


TOILET TISSUE DISPENSER






**NOTES:**  
 HORIZONTAL GRAB BAR AT BACK OF TOILET MUST NOT INTERFERE w/ W.C. SEAT LID IN UP POSITION FOR FLUSH VALVES OR WITH ACCESS TO THE TANK ON TANK TYPE WATER CLOSETS - SHOWN.

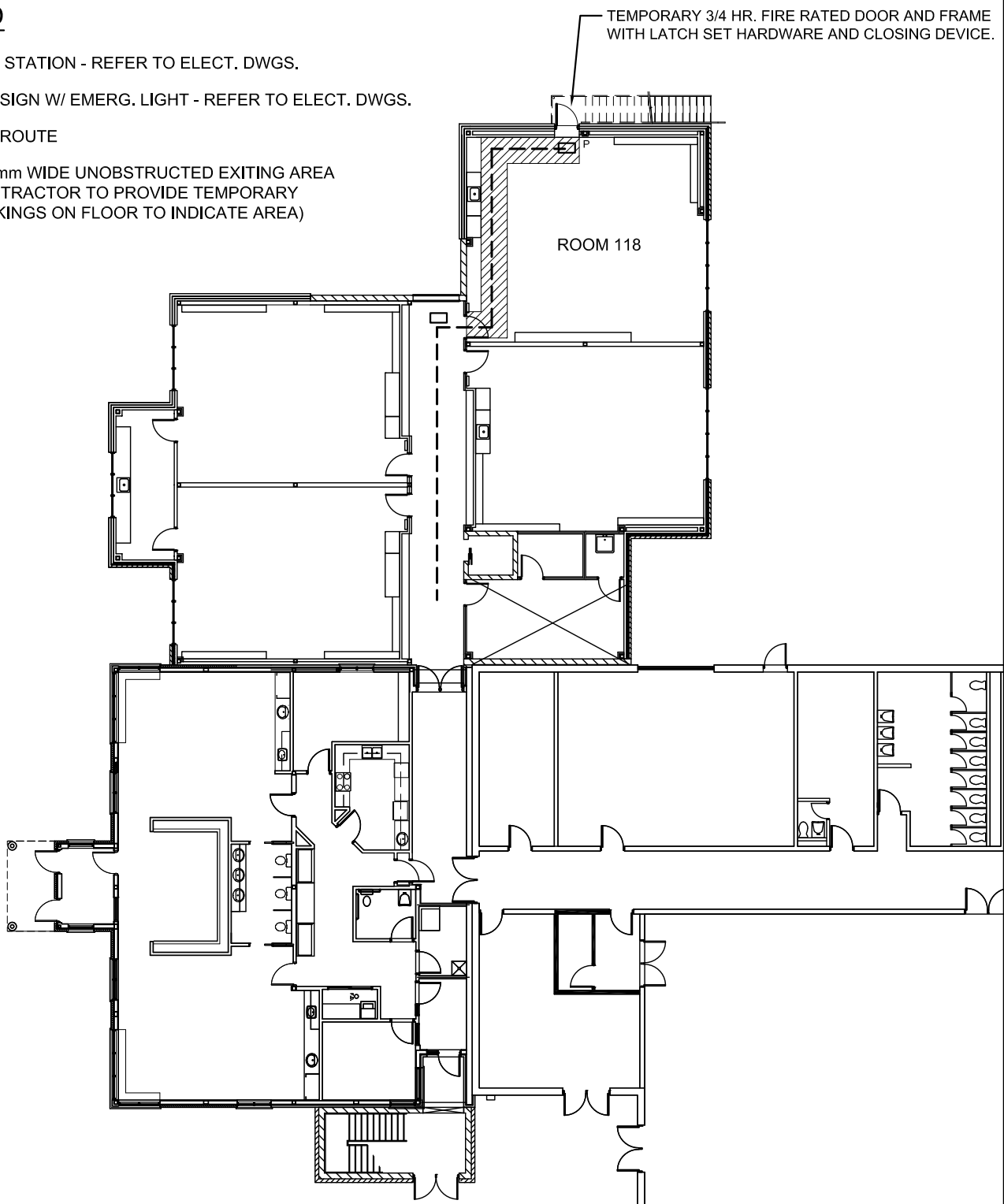
## GRAB BAR CONDITION FOR ACCESSIBLE WASHROOMS

SCALE 1:20 METRIC

<h1>D12</h1>	<b>PRESCHOOL DAY CARE ADDITION</b> <b>Ecole elementaire catholique</b> <b>Saint-Marguerite-Bourgeois</b>	File No.: 21-42	 <b>architecture design inc</b> 96 Church St./St.Catharines/Ontario / L2R 3C8 / 905.685.8467 info@mzearchitects.com / www.mzearchitects.com	<b>OWNERSHIP AND USE OF DRAWINGS</b> Drawings and Specifications "as instruments of professional service" are, and shall remain, the property of the architect. These documents are not to be used in whole, or in part, for any other projects or purposes, or by any other parties than those properly authorized by contract, without the specific written authorization of MZE Architects Inc. © copyright, MZE Architects Inc.
	60 Clench Avenue, Brantford, Ontario N3T 1B9	Scale: As Shown		
	GRAB BAR DETAILS	Drawn by: MZE		
		Plot Date: JAN. 15, 2025		
		Issue Date:		

# LEGEND

- P** PULL STATION - REFER TO ELECT. DWGS.
-  EXIT SIGN W/ EMERG. LIGHT - REFER TO ELECT. DWGS.
-  EXIT ROUTE
-  1100mm WIDE UNOBSTRUCTED EXITING AREA  
(CONTRACTOR TO PROVIDE TEMPORARY MARKINGS ON FLOOR TO INDICATE AREA)



## NOTES:

CONTRACTOR IS TO PROVIDE:  
 NOTIFICATION PROCEDURES FROM CONTRACTORS TO SCHOOL STAFF IN THE EVENT OF FIRE  
 OWNER IS TO:  
 CONDUCT MONTHLY FIRE DRILLS FOR STUDENTS AND STAFF USING THE TEMPORARY EXITS AT ROOMS 118 AND 218.  
 MAINTAIN CLEAR PASSAGE WITHIN THE DESIGNATED UNOBSTRUCTED EXITING AREAS AT ROOMS 118 AND 218 TO THE EXTERIOR.

# FP1

**PRESCHOOL DAY CARE ADDITION**  
**Ecole elementaire catholique**  
**Saint-Marguerite-Bourgeoys**

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TEMP. FIRE PLAN - PARTIAL GROUND FLOOR

File No.: 21-42

Scale: As Shown

Drawn by: MZE




Plot Date: JAN. 15, 2025

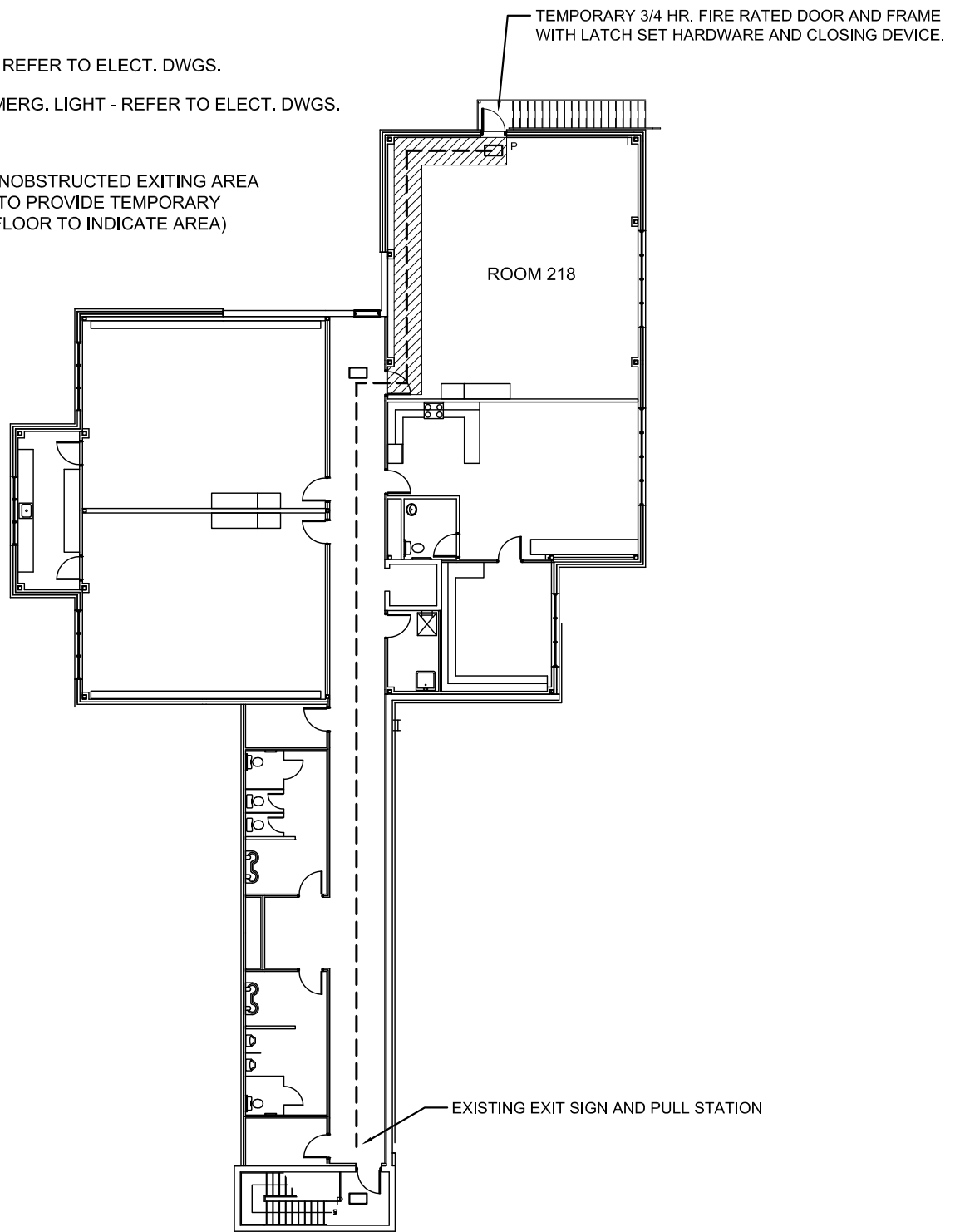
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# LEGEND

- P** PULL STATION - REFER TO ELECT. DWGS.
-  EXIT SIGN W/ EMERG. LIGHT - REFER TO ELECT. DWGS.
-  EXIT ROUTE
-  1100mm WIDE UNOBSTRUCTED EXITING AREA  
(CONTRACTOR TO PROVIDE TEMPORARY MARKINGS ON FLOOR TO INDICATE AREA)



## NOTES:

CONTRACTOR IS TO PROVIDE:  
 NOTIFICATION PROCEDURES FROM CONTRACTORS TO SCHOOL STAFF IN THE EVENT OF FIRE  
 OWNER IS TO:  
 CONDUCT MONTHLY FIRE DRILLS FOR STUDENTS AND STAFF USING THE TEMPORARY EXITS AT ROOMS 118 AND 218.  
 MAINTAIN CLEAR PASSAGE WITHIN THE DESIGNATED UNOBSTRUCTED EXITING AREAS AT ROOMS 118 AND 218 TO THE EXTERIOR.

# FP2

**PRESCHOOL DAY CARE ADDITION**  
**Ecole elementaire catholique**  
**Saint-Marguerite-Bourgeois**

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TEMP. FIRE PLAN - SECOND FLOOR

File No.: 21-42

Scale: As Shown

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